

OREGON



WATER RESOURCES
DEPARTMENT

2019 Solicitation

Water Project Grants and Loans

Grant Application

Application Deadline: By 5:00pm on April 26, 2019

Application must be received by this date and time

Send application electronically to: [WRD DL waterprojects@oregon.gov](mailto:WRD_DL_waterprojects@oregon.gov)

Mail application to:

**OREGON WATER RESOURCES DEPARTMENT
Attention: Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, OR 97301**

Application Submission Instructions

1. Complete Sections I through X in the spaces provided. **Use the grant application instructions and Guidance on the Evaluation of Public Benefits when completing your application.** All resources are available at the [Water Project Grants and Loans webpage](#).
2. Taking part in a Pre-Application Conference prior to applying is *highly* recommended. The pre-application conference request form is available at the Water Project Grants and Loans, Applications, Forms and Guidance webpage. To learn more contact the Department.

3. Complete and sign the application checklist.
4. An application must be submitted on the attached form provided by the Department and may not be altered for the purpose of formatting or changing the document structure.
5. Please ensure that the Certification portion of Section II is signed with a live signature by the Applicant and, if applicable, the Co-Applicant.
6. Electronic application submission is the preferred method. You may scan a copy of the signed signature page and submit it with your application as long as both documents are included in the same email.
7. If application is submitted in hard copy - use 8 ½" x 11" single sided, unstapled pages. Provide any attachments to the application on 8 ½" x 11" single-sided, unstapled pages.
8. Contact the Department 503.986.0869 or WRD_DL_waterprojects@oregon.gov if you have any questions.

Water Project Grants and Loans Application Checklist

Instructions: Use this checklist to ensure that your application is complete. An incomplete application may be deemed ineligible for further review and consideration. Checklist sections A and B must be completed and the checklist signed in order for your application to be considered complete.

Application Checklist Must Be Completed and Signed

SECTION A - Application

I. Project Information

- Project name and type(s) is complete and correct.
- The requested grant amount does not exceed 75% of the total cost of the project.

II. Applicant Information

- All applicant and co-applicant name(s) and contact information is complete and correct.
- Application is signed by Applicant/Authorized Person.
- Application is signed by Co-Applicant/Authorized Person *OR* there is no co-applicant.

Note: If the project is awarded funding the co-applicant will be required to sign and be party to the grant agreement.

III. Eligibility

- All questions have been addressed.

- The project addresses instream and/or out-of-stream need.

IV. Project Summary

- Project summary does not exceed 5 sentences.

V. Project Location

- All questions have been addressed.

VI. Project Specifics

- All questions have been addressed.
- Each project task is identified and includes task schedule, description of task activities, and permits/regulatory approvals needed for the task.

VII. Public Benefits

- All questions have been addressed.
- Public benefit is identified in each of the three public benefit categories.

VIII. Project Budget

- All budget items are allowable costs as identified in the Department's Grant Budget Procedures and Allowable Cost document the OWRD Funding Opportunities Forms webpage.
- All budget task totals and addition of totals is correct.
- Key tasks listed in Project Budget (IX) match those identified in Questions 9 & 10.

IX. Match Funding Information

- Match funding table is complete.

X. Storage-Specific Project Requirements (if applicable)

- All questions have been addressed OR the application is not for a storage project.

SECTION B - Application Attachments

Instructions: Use this checklist to ensure required attachments are included with your application. All attachments to the application must be numbered as well as included in this list. For all attachments ensure documentation meets any criteria identified in the application instructions or Guidance on Budget Procedures and Allowable Costs. For "other" optional attachments in excess of the three spaces provided, include a supplemental list.

Required Attachments:

- Attachment 1 – Site map (Question 2)
- Attachment 2 – Property access authorization (Question 4) includes the following:
 - a) Evidence addresses all the requirements of Question 4 including awareness

that monitoring information is public record for private lands.

b) If evidence includes landowner awareness and agreement to the proposal, documentation is from the landowner and includes current contact information.

Attachment 3 – Documentation of matching funds (Section IX) includes the following:

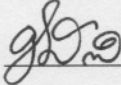
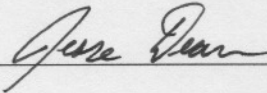
a) Match documentation for all match fund sources listed in the match fund table.

b) Match fund documentation that clearly identifies the dollar amount and describes the work to be accomplished with the match.

Optional Attachments:

- Project feasibility documentation (Question 6): Attachment #
- Letters of support (Question 8): Attachment # 4
- Plans, designs, and/or engineering specifications: Attachment #
- Secured permits and regulatory approvals needed to implement the project (Question 15): Attachment #
- Other: Data Attachment #5
- Other: Attachment #
- Other: Attachment #

All required items within Section A and B of the application checklist are completed and all identified criteria are addressed to the best of my knowledge.

Signature of Applicant/Authorized Person:   Date: 5/3/19
Print Name: Rachel & Jesse Dean Title: Co-
Owners, Green Valley Farm & Logistics, LLC

Water Project Grants and Loans

Grant Application

I. Project Information

Project Name: Calapooya Creek Conservation Project

Project Type: Conservation Reuse Flow Restoration and Protection
 Above-Ground Storage Below-Ground Storage
 Water Infrastructure Other: Irrigation Conversion

Grant Funding Requested (must be no more than 75% of Total Cost of Project): \$ 155,106

Match Funding (must be no less than 25% of Total Project Cost): \$51,702

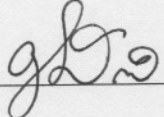
Total Cost of Project: \$206,808

II. Applicant Information

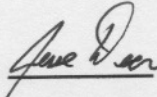
Applicant Name: Green Valley Farm and Logistics, LLC Co-Owners: Rachel & Jesse Dean	Co-Applicant Name:
Address: 2005 Green Valley Rd Oakland, Oregon 97462	Address:
Phone: (503) 319-7638	Phone:
Fax:	Fax:
Email: thegreenvalleyfarmllc@gmail.com	Email:

Principle Contact: Rachel Dean: Grant Manager	Fiscal Officer: Rachel Dean
Address: 2005 Green Valley Rd Oakland, Oregon 97462	Address: 2005 Green Valley Oakland, OR 97462
Phone: (503) 319-7638	Phone: (503) 319-7638
Fax:	Fax:
Email: thegreenvalleyfarmllc@gmail.com	Email: thegreenvalleyfarmllc@gmail.com

Certification: I certify that this application is a true and accurate representation of the proposed work and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant and Co-Applicant (if applicable) certify that they are aware of the requirements of an Oregon Water Resources Department funding award, have read and are aware of conditions within the example grant agreement and are prepared to implement the project, if awarded.

Signature of Applicant/Authorized Person:  Date: 5/3/19

Print Name: Rachel Dean Title: Grant Manager & Co-Owner, Green Valley Farm and Logistics, LLC

Signature of Co-Applicant/Authorized Person:  Date: 5-3-19

Print Name: Jesse Dean Title: Co-Owner, Green Valley Farm and Logistics, LLC

III. Eligibility

Select applicant entity type for both applicant and co-applicant (if applicable).

<input type="checkbox"/>	City	<input type="checkbox"/>	Oregon County
<input type="checkbox"/>	Port	<input type="checkbox"/>	Irrigation District
<input type="checkbox"/>	Drainage District	<input type="checkbox"/>	Water Improvement District
<input type="checkbox"/>	Water Control District	<input type="checkbox"/>	Non-Profit Organization
<input type="checkbox"/>	Soil and Water Conservation District	<input type="checkbox"/>	Corporation
<input checked="" type="checkbox"/>	Partnership (LLC)	<input type="checkbox"/>	Sole Proprietorship
<input type="checkbox"/>	Cooperative	<input type="checkbox"/>	Indian tribe
<input type="checkbox"/>	State of Oregon Agency	<input type="checkbox"/>	Individual
<input type="checkbox"/>	Federal Agency	<input type="checkbox"/>	Other:

To be eligible for funding a project must address an instream and/or out-of-stream water supply need and result in project implementation. Does the project address an instream and/or out-of-stream water supply need and result in project implementation? Yes No

Provide a brief, one to two paragraph description of the water supply need that the project intends to address. Please reference (and attach) supporting data or reports that document the need.

The proposed Calapooya Creek Conservation Project represents a collaborative effort to satisfy two water supply needs: 1) the irrigation water required by the Green Valley Farm and Logistics, LLC; a small family farm operated by the Dean Family who depend on production from their land for their livelihood; and 2) the instream water needed to sustain the health of the Calapooya Creek. The landowners currently use hand-lines to irrigate approximately 80 acres (of a 96 acre water right) while operating cattle and producing annual hay crops. Their main supply of irrigation is at risk every year due to priority shut off dates and low river flows. The proposed project will allow the operators of the Green Valley Farm to transition from cattle and hay production, as well as antiquated irrigation strategies, to a highly efficient drip irrigation system and agricultural crops; thus reducing the amount of water being used in the Calapooya Creek, bank erosion and green house gas emissions. Through the proposed irrigation efficiency upgrades, the operators of the Green Valley Farm will be able to ensure continued and increased productivity as well as actively contribute to the health of the adjacent river system through increased flow, reduced sediment, and climate smart agricultural practices. The project is expected to leave .48 cubic feet per second (cfs) of water in the Calapooya Creek, or roughly 178 gallons per minute.

The Calapooya Creek is considered critical habitat for ESA listed species: winter steelhead, cutthroat trout, coho, and fall chinook; while being listed for dangerous temperature levels, dissolved oxygen, imbalanced pH, and fecal coliform. In 2000, the Oregon Department of Environmental Quality (ODEQ) concluded significant sources of mercury and arsenic

contamination from the Bonzana Mine operation from the 1800s until 1960. Introduced fish have not been able to establish resident populations due to riparian areas consisting primarily of thin strips of hardwoods with brush, blackberries, poor levels of woody debris and poor riffles. The Calapooya Creek watershed has limited water quality, flow modification and is primarily under private ownership: which makes it a strong candidate for private landowners to participate in irrigation efficiency programs, riparian planting, blackberry conversion, a reduction in livestock along stream lines to reduce bank erosion, and conservative and educated uses of fertilizers in a stream-friendly fashion. This project will directly address these identified instream needs while improving agriculture production on private land, in collaboration with local Watershed council groups and school programs for further educational opportunities. (Attachment 5: Oregon Explorer Calapooya Creek Watershed Key Statistics)

Is either the Applicant or Co-Applicant required to have a Water Management and Conservation Plan? Yes No

If yes, has the plan been submitted to the Water Resources Department and received approval? Yes No

Note: Pursuant to ORS 541.659 if an applicant is required to have a water management and conservation plan, the plan must be submitted to the Water Resources Department and receive approval prior to department acceptance of an application for a loan or grant from the account.

IV. Project Summary

Provide a brief, 4-5 sentence summary of the proposed project. This summary should include a brief description of the goal and scope of the project as well as summarize project implementation (i.e., planned infrastructure or activity). Please refer to the Water Project Grants and Loans Application Instructions for additional information on what to include in your project summary.

The proposed Calapooya Creek Conservation Project would convert approximately 80 acres of a 96 acre water right from antiquated hand-line irrigation, cattle and hay production; to approximately 60 acres of agricultural crops utilizing water-efficient drip lines; improving water management and crop productivity on privately owned Calapooya creekside land in Douglas County. The project will improve instream flows for ESA listed species: winter steelhead, cutthroat trout, coho and fall chinook in the Calapooya Creek by legally protecting approximately .48 cfs in conserved water instream, or 178 gpm through the Allocation of Conserved Water Program. Collaboration in a multi-year plan with the CREP program will ensure the restoration of the natural ecosystem of the river bank riparian areas and water quality of the Calapooya Creek through the removal of invasive plants, replanting of native shrubs, trees and bird box installations. By switching from cattle and hay production to agricultural crops utilizing climate smart farming practices; green house gas emissions and further bank erosion will be decreased to enable the proposed project to directly address identified instream needs by eventually lowering the temperature of the creekside in the replanted riparian areas, a reduction

in fertilizer run off and salmon habitat restoration. Finally, by using the Green Valley property as a "demonstration farm," already identified school programs such as Oakland High School's FFA (Future Farmers of America) will be actively engaged learning about water conservation techniques and promoting future local efforts; in collaboration with local watershed councils such as PUR (Partnership for Umpqua Rivers), UNLSH (Umpqua Natural Leadership STEM Hub), and Umpqua Watersheds; to monitor and collect data.

V. Project Location

Instructions: Please answer the following questions about the location of the proposed project.

1. Please provide the following information about the project location.
 - a. Latitude/Longitude (in decimal degrees): 43.417697 / -123.333297
 - b. County: Douglas County
 - c. Watershed/Basin: Calapooya Creek/Umpqua Basin, HUC: 38942

2. Please attach and label, Attachment #1, a site plan map showing the following:
 - a. Project area boundaries
 - b. True north arrow
 - c. Map title and legend
 - d. Latitude and longitude of project location
 - e. Property boundaries
 - f. Tax Map and Lot numbers of each property in project area boundary and listed in Question #3
 - g. Surface water bodies
 - h. Location of involved structures (existing or proposed)
 - i. Proposed measurement locations (if applicable)

3. In the table below, identify any properties on which the project would occur and/or that would be impacted or accessed by project implementation. *Add rows as needed.*

Tax Lot ID	Ownership Type (✓ One)	Property Owner of Record	Will ground disturbing activity occur on this land? (One)	Identify the type and extent of ground disturbing activity (e.g. borings, test pits, excavation, new road construction etc.)
800 900	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Private	Kurt and Veronica Spencer	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Mainline pipe trenching, Riparian Zone Restoration activity
	<input type="checkbox"/> Public <input type="checkbox"/> Private		<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<input type="checkbox"/> Public <input type="checkbox"/> Private		<input type="checkbox"/> Yes <input type="checkbox"/> No	

<input type="checkbox"/> Public		<input type="checkbox"/> Yes	
<input type="checkbox"/> Private		<input type="checkbox"/> No	

4. For each property listed in Question #3, attach a Landowner Agreement form. Attach Landowner Agreement form(s) and label Attachment #2.
- Where a single landowner entity is the owner of record for multiple properties, one form may list the multiple properties owned by that entity.
 - For *public* lands attach the landowner form or other documented authorization from the federal or state government property owner allowing project implementation or documentation that demonstrates such authorization is being pursued.

VI. Project Specifics

Instructions: Please answer the following questions.

Project Description, Needs, and Goals

5. Provide additional information (building on the project summary) to further describe the proposed project and the project goal.

The Calapooya Creek Conservation Project intends to convert a 96 acre water right that has typically utilized approximately 80 acres for hand-line irrigation that supplied annual hay and cattle production; to roughly 60 acres of drip irrigation on a high value agricultural crop. Utilizing climate-smart agricultural practices such as mulch over the drip lines, fertilizer application through the drip system and the removal of the cattle from the property; water quality issues within the Calapooya Creek will be improved. Drip lines have proven to be far more efficient than hand line irrigation by saving water through precise application, a reduction in flooding and reduced evaporation. Upon analysis of the proposed property; approximately .48 cfs will be legally protected through the Allocation of Conserved Water Program. An efficient irrigation pump will be installed at the point of diversion with fish screens and flow meters for aquatic preservation, as well as wildlife protection and data collection. By transitioning from cattle and hay production to high value agricultural crops, green house gas emissions and creek side erosion are reduced long term.

The main goal of the Calapooya Creek Conservation Project intends to address the identified instream needs of the highly contaminated Calapooya Creek which currently suffers from a variety of serious water quality issues. According to data from the Oregon Explorer Natural Resources Digital Library, the Calapooya Creek provides habitat for ESA-listed species: winter steelhead, cutthroat trout, coho, and fall chinook. ODEQ has reported dangerous temperature levels, dissolved oxygen, imbalanced pH, fecal coliform, mercury, arsenic and poor fish habitat areas; which puts these ESA-listed species at high risk.

The Umpqua Basin Watershed Council (UBWC) has proposed real solutions for the conservation of the Calapooya Creek which include: improving irrigation efficiency, working with interested private landowners who can establish healthy riparian zones, and furthering education in the community about water conservation. UBWC identified 91% of the 157,282 acres of the Calapooya Creek Watershed as "privately owned," which makes it critical for private landowners, such as Green Valley Farm and Logistics, to take initiative in water conservation efforts to repair the water quality of the creek and encourage additional local efforts from private land owners along the creek.

The owners of the Green Valley Farm intend to build their proposed project on the recommendations of the UBWC and data from ODEQ; in collaboration with local watershed councils and educational programs. The Oregon Department of Agriculture listed in November, 2018 under the Umpqua Basin Agricultural Water Quality Management Area Plan that cattle can contribute to bank erosion through intense and continual livestock exposure. There are roughly 1,892 feet of Calapooya Creek access on the property; therefore by removing cattle, this lengthy stretch of the river is protected from further erosion and livestock damage.

Green Valley Farm plans to collaborate with the Conservation Reserve Enhancement Program (CREP) in a multi-year plan to restore, maintain, and enhance the Calapooya Creek riparian areas to benefit the fish, wildlife, and water quality; specifically through the removal of blackberries, native planting of trees and shrubs, and the installation of bird boxes. There is current interest and active conversations in collaboration with local watershed council Partnership for the Umpqua Rivers (PUR) for salmon habitat restoration within the creek and data collection/monitoring through the local non-profit UNLSH (Umpqua Natural Leadership STEM Hub) for further scientific information gathering. There is active involvement with the Oakland High School FFA program to plan educational field trips to the property in the following academic year, utilizing Green Valley Farm as a "demonstration farm."

The owners of the Green Valley Farm have been actively engaged in responsible stewardship of their land to date and will continue to be advocates of water conservation. Their .25 acre vegetable garden utilizes mulch, drip irrigation and organic gardening techniques for conserving water. Rachel Dean, co-owner of Green Valley Farm, is actively involved on the Board of Directors at the Oakland pre-school; ensuring early childhood education on farming, water conservation and river health within the greater community. The Dean Family is also participating in County agreements for no pesticide spraying on the property to further ensure less pesticide run off into the creek. Jesse Dean, co-owner of the Green Valley Farm, has actively helped in past CREP work locally and in Eastern Oregon, through partnership with Tor S Ranch.

6. Provide evidence to demonstrate project feasibility. This may include the results of a feasibility study. Attach the results of the study or other evidence, as necessary.

The successful completion of the Calapooya Creek Conservation project provides evidence of project feasibility. Pacific Ag Systems, Inc., a local drip irrigation contractor, has completed preliminary designs and estimates for the proposed project. The owner has worked with grant projects in the past and is very familiar with the property and water supply systems, and has met with the owners of the Green Valley Farm to develop the system and discuss project feasibility. The landowner of the property is aware of all activity proposed and cooperating 100%. The Green Valley Farm is currently working on a proposal for the CREP program for implementation of proposed project goals to achieve successful completion of the project.

7. Describe partnerships and collaborative efforts associated with the planning or implementation of this project. Include a description of how parties of diverse interests worked, or will work together to achieve a common goal.

The Calapooya Creek Conservation Project will only be successful through a variety of partnerships with groups that have diverse interests and backgrounds, working together towards instream needs and restoration of the riparian areas on the property. The three main partnership groups include: 1) Federal programs such as OWRD, CREP and the Allocation of Water Conservation, 2) Ongoing collaboration with local watershed councils and non-profits such as PUR, UNLSH and Umpqua Watersheds; and 3) School groups, educational programs and neighbors.

Ongoing partnerships and collaborations with the CREP program will allow the completion of the proposed projects multi-phased goals addressing riparian health and water quality issues in the Calapooya Creek by removing blackberries, planting native shrubs and trees, and installing bird boxes; as well as opportunities for further data collection and documentation on the benefits of riparian restoration and health to the ecosystem. There are active conversations to facilitate our outreach with the Partnership for the Umpqua Rivers (PUR) to engage in salmon habitat restoration as well as with the non-profit Umpqua Natural Leadership STEM Hub (UNLSH) for further data collection and student monitoring. The initial steps have begun with the Allocation of Conserved Water through conversations on the application process to legally protect conserved water instream and will be completed this quarter.

The Green Valley Farm understands the importance of "demonstration farms" to further the educational opportunities for local school groups, watershed councils and neighboring farms. By collaborating with various organizations such as the local FFA chapter at the Oakland School, alternative schools and educational programs within the community, Green Valley Farm intends to have multiple field trip opportunities to discuss water conservation, CREP programs, and provide education for youth about the Calapooya Creek Umpqua Basin water quality challenges and opportunities. The Oakland FFA teacher and the Oakland High School has already established solid interest in sending students to the farm in the next academic year.

8. List letters of support (name and/or affiliation of sender is sufficient). Attach copies of the letters to your application.

George Seonbuchner, Douglas Soil & Water Director

Ken Carloni, Ph. D., UCC, Umpqua Watersheds, The Yew Creek Land Alliance

Melody Rudenko, Oakland resident & employee of Dept. of Fish & Wildlife

Ron Spencer, Owner: BioSync Industrices Inc.

Alan Bunce, Water Outreach Co-ordinator

Project Tasks

9. Identify tasks necessary for the proposed project using the following format and including as many tasks as necessary to implement the project. In the event that your proposed project receives grant funding, the tasks identified will be incorporated into your grant agreement as the "Project Description."

Note: Project management and administration are common functions within specified project tasks and not a separate project task. All cost match and grant budget funds must apply to the tasks identified below. See the Budget Procedures and Allowable Costs document for more.

For each Task Address the Following:

Task number. Key Task Title

- Task schedule: The approximate dates during which the key task will be completed.
- Description of key task activities: Include specific details of the task such as task purpose, planned approach, and proposed methods.
- Permits/Regulatory Approvals Required: List any permits or regulatory approvals required to conduct the task. All permits/regulatory approvals identified must also be listed in question 15 of this application.

Task 1. Complete Contractual Agreements & Obtain Regulatory Approvals

- Task schedule: January 2019 - March 2020
- Description of key task activities: Solicit and review Irrigation bids. Prepare and execute agreements between OWRD, CREP, Allocation of Conserved Water, local educational groups, Landowners and contractors.
- Permits/Regulatory Approvals Required: OWRD Grant Submission, CREP Agreement, Allocation of Conserved Water Plan, Educational Outreach Plan, and Irrigation Contracts

Task 2. Irrigation Conversion and Installation

- Task schedule: March 2020 - June 2020
- Description of key task activities: Secure OWRD Grant, Trench mainline pipe. Purchase drip irrigation materials, pump, fish screens, flow meters, piping and electrical materials. Coordinate with landowners and contractor on construction timelines, materials selection, hiring subcontractors and other project construction issues.
- Permits/Regulatory Approvals Required: OWRD Grant Acceptance

Task 3. CREP Project

- Task schedule: March 2021 - October 2021
- Description of key task activities: Removal of blackberry brambles and hawthorn groves. Native tree and shrub planting. Installation of bird boxes.
- Permits/Regulatory Approvals Required: CREP Agreement

Task 4. Educational Outreach, Monitoring and Reporting

- Task schedule: January 2019 - October 2021
- Description of key task activities: Coordinate with local FFA program in Oakland, alternative schools, watershed councils and local non-profits for multiple annual educational field trips. Prepare and submit semiannual progress reports, measure and report water diverted and used by the project before submitting the final report, prepare and submit final report. Conduct all other project management activities necessary to ensure timely completion of project construction before submitting the final report.
- Permits/Regulatory Approvals Required: Acceptance and approval of reports by OWRD

Copy and paste additional tasks as needed.

10. Project Task Scheduling – Estimated total project duration: January 2019 – October 2021 (1 year/10 months)

Place an “X” in the appropriate column to indicate when each Project Task would take place. Note that successful projects generally do not receive their first reimbursement until late Q1 or early Q2 of the year after application submission. Project tasks listed must match the tasks identified in Question 9.

Key Tasks (Add additional rows as needed)	Grant year				Grant Year				Grant Year			
	2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1) Complete Contractual Agreements & Obtain Regulatory Approvals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Irrigation Conversion and Installation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) CREP Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4) Educational Outreach, Monitoring and Reporting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Describe how you propose to measure and report the water diverted and used from the

proposed project. Include a proposed method, timing, frequency, and location of measurement in your proposal. If you have questions please contact the Department for more information.

Note: Funded projects are required by statute to “regularly measure and report the water diverted and used from the project” [ORS 541.692(3)].” The Department makes the final determination on the method, timing, frequency, and location of measurement. Grant funds can be used to pay for measurement and reporting expenses. If neither the existing infrastructure nor the proposed project divert water this requirement may not apply. Grant/loan funds can be used to pay for measurement and reporting expenses during the life of the grant.

The proposed project will replace hand-line irrigation with a drip line irrigation system. This will entail installation of a pumping station that will be equipped with a totalizing flow meter.

- Method: Totalizing Flow Meter: Mcrometr, 4” M304
- Timing: The meter would continuously measure water diverted during the irrigation season.
- Frequency: During the irrigation season we would measure the instantaneous pumping rate daily as well as the cumulative totals weekly or as otherwise required by the Department.
- Location: The new pump station and totalizing flow meter would be located at GPS coordinates (43.414741, -123.332143).
- Reporting: Water diverted and used would be reported to the Department annually or more frequently as may be required by the Department.

12. Provide suggestions for interim and long-term project performance benchmarks.

Suggested short-term interim benchmarks include the successful and timely completion of all the project tasks as outlined in question 9. Green Valley Farm and Logistics, LLC will continue ongoing collaboration with CREP and watershed councils, interim, to secure agreements.

Long-term project benchmarks would fall into two categories: 1) Environmental and 2) Educational. Environmental benchmarks could include measured success of the instream needs of the Calapooya Creek through flow meter data collected daily showing that through the irrigation season water levels required for irrigation were at or below the anticipated need for the drip irrigation versus hand lines. In addition, further environmental benchmarks could include: observed and documented changes to the bank of the Calapooya Creek through riparian restoration efforts of the CREP

work, and increased wildlife through observation. Data collection from UNLSH can provide additional scientific data about soil and water quality. Long-term educational benchmarks may include students filling out questionnaires at the beginning of an initial field trip identifying their level of knowledge on the Calapooya Creek, water rights/issues, climate safe agricultural practices, efficient water management strategies, healthy riparian ecosystems and water conservation methods. At the end of field trips, questionnaires would be compared to before and after scores to show knowledge increasing in these important matters which would be an ongoing long term effort with the community and school system of Oakland, Oregon as well as surrounding schools and programs, based on community interest.

Additionally, by switching the Green Valley Farm from cattle and hay production to an agricultural crop production, additional employment opportunities will be available short and long term, as well as the overall satisfaction of the Dean Family with the performance of the system and the ability to sustain a living as a small farm operator.

13. Describe any issues, unknowns, or conditions that may affect the completion of the key tasks or project. If applicable, describe any measures planned to mitigate them.

Completion of the project is contingent upon securing the required final agreements with OWRD, CREP, ACW, local watershed councils, UNLSH, PUR and educational opportunities. If the CREP plans are not approved, the Dean Family will continue to work on restoring the bank of the Calapooya Creek through personal efforts and will continue to research and identify other methods of helping the geomorphology of the creek. The operators of the Green Valley Farm are committed to protecting the roughly 1,892 feet of exposed river bank along the property and are interested in restoring critical habitats and biodiversity in the riparian areas.

Permits and Regulatory Approvals

14. List all water rights associated with the proposed project tasks. List permit/certificate/transfer numbers, as applicable, current holder, and associated tax lot. *Note: For all existing water uses, include any and all water right authorizations that allow water use under the current project. Add rows as needed.*

Permit/Cert/Transfer Number	Current Holder/Patron	Tax Lot ID
Permit S 31046 Certificate 38942	Kurt M Spencer	800 and 900

15. In the table below, provide a list of any permits and regulatory approvals needed to

implement the project and indicate the status of each in the table below. Please submit copies of any secured permits/approvals or describe efforts in securing necessary permits/approvals, including current status. If no permits or regulatory approvals are required, please provide an explanation. *Add rows as needed.*

Permit/ Regulatory Approval	Status and Efforts To Date
CREP Agreement	In process
OWRD Grant Acceptance	In process
Allocation of Conserved Water Plan	In process

VII. Public Benefits

Instructions: Describe how the project would provide public benefits in each of the three public benefit categories identified below. In your responses, describe current conditions and anticipated project outcomes and benefits. Describe how the project outcomes will contribute to each anticipated public benefit. Descriptions should be quantitative when possible. Applications will be scored and ranked solely based on the descriptions of the economic, environmental, and social/cultural public benefits and the likelihood of the project achieving the claimed benefits. More specifically, the evaluation will be based on the change in conditions expected to result from the project as demonstrated in the application.

Please see the Guidance on the Evaluation of Public Benefits document, on the OWRD Funding Opportunities Forms webpage, for definitions of each public benefit and a description of how the public benefits will be evaluated. Applications that do not demonstrate public benefit in each of the three categories (economic, environmental, social/cultural) will be deemed incomplete.

Leave blank any public benefits that are not applicable to the proposed project.

16. Economic Benefits – ORS 541.673(2)

a. Job creation or retention:

Agricultural production on this property is the main source of income for the Dean Family, the owners of the Green Valley Farm. Currently Rachel and Jesse help manage cattle and hay production, but with the completion of this proposal; the small farm operators will switch to primarily agricultural crop production on 60 acres of the roughly 140 acre farm. The proposed Calapooya Creek Conservation Project will provide an opportunity to work with local contractors and sub-contractors to complete the irrigation upgrade and the CREP project. Additionally, the proposed project will help to create short and long term jobs for local residents. In order to have a successful agricultural production, Green Valley will need to develop multiple employment positions: a full time farm manager, full time human resources and accounting manager, a long term part time (to full time seasonally) farm employee, a 6 person planting crew, a 6

person harvesting crew, and a possible full time retail and marketing position for distribution of crop production.

b. **Increases in economic activity:**

The Calapooya Creek Conservation project will be beneficial for the creek, as well as creating additional economic activity. Roughly 100 calves have occupied the property with hay production being about 2 tons per acre on approximately 80 acres. This totals to a gross sum of income equalling \$40,000 for cattle and \$12,000 for hay production annually. By switching to an agricultural crop, there is a possible increase in land production by 18 times. This dramatic increase in the economic value of crop production is due to the switch to growing an industrial hemp crop which could gross up to \$900,000 according to some estimates; which can fluctuate based on actual crop production and price per point in any given year with market changes. Creating local jobs through the use of contractors and sub-contractors invests large amounts of money back into the local economy and increases local activity.

Annually the Green Valley Farm will rely on local seed producers, nursery operators, agricultural processing teams, and buyers; which will increase economic activity in the future, as well as the consumers who purchase the agricultural products (such as hemp oil, cream or bulk products) developed by the Green Valley Farm. Local businesses will experience an increase in economic activity, such as local grocery stores, restaurants, and home rentals; due to an increase in jobs and local need for goods. Future upkeep and maintenance of the irrigation will require parts and labor ensuring long term economic benefits. The Dean Family intends to successfully operate this farm over the next 20-30 years, with the eventual goal of one or both of their sons continuing to farm multi-generationally.

c. **Increases in efficiency or innovation:**

By converting from hand line to drip line irrigation, water use efficiency is projected to increase by up to 178 gallons per minute, roughly .48 cfs. In addition, the owners of the Green Valley Farm will be installing an innovative mulch system over the drip lines to conserve additional water that could be lost due to evaporation rates. The Dean Family will apply fertilizer and nutrients to crop rows under the mulch through specific application in the drip system, rather than the traditional method of broadcast fertilizing which has shown to be less effective in terms of nutrients reaching crops and a loss of fertilizer. These innovative techniques for applying fertilizer and nutrients reduces run off into the creek system and helps reduce toxicity levels in the water. Eco-friendly technology such as fish screens and flow meters increases aquatic health and captures water data. Innovative CREP work restoring the riparian landscape additionally helps repair the natural ecosystem of the creekside on the property. Landowner time

traditionally spent changing hand lines will transition towards work with OWRD, CREP, ACW, and local watershed councils to further improve their methods and production for both the health of their land and their operation.

- d. Enhancement of infrastructure, farmland, public resource lands, industrial lands, commercial lands or lands having other key uses:

The Calapooya Creek Conservation project will enhance infrastructure, farmland value and production on the proposed property. The conversion of hand line to drip line irrigation is expected to increase the production value of the land between approximate annual gross incomes of \$52,000 from cattle and hay production to roughly \$900,000 from industrial hemp. This project will enhance infrastructure to irrigated farmland for conservation, environmental and agricultural purposes. Precise and efficient irrigation will enable increased flexibility for the irrigator to experiment with crop management to further enhance soil health, drought resiliency and ecosystem function. Additionally, the roughly 1,892 feet of river access on the property will dramatically improve through the CREP agreement, restoring riparian areas along the Calapooya Creek.

- e. Enhanced economic value associated with tourism or recreational or commercial fishing, with fisheries involving native fish of cultural significance to Indian tribes or with other economic values resulting from restoring or protecting water instream:

Leaving .48 cfs, or approximately 178 gpm, of water in the Calapooya Creek that would otherwise be diverted for irrigation purposes will benefit ESA-listed species: winter steelhead, cutthroat trout, coho, and fall chinook — all of which are recreationally harvested in the Calapooya and Umpqua River. Douglas County is known as a hunting and fishing destination and any efforts to maintain the quality of the ecosystems and abundance of wildlife will continue to support this natural resource-based economy. In addition, the nearby town of Oakland, Oregon is becoming more reliant on tourism. There are currently 3 Airbnb rentals and 1 active bed and breakfast, which draws visitors from the entire West Coast. With a convenient location for travelers to access hiking, boating, bicycling, kayaking, and visits to Crater Lake and the Oregon Coast; Oakland is drawing in more tourists annually. By restoring flows to the flow-critical Calapooya Creek, the economy improves by maintaining or increasing critical tourism and nature based activities, which also include kayak rentals, stand up paddle boarding, fish licenses and boat licenses.

- f. Increases in irrigated land for agriculture:

Currently the 96 acre water right in tax lot 800 and 900 are primarily used for cattle and hay production on the Green Valley Farm. Of the total 96 acres, roughly 80 is hand line irrigated for hay production to maintain the cattle feed

supply in the winter. There is no excess hay production from this field that could be used to make additional sales. With the Calapooya Creek Conservation project proposal, 80 acres of hand line irrigated pasture would be converted to approximately 60 acres of drip line irrigated crop production. It is estimated that the hay value on the 80 acres was roughly \$12,000 and cattle values being approximately \$40,000 annually. By switching to drip irrigation, 178 gallons per minute, or roughly .48 cfs, will be conserved and crop values could increase up to \$900,000 due to the high value of industrial hemp. This seems to be a "win-win," for a small farming family: by increasing economic activity, job creation and retention, and meeting instream needs of the Calapooya Creek by conserving water and restoring the health of the creekside.

17. Environmental Benefits – ORS 541.673(3)

- a. A measurable improvement in protected streamflows. Describe the legal means by which the water will be permanently dedicated instream and protected by the Oregon Water Resources Department (e.g. Allocation of Conserved Water program). *This MUST be included to receive a score for this public benefit.*

Green Valley Farm and Logistics, LLC is actively pursuing a plan, in conjunction with this OWRD grant submission, with the Allocation of Conserved Water to legally protect 100% of conserved water instream to the Calapooya Creek.

Describe how the protected streamflows accomplish one or more of the following:

(A) Supports the natural hydrograph;

The Calapooya Creek Conservation Project aims to support the natural hydrograph by legally protecting approximately .48 cfs, which roughly equals 178 gallons per minute, instream, through the Allocation of Conserved Water program. Conversations have already happened with the director of the program specifically identifying the forms that need to be processed and Rachel Dean, the Grant Manager of Green Valley Farms, is actively seeking a conservation plan to allocate 100% of the conserved water instream for the high water quality needs of the Calapooya Creek.

There is much evidence and data on what local recommendations are regarding the natural hydrograph. In 2008, the Douglas County Water Resources Program published Volume I and II on findings and implementations regarding the natural hydrographic recommendations of the Calapooya Creek. Due to the magnitude, distribution and complexity of the issues and the dependence on local, State and/or Federal governments to aid in financing projects; much was accomplished to address water quality and quantity limitations, but there are still a variety of goals and objectives to be met.

In 2008, it is documented that in Douglas County there are inadequate flows

in nearly all streams within the sub-basins during the low-flow season to meet current needs for out-of-stream and instream uses. Water supplies of a number of communities and industries are curtailed during late summer and early fall. New water rights are unavailable during these low flow seasons on most streams in the basin, jeopardizing continued growth and economic diversification. This does not allow for new water rights at any time of the year in those sub-basins.

Agricultural endeavors cannot intensify nor diversify without more dependable water supplies or innovative uses of current supplies. Increases in potential water use resulting from future population growth and/or diversification of cropland and industry can only be fully met from development of stored water sources. The Calapooya Creek, part of Sub-Basin C, has water quality conditions that are adverse to aquatic life, instream recreation and are aesthetically not pleasing. With an expected increase in population in the nearby towns of Oakland and Sutherlin, additional water supplies will need to be made available to provide reliability. To support the natural hydrograph of the Calapooya Creek, while maintaining farm production; the Water Resources Program has specifically recommended augmentation from stored water, riparian enhancement and flow modification impairment. The Calapooya Creek Conservation proposal aims to maintain, support and repair the natural hydrograph rates through water conservation, irrigation efficiency and riparian enhancements (Douglas County Water Resources Program, 2008, www.apps.wrd.state.or.us).

(B) Improves floodplain function;

In most sub-basins in Douglas County, flooding is a frequent occurrence with significant events occurring about 2 to 3 times per decade. Since 1950 there are 11 significant floods reported. Although some flooding is expected in floodplain areas and is important for overall stream function, extreme flooding particularly into municipal areas may cause damage by destroying community infrastructure and causing excessive eroding of stream banks, especially along the Calapooya Creek which already suffers from poor riparian areas (Douglas County Water Resources Program, 2008, www.apps.wrd.state.or.us). Through involvement with CREP, riparian areas can be restored to a natural state of health, therefore floodplain areas may be able to experience the benefits of stream function; while reducing the amount of possible infrastructure damage with overflow water captured.

(C) Supports state-or federally-listed sensitive, threatened or endangered fish species;

The Calapooya Creek Conservation project intends to be a part of the restoration efforts in order to help protect the ESA-listed and endangered species: winter steelhead, cutthroat trout, coho, and fall chinook. Some analyses indicate that the Calapooya Creek is at critical dangerous levels by

not meeting alkalinity standards due to high CaCO₃, phosphate phosphorus standards, dissolved oxygen and excessive algae growth during low flow levels. All of these issues negatively impact beneficial uses of the creek for fish and aquatic life. Restoring .48 cfs into the creek, increasing stream flows, and restoring riparian habitats can help the health of the endangered Calapooya Creek and protect or restore the natural ecosystem fish need for success (Douglas County Water Resources Program, 2008, www.apps.wrd.state.or.us).

According to ODEQ findings from 2000 listed in the Oregon Explorer Natural Resources Digital Library: the Calapooya Creek Watershed is listed for violating water quality standards and has been identified for dangerous temperature levels, dissolved oxygen, abnormal pH levels, fecal coliform, and concentrations of mercury and arsenic; which remain from the retired Bonanza Mine in the 60's. Introduced fish cannot establish resident populations within the Calapooya Creek or its tributaries due to these water quality issues, in combination with poor riparian areas. In this same citation, UBWC sited that by improving irrigation efficiency, protecting and repairing riparian zones, and working with interested landowners on case-by-case opportunities; instream fish habitats and water quality can be improved to support the ESA-listed and endangered winter steelhead, cutthroat trout, coho and fall chinook.

In addition, innovative technologies can aid in the help offered to restore aquatic health within the stream. Applying fertilizer directly to crops within the drip system decreases toxicity levels that may otherwise overflow into the creek through broadcast fertilizing methods. Fish screens will be installed to help reduce harm that may otherwise be caused to aquatic life through irrigation pumps. Removing cattle from stream side access reduces erosion and sediment levels that otherwise would erode into the water system. And finally, work with CREP: planting native shrubs and trees can eventually lead to more shaded areas along the roughly 1,892 feet of creekside, thus lowering water temperature levels more suited to fish and wildlife needs.

(D) Supports native fish species of cultural importance to Indian tribes; or

(E) Supports riparian habitat important for wildlife:

The Oregon Explorer Natural Resources Digital Library reports that riparian habitat important for wildlife along the Calapooya Creek currently consists primarily of thin strips of hardwoods, brush, blackberries and the creek has poor levels of large woody debris and poor riffles (Geyer, Nancy A. Calapooya Creek Watershed Assessment and Action Plan, 2003). Freshwater habitats provide important spawning and rearing opportunities for native fish and the inherent instability of these habitats can limit productivity depending on the pre-smolting growth patterns of individual fish, natural and excessive erosion sediments (South-Central California Coast Steelhead Recovery Plan, December 2013, www.westcoastfisheries.noaa.gov). The Oregon Conservation Reserve Enhancement Program (CREP) aims to restore, maintain, and

enhance streamside areas along agricultural lands to benefit fish, wildlife, and water quality. Through active involvement in this program, the Calapooya Creek Conservation project proposes to not only support, but to repair, riparian damage along nearly 1,892 feet of creekside.

PUR (Partnership for the Umpqua Rivers) writes on their website that in the 3-5 years of life, salmon make the treacherous journey to the sea and back, covering hundreds of miles. Aquatic species require cool temperatures, cover, clean water, and insects that fall from overhead branches for food. Without native shrubs and trees, banks erode, filling water channels with sediment. Fish have difficulty finding food, stream temperatures rise, and runoff is unrestricted resulting in higher winter flows and flooding. Healthy riparian zones and habitats are as important as the water quality itself for the health of these aquatic species. Each year the Dean Family takes great pride in walking their children to the stream in October to show them the spawning fish. It is of great importance to their family to support all aquatic and natural wildlife in the stream, and on the property, for future success of the natural ecosystem, as well as for future generations to witness.

- b. A measurable improvement in groundwater levels that enhances environmental conditions in groundwater restricted areas or other areas:

The Southern Oregon Regional Pilot Program identified for the Douglas County Planning Department that ground water levels on the proposed property are 0-5 gpm (http://www.co.douglas.or.us/planning/Plan_docs/ff/SORPP_MapDgroundwater.pdf). In the hydrologic cycle of evaporation and transpiration; groundwater levels may increase measurably through crop rotation and cover crop planting to retain some additional levels of improvement.

- c. A measurable improvement in the quality of surface water or groundwater:
This project will make real changes to the quality of the water within the Calapooya Creek by switching from cattle production to agriculturally and environmentally smart farming practices.

By watering crops with hand line irrigation, often times areas of the field retain greater amounts of water; which resembles flooding. This water can pick up residues from fertilizers or pesticides and, in some cases, erodes away topsoil before eventually returning to the river. The input of warmer water carrying chemicals and sediment has proven to have a negative impact on surface water quality, which is of particular concern to fish species that require cold, clean water for survival. Using drip irrigation allows the Dean Family to apply water in precise and conserved amounts required by the crop and soil, reducing harmful runoff and wasted water. Additionally, diverting only the amount of water needed leaves more cold, clean water instream from the point of diversion; contributing to higher quality and quantity of water

instream.

According to the Umpqua Basin TMDL: Algae/Aquatic Weeds, Dissolved Oxygen & pH report from October 2006, Calapooya Creek has been placed on DEQ's 303(d) list for pH and dissolved oxygen. The pH listing is for the summer period; while the dissolved oxygen is for the fall-winter-spring period, in particular, the salmonid spawning period from May 15 to October 15. In this report, we learn that water quality has been measured in the Calapooya Creek routinely for many years from January 1995 to January 2005. In late July 2002, DEQ conducted an intensive TMDL survey of Calapooya Creek and found water quality standards violating dissolved oxygen and/or pH at three locations; one of which is RM 13.9, the Oakland City Drinking Water intake. This location is roughly 2 miles upstream from the Green Valley Farm Calapooya Creek property.

Approximately 33% of the Calapooya Creek drainage is used for agriculture, reported by the Umpqua Basin TMDL report from 2006, and the Bacteria TMDL indicates that agricultural land is a major source of fecal bacteria. The Calapooya Creek Conservation Project, as proposed by the Green Valley Farm, intends to remove cattle production, which in turn will reduce fecal bacteria contamination. Furthermore, removing cattle from the stream side fields will reduce soil erosion. As stated in the Umpqua Basin Agricultural Water Quality Management Area Plan published in November 2018, soil erosion is a natural process, but when soil moves into the stream and is deposited along the streambed, it is called sedimentation. Excess sedimentation creates a number of problems from water quality, negatively impacting drinking water and disturbing fish spawning grounds.

Finally, to achieve the dissolved oxygen (DO) and pH water quality standards during the summer period, the Umpqua Basin TMDL report states that the loading capacity for phosphorous is 1.0 lbs / day and inorganic phosphorus at 0.7 lbs / day. Volatile solids must be reduced by 67% from current loading to meet 'natural' standards. Previously the Green Valley Farm has participated in broadcast fertilizer which contains levels of phosphorous. By switching to more innovative practices and applying fertilizer through the drip irrigation system; a major reduction in phosphorous run off will be achieved on the farm thus improving water quality issues such as DO and pH long term.

d. **Water conservation:**

Green Valley Farm and Logistics, LLC will be legally protecting 100% of the conserved water, through the Allocation of Conserved Water Program. The Dean Family has been actively involved in conversations with their local water master, as well as the director of the ACW in Salem, on how to properly apply for and reach an official conservation agreement.

Based on a neighboring farm, BioSync Industries, that switched to drip

irrigation in the previous season (2018-2019 crop production) and data analysis from Pacific Ag, Inc on the amount of water conservation small farms can achieve by switching from hand lines to drip irrigation, drip irrigation has been proven to be highly efficient over the antiquated hand line irrigation systems (See Letter of Support from BioSync Industries). By switching to this innovative technology, the Dean Family will be conserving approximately .48 cfs of water that will legally be protected and returned to the Calapooya Creek.

*Note: Any project that conserves water and permanently dedicates at least 25% of the conserved water quantity to instream use will automatically receive a scoring bump in the environmental public benefit category with the opportunity to demonstrate additional environmental benefit to increase the score. **If awarded funding, the percentage identified below will be a condition of funding.***

Identify the portion of conserved water that will be permanently dedicated instream and protected by the Oregon Water Resources Department: 100 %

Describe the legal means by which the water will be permanently dedicated instream and protected by the Oregon Water Resources Department (e.g. Allocation of Conserved Water program): *Allocation of Conserved Water program*

e. Increased ecosystem resiliency to climate change impacts:

The Calapooya Creek Conservation Project will increase ecosystem resiliency through riparian restoration, as well as off set former negative climate change impacts by removing cattle production from the farm. The Douglas County Global Warming Coalition in 2014, stated that over the next ten years our community will look significantly different due to the impacts of climate change. Currently at least 30% of employment in Douglas County is agriculturally based, which could significantly change if we are not water resilient and adaptive. The Coalition identified specific ways to increase ecosystem resiliency to climate change impacts which included: irrigation efficiency, increasing community water surface storage, water conservation, education, rainwater collection and innovative farming techniques. Solar power was also listed as a viable option for reducing the impacts of climate change and the Dean Family currently operates some of the farm on solar panels.

According to the Food and Agricultural Organization of the United Nations, GHG (Green House Gas Emissions) impact climate change. The total emissions from global livestock is 7.1 Gigatonnes of Co2-equiv per year, representing 14.5% of all anthropogenic GHG emissions. Cattle are the animal species responsible for the most emissions, representing about 65% of the livestock sector's emissions. About 44% of livestock emissions are in the form of methane (CH4), while the remaining part is almost equally shared

between Nitrous Oxide (N₂O) at 29% and Carbon Dioxide (CO₂) at 27%. By removing cattle production; not only will the Green Valley Farm reduce GHG emissions; but crop productions will return Oxygen to the air and intake CO₂.

- f. Improvements that address one or more limiting ecological factors in the project watershed:

The Calapooya Creek has multiple limiting ecological factors: low summer flows and poor habitat riparian areas for natural aquatic and wildlife sustainability. Flow restoration techniques, including irrigation efficiency upgrades and full season diminishment of water rights as proposed in this project, are recommended actions to address these limiting factors.

Partnership for the Umpqua Rivers. (PUR) Restoration Program Work.
(<https://www.umpquarivers.org/about-restoration>)

Page 1 and 2: Instream habitat restoration is essential for spawning fish species.

Page 7 and 8: Aquatic species require cool temperatures, cover, clean water and insects that fall from overhead branches for food. Fish will have difficulty surviving without native shrubs and trees, eroding banks, difficulty finding food and stream temperatures rising. Protecting and restoring the area surrounding creeks involves the removal of invasive species such as Himalayan blackberry. Once invasive species are removed, native planting provides better shade cover and contributes to the health of the ecosystem.

Page 10: Irrigation modification ensures aquatic species have as much water as possible during low summer flows.

Summary of Environmental Information on the Umpqua River Basin. U.S. Department of Commerce, NOAA. Tech Memo-15: Status Review for Oregon's Umpqua River Sea-Run Cutthroat Trout (<https://www.nwfsc.noaa.gov/publications/scipubs/techmemos/tm15/environment.html>)

Page 1: The spawning sites of the petitioned cutthroat trout populations are in the North and South Umpqua Rivers and their tributaries, which combine to form the mainstream Umpqua River. Together the three rivers form one of the longest coastal basins in Oregon, approximately 340 km in length, with a drainage area of over 12,200 sq. km. One major tributary of the mainstream Umpqua River is the Calapooya Creek.

Calapooya Creek Watershed Analysis. Roseburg District BLM. 1999.
(<https://www.blm.gov/or/districts/roseburg/plans/files/CalpCkWA.pdf>)

Page 5-2: Streamflows are low in the Calapooya Creek. Summer low flows are probably affected by water withdrawals in the watershed. Domestic, irrigation, agriculture, and livestock watering have all contributed to reduced streamflow during the summer months. The volumes of water withdrawn are

not known, but water removal during the summer months may reduce available habitat for aquatic species.

Page 5-3 to 5-5: Water temperature is to be managed to protect recognized beneficial uses. The Umpqua Basin temperature standard set by DEQ is 64 degrees Fahrenheit and no measurable increase in water temperature is allowed in accordance with Oregon administrative rules. Stream temperature monitoring was conducted in Calapooya Creek (below south fork) and compared to air temperature at the Winchester, OR weather station. Calapooya Creek exceeded the 64-degree Fahrenheit standard during July 1998.

Dissolved oxygen is essential for respiration in aquatic life as well as being important in the cycling of organic material within a stream. Since gas solubility generally decreases as temperature rises, this can lead to lower DO levels during the summer. In the Umpqua basin, diurnal variations in DO can occur due to photosynthetic activity during the day and respiration and decomposition demands during the evening and morning hours. Low dissolved oxygen (DO) has been identified by DEQ as a problem in Calapooya Creek. Several factors have probably contributed to DO problems, including water withdrawals, degraded riparian conditions, and increases in width/depth ratio. The pH standard set by DEQ for fish and aquatic life in the Umpqua basin is 6.5 to 8.5. Studies of pH have concluded that levels outside this range can have an adverse effect on fish and aquatic insects. The accumulation of algae in streams may affect pH. Aquatic organisms take up dissolved CO₂ and release oxygen during the process of photosynthesis during the day, especially in the late afternoon, which increases pH. A night, CO₂ is released during respiration and pH decreases. When photosynthesis is moderated, such as well-shaded stream reaches with turbulent flow, pH levels are lower.

Generally on federal lands, the implementation of large riparian reserve widths, proper road location and management, and implementation of best management practices should maintain or improve pH, dissolved oxygen, and stream temperature over time.

Riparian function is the interaction of various hydrologic, geomorphic, and biotic processes across a range of spatial and temporal scale within the riparian environment.

18. Social/Cultural Benefits – ORS 541.673(4)

- a. The promotion of public health and safety and of local food systems:

This project allows for improved water management. By decreasing the amount of water applied to fields, producers are able to reduce soil erosion, increase soil organic matter, improve soil health and rely less heavily on potentially harmful soil amendments such as fertilizers, pesticides and herbicides. By eliminating irrigation waste and runoff, water quality is improved not only for fish and public use, but also for producers who irrigate crops downstream of the project site. Improved water application also allows producers to treat weed problems with reduced reliance on pesticides by enabling precise and predictable irrigation to promote the propagation of desired species.

Public health may be promoted or increased due to the medicinal quality of the industrial hemp products. According to Harvard Health Publishing August 24, 2018, Dr. Grinspoon a contributing editor to the Harvard Medical School, writes that medicinal hemp (CBD) has been used to effectively treat children with epilepsy, such as Dravet syndrome and Lennox-Bastaut syndrome (LGS). In addition, it can commonly be used to treat anxiety, insomnia, chronic pain, and inflammation.

- b. A measurable improvement in conditions for members of minority or low-income communities, economically distressed rural communities, tribal communities or other communities traditionally underrepresented in public processes:

This project will contribute to improved conditions for the economically distressed rural communities of Oakland, Sutherlin and Roseburg areas. By upgrading to a drip irrigation system and converting the traditional ranching methods to innovative agricultural methods; a variety of new jobs will be created for short and long-term, part-time and full-time employment that will be hired locally. Local contractors and sub-contractors will participate in irrigation installation and on-going farm work. Educational opportunities may also serve as a measurable improvement for members of minority in the community to gain further awareness about water conservation and climate smart agricultural practices.

- c. The promotion of recreation and scenic values:

In Douglas County, we have over 48 dedicated parks to visit, which makes it one of the most desired locations for picnics, hikes, boating, fishing, hunting, and trail riding. The nearby Umpqua River has been called picturesque, poetic and inspiring. Tourism continues to evolve in the immediate surrounding areas annually.

In Oakland, the Dean Family communicates regularly with the Oakland Economic Development committee and City Council Members (such as Tom Hasvold), developing and participating in tourism related activities including the two annual wine walks, summer art walks and the annual "Living History Days," that have attracted thousands of visitors.

As small business owners in downtown Oakland, the Dean Family is committed to keeping recreational activities available for visitors and beautiful scenic landscapes on their property. The Calapooya Conservation project would add to the health of the creek,

the beauty of the creekside and promote further outdoor recreation. Nearby Mildred Kanipe Park draws in visitors, hikers and campers each summer to the area; which is within the Calapooya Watershed and has been actively involved in conservation projects. The Green Valley Farm has been dedicated to promoting recreation and scenic values since 2014; when they starting hosting a music and arts festival on their property; which was held for four years annually in the summer. In 2017, at their last festival; they had achieved nearly 5,000 visitors on their farm alone. In addition, their farm was home to additional festivals and multiple weddings. Visitors continue to stop at the property to photograph the old iconic 1940's dump truck parked in the front driveway. The proposed Calapooya Creek Conservation Project will be another beautiful addition for scenic value to the creekside as well as to the farm.

- d. Contribution to the body of scientific data publicly available in this state:

The Calapooya Creek Conservation Project plans to contribute to the already growing body of scientific data available to date on water quality issues within the creek. Data has been collected from OWEB, PUR, and ODEQ. Douglas County is active in water resources management collecting hydrologic data and has evolved into one of the most active in Oregon and is among the leading county programs in the nation. This proposed project specifically intends to partner with UNLSH, the Umpqua Natural Leadership STEM Hub, assigning students to collect and monitor data on water quality along the approximately 1,892 ft of creekside access on the Green Valley Farm.

Nearby, there have been considerable efforts for restoration in the Mildred Kanipe Park, just outside of Oakland, within the Calapooya Creek Watershed. On the roughly 1,100 acre ranch that is now converted into a county park; many conservative efforts have been made. Specifically Jim Lee of the Douglas Soil and Water Conservation District has been working with students restoring eroded stream banks to accommodate Coho, Cutthroat, and Steelhead. They are also working on restoring health to the adjacent riparian areas to improve the health and function of the watershed (Jan 26, 2005, Trails Traveled, Lois Christiansen Eagleton, "Mildred Kanipe Memorial Park: To Log or Not to Log?").

Data gathered through the Calapooya Creek Conservation project, specifically through the collaboration with UNLSH, can be added to this already growing body of scientific knowledge within the watershed.

- e. The promotion of state or local priorities, including but not limited to the restoration and protection of native fish species of cultural significance to Indian tribes:

It appears that the state of Oregon is very interested in the restoration of the Calapooya Creek in recent years, but is limited based on much of the stream side being privately owned. In the BLM Calapooya Creek Watershed Analysis from October 1999, it was reported, at that time, to be ranked as low priority for restoration by the Umpqua Basin Watershed Council Technical Advisory Committee, mostly due to lack of funds. Based on recent data recording the endangered status of the creek, it seems that the priority for restoration is elevated. This puts the restoration efforts primarily in the hands of the

private land owners along the Calapooya Creek, such as the operators of the Green Valley Farm. All creek restoration efforts are primarily aimed at water conservation; which in turn lowers water temperatures and retains more stream for ESA listed fish species within the creek.

- f. The promotion of collaborative basin planning efforts, including but not limited to efforts under Oregon's Integrated Water Resources Strategy:

The Calapooya Creek Conservation Project intends to be a collaborative effort to ensure the continued livelihood of the Dean Family; while protecting instream needs of the Calapooya Creek. Through a variety of collaborations including neighbors (to further discussions on riparian restoration efforts), federal agencies such as OWRD, ACW and CREP; as well as local schools, educational groups, local non-profits and watershed councils such as UNLSH and PUR; data can be gathered and monitored, as well as furthering local education on water conservation challenges and opportunities. It is the intention that by switching from hand line irrigation, to an efficient drip irrigation system; and transitioning towards climate smart farming practices and agricultural crops; an evidenced amount of ecosystem health can be restored to the Calapooya Creek. This health will be evidenced by riparian restoration efforts, innovative environmentally friendly technologies and data collection/monitoring. By furthering education within the local community on water conservation efforts and the real challenges and opportunities private land owners face within the Calapooya Creek Umpqua Basin; we believe that our efforts will see real results.

In conclusion, Governor Kate Brown writes in Oregon's Integrated Water Resources Strategy that the record-breaking drought of 2015 had a significant impact on our state. It is imperative that our policies and investments; in regards to our watersheds; support population growth, wildlife, and make our communities more resilient to climate change. The 2017 Strategy planning effort convened diverse interests to make an integrative and collaborative water restoration plan. Now, it will be imperative, as we move forward, for communities to continue to collaborate together on water issues, especially on the Calapooya Creek which is significantly impaired. With the majority of land ownership along the Calapooya Creek watershed being private; it is up to farmers, ranchers and residents who reside along the creekside to join together in restoration efforts. The Green Valley Farm intends on being a leader in this movement: by making the property a "demonstration farm," future generations of students and community members can come and learn about water restoration and conservation efforts to further the health of the Calapooya Creek and enhance instream efforts for generations to come.

VIII. Project Budget

Instructions: Please answer the following questions about the proposed project budget using the tables provided. All Loan and Other Funds must be allowable costs as described in the Department's Grant Budget Procedures and Allowable Costs document.

19. Please provide an estimated line item budget for the proposed project. Examples include: direct project specific costs, such as in-house staff salary, contractual services, travel and administrative costs. See the Department's Budget Procedures and Allowable Costs on the OWRD Funding Opportunities Forms webpage for further guidance.

OVERALL PROJECT BUDGET Line Items	Number of Units* (e.g. # of Hours)	Unit Cost (e.g. hourly rate)	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Irrigation Materials					\$155,106	\$155,106
Contractual/Consulting			\$15,402	\$1500		\$16,902
Staff Salary/Benefits	640 hrs	\$45		\$28,800		\$28,800
Equipment (must be approved)						
Supplies						
Other:						
Administrative Costs**			\$6,000			\$6,000
* The "Unit" should be per "hour" or "day" – not per "project" or "contract." $Units \times Unit\ Costs = Total\ Cost$						
** Administrative Costs may not exceed 10% of the total funding requested from the Department						
		Total	\$21,402	\$30,300	\$155,106	\$206,808

20. Identify the budget for each key task below. Key tasks identified below should be the same as the key tasks identified in Questions 9 and 10.

Key Tasks	In-Kind Match	Cash Match Funds	OWRD Loan Funds	Total Cost
1) Complete Contractual Agreements and Obtain Regulatory Approvals (50% Administration Budget, Irrigation consulting)	\$3,000	\$1500		\$4,500
2) Irrigation Conversion and Installation (Includes 100% Staff salary/benefits)	\$15,402	\$28,800	\$155,106	\$199,308
3) CREP costs not included in this grant request, funding will be secured through private sources and separate matching grant funds; but the work applies to this grant request so information/task is included				\$0
4) Educational Outreach, Monitoring and Reporting (%50 Administration Budget)	\$3,000			\$3,000
Total	\$21,402	\$30,300	\$155,106	\$206,808

IX. Match Funding

Instructions: Fill out the table below and attach the appropriate documentation for both secured and pending match (add rows as needed). Label the documentation as Attachment #3. Applications requesting grant funds must demonstrate match that at a minimum equals 25% of total project cost.

For secured funding, you must attach a letter of support from the match funding source that specifically mentions the dollar amount identified for this project and as shown in the "Amount/ Dollar Value" column in the table below and describes the work to be accomplished through the match.

For pending resources, you must attach other written documentation showing a request for the matching funds must accompany the application or documentation must identify the date on which a future funding application will be submitted, identify the funding program, and provide evidence that the project is eligible for the funding program identified.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	Type (only One)	Status (only One)	Amount/ Dollar Value	Date Match Funds Available (Month/Year)
Green Valley Farm and Logistics, LLC	<input checked="" type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$51,702	
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		

X. Storage-Specific Project Requirements (if not a storage project skip this section)

Instructions: If your proposal is for a storage project that will divert water under an existing or new storage water right permit or limited license, answer questions 22 through 24 in this section. If your proposal is for above-ground storage, also answer question 25 and 26. All other projects can skip this section of the application.

- Identify Storage Project Type: Above-Ground Below-Ground
- Indicate the capacity of the storage project and any new-developed water below:
 - What will be the *total* capacity of the storage project in acre-feet after project implementation?

- What will be the volume of the *newly-developed* water in acre-feet?
- Answer the following “Yes/No” questions about the storage project.
- Will the project divert more than 500 acre-feet of surface water annually?
Yes No
- Will the project impound surface water on a perennial stream? Yes No
- Will the project divert water from a stream that supports sensitive, threatened or endangered species? Yes No

If you answered “yes” to **any** of the questions above, (a), (b), or (c), the project will need a *Seasonally Varying Flow (SVF) Prescription*, determining the duration, timing, frequency and volume of flows (including ecological base flow), necessary for protection and maintenance of biological, ecological, and physical functions outside of the official irrigation season. The Department will establish the SVF prescription after funding is awarded, for more information about what this requirement entails, please contact Water Development Coordinator, Rachel LovellFord at (503) 986-0941.

- **For Above-Ground Storage Only:** If you answered “yes” to Question 23 (a), (b), or (c) above, your proposed project is above-ground storage, **and you are requesting grant funding then a minimum of 25% of the newly developed water must be dedicated to instream use. This is separate from the SVF Prescription.**

Please identify the percentage of stored water to be dedicated to instream use.

 %

*Note: Any storage project dedicating at least 25% of stored water to instream use will automatically receive a scoring bump in the environmental public benefit category. **If awarded funding, the percentage identified below will be a condition of funding.***

CALAPOOYA CREEK CONSERVATION PROJECT MAP

Attachment # 1

Calapooya Creek Conservation Project Map

43.417697 / -123.333297

N ↑

- ▬ Project Area Boundary, Tax Lot 800 & 900
- ▬ Property Boundaries
- Pump
- Filter Station
- ▬ Mainline (Trenched underground)
- ▬ Drip Irrigation (Approx 60 acres)
- ▬ Proposed CREP (Approx 1,892 ft)

Scale 1 _____ 1,000 ft





Water Project Grants and Loans Landowner Agreement

Instructions to Applicants: Work with landowners to complete this form for all properties on which the proposed project would occur. Submit this completed form as part of your grant/loan application. For questions contact WRD_DL_waterprojects@oregon.gov.

Project and Applicant Information

Project Name: Calapooya Creek Conservation Project

Funding Applicant: Green Valley Farm & Logistics, LLC Co-Applicant (if applicable): _____

Funding Applicant Contact Information:

Name: Rachel and Jesse Dean
 Phone Number: (503) 319-7638
 Email Address: thegreenvalleyfarmllc@gmail.com

Co-Applicant Contact Information:

Name: _____
 Phone Number: _____
 Email Address: _____

Landowner Information

Landowner(s) Name: Kurt and Veronica Spencer

Landowner Authorized Representative: Kurt Spencer

Landowner Contact Information (or Authorized Representative)

Address: 6459 Oak Hill Rd, Roseburg, OR 97471 (optional) Phone Number: (541) 913-1802
 (required) _____ (optional) Email Address: _____

Property Information

List each property owned by the above-mentioned Landowner on which the project would occur:

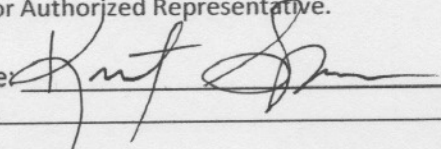
County	Tax map	Lot number
Douglas County	1-00 (Attached)	800 and 900

Landowner Acknowledgement

1. **KURT SPENCER** is/are the legal owner(s) (the Landowner) of the above described property (the Property).
2. I am authorized to act on behalf of the Landowner.
3. I am aware of and agree to the above-mentioned proposed project and grant permission for the Applicant, and the Applicant's agents, to conduct the following activities on the Property. (List activities below)

a.	Installation of new entry gate/access at the eastern corner of the Property.
b.	Trenching for pipe installation from pump station to drip blocks.
c.	Land cultivation for crops
d.	Excavation and trenching of pond site, Riparian restoration activity.

4. I am aware that monitoring information related to the Project is a matter of public record.
5. I certify that the above-mentioned information is true and accurate, I am aware of and agree to the proposed work, and I am authorized to sign as the Landowner or Authorized Representative.

Signature of Landowner or Authorized Representative: 

Date: 3-29-2017 Print Name: Kurt Spencer

Green Valley Farm and Logistics, LLC
Co-Owners: Rachel & Jesse Dean
2005 Green Valley Rd
Oakland, OR 97462

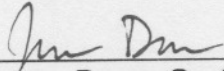
R Cell: (503) 319-7638
J Cell: (541) 870-6118
Email: thegreenvalleyfarmllc@gmail.com

April 25, 2019

Attachment #3:


In-Kind & Cash Match Funding Documentation

Green Valley Farm and Logistics, LLC has secured private funding to provide cash match funds of \$30,300 covering contractual/consulting costs as well as staff salary costs for the irrigation conversion project. In-Kind Matches are secure and will provide \$21,402. Of the In-kind cost match, \$15,402 includes Jesse Dean, co-owner of the Green Valley Farm's, contractual work for the installation of the irrigation, as well as donated labor and time. \$6000 is an in-kind match from Rachel, the other co-owner of Green Valley Farm in Administrative costs, labor, time and supplies completing contractual agreements and providing the opportunities for educational outreach, monitoring and reporting. Funds are privately secured for cash and in-kind matching.



Jesse Dean, Co-Owner

4-26-19
Date



Rachel Dean, Co-Owner

4/26/19
Date

April 8, 2019

DOUGLAS SOIL & WATER DIRECTOR
George Seonbuchner
440 Wild Horse Ln, Oakland, Oregon 97462
Phone: (541) 459-5356

OREGON WATER RESOURCES DEPT
725 Summer Street NE, Suite A
Salem, OR 97301

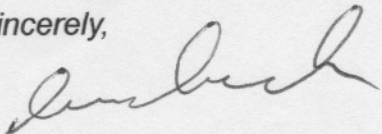
To the Grant Program Coordinator:

This letter of support is on behalf of Jesse and Rachel Dean, of Green Valley Farm And Logistics, LLC, and the proposed "Calapooya Creek Conservation Project." My name is George Seonbuchner and I have been involved with Douglas Soil & Water as the Director for 15 years. I am aware of the project the Deans are proposing and I highly support it.

I have known Rachel for over 20 years and have watched her develop into a small farm operator. Rachel has always been interested in protecting the environment and local streams. Additionally, she currently works with children who have experienced significant trauma and she operates a part-time private practice for the rural community of Oakland, Oregon. I met Rachel's husband, Jesse, when they married about 7 years ago. Jesse is an experienced farmer, carpenter and heavy machine operator. He has actively helped on his father-in-laws ranch (Tor S Ranch) from welding cattle chutes to driving bull wagons and helping make hay. For a month he worked in Eastern Oregon installing and building creeps to keep cattle out of the South Fork of the John Day River. Jesse is a climate-smart farmer interested in natural resource management and water conservation.

I highly recommend that the committee approve the requested grant project. The Calapooya Creek Conservation project will have long term beneficial impacts to our endangered water systems and it continue the livelihood of a small family farm. Together, Jesse and Rachel have proved to be a successful team in managing former projects by completing tasks on time and utilizing their broad background of skills. Please highly consider their request.

Sincerely,



George Seonbuchner
Douglas Soil & Water

**THE
YEW
CREEK
LAND
ALLIANCE**



12 March, 2019

To whom it concerns,

I am writing in support of the Green Valley Farm irrigation conversion project, which includes a plan for water allocation conservation. I am a recently retired Umpqua Community College Science Dept. chair and biology and natural resources professor, a former board member of the Partnership for Umpqua Rivers, and a current board member of Umpqua Watersheds, Inc. and the Yew Creek Land Alliance, Inc.

I have known Jesse Dean since he was a toddler through friendship and collaboration with his parents, Betsy and Tony Dean. Their involvement with Umpqua Watersheds, River Appreciation Day, Umpqua River clean-up days and many other civic projects made them great role models for Jesse, and he is clearly following in their footsteps.

Jesse was raised with strong environmental awareness and a deep attachment to the land he now farms. He is also acutely aware of the effects outdated farming practices can have on the creeks and rivers he has grown up with. As I've watched him grow, I can attest to his friendly attitude, strong work ethic, diverse farming skills and a strong commitment to follow-through. Now raising two boys with his wife Rachel, an accomplished socially active therapist and organic farmer, their family makes a strong impact in our rural community.

Mission: To conserve and restore historic habitats and native biodiversity while generating high quality goods and ecological services from Alliance lands. These activities will create unique opportunities for research, training, education, and recreation for participants of all ages.

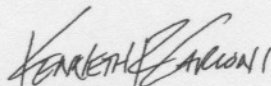
**YCLA 300 Impala Dr. Roseburg, OR 97470
(541) 672-1914**

The project the Deans are proposing will benefit Calapooia Creek, farm productivity, water efficiency, fish and wildlife, and will help support the farming economy of Douglas County. It will create long-term permanent jobs, increased economic activity, and a sustainable living for a family. Switching from traditional cattle production, as was done on their farm in the past, to an agricultural crop will reduce greenhouse gas emissions as well as river bank erosion and sediment runoff caused by cattle grazing. Jesse and Rachel are committed to future projects such as adding native plants, trees, and bird boxes to the creek bank to further improve ecosystem health.

I strongly support this project because I value the conservation-driven farming methods Jesse and Rachel plan, not just for their family but for generations to come. With a warming climate, fluctuating stream flows, and declining runs of protected fish species, the Deans will be making the kind of positive changes in the way we care for and manage our rivers, creeks and wetlands that will make a real difference for future generations.

I hope you move forward with making Jesse and Rachel's project a reality. It will create a positive impact on our watershed that will not only benefit a family now, but an evolving ecosystem that needs sustained support.

Sincerely,



Ken Carloni, Ph.D.
YCLA Secretary

Mission: To conserve and restore historic habitats and native biodiversity while generating high quality goods and ecological services from Alliance lands. These activities will create unique opportunities for research, training, education, and recreation for participants of all ages.

YCLA 300 Impala Dr. Roseburg, OR 97470
(541) 672-1914

March 15, 2019

To Whom it May Concern,

I was very interested when Rachel and Jesse Dean (operators of Green Valley Farm in Oakland, Oregon) explained the water project grant they were applying for. I'm sending this email as a letter in support of this project.

I have know Jesse and Rachel Dean for about 27 years. They are both dedicated farmers who are always working to to make the best environmental choices for their family farm business. This grant will help them to reach their environmental goals on the farm.

As a resident of Oakland who cares about conservation of our natural resources and support of water dependent native species (and who also personally depends on the Calapooia for drinking water) I am in favor of updating irrigation systems to utilize drip irrigation systems, efficient irrigation pumps, and appropriate fish screens. Protecting a portion of the conserved water in the stream through the OWRD conserved water program will benefit everyone in the watershed and the native species dependent on that water.

In conclusion, I think the Green Valley Farm water conservation project will have many benefits and the Deans are great farmers trying to make the best environmental choices to the benefit of our whole watershed.

Sincerely,

Melody Rudenko
333 NE 2nd St
PO Box 201
Oakland, OR 97462



BioSync Industries LLC
4450 Fort McKay Road
Oakland, OR 97462

April 12, 2019

To: Oregon Water Resources Department
Attn: Grant Program Coordinator

It is with great pleasure that I send this letter to your group on behalf of the folks at Green Valley Farm and Logistics. Our group, BioSync Industries, is an agriculture development company focused on creating biological and economical regenerative projects for our communities.

As per the details and data below, in 2018 we built out a drip system for irrigating a row crop at a pilot farm location. One aspect of the project included converting traditional wheel line watering systems into more efficient and productive drip based irrigation.

This project was designed to first improve efficiencies of both water and energy consumption. The secondary and long term intent of this project was to improve the quality of the soil by reducing the impacts of over watering and nutrient leaching while simultaneously supporting natural biological systems within the soil. This would bring back supportive flora and fauna while simultaneously reducing the need for synthetic additives and control systems. Also of importance, over time, it will improve the quality of water runoff that is reintroduce to the Calapooya Creek thus impacting its entire water path towards the Pacific Ocean. If similar projects can continue to be implemented across these waterways we can begin to improve our water system and habitat corridors at a larger scale.

Mr. Jesse Dean was a key coordinator in this build-out and pilot operation and we are thrilled at the opportunity for him and his wife, Mrs. Rachel Dean, to have the opportunity to continue and build upon this work at their location.

Thank you for your time and we look forward to seeing their project unfold!

Kind Regards,

Ronald A. Spencer, MBA, BArch
Director of Operations
BioSync Industries, LLC
ron.spencer@biosyncindustries.com
541-870-3454



Summary:

Below is our analysis of switching from traditional hand and wheel line type irrigation to a drip line irrigation system.

Water use report:

Traditional and Wheel Lines:

Run time:	24hrs
Sprinkler Size:	3/8" wade rain
System PSI:	50-60psi
Sprinkler flow rate:	13gpm
Number of sprinkler heads:	21
Total Flow Rate	273gpm
Sprinkler Spacing:	40'
Application efficiency:	65-80%
	*per cesiskiyou.ucanr.edu/files/117599.pdf
Est efficiency Waste:	54.6-95.55gpm
Total Water used daily:	393,120 gallons
Duration:	120 days
Est Total Water Usage:	47,174,400 gallons of water.
Est Efficiency Waste:	9,434,880 - 16,511,040 gallons of water.

Converted Drip Line System:

Run Time:	8hrs
Drip Sizing:	.710
Spacing:	24"
Drip Emitter Flow Rate	.42gph
GPM per Acre:	40.81gpm
Plot size:	6.81 acres
Total Flow Rate	277.82gpm
Total Water Used Daily	133,353 gallons
Duration:	120 days
Est Total Water Usage:	16,002,432 gallons

NOTE: Not calculated, energy savings on running irrigation pump at 33.33% compared to the 24hr system from traditional wheel line.

April 19, 2019

Oregon Water Resources Dept.
Attention: Grant Program Coordinator
725 Summer St., NE, Suite A
Salem, OR 97301

Dear OWRD,

I'm writing on behalf of the Dean family of Oakland, OR, who are seeking funding to offset the high cost of converting their farm from heavy-irrigation cattle to a more conservation-minded agriculture approach.

Having nearly 20 years of experience in aquatic and terrestrial restoration and management, I was approached by the Dean family to help them collaborate with various entities to promote sound land/stream stewardship through education and outreach efforts.

My experience includes:

- Board of Directors of The Partnership for the Umpqua Rivers (watershed council)
- Board of Directors and staff of Umpqua Watersheds, Inc. (conservation group)
- Steering Committee of the Umpqua Focused Investment Partnership


In addition, I have: supervised local AmeriCorps Members teaching environmental science in Douglas County; aided Umpqua Community College on long-duration science fieldtrips; and have been a partner (fiscal Mgr.) in the Oregon Youth Conservation Corps.

Throughout this experience, my emphasis has been to educate the public on ecologically-sound restoration and conservation principles and practices. Through collaboration with local entities, we hope to be able to show other local landowners a better option for sustainable agriculture practices while promoting water conservation of the Calapooya Creek, one of the most highly-degraded drainages of the Umpqua Basin.

For this project, I have reached out to several entities. I have asked The Partnership for the Umpqua Rivers to review the 1,892ft of stream frontage to consider it for a salmon habitat restoration project, I have contacted the Douglas Soil and Water Conservation District to discuss an agreement with the NRCS CREP program, and have engaged the Umpqua Natural Leadership Stem Hub [UNLSH] to consider educational opportunities, including long-term monitoring, for their students. Other partners may include Umpqua Community College, Yoncalla HS Natural Resources, and Oakland HS FFA.

In my experience, Douglas County has been a very difficult place to find landowners who are willing to accept water conservation practices. Not only are the landowners willing to change their land and practices, they are willing to go the extra mile by allowing others to access their property for educational purposes. If implemented, this project will allow us to demonstrate sound water conservation, riparian restoration, and aquatic restoration on a working farm to students of all ages.

Best regards,

A handwritten signature in cursive script that reads "Alan Bunce". The signature is written in dark ink and is positioned below the text "Best regards,".

Alan Bunce

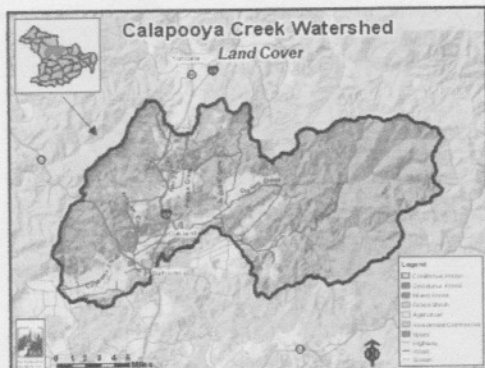
Calapooya Creek Watershed

Key Statistics

Size (acres)	157,282
Percent public ownership	8
Miles of anadromous salmonid streams	171
Highest elevation (feet)	4,443
Lowest elevation (feet)	320

Location and Size

The Calapooya Creek fifth-field watershed is located in the north-central Umpqua Basin and is 157,282 acres. The watershed stretches a maximum of 13 miles north to south and 27 miles east to west. Calapooya Creek is 36 miles long and is a tributary to the Umpqua River.



E&S Environmental Chemistry
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have established populations in the Umpqua River. Although warm-water fish have been reported in the Calapooya Creek Watershed, these introduced fish have not been able to establish resident populations within Calapooya Creek or its tributaries.

In the western portion of the watershed and along most of Calapooya Creek, riparian areas are primarily thin strips of hardwoods with brush and blackberries. Conifer forest-dominated riparian areas are more common in the eastern portion of the watershed and along the watershed's extreme western edge. During the summers of 1993 through 1995, the Oregon Department of Fish and Wildlife conducted stream habitat surveys in the Calapooya Creek Watershed. Survey results showed that throughout the watershed, streams had poor levels of large woody debris and poor riffles.

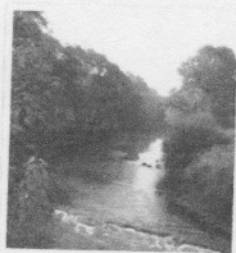


Photo courtesy of Partnership for the Umpqua Rivers

In the Calapooya Creek Watershed, seven streams are considered water quality limited for habitat or flow modification. These streams are: Bachelor Creek (flow), Calapooya Creek (habitat), Coon Creek (flow), Dodge Canyon Creek (habitat and flow), Oldham Creek (flow), Pollock Creek (flow), and Williams Creek (habitat and flow). Two streams within the Calapooya Creek Watershed are on the Oregon Department of Environmental Quality (ODEQ) 303(d) list for violating water quality standards. Calapooya Creek is listed for temperature, dissolved oxygen, pH, and fecal coliform. Cook Creek, a very small tributary that flows through the northwestern portion of the City of Sutherlin, is listed for copper, lead, iron and manganese.

In 2000, ODEQ concluded that the Bonanza Mine, which was active from the late 1800s until 1960, is a significant source of mercury and arsenic contamination in Foster Creek, Banks Creek, and Calapooya Creek. Concentrations of mercury and arsenic in the soils at the Bonanza Mine site present a health risk to people living on the property.

Tailings from the Bonanza Mine were used to construct a Weyerhaeuser railroad grade; the grade is now Red Rock Road, which is not surfaced. Red Rock Road follows Calapooya Creek throughout most of the eastern half of the watershed. Red Rock Road's mercury and arsenic concentrations exceed safe levels for residential exposure. The road appears to be a potential source of continuous metal contamination to Calapooya Creek.

Specific UBWC Enhancement Opportunities for the Calapooya Creek Watershed

1. Actively seek out opportunities with landowners, businesses, and resident groups in key areas to enlist participation in the following restoration projects and activities:

- Improve irrigation efficiency and instream water leasing (all streams with water rights, such as Bachelor Creek and Oldham Creek)
- Instream structure placement (esp. Hinkle Creek and streams above Gassy Creek including Calapooya Creek and Riparian planting, blackberry conversion, fencing, and alternative livestock watering systems in the following areas:
 - Calapooya Creek from Dodge Canyon to Oldham Creek.
 - Oldham Creek.
 - Pollock Creek.
 - Cabin Creek.

Landscape and Features

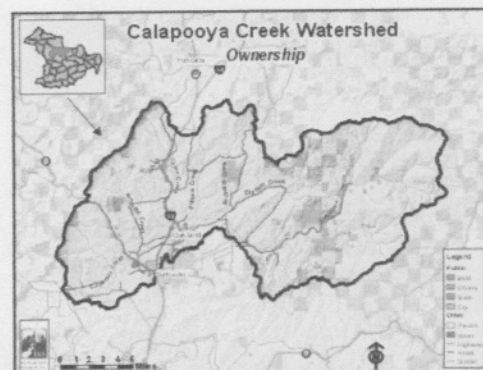
In the western portion of the Calapooya Creek Watershed, the landscape is mostly broad floodplains and terraces with gentle to moderate slopes. Elevation for most of the area ranges from 500 to 1,000 feet. The lowest point in the watershed is 320 feet where Calapooya Creek meets the Umpqua River in the southwest. In the eastern portion of the watershed and along the extreme western border, elevations range from 1,500 to 4,000 feet. Middle Mountain, located on the watershed's eastern border, is the highest point at 4,443 feet.

There are three highways within the Calapooya Creek Watershed: Interstate 5, Highway 99, and Highway 138. All of the City of Oakland and the northwestern portion of the City of Sutherlin are within the watershed. According to census data, the population of the City of Oakland was 954 people in 2000.

The most common land use in the Calapooya Creek Watershed is forestry, with 64% of the land base used for public or private forestry. Agriculture constitutes 33% of the land use and mostly occurs in the western half of the watershed. Land ownership is primarily private (91%), with public ownership mostly administered by the Bureau of Land Management.

Current Conditions

The Calapooya Creek Watershed provides habitat for winter steelhead, cutthroat trout, coho, and fall chinook. Many introduced fish species such as smallmouth bass



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