SACRAMENTO - SAN JOAQUIN

DELTA CONSERVANCY

A California State Agency

Full Proposal Application Form & Instructions

Fiscal Year 2016-17

PROPOSITION 1

Delta Conservancy Ecosystem Restoration and Water Quality Grant Program

FUNDED BY THE

Water Quality, Supply, and Infrastructure Improvement Act of 2014

PROP 1

GOVERNOR EDMUND G. BROWN, JR.
WATER BOND 2014
RELIABILITY | RESTORATION | RESILIENCE

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All attachments are on the Delta Conservancy's website: http://deltaconservancy.ca.gov/prop-1/.

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Note to Applicants

Full Application Form Intent and Evaluation

This Full Application Form and Instructions has been designed to comply with the Delta Conservancy's 2016-2017 Grant Guidelines. By completing this application, its attachments, and the requested supplemental documents, the applicant will be in compliance with Proposition 1, and all of the requirements of the Delta Conservancy's Grant Guidelines.

Applicants are advised to carefully review and consider the Grant Guidelines and full proposal evaluation criteria when preparing their applications. The evaluation criteria and their point values are summarized in the Evaluation Criteria table on pages 6 through 8, for your reference. In addition, throughout this document, the criterion that will be satisfied by the information provided in a particular question is noted below the header of that question. Note that multiple responses may relate to a single criterion or that a single response may relate to multiple criteria. Applicants are encouraged to refer back to the evaluation criteria table to ensure that all components of the criteria are being addressed, and to understand the point value of each criterion.

Document Submission Process and Deadline

This application form and all relevant attachments and supplementary materials must be received by the Delta Conservancy by **5:00pm on January 13, 2017**. All files should be submitted electronically one of two ways: 1) via large file upload (instructions will be provided separately); or 2) via USB or CD and mailed or hand delivered to the Delta Conservancy's offices, located at 1450 Halyard Drive, Suite 6, West Sacramento, CA 95691.

Full Application Form Length

Please submit the Full Application Form as a Word document. The Full Application Form should not exceed 50 pages total, including all of the text provided in a blank form. **The word count limits that are provided next to applicable question *include* spaces and punctuation,** and will be strictly enforced. **Attachments and supplemental documents are not included in the 50-page limit.** Each applicant is required to complete all fields in the Full Proposal Application Form unless noted exceptions apply.

Other Documents

Each applicant must also submit the following attachments in the provided file type (Word or Excel):

- Attachment 2 – Schedule and List of Deliverables
- Attachment 4 – Budget Breakdown by Task
- Attachment 5 – Line Item Budget
- Attachment 7 – Funding by Source
- Attachment 8 – Financial Management System Questionnaire and Cost Allocation Plan
- Attachment 9 – Performance Measures Table

The following attachments must be submitted if relevant to the proposed project:

- Attachment 1 – California Conservation Corps Consultation
- Attachment 3 – Acquisition Table
- Attachment 6 – Subcontractor Line Item Budget

Where applicable, applicants are also required to submit supplemental documents. The Applicant Checklist on page 9 contains a complete list of application components.

Please note that applicants who are selected to receive funding may be required to submit additional information about their projects during the development of the grant agreement. The Delta Conservancy reserves the right to request more information in order to clarify and complete grants agreements.

Certification of Accuracy

By submitting an application to the Delta Conservancy and checking the box below, the applicant is certifying that all information included in the application is true and correct, to the best of the applicant's knowledge.

☒ By checking the box, Applicant certifies that all information included in this application is true and correct, to the best of the applicant's knowledge.

Evaluation Criteria

Criterion Number	Criterion Category	Point Value	Criterion Description
Eligibility Criteria			
1	Eligibility	Pass/ Fail	Will the project result in the construction, acquisition or long term improvement o f a capital asset or is the project a planning effort that will lead to such project? A capital asset is tangible physical property that has a useful life of at least fifteen years
2	Eligibility	Pass/ Fail	Will the project produce ecosystem and/or water quality benefits and/or agricultural sustainability?
3	Eligibility	Pass/ Fail	Is the project consistent with Proposition 1, the California Water Action Plan, the Conservancy's enabling legislation, and the Delta Plan?
Scoring Criteria			
1	Project Description and Organizational Capacity	10	Does the applicant provide a clear description of the project that addresses the need for the project, and project goals and objectives, tasks, deliverables, and budget? How well can the applicant manage and complete the proposed project considering related experience, staff qualifications and knowledge; and what is the applicant's performance on prior federal or state assistance agreements awarded in the past three years? Does the project description include a detailed project plan or implementation schedule; and budget with reasonable costs and clear identification of grant funds and cost share contributions? For acquisition projects, has the applicant satisfactorily provided all required additional information?
2(a)	State Priorities/ Project Benefits	15	For Category 1 projects, how well does the specific, on-the-ground project for which planning is being done demonstrate consistency with Prop. 1 and State priorities, including implementation of the California Water Action Plan, the Conservancy's enabling legislation and Strategic Plan, the Delta Plan, and applicable recovery plans? Where relevant, projects should demonstrate consistency with regional plans (see Appendix B for a list of relevant plans)
2(b)	State Priorities/ Project Benefits	15	For Category 2 projects, how well does the project demonstrate consistency with Prop. 1 and State priorities, including implementation of the California Water Action Plan, the Conservancy's enabling legislation and Strategic Plan, the Delta Plan, and applicable recovery plans? Where relevant, projects should demonstrate consistency with regional plans (see Appendix B for a list of relevant plans). For acquisition projects, does the proposal address the factors required by the Conservancy's enabling legislation?
3(a)	State Priorities/ Project Benefits	5	For Category 1 projects, does the applicant explain how the planning effort will include efforts to efforts to develop a plan to maintain environmental benefits for the required minimum of 15 years, and for developing and implementing an adaptive management plan?

Criterion Number	Criterion Category	Point Value	Criterion Description
3(b)	State Priorities/ Project Benefits	5	For Category 2 projects, how well does the applicant demonstrate plans for long-term management and sustainability of the project for the required minimum of 15 years or longer, and how for the implementation of an adaptive management plan as required and defined in the Delta Plan?
4(a)	State Priorities/ Project Benefits	5	For Category 1 projects, the extent to which the project considers climate change, and provides a mechanism for incorporating climate change considerations into the planning process
4(b)	State Priorities/ Project Benefits	5	For Category 2 projects, the extent to which the project integrates climate change considerations. If an agricultural sustainability project, the extent to which the impacts of climate change are vetted and deemed relevant or applicable to the project
5(a)	Readiness	15	For Category 1 projects, how well does the proposal demonstrate how the proposed planning activities will advance the project toward implementation in a timely manner, and how previous and subsequent phases will ensure that environmental compliance and all data gaps are addressed?
5(b)	Readiness	15	For Category 2 projects, how complete is project planning, what is the status of CEQA and permitting efforts, and when will the project be ready to begin implementation?
6	Local Support	7	How well does the applicant demonstrate that they have local support? Full point will be provided only if a resolution of support from the County is included.
7	Local Support	5	To what extent has the applicant developed appropriate and necessary partnerships to help implement the project, and, if applicable, has the project been incorporated into larger plans or existing partnerships?
8(a)	Local Support	5	For Category 1 projects, how well does the proposal demonstrate plans inform and consult potentially affected parties, and to avoid, reduce, or mitigate conflicts with existing and adjacent land uses?
8(b)	Local Support	5	For Category 2 projects, has the applicant informed and consulted potentially affected parties, how consistent is the project with similar efforts on nearby or surrounding lands, and how well does the project avoid, reduce, or mitigate conflicts with existing and adjacent land uses?
9	Funding: Cost Share and Leveraging	5	Does the project develop a cost share with private, federal, or local funding to maximize benefits? For every 10 percent of cost share, a project will score one point for this evaluation criterion, to a maximum of 5 points.
10	Funding: Cost Share and Leveraging	3	Does the project leverage other state funds?

Criterion Number	Criterion Category	Point Value	Criterion Description
11	Scientific Merit and Performance Measures	10	How well does the applicant explain the scientific basis of the proposed project and the degree to which best available science has been adopted? If scientific basis is not relevant for this project (e.g., a sustainable agriculture project), what is the extent to which best industry practices are used, and to which the impacts of climate change are vetted?
12(a)	Scientific Merit and Performance Measures	10	For Category 1 projects, how clear are the project's outputs and outcomes, and how well does the proposal demonstrate a plan for tracking progress toward stated performance measures?
12(b)	Scientific Merit and Performance Measures	10	For Category 2 projects, how clear are the project's outputs and outcomes, and how well does the proposal demonstrate a plan for measuring, monitoring, tracking, and reporting progress toward achieving these results? To what extent does the proposal demonstrate a plan and approach for collecting and managing data consistent with existing State efforts, and for reporting project results or methods to private, State, and/or local government agencies beyond their own organization?
13	Scientific Merit and Performance Measures	5	How well does the project employ new or innovative technology or practices, including decision support tools? If an agricultural sustainability proposal, how well does the project vet the relevancy and applicability of new or innovative technology or practices.

Applicant Checklist

Section 1: Summary Information	☒ Yes ☐ No ☐ N/A
Resolution to Apply	☒ Yes ☐ No ☐ N/A
Organizational Documents Required of Applicants	☒ Yes ☐ No ☐ N/A
Attachment 1 – California Conservation Corps Consultation	☒ Yes ☐ No ☐ N/A
Section 2: Conflict of Interest	☒ Yes ☐ No ☐ N/A
Section 3: Project Description & Organizational Capacity	☒ Yes ☐ No ☐ N/A
Attachment 2 – Schedule & List of Deliverables	☒ Yes ☐ No ☐ N/A
Acquisitions Attachments: • Attachment 3 – Acquisitions Table • Copy of Purchase & Sale/Option Agreement, or Willing Seller Letter(s) • Appraisal or Estimation of Fair Market Value • Map showing lands to be acquired, including parcel lines & numbers	☐ Yes ☐ No ☒ N/A
Project Maps, Photos, and Site Plan	☒ Yes ☐ No ☐ N/A
Section 4: Budget Details	☒ Yes ☐ No ☐ N/A
Attachment 4 – Budget Breakdown by Task	☒ Yes ☐ No ☐ N/A
Attachment 5 – Line Item Budget	☒ Yes ☐ No ☐ N/A
Attachment 6 – Subcontractor Line Item Budget	☒ Yes ☐ No ☐ N/A
Attachment 7 – Funding by Source	☒ Yes ☐ No ☐ N/A
Cost Share Commitment Letters	☒ Yes ☐ No ☐ N/A
Attachment 8 – Financial Management Systems Questionnaire and Cost Allocation Plan	☒ Yes ☐ No ☐ N/A
Section 5: State Priorities/Project Benefits	☒ Yes ☐ No ☐ N/A
Section 6: Readiness	☒ Yes ☐ No ☐ N/A
Section 7: Environmental Compliance & Consultation	☒ Yes ☐ No ☐ N/A
Table 7.1. Status and document information for applicable CEQA documents	☒ Yes ☐ No ☐ N/A
Table 7.2. Status of applicable environmental permits	☒ Yes ☐ No ☐ N/A
Table 7.3. Status and document information for applicable Covered Action processes	☒ Yes ☐ No ☐ N/A
Section 8: Local Support	☒ Yes ☐ No ☐ N/A
Local Government Resolution	☒ Yes ☐ No ☐ N/A
Proof of Consultation with Delta Protection Commission	☒ Yes ☐ No ☐ N/A
Letters of Support	☒ Yes ☐ No ☐ N/A
Section 9: Scientific Merit & Performance Measures	☒ Yes ☐ No ☐ N/A
Attachment 9 – Performance Measures Table	☒ Yes ☐ No ☐ N/A

1 Summary Information

1.1 Project Title

Provide a brief, descriptive project title. (150 characters)

Petersen Ranch: Working Waterway Habitat Enhancement Project

1.2 Applicant Information

1.2.1 Applicant Name

Name: Solano Resource Conservation District

1.2.2 Person Authorized to Sign Grant Agreement (Signatory)

Name: Chris Rose

Title: Executive Director

Mailing Address: 1170 North Lincoln Street, Suite 110 Dixon, CA 95620

Telephone: 707.678.1655 ext. 106

Fax Number:

Email Address: chris.rose@solanorcd.org

1.2.3 Contact Person (if different than Signatory)

Name: (Same as above)

Title:

Mailing Address:

Telephone:

Fax Number:

Email Address:

1.2.4 Resolution to Apply

Applicants will be required to provide a copy of documentation authorizing them to submit an application for grant funding to the Delta Conservancy. For additional instructions, please see page 29 of the Grant Guidelines. Check the box below to indicate that a resolution or letter is attached.

☒ Resolution attached

1.2.5 Federal Employer Identification Number

If available, provide the applicant's Federal Employer Identification Number (EIN).

☐ Not Available

EIN: 68-0085528

1.2.6 Organization Type

Check the box for which organizational type the applicant falls under. If the applicant does not fall under a listed category, the applicant is not an eligible entity. Additional information, as outlined below, is required for certain applicants.

☒ California Public Agency

☐ 501(c)(3) Nonprofit Organization

☐ Public Utility

☐ Mutual Water Company

☐ Native American Tribe

1.2.7 Organizational Documents Required of Applicants

Please review and attach the documents relevant to applicant's organizational type. Check boxes to indicate attachments.

Nonprofit Organization

☐ Articles of Incorporation

☐ IRS letters

☐ Signed Bylaws

☐ Nonprofits incorporated outside of California must submit documentation from the California Secretary of State at the time of the application showing that they are permitted to do business in the State of California.

Public Utility

☐ A public utilities regulated by the Public Utilities Commission must demonstrate that it has a clear and definite public purpose and that it benefits the customers and not the investors.

Native American Tribe

☐ Native American tribes must show proof of inclusion on the California National Heritage Commission's Consultation List, or proof of federal recognition.

Mutual Water Company

☐ Mutual water companies are required to submit a document that demonstrates a clear and definite public purpose and that it benefits the customers of the water system and not the investors.

☐ Urban water suppliers must adopt and submit an urban water management plan in accordance with the Urban Water Management Planning Act (Part 2.6 (commenting with Section 10610) of Division 6).

☐ Agricultural water suppliers must adopt and submit an agricultural water management plan in accordance with the Agricultural Water Management Planning Act (Part 2.8 (commencing with Section 10800) of Division 6).

☐ Urban water suppliers and agricultural water suppliers must show proof of compliance with the requirements of Part 2.55 (commencing with Section 10608) of Division 6) of the California Water Code.

1.2.8 Water Conservation and Efficiency Program

Pursuant to Governor Brown's April 2014 Executive Order, recipients of funding for future projects that impact water resources, including groundwater resources must have appropriate water conservation and efficiency programs in place in response to persistent drought conditions. Applicants must verify that their organization has a water conservation and efficiency program in place; however, it does not need to be submitted with the proposal. Check box to verify that the applicant's organization has a Water Conservation and Efficiency Program in place.

☒ Applicant's organization has a Water Conservation and Efficiency Program in Place

1.3 Project Information

1.3.1 Grant Type

Please specify if your Concept Proposal was approved for a Category 1 (Planning) or Category 2 (Implementation) grant.

☐ Category 1 (Planning)

☒ Category 2 (Implementation)

1.3.2 Amount Requested

Provide project amount requested from the Delta Conservancy. The amount must match the budget total in Attachment 5: Line Item Budget.

$444,464

1.3.3 Total Project Cost

Provide total project cost, including any cost share. The amounts must match those provided in Attachment 7: Funding by Source.

Total project cost: **$739,861**

Qualifying Cost Share: **$295,397**

1.3.4 Project Duration

Indicate when the work for which you are seeking funding from the Delta Conservancy will begin and end. The end date should be no longer than three years after the start date.

Start Date: Aug 1, 2017

End Date: July 30, 2020

1.3.5 Geographic Location

Provide a general description of the project location. Include name of county, nearest city & address (if available). (225 characters)

The project is located just north of the City of Rio Vista, CA in Solano County. The project site lies within the boundaries of Reclamation District 536 and is accessed from Liberty Island Road on an unnamed gravel road.

1.3.6 California State Senate District Number

*Provide California State Senate District Number(s) (*http://sdmg.senate.ca.gov/2015senatedistricts*).*

3rd State Senate District

1.3.7 California State Assembly District Number

*Provide California State Assembly District Number(s) (*http://www.legislature.ca.gov/legislators_and_districts/districts/assemblydistricts.html*).*

Assembly District 11

1.3.8 Disadvantaged Communities

Provide information on the extent to which the project benefits a disadvantaged community as defined in California Water Code Section 79505.5 (refer to Section 3.9. Disadvantaged Community). Provide estimates of the percentage of the project area that is located within a disadvantaged community and how many identified disadvantaged communities occur within one mile of the project boarder. Refer to the Disadvantaged Communities Mapping Tool found at: http://www.water.ca.gov/irwm/grants/resources_dac.cfm. *(500 characters)*

The Peterson Ranch Project is located five miles north of the city of Rio Vista, which is a disadvantaged community of 7,736 people, located on the Sacramento River. This project will benefit all residents of the project area by restoring and enhancing working landscapes in partnership with local ranchers while involving local youth in the hands-on installation of the project elements.

1.3.9 Special Districts

List any special districts with jurisdiction over the project location, including public water agencies, and levee, flood control, or drainage agencies. The Delta Conservancy will coordinate and consult with applicable state and local agencies, as described on page 19 of the Grant Guidelines. (300 characters)

SRCD has consulted and received letters of support for the proposed project from Solano County, Reclamation District 536, Solano County Water Agency, and Department of Water Resources. SRCD has also consulted with and received positive project concept feedback from the Delta Protection Commission.

1.3.10 Water Rights for Project

For Category 2 Implementation projects, submit a statement or application number for the water right the project proposes to use, as well as a short, narrative statement demonstrating that the project's water use has been considered, is reasonable, and that there is sufficient water to implement and maintain the project without causing adverse impacts to downstream users or surrounding landowners. For more information, see pages 11-12 of the Grant Guidelines. (1,500 characters)

☐ Not Applicable (Category 1 Planning grant)

Water Right Statement or Application Number:

Application # 13148

Permit# 8417

The Project is located within Reclamation District 536. The Petersen Ranch has rights to use water from the adjacent Lindsey Slough through a "License for Diversion and Use of Water" permit with the Water Resources Control Board.

During the summer months, the operator of the property, Hearn Livestock irrigates perennial pasture for cattle throughout the Project area. A series of head and tail irrigation drainage ditches lie along each proposed planting area. The irrigation amounts that will be utilized by the habitat project are negligible in volume compared to the volume utilized to irrigate the pasture fields. The project will implement temporary drip irrigation that will deliver water to all woody plants installed through the summer months. Both the Landowner and the District manager of 536 have agreed to SRCD pulling water from the drainage ditches to irrigate the proposed plantings and cited no concerns on water usage for the Petersen property or any of the downstream District users.

1.3.11 Coordination with California Conservation Corps & Certified Local Corps

For Category 2 projects, check box if consultation occurred with the California Conservation Corps (CCC). If yes, submit consultation form (Attachment 1: California Conservation Corps Consultation). Describe how the California Conservation Corps (CCC) or local conservation corps certified by the CCC will be used. If it is not feasible to use a conservation corps, explain why. (375 characters)

☒ Yes ☐ No ☐ Exempted (Category 1 Planning or Category 2 acquisition only projects)

The SRCD field staff will work with Conservation Corps crews on approximately 8 separate dates over the course of the project. Primary work activities for the Corps members to help execute will be native plant installation, temporary irrigation installation, mulching, and various weed control tasks ranging from hand weed pulling to weed whacking and brush clearing.

1.4 Eligibility

1.4.1 Program Eligibility

A project must meet all of the following criteria to be eligible.

1. Will the project result in the construction, acquisition or long term improvement of a capital asset or is the project a planning effort that will lead to such project? A capital asset is tangible physical property that has a useful life of at least fifteen years.

☒ Yes ☐ No

2. Will the project produce ecosystem and/or water quality benefits and/or agricultural sustainability?
   ☒ Yes ☐ No

3. Is the project consistent with Proposition 1, the California Water Action Plan, the Conservancy's enabling legislation, and the Delta Plan?
   ☒ Yes ☐ No

1.4.2 Mitigation

Is the proposed project required for mitigation or is it to be used for mitigation under laws such as CEQA, NEPA, CESA, ESA, CWA, or other pertinent laws and regulations, or a permit issued by any local, state or federal agency (such as those listed in Table 7.2. Status of applicable environmental permits)? If yes, project is ineligible.

☐ Yes ☒ No

1.5 Abstract

The abstract should summarize the complete project, and should include background information, the project purpose, the methods that will be used, the expected results, and the anticipated outcomes. (3,000 characters)

This working waterways habitat enhancement project will pair cattle management practices with ecosystem restoration practices to create 13.5 acres of riparian habitat on actively farmed and grazed ground in the northern part of the Petersen Ranch along Lindsey Slough. It will address both the need for native vegetation—with the habitat and ecosystem benefits it provides—and for improved water quality in the Cache Slough Complex. The project will build upon a successful history of riparian restoration and cattle exclusion activities at the Ranch, and is moving forward with the full support of the landowner and neighboring property owners.

The project aligns with the Delta Conservancy's Strategic Plan goals of leading efforts to protect Delta Ecosystems, working in partnership with Delta growers to protect and enhance the Delta's working landscapes, and engaging in activities that support the Delta's agricultural economy.

The project will install nearly 6.5 miles of fencing structures and provide off-stream water sources for livestock. This will ensure that cattle no longer have direct access to surface waterways that discharge into sensitive Delta habitats and will create a riparian corridor available for restoration activities. The riparian corridors will be planted with a diverse mix of native trees, shrubs, grasses, sedges and forbs to create 13.5 acres of wildlife habitat that will also serve as filter strips for irrigation and storm water runoff. It is anticipated that the removal of cattle and creation of riparian filter strips will provide significant ecosystem benefits to this area of the Delta, including increased habitat for terrestrial and invertebrate species, reduced erosion and improved water quality, enhanced ecological condition of ranch waterways, and carbon sequestration.

Project success will be monitored regularly over the course of implementation and will generate habitat restoration data (survivorship, vegetative cover, CRAM scores) and water quality data (temperature, DO, turbidity, EC) that will be publicly available on EcoAtlas and CEDEN data exchanges. Changes in project implementation activities will be informed by an adaptive management plan that works toward desired project outcomes while remaining flexible in its approach.

The project will be implemented by a diverse partnership of the landowner, Solano RCD, USDA-NRCS, and youth from the California Conservation Corps (CCC) and the Center for Land-Based Learning's SLEWS (Student and Landowner Education and Watershed Stewardship) program.

It is anticipated that the completed project will serve as a useful demonstration site, showcasing ecosystem restoration that is compatible with surrounding farming operations to model effective habitat restoration techniques in a working agricultural landscape.

2 Conflict of Interest

Additional guidance about conflict of interest requirements can be found on page 10 of the Grant Guidelines.

2.1 Applicant

Identify members of the applicant's team who: wrote the proposal; will be performing the work listed in the proposal; or who will benefit financially if the proposal is funded. (750 characters)

The SRCD staff wrote this proposal with guidance and input from the Landowner and our conservation partners at Delta Conservancy, Delta Stewardship Council, Natural Resources Conservation Service, California Conservation Corps, and Center for Land-Based Learning. SRCD staff contributors include Chis Rose (Executive Director), Katherine Holmes (Assistant Executive Director), Amy King/Andrea Mummert/Miles DaPrato (Restoration Project Managers). If the work is funded, our other restoration staff at the SRCD (Sarah McKibbin, Jerah Frye, Jeff Carlson) and office manager (Caitlyn Morrissey) will also work directly on the grant.

2.2 Subcontractors

Identify subcontractors who: will perform some work listed in the proposal; will benefit financially if the proposal is funded. Include name(s) and organization(s). (750 characters)

The identified subcontractors in the project are the California Conservation Corps, The Center for Land-Based Learning (SLEWS Program), and LM Surveyors. Specifically, crew members from the California Conservation Corps Napa Satellite office will be assisting us with habitat installation. Frank Arzaga is the lead supervisor/coordinator at that office. Mary Kimball is the executive director of the Center for Land-Based Learning and the SLEWS Program staff includes Nina Suzuki (SLEWS Program director) and Matt Lechmaier (SLEWS coordinator). The SLEWS Program will also be assisting with habitat installation activities. LM Surveyors will execute a legal description for the project footprint for recording requirements.

2.3 Others

Identify other individuals who helped with proposal development, for example by reviewing drafts, or by providing critical suggestions or ideas contained within the proposal. These individuals may include agency staff. List the name(s) and organization(s) of any individuals who were consulted during proposal development. (750 characters)

Outside of the internal staff at the SRCD that put together this proposal and the information provided by our proposed subcontractors (SLEWS, CCC's, LM) the SRCD worked with a variety of local conservation organizations and agencies. The Landowners helped provide necessary information to develop the project. The NRCS Vacaville field office staff (Wendy Rash and Chris Robbins) shared information regarding the EQIP cost share program. The Delta Conservancy staff (Laura Jensen and

Beckye Stanton) provided feedback in the development phase of the pre-proposal and the final proposal consultation. The Delta Stewardship Council staff (Daniel Huang and Karen Kayfetz) provided guidance on connection of the project with the Delta Plan.

3 Project Description and Organizational Capacity

3.1 Project Description: Purpose and Implementation

Included in criterion 1.

Include a detailed project description that can serve as a statement of work for a grant agreement.

1) ***Explain the purpose of the project, the need for the project, and the history*** *of the project. If the proposed project is part of a multiphase project, outline all phases and explain how other project phases have been or will be funded.*
2) ***Explain the specific goals and objectives of the project****. Describe how the proposed approach addresses project objectives. The objectives should be the same as those described in Attachment 9: Performance Measures Table.*
3) ***Enumerate and describe the project tasks.*** *Describe the means by which each task will be implemented (e.g., methods/ techniques used, materials and equipment, etc.). Tasks must align with those listed in Attachment 2: Schedule and List of Deliverables and in the budget narrative and attachments.*
4) ***Name and describe the entities that will be performing each task (applicant staff, consultants, subcontractors, etc.).*** *Entities should match those identified in Section 4: Budget Details. Describe each entity separately and specify which tasks will be associated with each entity. If a consultant or subcontractor has not been selected, refer to the type of contractor required (environmental consultant, construction contractor, engineering contractor, etc.). Also describe tasks of personnel performing in-kind services.*

(12,000 characters)

☒ Schedule and List of Deliverables attached

1.a Project Purpose

This working waterways habitat enhancement project will pair livestock management practices with ecosystem restoration practices that have proven successful at this site (Figure 1). The project targets the following conservation priorities: 1) creating riparian habitat buffers and corridors along irrigation and drainage waterways and 2) improving the efficiency of ranch operations in support of the larger region-wide goal of supporting ecologically sustainable agriculture in the Delta. The project will be implemented in a manner that is compatible with surrounding farming operations to model effective habitat restoration techniques in a working agricultural landscape.

Figure1. Petersen Ranch drain before (a) and after (b) habitat enhancement work in 2014/15.

Fencing: The project will install nearly 6.5 miles of perimeter and cross fencing structures to exclude cattle from waterways. Installing these barriers will reduce soil erosion, sediment, and livestock waste entering the ranch's waterways; will reduce the frequency of costly ditch clean-out activities; and will create corridors for wildlife habitat.

Water troughs: Alternative livestock drinking water sources (troughs) and a water supply system upgrade (water pump and distribution pipelines) will be developed to eliminate the need for cattle to access the ditch system for drinking. This will improve the quality of drainage water leaving the ranch. In addition, water consumed by the animals through the groundwater well system is superior in quality to the surface irrigation water and will result in improved animal health (Brew 2008).

Habitat restoration corridors: The habitat will include a diverse native grass and forb understory and a mix of native riparian tree and shrub species found in the neighboring Cache Slough Complex. The project habitat footprint includes 10 separate habitat polygons covering 13.5 acres and stretching over 4 miles. These riparian and upland-scrub habitat enhancements will provide corridors for wildlife movement; critical food, cover, and nesting resources; and provide a vegetated filter system that livestock pasture irrigation water must pass through before returning to the Cache Slough water system (Figure2).

Figure 2. Typical planting buffer opportunity along a drain (17-25' wide).

1.b Project Background

The managers of Petersen Ranch, the Hearn family, approached Solano Resource Conservation District (SRCD) and the Natural Resources Conservation Service (NRCS) in 2013 for technical and financial assistance with the installation of habitat along irrigation and drainage waterways, and with development of livestock infrastructure. With grant funding from the CA Department of Water Resources (DWR) and the NRCS EQIP Program, SRCD began implementing habitat enhancement projects on the Petersen Ranch in the winter of 2014 and has to date enhanced 12.6 acres of riparian habitat along the eastern drainage network of the property. In 2015, SRCD and the Hearn family worked with the Delta Conservancy's (DC) Arundo Control and Habitat Enhancement Program Grant, to install an another 2-acre working waterway habitat enhancement and cattle exclusion project connected to the initial project work.

The Hearn family is interested in continued collaboration with our conservation team (SRCD, NRCS, and DC) to design and implement additional conservation measures to improve their management of water, soil, livestock and wildlife habitat resources. This effort will build on the success of riparian habitat

features previously installed by SRCD and connect to the natural riparian features of the Cache Slough Complex, a Bay Delta Plan priority area.

1.c Project Need

With over 98% of the Central Valley's historic riparian habitat lost or degraded, there is a tremendous need for projects that bring native vegetation back to the landscape; working agricultural waterways are the best remaining surrogate for those lost habitats (CVJV 2006). The proposed project will directly address ecosystem service needs for wildlife habitat, carbon sequestration, and water quality in an area currently lacking a diversity of vegetation. The creation of 13.5 acres of new riparian vegetation will meet habitat needs for numerous wildlife species that utilize riparian areas as well as beneficial insects that are important to surrounding agricultural productivity. The establishment of this vegetated acreage, including nearly 2000 trees and shrubs, will sequester hundreds of metric tons of CO2 (USEPA 2010, USDOE 2008 (see section 9, Scientific Merit). Restricting cattle from waterways will reduce waste and sediment inputs and the newly established vegetation will filter drainage water entering the waterways. This will result in water quality benefits both at the project site and in the receiving downstream Delta watershed that provides habitat and drinking water for numerous wildlife species as well as human use.

2. **Project Goals and Objectives**

Objective 1. Create 13.5 acres of diverse, native riparian habitat along ranch waterways that will provide ecosystem benefits in the Cache Slough Complex and larger Delta

This will be achieved through the installation of approximately 2,000 native trees and shrubs on 23,000 linear feet of waterways on the Ranch.

Objective 2. Improve the ecological condition and water quality of waterways on the Petersen Ranch.

This will be achieved through the installation of 34,000 feet of fencing and alternative drinking water sources for cattle on the Ranch. In addition, 10 acres of native grass and forb understory will be installed in the buffer strips to increase the filtration capacity of irrigation runoff into Ranch waterways.

In addition, an important goal of this multi-benefit project is to create hands-on environmental and agricultural job experience opportunities for local Delta community youth through direct implementation of the project, enabling the exploration of future careers in the fields of restoration ecology and natural resource management.

3. Project Tasks

Task 1 - Grant Management and Administration: The SRCD will track all accounting and submit quarterly invoices and progress updates as well as annual reports. Additional task activities include tracking performance measures, conducting site field meetings with grant manager and office meetings with field staff and subcontractors to ensure timely completion of grant deliverables.

Task 2 - Restoration Planning and Design: SRCD staff will acquire the necessary site access agreements and coordinate restoration preparation activities with the Landowner and NRCS staff, including the acquisition of necessary restoration materials and supplies.

Task 3 - Waterway Habitat Installation (See Table 3.3.1):

Site Preparation: Herbicide applications to control weeds and soil preparation (light disking, tilling) in the summer and fall of each year will be executed to create optimal seeding and planting conditions. SRCD will coordinate with the landowner to ensure that their installation of necessary infrastructure precedes habitat installation.

Understory Installation: Fifteen species of native grasses and forbs will be seeded on 10 acres. Seeded areas will be mulched with native grass straw in areas with poor soil conditions. Plug planting with grass and forb transplants will be limited to zones with sparse seed germination. The unseeded area of 3.5 acres will be selectively plug planted with transplants of herbaceous species such as goldenrod, purple aster, and mugwort. Approximately 6500 plugs will be installed.
Tree and Shrub Installation: All 13.5 acres will be planted with a diversity of native tree and shrub species (willows, cottonwoods, valley oak, CA rose, button willow, dogwood, coyote brush, etc.). Holes may be augured before planting to expedite root development. All woody species will be protected with temporary tubes and support stakes.
Irrigation Installation: SRCD will install ¾" PE drip irrigation along woody planting lines totaling nearly 25,000 linear feet. Water will come from the ranch's pasture irrigation and drainage system. Small gasoline pumps will distribute water through the drip lines to all woody plantings.
Habitat Maintenance: This will include both chemical and mechanical weed control activities such as boom and spot spraying, mowing, brush cutting, hoeing and hand pulling. The irrigation system will run bi-weekly for 6 months (April-Sept) for at least 2 summers after the initial installation. Replanting will be conducted each planting season of the contract term to achieve an 80% survival rate.

Task 4 - Livestock Infrastructure Installation: Prior to establishing vegetation along the waterways, sufficient ground preparation and livestock infrastructure needs to be installed, which will be completed by the Landowner. Portions of select drainage channels will need to be cleared of sediment and reshaped prior to animal fence exclosures being installed. This will be executed by backhoe and small excavator equipment as well tractor with various tilling/smoothing implements. The infrastructure elements include livestock fencing, livestock water distribution pipelines, livestock drinking troughs, water storage tanks, and culvert pipes.

Task 5 - Monitoring and Adaptive Management: SRCD staff will monitor plant mortality and condition twice during the grant period and again at project completion. Survival and condition data will be tracked by species and habitat type in order to inform species selection for re-plantings. Staff will establish GPS coordinates for photo monitoring each sub-project site and will photograph 6 views at each site prior to installation and bi-annually over the grant period. Detailed monitoring data will be collected at 4 of the sub-project sites: vegetative cover, ecological condition via CRAM surveys, and basic water quality parameters (see Section 9 Performance Monitoring). All monitoring data will be included in annual reports to the grantor and will inform management activities during the grant period and the vegetation management plan that will be provided to the Landowner.

Table 3.3.1. Habitat establishment timeline.

Habitat Implementation Activities	Sum-Fall 2017	Wint-Spr 2018	Sum-Fall 2018	Wint-Spr 2019	Sum-Fall 2019	Wint-Sp 2020	Sum-Fall 2020	Wint 2021-Fall 2032
Site Preparation								
Understory Plant Establishment								
Tree and Shrub Establishment								
Temporary Irrigation Installation								
Site Maintenance								

4. Entities Performing Each Task
Much of the habitat restoration work will be implemented with local high school youth through

collaboration with the Center for Land-Based Learning's Student and Landowner Education and Watershed Stewardship (SLEWS) Program. SLEWS is an environmental non-profit program that integrates classroom science learning with habitat installation to provide students with a unique hands-on learning experience in their watershed. Installation activities such as spreading mulch; tree, shrub, and plug planting; and irrigation installation will be executed with SLEWS student crews. In addition, the CA Conservation Corps (CCC) youth program will assist with installation as well as maintenance activities (Table 3.1.2 below).

Table 3.1.2. Entities and respective project task work.

Task	Entity	Description of Work	Funding Source
1	Solano RCD	All grant management, reporting, invoicing	DC
2	Solano RCD	Landowner coordination, planting plans	DC
	LM	Survey legal descriptions	DC
	USDA-NRCS	Site mapping, final project specifications	NRCS
3	Solano RCD	Lead on all habitat installation and maintenance	DC, NRCS, L.O. in-kind match
	CCC	Planting, irrigation, and weed control	DC
	SLEWS	Planting, irrigation, and weed control	DC, SLEWS
4	Landowner	Site preparation and cattle infrastructure installation	DC, NRCS, L.O. in kind match
	SRCD	Coordinating/assistance w/ site prep work activities and infrastructure materials purchases	DC
5	Solano RCD	Vegetation and CRAM surveys, water quality sampling	DC

3.2 Acquisitions Attachments

Included in criterion 1.

For projects proposing to acquire an interest in real property, note where supplementary information has been included by checking the boxes below.

☒ Not applicable

☐ A table including: parcel numbers, acreage, willing seller name and address, breakdown of how the funds will be budgeted, and an acquisition schedule (Attachment 3: Acquisitions Table)

☐ Copy of the Purchase and Sale or Option Agreement, or Willing Seller Letter(s)

☐ Appraisal or Estimation of Fair Market Value

☐ Map showing lands that will be acquired, including parcel lines and numbers

3.3 Project Team

Included in criterion 1.

Explain the team's ability to manage and complete the proposed project considering related experience, staff qualifications and knowledge. Also describe the team's performance on prior federal or state assistance agreements awarded in the past three years. Include examples of similar work, including

projects that included the same consultants, partners, subcontractors, etc. (3,000 characters)

Solano RCD has extensive experience restoring native vegetation in riparian, floodplain, and upland habitats across Solano County and completing community-based restoration projects with multiple partners. The RCD has an established track record of meeting the terms of funders' budgets and work plan timelines. In Fiscal Year '16 – '17 Solano RCD staff is managing 23 restoration and conservation projects in Solano County, funded by State, Federal and local monies. In the past five years, Solano RCD has implemented projects that resulted in more than 73,000 linear feet of habitat restoration; 13,077 native plants and 121,640 plugs planted; 53 acres of native grass installed; and 17,670 students participating in environmental education and conservation programs.

Miles DaPrato (SRCD project manager) has a BS degree from UC Davis in Environmental Biology and has been working in the field of restoration ecology for 13 years. After 9 years of work with Audubon California restoring habitat on farms in the Sacramento Valley, Miles continues his work now with the SRCD team to design, install, and manage habitat in the agricultural landscape of the county. Over the last 4 years, Miles has focused on Solano Delta projects which include nearly 50 acres of working waterway riparian and upland scrub habitat, in collaboration with local Reclamation Districts, farmers, and state and federal agencies.

Other Solano RCD staff include Executive Director Chris Rose, who has designed, implemented and overseen hundreds of acres of native grassland and riparian restoration projects in the Sacramento Valley since 1993; Katherine Holmes, who has a PhD in Plant Ecology and studied invasive plants in riparian ecosystems; Amy King (MS Ecology) who has 16 years of experience in native plant ecology and landscape design, has overseen California Rapid Assessment Surveys (CRAM) for 22 riverine sites, and implements the stream biomonitoring component of several municipal stormwater discharge (MS4) permits in the County; Andrea Mummert (MS Fisheries and Wildlife) who has 15 years of experience managing conservation projects and research experience determining water quality conditions required by sensitive aquatic species and conducting water quality sampling to assess best management practice effectiveness in agricultural settings; Sarah McKibbin (BS Ecological Management and Restoration) who has ten years of experience in invasive weed control, biological monitoring, and native habitat enhancement and restoration; Jerah Frye (BS Environmental Science) who has ten years of experience including weed control, nature reserve management, and stream water quality and habitat assessment; and Jeff Carlson who has four years of technician experience in native habitat restoration.

3.4 Project Location Information and Site Description

Included in criterion 1.

Provide an exact project location, using multiple coordinates if necessary. Also include a brief description of what the coordinates refer to, such as the downstream end of the project reach, and a description of the physical terrain and land cover types that occur on the project site. (700 characters)

Latitude/Longitude (WGS84 in decimal degrees): Ranch entrance gate at the south eastern corner of the project area; 38° 14' 37.39"N, 121°43'49.24'W

The project is located in Solano County just north of the City of Rio Vista. The property is the Petersen Ranch and the agricultural operator of the property is Hearn Livestock. The entrance road is on the eastern perimeter of the property and is accessed off of Liberty Island Rd. approximately 2000' south of the Lindsey Slough levee. The land use in the area is perennial pasture and alfalfa.

3.5 Project Maps, Photos, & Site Plan

Included in criterion 1.

Attach a project location map. All maps must be labeled with project title, applicant name, and be positioned so that relevant map information such as stream names, towns, main roads, water bodies, etc. are not obscured. Indicate other attached visuals, as relevant to the proposal.

☒ Project Location Map attached

Provide a map identifying the project site. The map should provide sufficient detail to allow a person unfamiliar with the area to locate the project. Applicants are encouraged to provide a satellite image or aerial photograph as the background of the map, if available.

☒ Project Location electronic file (kmz or Shapefile) attached

☒ Parcel Map with County Assessor's Parcel Number(s)

If applicable, provide an Assessor's Parcel Map of the project area with the parcel(s) identified by parcel number.

☐ Topographic Map

If applicable, submit a topographic map (preferred 1:24,000 scale) that is detailed enough to identify the project area and elements as described in the project description narrative.

☒ Photos of the Project Site

If applicable, submit no more than 10 photos showing the area(s) to be restored, protected, or acquired. Photos should be appropriately captioned for greatest usefulness.

☒ Site Plan

If applicable, provide a drawing or depiction indicating scale, project orientation (north-south), what work the grantee will accomplish, where the work will be done and the approximate square footage of any improvements that are part of the grant scope. The plan should also indicate access points to the site.

3.6 Site Control

Included in criterion 1.

Provide information on land ownership of the project site. Explain what, if any, land access agreements are in place, or describe plans (including timeline) for acquiring those agreements. ***For more information about land tenure requirements of grantees, see page 17 of the Grant Guidelines****. (500 characters)*

The landowner of the property is the Petersen Estate Company. The Hearn Family is part of the Petersen Estate Co. and is also the agricultural operator on the Ranch under the business name Hearn Livestock. The SRCD has been working on the property since 2014 installing habitat enhancement features with a variety of funding sources and has an access agreement with the Hearn family to conduct ongoing maintenance activities of those sites.

4 Budget Details

4.1 Budget Narrative

Included in criterion 1, criterion 9, and criterion 10.
The budget narrative should be used to justify and explain the requested funds. Provide a description of the proposed cost for each of the budget categories in Attachment 4: Budget Breakdown by Task. Describe the itemized costs noted in Attachment 5: Line Item Budget and Attachment 6: Subcontractor Line Item Budget in sufficient detail for the Delta Conservancy to determine whether or not these costs are reasonable and allowed. Explain if and how partners will contribute to the cost share entered into Attachment 7: Funding by Source. Describe how the cost share funding will be used in the project (i.e., which project components will the cost share support?). Note: once a budget is submitted, there is very limited flexibility if changes are needed. (6,000 characters)

Table 4.1. Breakdown of cost share funding by partner and category.

Delta Conservancy	USDA-NRCS EQIP-Bay Delta	Landowner	Center for Land-Based Learning SLEWS		TOTAL
Request	Cash Match	In-Kind Match	Cash Match	In-Kind Match	
$444,464	$177,000	$99,637	$8,000	$10,760	$739,861

The total project costs will be split between the Conservancy, the Landowner, NRCS, and the SLEWS Program. Project expenses will cover the corps activities of 1) installing habitat along 13.5 acres of working ranch waterways, 2) livestock exclusion/cross fencing across nearly 6.5 miles of waterways and 3) livestock water development including water pipeline, water storage tank, well pumps, and 11 animal drinking water troughs. These elements are all necessary design components to allow for the core goals of the project to be met and to create a wildlife-friendly farming model that can be replicated on similar properties in the Delta.

Budget Attachment 4 Cost Categories Description:
Task 1 - Grant Management and Administration: Personnel services include tracking all accounting for the project and submitting quarterly invoices and progress updates. Additional task activities include tracking performance measures, conducting site field meetings with grant manager and office meetings with field staff and subcontractors to ensure timely completion of grant deliverables. General operating expenses includes travel for all task 1 work.

Task 2 - Restoration Planning and Design: Personnel services include the acquisition of the necessary site access agreements and coordination of restoration preparation activities with the Landowner and NRCS, including the acquisition of restoration materials and supplies. General operating expenses covers County Recorder's fee for the Access Agreement/Grant Agreement for the project and associated travel costs. An estimate was acquired from LM Surveyors to provide a legal description of the project footprint to be recorded. This is the sub-contractor operating expense under this task.

Task 3 - Waterway Habitat Installation: Personnel services include all SRCD field staff labor to execute all elements of this task. General operating expenses include all restoration supplies, rental equipment

(both reimbursement for SRCD equipment usage and locally rented items), and travel. Subcontractors for this task include SLEWS and the CCC's both to assist with habitat installation activities.

Task 4 - Livestock Infrastructure Installation: Delta Conservancy Personnel services include SRCD staff coordination of ground prep. activities and infrastructure installation with the Landowner/NRCS. General operating expenses contributed by the Conservancy includes travel expenses for SRCD and the purchase of $90,000 in fencing materials, $3000 of culvert pipes, and $10,000 of rental fees for equipment and fuel (such as, tractor, dump truck, excavator, backhoe, bobcat) to assist with ground preparation activities. The NRCS and Landowner are covering all remaining costs associated with the infrastructure installation task and will be executing all the work (pumps, water pipelines, troughs, and non-habitat area cross fences).

Task 5 - Monitoring and Adaptive Management: Personnel services includes the execution of all monitoring activities for the project (see Section 9 Performance Monitoring for details). General operating expenses covers travel.

Budget Attachment 5 Line –Item Description:
This budget sheet outlines the $444, 464 requested to Delta Conservancy by the SRCD to execute the Project. The itemized costs under general operating expenses (section B) have been listed by Task for clarity. Each task has mileage expenses. County Clerks Fees are included in task 2. Restoration field supplies include items such as herbicides, irrigation supplies, plant materials, seed, signage, and small tools and equipment (individual equipment items no more than $1000/ea). Restoration equipment rentals include both items rented by local businesses (tractors, bobcats, trenchers, dump trailers, etc), and items the SRCD owns and utilizes for our restoration projects (ATV's, trailers, spray booms, seeders, mowers) and seeks to recoup a rental/reimbursement fee for each use. The livestock infrastructure supplies item includes livestock exclusion fencing materials, culvert pipes. These items will be provided to the landowner to execute the fence installation around each habitat area across the 13.5 acres. Culvert pipes (6 in total) will be installed directly by the Landowner as well. The livestock infrastructure equipment rentals line item covers the cost of equipment and fuel that the SRCD staff and Landowner will utilize to prepare the habitat areas for planting and includes items such as dump trailers, backhoes, tractors (with various implements) and excavators.

Budget Attachment 6 Description (s):
CCC's: The Napa Satellite CA Conservation Corps supervisor included only personnel as the reimbursable cost needed to have corps member involvement in the project.
LM Surveyors: Personnel labor and mileage are the categories necessary for reimbursing LM for their services to execute a legal description of the project area.
SLEWS: In addition to staff labor to coordinate and execute field days with local high school students, the general operating expenses include field supplies for their student groups to execute field tasks (small hand tools, boots, rain gear, etc.) as well as bathroom rental for student field work days.

Budget Attachment 7 Cost Share Funding:
Table 1 provides the breakdown of cost share funding. NRCS is the principal cost share funding partner and will cover the majority of the infrastructure costs. The Landowner will be utilizing materials outlined in the Attachment 5 Line item description from the Delta Conservancy, and will cover the remaining costs in-kind. The SLEWS program has $8000 cash match and $10,760 in kind to provide student work days to help execute project tasks.

4.2 Budget Tables

Included in criterion 1, criterion 9, and criterion 10.
Check boxes if budget tables are included.

☒ Budget Breakdown by Task attached
☒ Line Item Budget attached
☒ Subcontractor Line Item Budget attached
☒ Funding by Source attached

4.3 Application to Other Grant Programs

Included in criterion 1.
Check box if a proposal has been submitted to another grant program that would fund the same project components applied for in this application. If yes, identify program name(s) and note the schedule of funding decisions for these other grant programs. (225 characters)

☐ Yes ☒ No

The scope or work applied for in this application compliments the cost share funding of our partners, but it does not duplicate the funding for the same scope of work.

4.4 Cost Share Commitment Letters

Included in criterion 9 and criterion 10.
Applicants stating that they have a cost share component must include letters of commitment as part of the proposal requirements. Check the box if letters are included.

☒ Yes, letters are included ☐ No, letters are not included

4.5 Financial Management Systems Questionnaire and Cost Allocation Plan

Included in criterion 1.
Complete Attachment 8: Financial Management Systems Questionnaire and Cost Allocation Plan. The Questionnaire must be signed and dated. The Cost Allocation Plan should be tailored to fit the specific policies of the applicant.

☒ Financial Management Systems Questionnaire and Cost Allocation Plan attached

5 State Priorities/Project Benefits

5.1 Consistency with State Plans

Included in criterion 2.

Describe how the project demonstrates consistency with Prop. 1 and state priorities by discussing how it implements actions of the California Water Action Plan, the Delta Conservancy's enabling legislation and Strategic Plan, the Delta Plan, and applicable recovery plans. Category 1 projects should describe the consistency of the specific, on-the-ground project for which planning is being proposed. Check the boxes to indicate consistency with listed plans and explain all instances of how the project is specifically linked to the listed plans. List and explain consistency with other applicable state, regional, or local plans. (6,000 characters)

☒ Prop. 1

Explain how the project is consistent with funding requirements, and how it benefits the public and the State of California.

Consistency of the Project with Chapter 6- 1) "Protect and increase the economic benefits arising from healthy watersheds…," (accomplished through a working landscape approach of wildlife-friendly farming), 2) "Implement watershed adaptation projects in order to reduce the impacts of climate change on CA's communities and ecosystems," (carbon sequestration benefits of project) and 3) "Protect and restore aquatic, wetland, and migratory bird ecosystems including fish and wildlife corridors…," (the creation of 13.5 acres and over 4 miles of habitat corridors).

☒ California Water Action Plan

List actions implemented and explain how this project is meeting those actions.

The Project addresses **Action #4**'s focus on providing multiple benefits through conservation of habitat for species combined with the improvement of critical agricultural infrastructure. **Action #1** is reflected in the landowners' goal to manage cattle while protecting environmental resources. The project supports **Action #3** through enhancing water quality, agricultural water needs, and habitat. **Action #5's goal** of "encouraging healthy soils" is addressed by increasing soil organic matter content through native plant corridors and filter strips. This vegetation will help meet Action 5's goals to "sequester carbon…and improve biological diversity and habitat."

☒ Delta Conservancy's enabling legislation

Explain how project links to enabling legislation.

1-Protect and enhance habitat: 13.5 acres of habitat will be enhanced; **2-Protect and preserve Delta agriculture:** Area remains a working livestock ranch with compatible habitat features; **4-Promote Delta legacy communities and economic vitality:** The infrastructural improvements will improve the economic vitality of this Rio Vista based livestock operation; **6-Protect and improve water quality:** Fencing out livestock from waterways and planting buffers; **9-Protect, conserve, and restore the region's physical, agricultural, cultural, historical and living resources**: The project represents a working lands conservation model for Delta growers;**12-Promote environmental education through grant funding:** The project will incorporate hands-on learning opportunities for local youth groups while implementing habitat.

☒ Delta Conservancy's Strategic Plan

Explain how project links to and helps implement the strategic plan.

The proposed project will align with the Strategic Plan's 4 goals that represent "substantive program priorities" for the Conservancy:

Goal 1: Implementing Prop 1 funding establishes the agency as a valuable partner with this Delta grower and supports the Conservancy's interest in "protecting, enhancing, and celebrating Delta Agriculture…"
Goal 2: The project offers a model of wildlife-friendly farming that will support the economic vitality of ranch activities and the foundation of the region's agricultural economy.
Goal 3: The project represents a collaborative opportunity to engage multiple governmental and non-government agencies as well as citizens in the Delta.
Goal 4: The project will provide the Conservancy with information on the planning, installing, and monitoring results of a working agricultural landscape restoration model. These collaborative projects could be replicated throughout the Delta and encourage local growers to assume the role of farmers as conservationists.

☒ Delta Plan

Explain how the project meets actions or recommendations of the Delta Plan.
Chapter 4: Protect, Restore, and Enhance the Delta Ecosystem
The Project will develop habitat in the priority area of the Cache Slough Complex **(ER-R2).** The map in **Policy ER-P2** designates the project area as sub-tidal. The proposed project is not consistent with this map designation (BDP Appendix B, sub-appendix 3, Figure 4). However, evidence for the value of the project is linked both to the BDP as well as DFW's ERP Conservation Strategies. ERP Section 5, Goal 4 includes the conservation strategy: "…manage agricultural lands in ways that are favorable to wildlife." ERP Goal 1 supports the Project's effort to "recover native biotic communities." ERP Goal 5 supports Project to "…reduce the ecological and economic impacts of established non-native species…" The project is supported by BDP Appendix B, sub-appendix 3, "ERP Vision for Agricultural Lands," which calls for vegetated riparian corridors along working waterways. The irrigation drain network that will exclude cattle and be vegetated with riparian plant species will create critical connectivity to establish surrogate riparian corridors that facilitate the movement of wildlife throughout the year **(ER-R2)**. The project is supported by the ERP conservation recommendation to preserve priority habitats such as "Upland Areas" and "Transitional Corridors" critical for Delta wildlife species to deal with climate change, rising sea level, and flood conditions. The project will help suppress non-native weed introduction as supported in **ER-P5**.
Chapter 5, Protect and Enhance the Unique Cultural, Recreational, Natural Resource, and Agricultural Values of the California Delta as an Evolving Place
The project will model a working landscape approach that promotes wildlife-friendly farming. A vital Delta agricultural economy will be sustained with improved ranching infrastructure along with the benefit of critical habitat improvement as stated as a BDP priority in Policy DP-P2 and DP-R10.
Chapter 6, Improve Water Quality to Protect Human Health and the Environment
Fencing and alternative water source development will exclude cattle from the primary irrigation and drainage water within the project area. This will reduce the nutrient and pollutant input into surface waterways that re-enter the Delta waterways. This aspect of the project helps achieve the BDP strategy to "improve environmental water quality."

☒ Other plans (e.g., existing conservation, restoration, recovery plans, or other relevant local, state, or federal plans or policies).

Identify the plan(s) and explain how the project links to the identified plans. Provide links to each plan or policy listed. Copies of the plan(s) must be available upon request.
Solano County Habitat Conservation Plan:
The project will benefit a variety of special status species included in the HCP, including the Western Pond Turtle, which occupy irrigation canals and levees in this area (SCWA 2012). The Ranch is located in the GGS federal Recovery Plan's Mid-Valley Unit and Solano HCP's Conservation Area. GGS utilizes habitat types available on this property, such as sloughs and irrigation ditches. Also present in this

area is the Western Red Bat.

5.2 Consistency of Acquisitions with Enabling Legislation

Included in criterion 2.

*For Category 2 **acquisition projects**, address, in brief, the following factors required by section 32364.5(b) of the Conservancy's enabling legislation (more information can be provided in the Project Description):*

1. *The intended use of the property.*
2. *The manner in which the land will be managed.*
3. *How the cost of ongoing operations, maintenance, and management will be provided, including an analysis of the maintaining entity's financial capacity to support those ongoing costs.*
4. *Grantees shall demonstrate, where applicable, how they will provide payments in lieu of taxes, assessments, or charges otherwise due to local government.*

(1,500 characters)

5.3 Long-Term Management and Maintenance

Included in criterion 3.

☐ Category 1 Project

Describe how planning efforts will be utilized to address and develop a plan to maintain environmental benefits for the specific, on-the-ground project for the required minimum of 15 years. (1,500 characters)

☒ *Category 2 Project*

Describe future management and maintenance activities beyond the award period, and how the project will deliver sustainable outcomes in the long-term through appropriate stewardship. Explain the project's long-term management and maintenance plan, including who will manage the project, how the project will be maintained, how management and maintenance will be funded, and how long term management will be integrated into the project's adaptive management plan. A long term management and maintenance plan should document how the site will be managed for at least 15 years. (3,000 characters)

This project has been designed to achieve successful establishment of native plantings within the grant award period, which will minimize the need for significant future maintenance activities. The species selected for the site are adapted to local conditions and will be largely self-sustaining after two seasons of irrigation and weed control. Once established, the native trees, shrubs, grasses, and forbs will effectively complete with non-native annual weeds.

The landowners (the Hearn family) are responsible for long-term management of the site. They are committed to performing maintenance activities as necessary after the close of the grant term. These activities are anticipated to include occasional spot treatment (herbicide or mechanical) of problematic weeds; infrequent flash-grazing to reduce understory biomass to promote woody species growth; and occasional repairs to fencing or other infrastructure components.

The Hearn's commitment to management of the site is also required by their contract with NRCS, which provides cost-share funding for all components of this project. NRCS practices have 15+ year lifespans which hold the landowner responsible for ongoing maintenance of the project elements through the duration of that lifespan.

The Hearn family has been a valuable conservation partner since 2014, when SRCD and NRCS first undertook collaborative habitat enhancement and infrastructure improvement projects on the Petersen Ranch property. During the implementation of the proposed project, SRCD will continue to work closely with the Hearns to familiarize them with native plant identification and vegetation management techniques. Management-lessons learned by SRCD during the intensive vegetation management period—such as weed-prone locations, problematic species, effective treatment methods, or duration/timing for flash-grazing—will be captured in a vegetation management plan. Transferring this knowledge to the landowner will help to ensure long-term success.

Solano RCD is also committed to conducting bi-annual site visits to the Peterson Ranch for 15 years, through 2032. These visits will ensure continued communication with the landowners, visual assessments of plant establishment and project success, the ability to work with ranch managers to oversee vegetation management activities, and the opportunity to evaluate new management challenges that require updated approaches over the long-term.

5.4 Adaptive Management

Included in criterion 3.

☐ Category 1 Project

Describe how planning efforts will be utilized to develop and implement an adaptive management plan. (1,500 characters)

☒ Category 2 Project

Describe the project's adaptive management plan, addressing all of the steps enumerated below. Describe how the project will incorporate information provided in the Performance Measures Table (Attachment 9), monitoring and assessment plan (Section 9: Scientific Merit and Performance Measures), and the long-term management and maintenance plan (above) into an adaptive management plan, and how this adaptive management plan will persist beyond the award period. The adaptive management plan should describe how uncertainty will be accommodated and how challenges will be responded to.

A complete adaptive management plan should include the following steps:

1. *What is the defined/redefined problem?*
2. *What are the established goals and objectives?*
3. *What mathematical or conceptual models are being used to link goals and objectives to proposed actions?*
4. *How are actions selected and what performance measures are put in place?*
5. *How will selected actions be designed and implemented?*
6. *How will designed and implemented actions be monitored?*
7. *How will results of the selected actions be analyzed, synthesized, and evaluated?*
8. *How will results be communicated, and to whom?*
9. *What steps are needed to adapt to challenges, redefine the problem(s), and to move forward with the project?*

(6,000 characters)

PHASE-1, PLAN

1.Define Problem: Native vegetation and wildlife habitat, and the ecological services they provide, are limited on Petersen Ranch. Waterways are in poor ecological condition, denuded and eroding; water is contaminated by sediment and livestock waste.

2. Goals and Objectives
Objective 1*. Create 13.5 acres of diverse, native riparian habitat along ranch waterways that will provide ecosystem benefits in the Cache Slough Complex and larger Delta.*
Objective 2*. Improve the ecological condition and water quality of waterways on the Petersen Ranch.*

3. Linkages between objectives and proposed actions

A review of published scientific literature (Section 9.1) demonstrates well-documented links between our proposed actions and objectives. This body of research suggests that actions to increase native vegetation and exclude cattle from waterways will achieve our objectives.

PHASE-2, DO

4. Select Actions & Develop Performance Measures and **5. Design & Implement Actions**

Objective 1 - Action: Install 13.5 ac of native vegetation along 23,000 ft of waterways. **Performance Measures:** Attachment 9 **Outputs 1.1 – 1.5**

Objective 2 - Actions: Install infrastructure to provide water to livestock and exclude them from waterways; Install native vegetation as a filter strip. **Performance Measures:** Attachment 9 **Outputs 2.1 – 2.7**

Design and implementation of restoration work will draw on 20+ years of SRCD staff experience establishing native vegetation in working landscapes. All project plans will meet USDA-NRCS Conservation Practice Standards which represent "best industry practices" for sustainable agriculture and have a decades-long history of demonstrated success. SRCD will refine planting design by referencing locally-adapted species in the Cache Slough Complex.

Implementation tasks for these actions are described in Section 3.1.

6. Design and Implement Monitoring Plan

Our **Monitoring Plan** is detailed in Section 9.3.

The **Outputs** in our **Performance Measures Table** assess:
1) If selected Actions are completed, and
2) If Actions are meeting Project Objectives as anticipated.

Outputs to assess Action *completion* are:

- Linear feet & acreage seeded/planted totaled using field-collected GPS points [Output 1.1 & 2.4]
- Records of total planted numbers of trees, shrubs, and plugs [Outputs 1.1 & 2.4]
- Total feet of fence measured via field-collected GPS points [Outputs 2.1]

- Water supply infrastructure and pipes documented via field inspection [Outputs 2.2. & 2.3]

SRCD also developed **Outputs** to assess if selected Actions are achieving target *ecological benefits*. Monitoring activities to evaluate these **Outputs** are summarized below.

Monitoring Activity	Outputs Evaluated	Summer / Fall 2017 (baseline)	Winter 2017/18	Spring 2018	Summer 2018	Fall 2018	Winter 2018/2019	Spring 2019	Summer 2019	Fall 2019	Winter 2019/20	Spring 2020	Summer 2020	Fall 2020 (completion)
Plant mortality, Re-plants, Condition	1.1, 1.3				X				X					X
Photo-monitoring	1.1, 1.2, 2.4	X	X		X		X		X		X		X	
Quadrat sampling (% cover and weeds)	1.2, 1.4, 2.5	X						X						
CRAM	2.7	X												X
Water Quality Sampling	2.6	2x			2x				2x				2x	

PHASE-3, EVALUATE AND RESPOND

7. Analyze, Synthesize, Evaluate

All data will be reviewed as collected and compared to baseline data; trends toward targets will be analyzed.

Plant survival, coverage, and condition data will be evaluated each growing season and taken into account for before each planting season. An adaptive management approach will re-define problems if below-target establishment is observed.

Water quality parameters will be influenced by environmental conditions at time of sampling (such as total discharge). Therefore, synthesis and analysis of water quality data will be most informative at project-end, in context of all available hydrologic and water quality data from partners.

Responses measured by CRAM will be detectible and analyzed only at project-end.

8. Communicate Understanding

Project results will be shared with NRCS, the landowner, and in a final report. To allow our data to inform a state-wide picture of environmental quality and restoration efforts, applicable data will be uploaded to EcoAtlas and CEDEN.

Intensive vegetation management efforts during implementation will generate valuable recommendations. Noted weed-prone locations, problematic species, effective treatment methods, or duration/timing of flash-grazing will be captured in a vegetation management plan. This knowledge will be transferred to the landowner.

9. Adapt to Challenges, Re-define Problem, Move Forward.

The defined problem predicts that removal of cattle will allow native vegetation to establish successfully. However, monitoring data may demonstrate that plantings do not achieve targets even with cattle exclusion.

Data on survival, coverage and plant condition will inform adaptive management during implementation. If monitoring results show a particular species failing to thrive in one area, or show areas with poor establishment across species, we will evaluate sub-site conditions of soil compaction, weed pressure, moisture, etc. Re-planting will be done with species proven successful in similar micro-site conditions. If poor establishment affects multiple species, we will adjust site preparation methods.

Photo-monitoring and coverage data will inform weed management. If weed competition threatens establishment targets, we will focus on problematic species at susceptible points in their life cycle.

CRAM and water quality analyses will show whether restoration at this scale will have measurable benefits at the site level, and, if so, to lend support to similar future work. Inconclusive or negative results could indicate that greater vegetation maturity is needed, or that project-level changes are overwhelmed by larger-scale watershed influences; they may also indicate a need for further investigation of the scale of vegetation restoration required to achieve ecological benefits.

SRCD will conduct annual site visits through 2032 to evaluate new challenges and update management approaches over the long-term.

5.5 Climate Change Considerations

Included in criterion 4.

☐ Category 1 Project

Describe how the project takes climate change into account, and how climate change considerations will be incorporated into the planning process. (1,500 characters)

☒ Category 2 Project

Describe how the project integrates climate change considerations. Describe how climate change may affect the project and potential climate benefits from the project. For agricultural sustainability projects, describe the extent to which the impacts of climate change are relevant or applicable to the project. (1,500 characters)

Periods of drought and flooding will affect riparian plant communities such as those created by this project. These plantings will include a wide range of moisture and temperature tolerant species to ensure the adaptability of the plants to variable conditions.

The proposed project offers climate benefits to the Delta, both for wildlife and total C sequestration potential. Migratory birds and native pollinator insects are particularly vulnerable to the effects of climate change, as changes in the timing of flowering and seed set disrupt their natural cycles. This project will

increase the site's vegetative species diversity by offering a selection of more than 40 native plant species that can provide floral, pollen, and fruit resources at different times of the year. The project's riparian corridors will connect to existing natural habitat features along Lindsey Slough, which will also facilitate wildlife movement and provide appropriate vegetation resources in the event of sea level rise and temperature increases (ERP 2014).

Estimates of C sequestration potential at the project site over 20 years was calculated using two different models, shown in Table 5.5.1 below.

Table 5.5.1. Project C sequestration potential.

Method	**Assumptions**	**Peterson Ranch variables**	**Total CO_2 sequestered (metric tons)**
US EPA (2010)	1 metric ton CO_2/ac/yr in established forest	13.5 acres	**270**
US DOE (2008)	Shrubs sequester 10% of trees, used 5 typical species that DOE has measured	2000 trees and shrubs	**866**

6 Readiness

6.1 Project Readiness

Included in criterion 5.

☐ Category 1 Project

Describe how the planning activities will advance the project toward implementation in a timely manner, and how previous and subsequent phases will ensure that environmental compliance and all data gaps are addressed. Information provided should align with that provided in Section 6: Environmental Compliance. (5,000 characters)

☒ Category 2 Project

Describe the status of project planning, CEQA, and permitting efforts, and when the project will be ready to begin implementation. Provide a succinct overview of the information. Information provided should align with that provided in Section 7: Environmental Compliance. (5,000 characters)

Solano RCD staff has implemented over 14 acres of channel margin habitat along the working waterways of the Petersen Ranch in the last 2.5 years. Vegetation establishment and cattle exclusion techniques utilized from the previous work on the property are being improved upon and incorporated into the proposed project design.

SRCD has conducted numerous site visits and project design meetings with the landowner and USDA-NRCS. The landowner is in the process of preparing his fields for proposed cross fencing and habitat exclusion areas and has applied for cost-share funds from NRCS's Environmental Quality Incentives Program (EQIP) Bay-Delta Initiative. These funds will help leverage State funds to pay for fencing, livestock water development, and habitat enhancement activities. The cost-share contribution from NRCS will be awarded in early January 2017.

SRCD serves as the Lead Agency for CEQA compliance and filed a Categorical Exemption under Section 15304 "Minor Alteration to Land" in December 2016, as the project will not involve the removal of healthy trees and will involve minor alteration of vegetation on agricultural land. Although no Lake and Streambed Alteration agreement is anticipated, SRCD will consult with the regional CA DFW biologist to ensure that the project design incorporates suggested preliminary monitoring activities to avoid any potential impacts to wildlife species. No other permits are anticipated.

Given the successful history of these conservation practices on the Petersen Ranch, and the considerable time that both SRCD and NRCS have already spent planning the project with the landowners, it is anticipated that implementation work (fencing, troughs) will begin immediately upon completion of the grant agreement with the Delta Conservancy.

7 Environmental Compliance

7.1 CEQA Process

Included in criterion 5.

For Category 2 projects, a grant agreement cannot be executed until the CEQA process is complete. For more information on environmental compliance as it applies to the grant program, please see page 11 of the Grant Guidelines. For more information about the CEQA process, see California Planning Guide: An Introduction to Planning in California (December 2005), http://opr.ca.gov/docs/California_Planning_Guide_2005.pdf.

7.1.1 Is this a project under CEQA?

☒ Yes, actions are a "project"

☐ No, actions are not a "project".

Describe rationale (500 characters): The project will restore habitat on 13.5 acres and install approximately 2,000 native trees and shrubs, resulting in a physical change to the environment. It is therefore considered a "project" under CEQA.

7.1.2 Is this project exempt from CEQA?

☐ Not applicable. Not a "project."

☐ No, project is not exempt.

☒ Yes, project is exempt.

Provide status of notice of exemption in table below. Identify exemption and provide rationale (500 characters): The project involves no removal of vegetation, earth work, or major changes to the landscape. It is exempt from CEQA under Section 15304 "Minor Alteration to Land."

7.1.3 Who is the lead agency?

Identify agency and rationale for selection. Provide lead agency contact person including address, phone number, and email. Note: For most projects requiring CEQA, the Conservancy will serve as a responsible agency, unless there is no other public agency responsible for carrying out or approving the project for which the applicant seeks funding, in which case the Conservancy will serve as the lead agency.

Lead Agency: Solano Resource Conservation District

Contact Person: Christopher Rose, Executive Director

Address: 1170 N. Lincoln St, Suite 110, Dixon, CA 95620

Phone Number: 707-678-1655 x106

Rationale for selection (225 charaters): Solano RCD is a public agency and is implementing all aspects of the project.

7.1.4 Has an initial study been prepared?

☒ Not applicable. Not a "project" or project is exempt.

☐ Yes, an initial study has been prepared.

Provide status and document information for initial study in table 7.1 below.

☐ No, an initial study has not been prepared.

Provide status and expected completion date in table 7.1 below.

7.1.5 Based on the initial study, will the project have significant effects? If yes, can the effects be mitigated?

☒ Not applicable, not a "project" or project is exempt.

☐ Yes, effects may be significant and cannot be fully mitigated.

Identify status and document information for Environmental Impact Report in table 7.1 below.

☐ Yes, effects may be significant but effects can be fully mitigated.

Identify status and document information for Mitigated Negative Declaration in table 7.1 below.

☐ No, effects will not be significant.

Identify status and document information for Negative Declaration in table 7.1 below.

☐ Initial Study not complete.

Provide expected completion date in table 7.1 below.

7.1.6 Are all CEQA processes by the Lead Agency complete?

☐ Not applicable. Not a "project."

☒ Yes, all CEQA processes by Lead Agency are complete.

☐ No, all CEQA processes by Lead Agency are not complete.

Please describe any outstanding activities and/or associated documents (500 characters)

A Notice of Exemption was filed with the Solano County Clerk on December 28, 2016. It is included in this application.

Table 7.1. Status and document information for applicable CEQA documents

All documents marked as complete should be attached as supporting documentation to this proposal.

CEQA Document	Status		Date Complete/ Expected (MM/YY)	Document Name	State Clearinghouse #
	Complete	In Progress			
Notice of Exemption		**X**	**01/17**	**Notice of Exemption**	
Initial Study					
Negative Declaration					
Mitigated Negative Declaration					
Draft Environmental Impact Report					
Public review					
Final Environmental Impact Report					

7.2 Environmental Permitting

Included in criterion 5.

If applicable, identify all federal, state, and local permits for the project and their status in the table below. Attach copies of any completed permits. Note: The applicant is responsible for obtaining any applicable permits.

Table 7.2. Status of applicable environmental permits

This list is not exhaustive. The applicant is responsible for obtaining all applicable permits.

Permitting Agency	Type of Requirements	Status		Date Anticipated/ Received (MM/YY)
		Complete	In Progress	
Federal Agencies				
USACE	Clean Water Act Section 404 Permit			
USACE	Section 10 of the Rivers and Harbors Act of 1899			
USFWS	Biological Opinion (Section 7 Endangered Species Act)			
NMFS	Biological Opinion (Section 7 Endangered Species Act)			
State Agencies				
CDFW	Lake or Streambed Alteration Agreement (Section 1600)			
CDFW	Incidental Take Permit, or Consistency Determination (CESA)			
CDFW	Habitat Restoration & Enhancement Act of 2014 (AB 2193)			
CA DOT	Encroachment Permit			
CA Coastal Commission	Letter of Consistency			
SWRCB	401 General Water Quality Certification for Small Habitat Restoration Projects			
SWRCB	Construction Activities Storm Water General Permit			
RWQCB	401 Water Quality Certification of Waste Discharge Requirement			
Local and Regional Planning Agencies				
CVFPB	Permission to Encroach on Waterways within Designated Floodways			
City/County	Grading Permit			
City/County	Environmental Health Department			
City/County	Road Use Permits			
Local RCD	Consultation			
Flood Control Districts	Floodway & Hydrological Analysis			
Others not listed above				

7.3 Delta Stewardship Council–Delta Plan Consistency

Included in criterion 5.

For grant proposals that include an action that is likely to be deemed a covered action pursuant to California Water Code (CWC) Section 85057.5, the applicant is responsible for ensuring consistency with the Delta Plan.

7.3.1 Is the project a "covered action" under the Delta Plan?

☐ Yes, the project is a covered action.

Provide status and expected completion date for different steps in the table below. Describe approach to ensuring consistency with the applicable Delta Plan policies (1,000 characters):

☒ No, the project is not a covered action.

Describe rationale (1,000 characters):

The project involves no removal of vegetation or earth work and is exempt from CEQA under Section 15304 "Minor Alteration to Land." Consultation with the Delta Stewardship Council verified that all exempt projects are not covered actions.

Table 7.3. Status and document information for applicable Covered Action processes

Required Steps	Status		Date Complete/ Expected (MM/YY)
	Complete	In Progress	
Consultation with DSC			
Covered Action Checklist			
Certification of Consistency			
Public Review and Appeal Process			

8 Local Support

8.1 Local Government Support

Included in criterion 6.

Check the box if a resolution of support from the county/counties in which the project is located is included.

☒ Yes ☐ No

Check the box if proof of consultation with the Delta Protection Commission is included with this application

☒ Yes ☐ No

8.2 Local Support

Included in criterion 6.

Describe if and how the project has local support. Full points will be provided only if a resolution of support from the County is included. (1,500 characters)

The proposed project has very strong local support. All adjacent landowners have written letters in support of the project. Furthermore, SRCD is currently working with one of the three adjacent landowners on a similar project and another adjacent landowner is a strong SRCD supporter and partner on multiple SRCD projects including the proposed project. Solano County has been a supportive voice in the development of the project due to the fact that the projects core is to collaborate with landowners to create wildlife habitat on working lands that will also benefit the efficiency and sustainability of the ranches agricultural operation. A resolution from the Solano County supporting the project has been included in the proposal package.

8.3 Partnerships

Included in criterion 7.

Describe how partnerships have been formed to successfully implement the project. If applicable, describe how the project has been incorporated into larger plans or existing partnerships. (1,500 characters)

All SRCD projects are built upon strong partnerships and the proposed project is no different. We have built a strong network of partners over the past four years while working in the primary Delta in Solano County. The core list of SRCD project partners we have worked with on projects in the Cache Slough Complex within the primary delta in Solano County includes the Department of Water Resources, Wildlife Conservation Board, Solano County Water Agency, Delta Conservancy, multiple Reclamation Districts, Center for Land-Based Learning, California Conservation Corps, Natural Resources Conservation Service and Landowners and agricultural operators. With that established network of partners in place and we hope to have the opportunity to continue our work on the Petersen Ranch and continue to create new partnerships and expand the concepts of working lands restoration throughout the Cache Slough Complex.

8.4 Existing or Adjacent Land Uses

Included in criterion 8.

☐ Category 1 Project

Describe how potentially affected parties will be informed and consulted about the project. Explain how conflicts with existing and adjacent land use will be avoided, reduced, or mitigated. (1,500 characters)

☒ Category 2 Project

Describe how potentially affected parties have been informed and consulted about the project. Describe if and how the project is consistent with similar efforts on nearby or surrounding lands. Explain how conflicts with existing and adjacent land use have been avoided, reduced, or mitigated. (1,500 characters)

We do not foresee issues or conflicts arising with adjacent landowners due to proposed project implementation activities. All adjacent landowners have written project support letters and SRCD is currently executing habitat project work with two of the three adjacent property owners. SRCD staff has worked with the third neighbor to execute Arundo control along the Lindsey Slough levee in 2016, and is excited to expand this conservation work to include habitat installation in the years to come. The agricultural land use in the area includes perennial pasture, row crops, and alfalfa. The downstream Landowners described are also part of Reclamation District 536, and their expressed interest in the project ensures successful execution of proposed activities.

8.5 Letters of Support

Included in criterion 6, criterion 7, and criterion 8.
Attach letters of support for the project. Check the box if letters of support are included. If yes, indicate author and whether or not they are providing cost share funds.

☒ Yes, letters are included ☐ No, letters are not included

Letter 1 – Dave and Gerald Hearn, Landowner and RD 536 District manager
Cost share? ☒ Yes ☐ No

Letter 2 – Roland Sanford, Solano County Water Agency (SCWA), Neighboring Property
Cost share? ☐ Yes ☒ No

Letter 3 – Bill Emlen, Solano County Dept. of Resource Management
Cost share? ☐ Yes ☒ No

Letter 4 – Randy Mager, DWR Delta Ecosystem Enhancement
Cost share? ☐ Yes ☒ No

Letter 5 – Nina Suzuki, Center for Land-Based Learning SLEWS Program
Cost share? ☒ Yes ☐ No

Letter 6 – Domonique Lofton, San Joaquin Regional Conservation Corps
Cost share? ☐ Yes ☒ No

Letter 7 – Melanie Wallace, California Conservation Corps
Cost share? ☐ Yes ☒ No

Letter 8 – Wendy Rash, USDA Natural Resources Conservation Service
Cost share? ☒ Yes ☐ No

Letter 9 – Greg House, Cronin Trust; Neighboring Property
Cost share? ☐ Yes ☒ No

Letter 10 – Gary Silva, Neighboring Property
Cost share? ☐ Yes ☒ No

Letter 11 –
Cost share? ☐ Yes ☐ No

Letter 12 –

Cost share? ☐ Yes ☐ No

Letter 13 –

Cost share? ☐ Yes ☐ No

Letter 14 –

Cost share? ☐ Yes ☐ No

Letter 15 –

Cost share? ☐ Yes ☐ No

9 Scientific Merit & Performance Measures

9.1 Scientific Basis for Project

Included in criterion 11.
Describe how current scientific understanding was evaluated and incorporated in designing the proposed project, including the performance measures (question 9.2) (both categories) and monitoring (question 9.3) and adaptive management (question 5.4) (Category 2 projects only). Cite relevant scientific information on how the proposed project will provide benefits by linking the proposed actions and objectives to the overall problem being addressed. Identify how the metrics and methods proposed relate to existing data sets, established programs, or if they are novel or innovative (see question 9.5 below). Full citations should be included in question 9.6, Literature Cited. See Delta Plan Appendix 1A on Best Available Science. (8,000 characters)

Field visits and site review by USDA-NRCS Soil Conservationist professionals has produced a list of resource concerns and potential conservation practices to address those concerns at the Petersen Ranch (USDA-NRCS pers. comm.). The resource concerns identified are:

- Livestock Production Limitation: inadequate water supply.
- Soil Erosion: Bank erosion from water conveyance channels.
- Water Quality: Excess nutrients in surface water & excess pathogens from manure.
- Inadequate Habitat for fish and wildlife: Habitat degradation.

The potential solutions to these problems identified by USDA-NRCS include:

- Fencing to exclude livestock from waterways and aid in rotational grazing
- Wells, pumps, and troughs to provide off-channel water to cattle
- Riparian herbaceous cover and native plant hedgerows
- Herbaceous weed control in the planted areas

These resource concerns, and their solutions, are well tested and reviewed in published scientific literature, where there are well-documented links between the establishment of vegetation along waterways and improved wildlife habitat values and water quality, as well as the carbon sequestration benefits of established native perennial vegetation. Additionally, existing research supports the benefits of restricting cattle from riparian areas. The proposed project will apply these widely applied and accepted conservation practices to meet two main objectives:

Objective 1. Create 13.5 acres of diverse, native riparian habitat along ranch waterways that will provide ecosystem benefits in the Cache Slough Complex and larger Delta

The creation of new riparian habitat on the Petersen Ranch will bring the following ecosystem benefits to this highly modified and denuded natural system:

- Source of food and habitat for terrestrial wildlife and beneficial insect populations
- Carbon sequestration in both the woody plant and soil components of planted areas

There is a tremendous need for projects that bring native vegetation back to the landscape in any way that is feasible, as more than 98% of the Central Valley's historic riparian habitat has been lost or degraded; working agricultural waterways are the best remaining surrogate for those lost habitats (CVJV 2006). The proposed project will address this need for vegetation in the Delta by creating 13.5 acres of new riparian habitat. The vegetation installed will mimic the diversity and heterogeneity of natural riparian plant communities known to support over 225 different bird, mammal, reptile, and amphibian species

(CRHJV 2004). In addition, the variety of vegetation represented in the proposed channel margin habitat will offer foraging and nesting resources critical for many of the region's beneficial insect populations (native bees, butterflies, parasitoid wasps, etc.) important to surrounding agricultural productivity (Vaughn 2015). The establishment of native tree and shrub hedgerows in active agricultural areas has also been shown to be an effective means of providing food and refugia for insects and wildlife (Donald and Evans 2006, Fischer and Martin 1999). Studies of hedgerows planted on agricultural lands have documented increases in beneficial insects, including native pollinators and predators of crop pests (Morandin et al. 2016, Vaughn 2015, Morandin and Kremen 2013, Long and Anderson 2010) and have also shown use by migratory and resident bird species (Velas et al. 2014, Hinsley and Bellamy 2000).

Riparian restoration projects are an effective means of sequestering atmospheric carbon into soil and woody vegetative material (Lewis et al. 2015), and the planting of native species as carbon sinks is identified as a priority in Solano County's Climate Action Plan (AECOM 2010). The establishment of approximately 13.5 acres of riparian forest will sequester hundreds of metric tons of CO_2 on the Petersen Ranch over 20 years (see Section 5.5 for details). The established corridors will also provide refuge areas to accommodate the potential shifting of current riparian plant and wildlife communities due to sea level rise and temperature increases (ERP 2014).

Objective 2. Improve the ecological condition and water quality of riparian areas on the Petersen Ranch

Excluding cattle from direct access to waterways on the Petersen Ranch, and providing them with alternative drinking water sources, will improve ecological conditions and water quality in the project areas in several ways:

- The direct discharge of animal waste and associated pollutants (pathogens and nutrients) into waterways will be eliminated
- Planted areas will serve as filter strips, removing pollutants (pathogens and nutrients) from both storm water and irrigation water as it moves through them into waterways

Unfettered access of cattle to waterways as their sole drinking water source not only degrades soil and water quality (Hubbard et al. 2004, Line et al. 2000, Belsky et al. 1999, Fleischner 1994), but also limits the animals to a polluted water source, an arrangement that is less than ideal for wildlife, public waters downstream, and ranching operations. The impacts to waterways include changes in channel morphology and stability, reduced vegetative cover, increased erosion, and reduced biological diversity (Knapp and Matthews 1996, Belsky et al 1999). Water quality impacts associated with unrestricted livestock access include elevated nutrient levels, lower dissolved oxygen levels, increased turbidity, conductivity and suspended sediment levels, and temperature and pH (Line et al 2000, Line 2003, Hubbard et al. 2004). The exclusion of cattle from riparian areas allows native vegetation to quickly recover, and over time can lead to improvements in both biological and physical stream health (Knapp and Matthews 2011).

In addition to providing habitat, the riparian trees/shrubs understory layer of perennial native grasses, rushes and sedges established along project waterways will also filter pollutants, livestock waste, and sediment out of storm and irrigation water, and reduce erosion (Wynn and Mostaghimi 2006, Bedard-Haughn et al. 2004, Fisher and Martin 1999). Riparian buffers intercept stormwater and reduce the strength with which it hits the ground, both reducing erosive runoff and increasing infiltration rates to groundwater during the rainy season (Bharati et al. 2002).

Monitoring project success will inform adaptive management actions and will employ standard sampling protocols (WRAMP) for all measurements:

- Vegetative Cover will be assessed by randomly tossed quadrats at pre-determined intervals along the 4 planted areas to be evaluated. These data will then be averaged to give a total % cover, weed % cover and native % cover for the project.
- Water quality will be assessed during irrigation events by taking in situ measurements of water temperature, dissolved oxygen (DO), turbidity and electrical conductivity (EC) with a hand-held sonde probe. These parameters are commonly measured as basic indicators of water quality (SWAMP 2014). While improvement in these measurements may be overwhelmed by influence from the greater watershed, it is anticipated that the establishment of buffer strips and removal of cattle from the waterways will show brief improvements in water quality at the project sites compared to baseline conditions.
- Riparian ecological condition will be assessed before project initiation and again at its conclusion by conducting CA Rapid Assessment Method (CRAM) surveys at the 4 sub-project sites. This method is widely used in California and has been shown to be an effective indicator of wetland condition (Stein et al. 2009).

WRAMP guidelines consider site-specific vegetative cover and water quality measurements as Level 3 assessments. CRAM surveys are considered a Level 2 ecosystem assessment.

9.2 Performance Measures

Included in criterion 12 (10 points)
Use Attachment 9: Performance Measure Table to identify environmentally relevant performance measures for both Category 1 and 2 projects.

☒ Performance Measures Table attached

9.3 Performance Monitoring and Assessment

Included in criterion 12.
All Category 2 implementation grant proposals must include a monitoring and assessment plan that explains how the ecosystem and/or watershed benefits of the project will be measured and reported. The monitoring and assessment plan will vary depending on the scope and nature of the project. A key attribute will be the inclusion of project-specific performance measures that will be used to assess progress toward achieving the project's stated objectives. The monitoring plan should include the following elements:

- *What will be monitored and linkages to Attachment 9: Performance Measures Table;*
- *Monitoring objectives;*
- *Clearly stated assessment questions;*
- *The specific metrics that will be measured and the methods/protocol(s) that will be used;*
- *Linkages to relevant conceptual model(s);*
- *The timeframe and frequency of monitoring (including pre- and post-project monitoring, and opportunities to extend beyond the life of the grant);*
- *The spatial scope of the monitoring effort;*
- *Quality assurance/quality control procedures;*
- *Compliance with all permit requirements for monitoring activities (Scientific Collecting Permits, incidental take permits for listed species, etc.); and*

- *Description of relationships to existing monitoring efforts.*

Describe the performance monitoring and assessment plan below. (9,000 characters)

☐ Not applicable (Category 1 Planning grant)

Solano RCD staff will implement a monitoring program to evaluate project effectiveness throughout the grant period. In accordance with the State's Wetland and Riparian Area Monitoring Plan (WRAMP) framework, Solano RCD identified monitoring questions and measurable metrics to assess the project's success. The questions to be answered via a monitoring program are:

1. Are plants establishing well enough to provide adequate cover of what was previously bare ground and to ensure their long-term survival?

2. Has the landscape changed in a way that will benefit wildlife?

3. Has water quality on the Ranch improved?

Monitoring activities will consist of the following throughout the entire project site:

Plant mortality, number of re-plants, and plant condition - Each tree/shrub planting will be checked for survival and condition after the conclusion of summer irrigations in 2018, 2019, and at project completion. During the course of the grant period, plantings that do not survive will be replaced in the winter following monitoring, and re-plantings will be recorded and tracked. The survival and condition data will be recorded by habitat type, so that Solano RCD staff can assess whether gradients in soil type require adjustments in species' locations for re-plantings. Annual data on percent mortality, plant condition, and number of replants will be reported throughout the grant period.

Four sub-project sites will be randomly selected at the onset of the project to be the focus of more detailed monitoring efforts:

Changes in photo monitoring images - Photo monitoring will take place prior to installation and bi-annually in the winter and summer of each year to record site imagery in the wet and dry seasons. Photos will be taken looking upstream, downstream and on the left and right banks and at the mid-point of each of the 4 sub-project sites.

Random quadrat samples of seeded and plug planted areas – Random quadrat sampling will take place at the 4 sub-project sites in order to assess the success of seeding and plug planting in buffer strip establishment. A single transect, parallel to the waterway, will be established between the tree line and water line at each site, and Solano RCD staff will sample vegetation within a one square meter quadrat frame randomly tossed at 100-meter intervals along each transect. The quadrat area will be assessed for percent vegetative cover and percent of native/non-native plant species. Transects will be monitored in fall 2017 to establish a baseline and again in spring 2019 to assess the success of understory plant establishment.

California Rapid Assessment Method (CRAM) analyses - Solano RCD staff will utilize the California Rapid Assessment Method (CRAM, Riverine Field Book) on 4 sub-project sites to assess the ecological condition of the waterways prior to and after project installation. This site's CRAM data will be publically available and uploaded directly to EcoAtlas via the CRAM website, in accordance with WRAMP guidelines.

Water quality sampling – Baseline measurements of stream conditions (temperature, DO, turbidity, EC) will be sampled twice in the fall of 2017, before the onset of project implementation or the rainy season, and then twice again each irrigation season for the duration of the project. Samples will be taken in the field using a YSI Exo multi-parameter probe, submerged in the centroid of the waterway at each of the four sub-project sites. Standard QA/QC procedures for sonde operation will be followed, including calibration before and after each monitoring event. All water quality data will be uploaded to CEDEN.

Solano RCD is committed to conducting bi-annual site visits to the Peterson Ranch for 15 years, thru 2032:

Long-term site monitoring –These visits will ensure continued communication with the landowners, visual assessments of plant establishment and project success, and opportunities to work with ranch managers to oversee vegetation management activities.

All monitoring activities will be performed with the consent of the landowner and do not require any permits, as no organisms will be directly sampled.

There is wide interest in water quality in the project area, part of the Delta's Cache Slough complex. It is not anticipated that the conservation practices installed at the project site will affect water quality measurements in the larger Cache Slough Complex, as the magnitude of that watershed will overwhelm any site-specific improvements in water quality. However, by working closely with The Solano County Water Agency, a partner on this project and neighboring landowner, Solano RCD will integrate water quality data from the project to similar efforts occurring nearby at the Barker Slough pumping plant intake (upstream) and the mouth of Lindsey Slough (downstream). SCWA staff takes sonde readings for stream temperature, DO, EC, pH and turbidity on a monthly basis at these locations, and project sampling will be coordinated with this effort to maximize the information gained from each sampling event. In addition, SCWA monitors auto-samplers for the same parameters downstream of the pumping plant (but upstream of the project site) and at the mouth of Lindsey Slough, and DWR takes monthly grab samples at the pumping plant for constituents such as nutrients and pathogens. Working with these agencies and sharing water quality data will be simple to execute and particularly valuable if data from one sampling event can be corroborated with a separate event up or downstream.

9.4 Data Management

Included in criterion 12.
Describe how data will be managed, addressing the questions below. For more information on data management of water quality, wetland, and riparian restoration data and reporting, please see page 14-15 of the Grant Guidelines.(1,500 characters)

- ***Who will manage the data?*** *Relate to organizational capacity discussed in Section 3: Project Description and Organizational Capacity.*
- ***What types of data will be created?***
- ***How will data be accessed and shared?***
- ***When will data be available?*** *At what point will the data be provided to statewide data systems and how often will it be updated? How long will be data be saved?*
- ***Where will the data be stored and shared?*** *If applicable, data should be integrated into CEDEN and EcoAtlas.*

All data will be managed by Solano RCD staff, who have extensive experience in data management and analysis (see Section 3.3 Project Team). All data will be included in quarterly reports to the Delta Conservancy as it is produced and analyzed. Where applicable, data will be uploaded to statewide systems on an annual basis through the term of the grant agreement. Monitoring activities will generate the following data:

- *Plant mortality and condition*: This will be used to inform re-planting efforts and adaptive management.
- *Vegetative cover*: This data will be reported annually as part of the Project file on EcoAtlas.
- *CRAM*: This data will be uploaded directly to EcoAtlas.
- *Water quality*: Stream temperature, DO, EC and turbidity will be sampled according to SWAMP protocols and uploaded to CEDEN annually. Solano RCD has generated, analyzed and worked with large SWAMP data sets for the Solano permittees in the Bay Area Stormwater Management Agencies Association (BASMAA), including the process of working with the San Francisco Estuary Institute (SFEI) to upload that data to CEDEN.

9.5 Innovative Technology

Included in criterion 13.
Describe how the project employs new or innovative technology or practices, including decision support tools. If an agricultural sustainability proposal, describe how the project vets the relevancy and applicability of new or innovative technology or practices. (1,500 characters)

The proposed project largely applies well-tested and widely applied practices, such as livestock exclusion and riparian habitat restoration. However, the understory component of the filter strips will consist of a mix of native grass and native forb species. This seed blend is more difficult to establish than the traditional approach, which is limited to grasses, but is thought to more closely resemble original ecosystem conditions and is an innovative approach to riparian restoration.

An important goal of the project is to maintain agricultural productivity at the Petersen Ranch while increasing the value of the riparian vegetation corridors for terrestrial and aquatic wildlife. This will be achieved through a unique partnership of federal (USDA-NRCS), state (Delta Conservancy) and private (Landowner) funds, which makes it financially possible for a private Landowner to invest in personal property for benefit to the greater ecosystem.

While the benefits of riparian restoration and off-channel water for livestock are well established, successful examples of this system in the Delta are scant. This project will fill the need for models of successful conservation on working farms, showcasing sustainable farming practices that improve environmental quality, agricultural productivity, and human health in the Delta ecosystem. In this way, it will serve as an example of innovative sustainable farming practices for other ranchers and restoration practitioners.

9.6 Literature Cited

Include a list of literature referenced in the proposal using scientific format for citations.

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