



Anderson-Cottonwood Irrigation District

Water Conservation and Efficiency Conversion to Pipeline Project

Shasta County, California

***Application Submitted to The United States Bureau of Reclamation for a WaterSMART grant:
Small-Scale Water Efficiency Projects for Fiscal Year 2022***

(Funding Opportunity No: R22AS00195)

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Technical Proposal

Executive Summary

Date: March 14, 2022
Applicant Name: Anderson-Cottonwood Irrigation District
Applicant Type: Category A
City: Anderson
County: Shasta & Tehama County
State: California

Project Summary

The Anderson-Cottonwood Irrigation District (ACID) proposes to convert 2,000 linear feet of Lateral 3 and sub-lateral 3.6 from an open earthen canal to a buried polyvinyl chloride pipeline (PVC). In addition, the District will upgrade 6 boxes and 9 gates. The installation of pipe and upgrade of gates and boxes will eliminate evaporation and seepage losses, reduce spills and provide better water management and conservation. The water losses from this area are adversely affecting the overall efficiency and reliability of water delivery to customers and will reduce electricity costs due to pumping from the Sacramento River. The project addresses the goals and objectives of the Anderson-Cottonwood Irrigation District Main Canal Modernization Project to facilitate improved water management and efficiencies while reducing Main Canal seepage losses and tailwater spills.

Anderson-Cottonwood Irrigation District Geographic Location

ACID was formed July 27, 1914, has over 32,000 acres within its district lines and serves approximately 6,833 irrigated acres within Shasta and Tehama Counties. The primary crop is irrigated pasture and in addition, alfalfa and some deciduous orchards are grown within the boundaries of the District. The District boundaries include the City of Redding, the City of Anderson, and the town of Cottonwood which lay in the valley below Mt. Shasta and are approximately 160 miles North of Sacramento. The City of Redding is the largest population center within the District and in 2021 had a population of 95,542 people as of the latest US Census estimates.

Water Supply and Demand

The District holds senior water rights under pre-1914 postings, to divert water from the Sacramento River in Redding. The ACID surface water supply entitlement provides for a maximum total of 125,000 acre-feet base supply annually and 4,000 acre-feet of Central Valley Project (CVP) supply during the period April 1 through October 31 of each year. In dry years the supply may be significantly less. The District diverts primarily from a gravity diversion in the river at the seasonal ACID Diversion Dam in Redding at River Mile 246.0R. In addition, the District operates a pump station downstream at River Mile 240.5L to supply a lateral canal.

ACID's distribution system includes approximately 35 miles of Main Canal, about 98 percent of which is unlined, and 200 miles of lateral conveyances which serve about 833 customers in Shasta and Tehama Counties.

Project Location

The proposed *Water Conservation and Efficiency Conversion to Pipeline Project* is located in Shasta County and is approximately 10.2 miles south of Redding. The project will pipe 2,000 feet of an open earthen channel from Valley Lane to Peach Lane. The project begin point is latitude 40°29'21.82"N and longitude is 122°19'29.77"W and end point is latitude 40°29'6.75"N and longitude 122°19'5.17"W. The lateral number 3.6 is 10,292.27 feet in length and is noted on the attach map as **Figure 1**.

Project Timeline

April 1, 2023-March 31, 2025

The District anticipates that procurement of materials and design review will begin once grant funds are made available and the District has secured a contract with the U.S. Bureau of Reclamation (BOR). Construction work would begin in the Fall of 2023 due to operational timelines and the finalization of the irrigation season. The timeline for construction work completion is the Fall of 2023 to the Spring of 2024 and the Fall of 2024 to January of 2025. All work and disturbance of soil will occur within our current easement and within the current ditch line, all work will need to be completed within the non-irrigation season. All reporting and a final report will be completed and submitted to the BOR by the grant completion date of March 31, 2025.

Technical Project Description

Scope of Work:

The District will install 2,000 feet of new 24" polyvinyl chloride (PVC) pipeline within Lateral 3 and sub-lateral 3.6. This conversion of the open earthen channel to pipeline will include the installation of six (6) precast 48 inch by 48 inch by 60 inch concrete boxes with 6-inch walls. The installation of nine (9) waterman gates within the six boxes and four concrete collars will tie the project to concrete pipe at the North end of the project and a siphon at the South end of the project. Upon notice of the award, the District will finalize the review of the project design. The project area is an active canal with operational and maintenance access roads. All project work will take place within the canal and the maintenance access roads.

Project Budget

Table 1. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Anderson- Cottonwood Irrigation District	\$123, 913.09
Non-Federal Subtotal	\$123, 913.09
REQUESTED RECLAMATION FUNDING	\$100,000

Budget Item/Description	Computation			Recipient Funding	Reclamation Funding	Total Cost
	Unit	\$/Unit	Quantity			
1. Salaries and Wages						
District Manager/Project Manager	\$45.67	Hour (HR)	52	\$2,374.84	0	\$2,374.84
Maintenance Supervisor	\$22.06	HR	162.5	\$3,584.75	0	\$3,584.75
Operation Supervisor	\$20.54	HR	162.5	\$3,337.75	0	\$3,337.75
District Office Manager	\$19.38	HR	10	\$193.80	0	\$193.80
DitchTender/Maintenance Worker III (3 employees)	\$18.94	HR	487.5	\$9,233.25		\$9,233.25
Equipment Operator/Maintenance Worker	\$19.23	HR	162.5	\$3,124.88	0	\$3,124.88
2. Fringe Benefits						
District Manager/Project Manager	\$19.56	HR	52	\$1,017.12	0	\$1,017.12
Maintenance Supervisor	\$10.72	HR	162.5	\$1,742.00	0	\$1,742.00
Operation Supervisor	\$10.72	HR	162.5	\$1,742.00	0	\$1,742.00
District Office Manager	\$10.72	HR	10	\$107.20	0	\$107.20
DitchTender/Maintenance Worker III	\$10.72	HR	487.5	\$5,226.00	0	\$5,226.00
Equipment Operator/Maintenance Worker	\$10.72	HR	162.5	\$1,742.00	0	\$1,742.00

4. Mileage						
Mileage on Trucks (2 trucks)	0.585	Mile	250	\$146.25	0	\$146.25
5. Equipment						
Excavator I-5 rental (1 month)	\$9,750	Lump	9,750	\$9,750.00	0	\$9,750.00
Backhoe to unload pipe Army Corp w/fuel rate	55.59	HR	25	\$1,389.75	0	\$1,389.75
Equipment fuel (excavator)	5.56	HR	75	\$417.00	0	\$417.00
6. Supplies & Materials						
Pipe 24"	\$66.36	Foot	2000	\$32,720.00	100000	\$132,720.00
Concrete	\$155.00	Yard	6	\$930.00	0	\$930.00
Waterman Gate 24"	\$1,587.29	Each	3	\$4,761.87	0	\$4,761.87
Waterman Gate 10"	\$961.26	Each	1	\$961.26	0	\$961.26
Waterman Gate 18"	\$1,177.41	Each	5	\$5,887.05	0	\$5,887.05
Box Cooks	\$3,881.00	Each	6	\$23,286.00	0	\$23,286.00
Trucking for boxes	\$300.00	Lump Sum	300	\$300.00	0	\$300.00
Mortar (per 60 -lb. bag)	\$6.98	Each	10	\$69.80	0	\$69.80
Accessories for boxes and concrete saddles (screws, bolts, zip ties, red-heads,etc)		Lump Sum	600	\$600.00	0	\$600.00
Pipe for turnout 18" (2sticks)	28.83	Foot	44	\$1,268.52		\$1,268.52
7. Consultant/ Contractor						
Civil Engineering/Environmental		Lump Sum	8,000	\$8,000.00	\$0.00	\$8,000.00
TOTAL PROJECT COSTS				\$123,913.09	\$100,000.00	\$223,913.09
PERCENTAGE OF COSTS				55.34%	44.66%	

Budget Narrative

Budget components include the following general categories of project costs:

Salaries and Wages-\$21,849.27

Direct administration of the project such as reporting information to the funder, project accounting, and fiscal management will be completed by the Project Manager/District Manager and Office Manager. All project/fieldwork will be completed by the Maintenance Supervisor, Operation Supervisor, Equipment Operator, and three (3) DitchTender/Maintenance workers who are employees of the District.

Employee Benefits: \$11,576.32

Employee benefits consist of health insurance and retirement benefits for eligible employees at an average of 34% of the total payroll cost.

Supplies: \$170,784.50

Project supplies include pipe, concrete, waterman gates, accessories for concrete and pipe repair and installation, fuel for rented excavator, and miscellaneous supplies for the construction of gates and headwalls.

Equipment \$11,565.75

Rental of an excavator at local rates and the use of the District backhoe at the rate for the budget was taken from the US Army Corps of Engineers Equipment Rates EP1110-1-8, Region 7-Hourly Equipment Ownership and Operating Expense.

Mileage \$146.25

The daily mileage is at the IRS mileage reimbursement rate of \$0.585

Consultant/Contractor \$8000

The estimated cost of environmental and civil engineering review.

The total amount being requested from the BOR is \$100,000. The total amount requested will be applied to the cost of pipe and is the only supply being requested of the BOR; all other costs will be supplied by the District. Project costs for the project are reasonable for this type of task and the geographic area the project serves.

Evaluation Criteria

Evaluation Criterion A—Project Benefits (35 Points)

Clearly explain the anticipated water management benefits to the Category A applicant's water supply delivery system and water customers.

This area has historically had previous challenges in supporting sufficient flows. The project will increase the beneficial outcomes by conserving water, eliminating water losses, conserving energy (reduction of pumping cost), and increasing delivery efficiency and reliability. This conversion project will reduce electricity costs due to pumping while reducing or eliminating seepage & evapotranspiration losses in the project area. It may increase water quality by reducing erosion within the delivery systems which can lead to sediment transportation. The conversion project will also lead to operation and maintenance cost savings due to the task of clearing debris and vegetation from the open canal banks. The upgraded turnouts within the project area may lead to staffing savings and customer convenience due to the antiquated nature of the current turnouts. The opportunity to have a reliable delivery system in this area may lead to an increased delivery at downstream turnouts.

Significance of the anticipated water management benefits:

With California in one of the worst draughts in history, the continued restrictions and reduced allotments of diverted water are becoming the norm. The opportunity to make the infrastructure of the District more effective and efficient will lead to compounding water savings year after year. This project will continue to save water for the life cycle of the pipeline while creating more productivity for on-farm deliveries below the improvement project area. As of April 20, 2022, the District's allotment of water diversion has been curtailed to 18% of the annual diversion of 131,000 acre-feet. This has adversely created hardship for all customers of the ACID. These improvements to the infrastructure will continue to support and ensure that customers within the District continue to be able to utilize their full rights to the waters of the District.

Broader Benefits:

The project will continue to have broader benefits that include increased communication with the Water Managers in the North State through monthly meetings supporting the beneficial outcomes of the project and creating new opportunities to support our community partners. This project will also continue to supply supportive waters for pastures and associated vegetation which supplies habitat along the Pacific West Flyway which positively impacts various components of various sectors of the environment, economies, recreation, and tourism in the North State. The project is a complement to the past and future Natural Resource Conservation Service Projects completed in the area with the conversion to pipeline continuing to support and build upon the current efficiencies of those past projects. The benefits broaden as a sustained surface water irrigation applications within the project area supports annual groundwater recharge to the Enterprise Subbasin and is noted in the Enterprise Subbasin Groundwater Sustainability Plan.

Evaluation Criterion B—Planning Efforts Supporting the Project (30 points)

Plan Development: Describe how your project is supported by an existing planning effort. Identify the planning effort and who developed it.

The Anderson-Cottonwood Irrigation District Main Canal Modernization Project prepared for the District in March of 2008 by CH2MHILL, notes the goals and objectives of the project and the District. This project's goals are to decrease nonproductive evapotranspiration, facilitate improved water management, reduce seepage losses and reduce tailwater spills that do not return to the Sacramento River. The proposed project continues these efforts by supporting the District's efforts to create an updated and more efficient delivery system. The proposed project area is a priority to the District due to the area's high water loss and continued producer dissatisfaction with delivery.

Evaluation Criterion C—Implementation and Results (20 points)

Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Estimated Project Schedule:

Anticipated notification of Award 03/31/2023

The District anticipates that procurement of materials, environmental, cultural, and design review will begin once grant funds are made available and the District has secured a contract with the BOR.

September 2023

All materials are procured and staged at the District's equipment yard to ensure prompt commencement of the project.

Oct 15-Nov 1, 2023 to March 1, 2024

All construction work would begin in the Fall of 2023 due to operational timelines and the finalization of the irrigation season. The entire project is planned to be completed in a continuous 25-day period. If any issues should arise the project would be able to meet the next window of Oct 15-Nov 1, 2024 through March 1, 2025.

March 1, 2024 - March 31, 2025

Completion of a final report and submission to the BOR by the grant completion date of March 31, 2025.

Describe any permits that will be required, along with the process for obtaining such permits.

The District does not anticipate the need for any permits or approvals given for all work or improvements that will be occurring within the existing canal, canal berm, and ACID-operated facilities and easements of the District. Any work would be considered maintenance of the existing structure. The project may only require a categorical exclusion checklist and will be

coordinated with the local Reclamation area office. As noted on the Bureau of Reclamation (BOR) Departmental Manual, Series 31, Part 516, Ch 14 this project would qualify for D. Operation and Maintenance Activities (1) Maintenance, rehabilitation, and replacement of existing facilities which may involve a minor change in size, location, and/or operation and E. Grant and Loan Activities (2) Small Reclamation Projects Act grants and loans where the work to be done is confined to areas already impacted by farming or development activities, work is considered minor, and where the impacts are expected to be localized.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

The initial plan and design have been completed in-house and are in line with routine operation and maintenance tasks of the District staff. Upon approval of the funding, an external review of the initial plan and design will be completed.

Describe any new policies or administrative actions required to implement the project.

No new policies or administrative actions are required to implement the project. Upon completion of the project, the District Ditchtender sheets will be updated to reflect the changes made to the infrastructure to allow for the Ditchtender to manage the water deliveries in the project area.

Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for completion of environmental and cultural resource compliance discussed with the local Reclamation office?

Since all work is occurring within the existing canal, canal berm, and ACID-operated facilities and easements, the District does not anticipate any impacts on the surrounding environment, cultural resources, and protected or endanger species. After approval of funding but before the commencement of any work, the District will reach out to the local Reclamation office to ensure the appropriate level of compliance studies, if any, and will update our budget and project schedule accordingly.

Evaluation Criterion D—Nexus to Reclamation (5 Points)

Is the proposed project connected to a Reclamation project or activity? If so, how?

The proposed project is connected to Shasta Dam and Shasta Reservoir which is located about nine miles Northwest of Redding, on the Sacramento River. This Reclamation project was built during the seven-year period between 1938 and 1945. The water stored in the reservoir represents about 41 percent of the stored water in the CVP. This project will support the efficient and effective usage of stored waters in Shasta Lake that are diverted in April through October for irrigation purposes.

Does the applicant receive Reclamation project water?

Yes, ACID holds a water right under pre-1914 postings, to divert water from the natural flow of the Sacramento River. The ACID surface water supply entitlement provides for a maximum total of 125,000 acre-feet (AF) per year during the period April 1 through October 31. 121,000 AF is considered base supply and 4,000 AF is Central Valley Project water.

Is the project on Reclamation project lands or involving Reclamation facilities?

No, this project is not on Reclamation project lands and does not involve Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity?

Yes-The Redding Basin covers about 510 square miles in the Northern part of the Central Valley of California and is surrounded by the Cascade Range, Klamath Mountains and Coastal Ranges. It is separated from the main part of the valley by the Red Bluff Arch, a subsurface geologic structure. Stored waters from Shasta Lake, a centerpiece of the BOR Central Valley Project, will be diverted to water farmlands and recharge groundwater within the same basin.

Will the proposed work contribute water to a basin where a Reclamation project is located?

Yes-the recharge to the Redding ground-water basin as per a U.S. Geological Survey Water-Resources Investigations Report 83-4052 notes recharge to the Redding Basin is obtained from subsurface inflow infiltration of precipitation and applied irrigation water and percolation from streams and creeks. ACID is an annual contributor to groundwater recharge through the 121,000 acre-feet of diverted surface water that is applied to lands within the Redding Basin. This project will take place in the Enterprise Subbasin 5-006.04.

Evaluation Criterion E—Presidential and Department of the Interior Priorities (10 points)

The proposed project invests in climate-resilient infrastructure in Northern California by adapting the 1914 infrastructure project area into a modernized conveyance system that is better able to cope with climate impacts. The potential impacts of extreme weather events could lead to costly repair of existing infrastructure creating loss or spill of this very important natural resource to our state and producers. In a historically dry drought event, this project strengthens efficiencies and increases resiliency by conversion of the open canal to a pipeline which could lead to increased efficiency and reliability of service water supply to our food supply producers while decreasing the consumption of energy due to pumping demands.

There are no lands associated with this project in a disadvantaged or underserved community and/or connected to tribal lands.

Environmental and Cultural Resources Compliance

The ACID was formed under Division 11 of the California Water Code in 1914 and was one of the earliest irrigation districts organized in the Sacramento Valley. The ACID Main Canal was constructed between 1914 and 1918, although the water was conveyed through the canal by 1917. An aqueduct at Anderson Gulch is designated as a Point of Historical Interest and the Rolland Robinson residence is 1.5 stories high on a raised foundation with a square footprint. This residence is located northwest of the town of Cottonwood, along the Cottonwood Canal. This house was recorded on Department of Parks and Recreation forms but both noted places are outside of the proposed project area. The ACID Main Canal is 35 miles long and both of these structures are located 3.37 miles and 7.56 miles South of the proposed project. There are no known archeological sites within the proposed project area. As reviewed on the National Water Information System Mapper, the proposed project area does not have “Waters of the United States” within its boundaries or potentially within its boundaries. All Earth-disturbing work, installation of boxes, gates, and the piping of the canal lateral will be minimal and limited to the canal and berms, typical to regular ACID canal maintenance activities.

Required Permits or Approvals

The District does not anticipate the need for any permits or approvals given for all work or improvements that will be occurring within the existing canal, canal berm, and ACID-operated facilities and easements of the District. Any work would be considered maintenance of the existing structure. If the need for a permit is identified during the process, all rules and procedures to obtain the permit will be followed prior to any work continuing.

Official Resolution

Please review the attached resolution 2022-02.

Unique Entity Identifier and SAM

The District is currently registered with SAM and DUNS #073788895.

RESOLUTION NO. 2022-02

**RESOLUTION OF THE BOARD OF DIRECTORS
OF ANDERSON-COTTONWOOD IRRIGATION DISTRICT
APPLICATION FOR
THE UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION
WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECTS
NOTICE OF FUNDING OPPORTUNITY NO. R22AS00195**

WHEREAS, the Anderson-Cottonwood Irrigation Board of Directors wishes to actively participate in the United States Department of Interior WaterSMART Small-Scale Water Efficiency Projects Notice of Funding Opportunity No. R22AS00195 for the purpose of converting open ditch line to pipeline on Sublateral 3.6 to improve water use efficiency within the Anderson-Cottonwood Irrigation District service area.

WHEREAS, the benefits of the installation of pipe in open ditch line and upgrade of gates and structures includes eliminating evaporation and seepage losses, reduce spills, reduced operation and maintenance costs while providing better water management and conservation.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Anderson-Cottonwood Irrigation District authorizes an application to the United States Department of the Interior, Bureau of Reclamation WaterSMART Water Efficiency Projects Notice of Funding Opportunity No. R22AS00195 for the amount up to \$270,000 for the conversion of open lateral. The District will work with Reclamation to meet established deadlines for entering into a grant and authorizes its General Manager, John Currey to sign such agreements on behalf of the Anderson-Cottonwood Irrigation District.

PASSED AND ADOPTED the 14th day of April, 2022 by the Board of Directors of Anderson-Cottonwood Irrigation District:

AYES: Haynes, Williams, Eliante, Butcher, Michiels
NOES:
ABSENT:
ABSTAIN:



Brenda L. Haynes
Brenda Haynes
President
Anderson-Cottonwood Irrigation District