



**COLORADO**  
**Colorado Water Conservation Board**  
Department of Natural Resources

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**TO:** Colorado Water Conservation Board Members

**FROM:** Rachel Pittinger, P.E., Project Manager  
Kirk Russell, P.E., Finance Section Chief

**DATE:** November 17-18, 2021 Board Meeting

**AGENDA ITEM:** 11b. Water Project Loans  
Root and Ratliff Ditch Company - Ditch Piping and Rehabilitation

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**Staff Recommendation for Loan:**

Staff recommends the Board approve a loan not to exceed \$303,000 (\$300,000 for Project costs and \$3,000 for the 1% service fee) to the Root and Ratliff Ditch Company for costs related to the Ditch Piping and Rehabilitation (Project), from the Construction Fund. The loan term will be 30 years at an interest rate of 1.10% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Additionally, staff recommends the following loan contract conditions:

1. Submit to CWCB the required Project as-built drawings prior to loan substantial completion that provides the location of the constructed pipeline relative to defined easement locations identified on the as-built drawings.

**Introduction:**

Root and Ratliff Ditch Company (Company) is applying for a loan to reduce salinity concentration in the Colorado River Basin through ditch piping and ditch rehabilitation, ultimately improving the ditch operation efficiency. The total Project cost is estimated to be \$3,900,000. Funding for the Project primarily comes from a Bureau of Reclamation Salinity Control Program grant in the amount of \$3,600,000. The Bureau of Reclamation awarded the grant on September 19, 2018, Agreement Number R18AC99978. The Company is requesting a loan of \$300,000 to fund approximately 8% of the Project due to unexpected Project cost increases. See attached Project Data Sheet for the location map and Project summary.



**Borrower - Root and Ratliff Ditch Company:**

The Company, a non-profit corporation, was formed in May of 1947 to operate and maintain the Root and Ratliff Ditch. The Root and Ratliff is operated as a mutual ditch company under Colorado Water Law. There are 37 shareholders in the Company. The ditch delivers irrigation water to approximately 1,290 acres, based on individual landowners' water rights priorities of its shares. On-farm irrigation is accomplished using laterals, gated pipe, or sprinkler systems. The main crops grown are hay and pasture grass. The ditch also delivers an average of 2.44 cfs of stock water to shareholders during the non-irrigation season. The Company's sole revenue source is through its annual shareholder assessment. Shareholders elect their Board of Directors in annual meetings. The 5-member Board of Directors have the power to manage and control the Company's affairs, property, funds, and debt. The Company is in good standing with the Colorado Secretary of State.

**Background:**

The Root and Ratliff Ditch (originally decreed as the Ratliff and Root Ditch) is located in Montezuma County, Colorado, east and south of the Town of Mancos. From the Mancos River headgate and diversion site north of U.S. Highway 160, the ditch flows under the highway and to the southwest to a concrete splitter box that represents the end of the ditch. The project area is located on private lands, with the exception of several public rights-of-way for road crossings. This Project will replace approximately 5.5 miles of unlined irrigation ditch with a buried pipe. Piping the ditch includes the re-alignment of certain reaches of the ditch to simplify construction and decrease the project costs.

The proposed pipeline alignment roughly follows the existing ditch, although the pipeline will leave the existing ditch alignment in several sections in order to create a straighter alignment and improve construction and operational efficiency. Approximately 2.4 miles of the new pipeline will be located outside of the existing ditch easement. The existing ditch crosses 42, separate parcels. The new pipeline will cross 37 parcels and will be located in dedicated easements negotiated with landowners. Twenty-nine outlets will release water to farm turnouts or laterals along the length of the pipeline, including three at the splitter box that lead to the privately-owned Graf and Cox Pipeline and Doerfer Ditch. In accordance with the Salinity Control Program, three habitat replacement sites have been proposed to mitigate riparian and wetland habitat loss resulting from the removal of an open irrigation ditch. Habitat replacement sites are located west of the Root and Ratliff Ditch and south of G Road.

**Loan Feasibility Study:**

Jordan Dimick, P.E., with SGM Engineering prepared the Loan Feasibility Study titled, "Colorado Water Conservation Board Water Project Loan Feasibility Study, Roodt and Ratliff Ditch Company," dated October 1, 2021. The feasibility study was prepared in accordance with CWCB guidelines and includes an analysis of alternatives and estimated costs. Financial statements were provided by the Company.

**Water Rights:**

The Root and Ratliff Ditch was first appropriated in 1875 and then adjudicated in 1893 including a Number 2 water rights priority. The ditch company owns a total of 37.8 cfs of decreed water rights. Several water users along the Root and Ratliff Ditch have contract water stored in Jackson Gulch Reservoir, upstream of the Root and Ratliff Ditch diversion point on the Mancos River. The water for this supplemental supply is carried through the Root and Ratliff Ditch and delivered to its owners. The Company's water rights associated with the Project are shown in Table 1.

**TABLE 1: ROOT AND RATLIFF DITCH WATER RIGHTS**

| Name                   | Amount                               | Adjudication Date | Water Court Case No.   |
|------------------------|--------------------------------------|-------------------|--|
| Root and Ratliff Ditch | Priority Nos. 2 - 46<br>(37.473 cfs) | 4/28/1893         | CA0967<br>CA0989<br>CA0990<br>CA1873<br>CA1993<br>CA2025<br>CA3144 |

**Project Description:**

The Project’s purpose is to reduce salinity concentration in the Colorado River Basin through piping, pressurizing and rehabilitating the ditch and ultimately improving the ditch operation efficiency.

**Alternative 1 - No Action:** The current Irrigation practices and seepage from the unlined ditch would continue to contribute salt loading in the Colorado River Basin. Riparian and wetland habitats associated with the unlined ditch would likely remain in place and continue to provide habitat to local wildlife. Ultimately, the Ditch Board and its shareholders did not select this alternative due to a number of considerations. Many landowners and irrigators want to convert their irrigation system from flood irrigation to more efficient system. Additionally, the irrigators want to see an ecological benefit to the ditch by having the salinity reduction.

**Alternative 2 - Lined Ditch:** This alternative includes lining the ditch and achieving less of the Project salt load reduction. This lined ditch alternative could use the existing ditch alignment that would need to be reshaped and graded to allow installation of prefabricated product. The ditch could have also been lined with shotcrete or a non-permeable liner. This alternative was not selected based on the understanding of the lined ditch lifespan that was not enough to support the cost, freeze/thaw cycles could crack the lined ditch, potential maintenance and replacement requirements, and there were concerns about impact to lined ditch from livestock.

**Selected Alternative 3 - Ditch Piping and Rehabilitation:** This alternative includes piping the ditch with headgate and diversion improvements followed by ditch rehabilitation work. The turnout structures will be replaced with new structures equipped with flow meters and valves. The new irrigation pipeline will begin with a 27-inch diameter pipe and reduce to an 18-inch diameter at the end of the pipeline, south of Road G. The maximum rating of the pipe will be 125 pounds per square inch (psi). The majority of the pipeline will be plastic irrigation pipe (PIP). A short run of pipe under U.S. Highway 160 through an existing irrigation culvert will be high-density polyethylene (HDPE) pipe to allow slip lining of the existing culvert. The irrigation pipeline will be gravity pressurized with no pumps, compressor stations, or water storage facilities are included in the Project. The existing headgate will be replaced with a screen structure and intake box to accommodate the pipe. A totalizer meter will be installed that records continuous flows to enable measurement of diversions. Ditch rehabilitation will be accomplished by filling the ditch with clean material, compacting the material, and grading the surface to match surrounding contours and restore drainage patterns. Waste materials that exist in some reaches of the ditch will continue to be recycled and disposed of. Equipment will be used to grub vegetation and fill and bed the existing ditch. The material needed for construction fill

will be generated within the construction footprint as much as possible. It is anticipated that additional fill may be required. Estimated Project costs are shown in Table 2.

**TABLE 2: ESTIMATED PROJECT COSTS**

| Tasks                                 | Cost               |
|---------------------------------------|--------------------|
| Engineering and Permitting Costs      | \$521,500          |
| Habitat Replacement Water Supply      | \$25,000           |
| Legal Costs - Design and Construction | \$12,000           |
| Ditch Company Expenses                | \$25,000           |
| Pipeline Construction                 | \$1,609,572        |
| Pipeline Materials                    | \$1,352,315        |
| Habitat Replacement Project           | \$164,800          |
| Construction Contingency              | \$133,383          |
| Construction Observation              | \$56,430           |
| <b>TOTAL</b>                          | <b>\$3,900,000</b> |

**Permitting:** The majority of the actions required for project implementation have been completed. The construction contractor obtained a Colorado Department of Transportation Utility Permit for work within the US 160 Highway right-of-way as well as a utility permit from the Montezuma County Public Works Department for work within the rights-of-way on Montezuma County Roads 43, 41, G, and H. Utility clearances were obtained from local utilities in the area by the construction contractor prior to construction activities. A Stormwater Management Plan was prepared and submitted to the Colorado Department of Public Health & Environment (CDPHE).

**Schedule:** The pipeline contractor has been selected and the pipeline is under construction. It is expected to be complete by May 1, 2022. Final portion of pipeline installation, earthwork completion, and the habitat replacement plan implementation will be complete in the Fall and Winter of 2021. Plant installation and revegetation activities will be done at the habitat replacement sites in the Spring of 2022.

**Financial Analysis:**

Table 2 provides a summary of the Project’s financial aspects. The Company qualifies for an agricultural interest rate of 1.10% for a 30-year term.

**TABLE 3: FINANCIAL SUMMARY**

|   |             |
|---|-------------|
| Project Cost  | \$3,900,000 |
| BOR Colorado Basin Salinity Control Program Grant       | \$3,600,000 |
| CWCB Loan Amount  | \$300,000   |
| CWCB Loan Amount (Including 1% Service Fee)             | \$303,000   |
| CWCB Annual Loan Payment                                | \$11,913    |
| CWCB Annual Loan Obligation (1 <sup>st</sup> Ten Years) | \$13,104    |
| Number of Shareholders                                  | 37          |
| Number of Shares  | 2200        |
| Annual Loan Obligation per Share                        | \$5.96      |
| Current Assessment per Share                            | \$2.00      |
| Estimated Total Future Assessment per Share             | \$8.40      |

**Board of Director Approval:** The Root and Ratliff Board of Directors voted unanimously authorizing the pursuit of a CWCB loan to address numerous unforeseen design and permitting requirements and general cost increases, ultimately to complete the Project in a timely manner.

**Creditworthiness:** The Company has no debt. The current assessment is \$2.00 per share and has been at this rate since 1965. They anticipate raising assessments by approximately \$6.40 per share as a result of this Project.

**TABLE 4: FINANCIAL RATIOS**

| Financial Ratio   | Prior Years                      | Future w/ Project                            |
|---|----------------------------------|--|
| Operating Ratio (revenues/expenses)<br>weak: <100%   average: 100% - 120%   strong: >120%                             | 83%<br>(weak)<br>\$4.4K/\$5.3K   | 100%<br>(average)<br>\$18.4K/\$18.4K         |
| Debt Service Coverage Ratio<br>(revenues-expenses)/debt service<br>weak: <100%   average: 100% - 120%   strong: >120% | N/A                              | 101%<br>(average)<br>\$18.4K-\$5.3K<br>\$13K |
| Cash Reserves to Current Expenses<br>weak: <50%   average: 50% - 100%   strong: >100%                                 | 479%<br>(strong)<br>\$25K/\$5.3K | 137%<br>(strong)<br>\$25K/\$18.4K            |
| Annual Operating Cost per Acre-Foot (4,144 AF)<br>weak: >\$20   average: \$10 - \$20   strong: <\$10                  | \$1.27<br>(strong)               | \$4.43<br>(strong)                           |

**Collateral:** Security for this loan will be a pledge of assessment revenues and the Project itself, including the diversion of the piped ditch, easements, and access agreements. This security is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Wayne Eppich, Secretary/Treasurer, Root and Ratliff Ditch Company  
 Jennifer Mele, Colorado Attorney General's Office

Attachments: Water Project Loan Program - Project Data Sheet

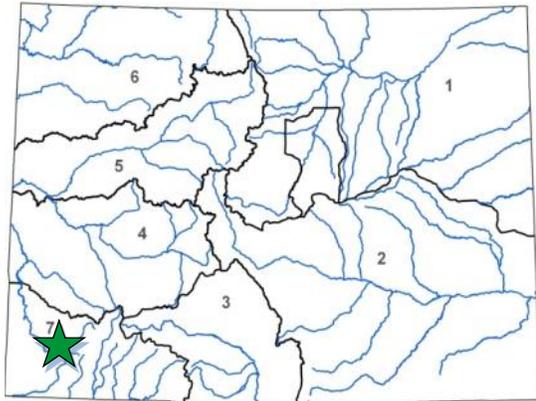


## Ditch Piping and Rehabilitation

Root and Ratliff Ditch Company

November 2021 Board Meeting

| L O A N   D E T A I L S                          |                           |            |
|--|---------------------------|------------|
| Project Cost:                                    | \$3,900,000               |            |
| BOR Colorado River Basin Salinity Control grant: | \$3,600,000               |            |
| CWCB Loan (with 1% Service Fee):                 | \$303,000                 |            |
| Loan Term and Interest Rate:                     | 30 Yrs @ 1.10%            |            |
| Funding Source:                                  | Construction Fund         |            |
| B O R R O W E R   T Y P E                        |                           |            |
| Agriculture                                      | Municipal                 | Commercial |
| 100%   | 0% Low - 0% Mid - 0% High | 0%         |
| P R O J E C T   D E T A I L S                    |                           |            |
| Project Type:                                    | Ditch Rehabilitation      |            |
| Average Annual Diversions:                       | 4,144 AF                  |            |



| L O C A T I O N |              |           |    |
|-----------------|--------------|-----------|----|
| County:         | Montezuma    |           |    |
| Water Source:   | Mancos River |           |    |
| Drainage Basin: | Southwest    |           |    |
| Division:       | 7            | District: | 34 |

The Root and Ratliff Ditch Company (Company) formed in 1947 to operate and maintain the Root and Ratliff Ditch that was originally constructed in the 1870's. The Company currently has 2,200 shares and delivers irrigation water to approximately 1,290 acres growing primarily hay and pasture grass. The Company also delivers stock water to shareholders during the non-irrigation season.

The Project includes rehabilitation of approximately 5.5 miles of unlined ditch with buried pipe.

Funding for the Project primarily comes from a Bureau of Reclamation Colorado River Basin Salinity Control Program grant for \$3,600,000. Pricing for the Project increased significantly during the design and engineering phase along with additional construction cost necessitating a loan. Construction began in August of 2021 and is expected to be complete by the spring of 2022.

