COLORADO
Colorado Water Conservation Board
Department of Natural Resources

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Dan Gibbs, DNR Executive Director
Lauren Ris, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Zach Salin, P.E., Project Manager
Kirk Russell, P.E., Finance Section Chief

DATE: November 20-21, 2024 Board Meeting

AGENDA ITEM: 10b. Water Project Loans
Bergen Ditch and Reservoir Company
Rehabilitation of Polly Deane Reservoir

Staff Recommendation

Staff recommends the Board approve a loan not to exceed $305,020 ($302,000 for project costs and $3,020 for the 1% service fee) to the Bergen Ditch and Reservoir Company for costs related to the Rehabilitation of Polly Deane Reservoir Project, from the Construction Fund. The loan term will be 20 years at an interest rate of 2.60% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Additionally, staff recommends the following supplemental contract condition:

1. The CWCB funds shall not be disbursed until all Project funding is secured.

Introduction

The Bergen Ditch and Reservoir Company (Company) is applying for a blended municipal rate loan for the Rehabilitation of Polly Deane Reservoir (Project). Polly Deane Reservoir (Reservoir) is located southeast of the intersection of C-470 and West Bowles Avenue in Jefferson County, Colorado. The Reservoir is classified by the State Engineer's Office - Dam Safety Branch (Dam Safety) as a High Hazard Dam. In 2019 Dam Safety issued a Storage Restriction on the Reservoir to alleviate the potential for failure due to internal erosion and piping failures. This Project will rehabilitate the Reservoir so that it can again operate at full storage. Construction of the Project is expected to take place during the 2025 calendar year. The total Project cost is estimated to be $861,000. The Company anticipates receiving a Federal Emergency Management Agency (FEMA) grant for the Project totalling approximately $560,000. See attached Project Data Sheet for a location map and Project summary.

Borrower – Bergen Ditch and Reservoir Company

Bergen Ditch and Reservoir Company is a Colorado mutual-ditch company founded in 1874 and operating in Jefferson County, Colorado. The Company is in good standing with the Colorado Secretary of State. The Company was established for the purpose of diverting, storing, and delivering natural runoff water from Turkey Creek in the foothills west of Denver. The Company is led by a three-member Board of Directors elected to 1-year terms by a vote of Company shareholders. The Board has the power to incur indebtedness, to set assessments, to enforce the payment of all assessments, and to pay bills.

The Company maintains approximately 6 miles of diversion and delivery ditch and operates three reservoirs to serve their shareholders. The Company has 22 shareholders, with approximately 84% of the shares held by Foothills Park & Recreation District, a special district within unincorporated Jefferson County which uses the water to irrigate a Robert A. Easton Park, large regional park and Meadows Golf Course, an 18-hole public golf course.

Background

Polly A. Deane Dam was constructed in 1878 as an earthen dam which impounds Hine Lake. The dam and reservoir were expanded/rehabilitated in 1950 and again in 1987.

In 2019 Dam Safety determined that internal erosion and piping failures had posed a risk of catastrophic failure and implemented a storage restriction at Polly Deane Reservoir, ordering that the dam restrict the water level to four feet below the spillway crest. The normal storage volume for the reservoir is around 490 acre-feet of water as detailed in the Storage Restriction letter. This storage restriction reduced the storage capacity of the Reservoir by approximately 144 acre-feet (29%) to approximately 346 acre-feet. Dam Safety identified the reservoir outlet piping and toe drain as requiring repair to mitigate the failure risk.

In 2020, engineers from Dam Safety, consulting engineers from Engineering Analytics, Inc., a risk assessment expert, and the Company carried out a Comprehensive Dam Safety Evaluation (CDSE), which included a potential failure mode analysis and a semi-qualitative risk analysis which led to the development of the Project design.

The Company intends to fund the Project through a FEMA High Hazard Potential Dam Grant, which will cover 65% of the Project cost, and this CWCB loan, which would cover the remaining 35% of the Project cost.

Loan Feasibility Study

The Company received a Loan Feasibility Study Grant from CWCB to assist with preparation of the feasibility study. Robert Easton, the General Manager for the Company, prepared the Loan Feasibility Study titled, “FEMA — HHDP Program Funding Request for CWCB Loan Funds to assist with State Mandated Reconstruction of Polly Deane Reservoir” dated July 2024. The Loan Feasibility Study is supported by an engineering design report titled “Polly A. Deane Dam Rehabilitation Design Report C-0538B”, which was prepared in October 2021 and revised in March 2022 by L. Clint Brown, P.E. with Engineering Analytics, Inc. The Design Report also includes ‘For Construction’ stamped drawings and specifications. The feasibility study is in accordance with CWCB guidelines and includes an analysis of alternatives, estimated costs, and audited annual financial reports provided by Sotiros & Sotiros, LLC.

Water Rights

The Company diverts, stores, and delivers approximately 1,200 AF of water in an average year. The company has both direct flow water rights off Turkey Creek as well as storage rights in each of its reservoirs. In addition to Polly A. Deane Reservoir, the Company also operated Bergen Reservoir #1 and

Bergen Reservoir #2, which are located upstream of Polly Deane. A summary of the most relevant water rights reported as associated with the Project are shown in Table 1.

TABLE 1: WATER RIGHTS

Name	Amount (AF)	Appropriation Date	Adjudication Date	Case No.
Polly Deane Reservoir	518.0	09/25/1881	02/04/1884	CA6832, 82CW0476
Polly Deane Reservoir	35.3	12/12/2017	12/31/2017	17CW3192

Project Description

The purpose of this Project is to repair piping and erosion failures at the Reservoir, which will allow for removal of the storage restriction placed by Dam Safety and provide for storage up to the reservoir's full capacity of 490 acre-feet of water.

Alternative 1 – No Action: Taking no action would leave the Polly Deane Reservoir in place with components that are known to be failing and with the current storage restriction. While the least expensive option, the dam would not be able to remove the storage restriction, so this option was not selected.

Alternative 2 – Reconstruct Outlet Works OR Toe Drain: This alternative would repair either the toe drain or the outlet piping and controls, but not both. This alternative would improve the condition of the dam and replace some of the failing parts, but more work would still remain in order to lift the storage restriction. This alternative would likely cost around half of Selected Alternative 3, but would fail to remove the current storage restriction so this option was not selected.

Selected Alternative 3 – Reconstruct Outlet Works and Toe Drain: This alternative involves demolishing existing outlet and intake infrastructure and toe drains in order to construct a new outlet conduit, outfall structure, intake structure, toe drain and filter with a blanket drain, and toe drain outfall. Following the new construction, the embankment, bedding riprap and paved surfaces will be replaced. Finally, the project will install new equipment and controls in the outlet control structure. Replacing the failing toe drains, outlet piping, and the outlet structure will resolve the erosion and piping failures, allowing for removal of the storage restriction and storage of an additional 144 acre-feet of water at Polly Deane Reservoir. The total estimated cost of this alternative is $861,000 as shown in Table 2.

TABLE 2: ESTIMATED PROJECT COST

Tasks	Cost
Mobilization/Demobilization	$24,000
Survey and Site Preparation	$56,000
Dewatering and Stormwater	$24,000
Excavation and Backfill	$90,000
Concrete, Fill, and Riprap	$133,000
Structure Construction	$353,000
Construction Engineering and Management, Testing & QA	$140,000
Contingency (5%)	$41,000
TOTAL	**$861,000**

Permitting: The Company anticipates that the Project will not require a US Corps of Engineers 404 Permit. The Company is currently pursuing a required Jefferson County grading permit that will be secured prior to construction.

Schedule: The Project's design phase is complete, with 'For Construction' Drawings and Specifications approved by the State Engineer's Office are included with this Loan application. The Company anticipates that the project will be bid in early 2025. Construction is expected to be complete by the end of 2025.

Financial Analysis

Table 3 provides a summary of the Project's financial aspects. The Company qualifies for a blended (95% middle-income municipal, 5% commercial, and <1% high-income municipal) base interest rate of 3.35% for a 30-year loan. Additional interest rate deductions of 0.25% for a 20-year loan and a 0.50% reduction for work at a storage-restricted reservoir reduce the loan interest rate to 2.60% for a 20-year loan. All interest rate evaluations are per CWCB Financial Policy #7 (Lending Rate Determination).

TABLE 3: FINANCIAL SUMMARY

Project Cost	$861,000
FEMA Grant	$559,000
CWCB Loan Amount (20-year term @ 2.60%)	$302,000
CWCB Loan Amount (Including 1% Service Fee)	$305,020
CWCB Annual Loan Payment	$19,751
CWCB Annual Loan Obligation (1st Ten Years)	$21,726
Number of Shares	403.5
Current Annual Assessment (per Share)	$750*
Estimated Annual Loan Obligation (per Share)	$54

* Annual Share Assessments include $450 for operational costs and $300 for debt service

Creditworthiness: The Company's only long-term liability is a CWCB loan (CT2015-017) for rehabilitation of Bergen Reservoir #2. The loan is in good standing and is currently in repayment. This existing debt is described in Table 4. Financial ratios are shown in Table 5.

TABLE 4: EXISTING DEBT

CWCB Loan	Original Balance	Current Balance	Annual Payment	Maturity Date	Collateral
CT2015-017	$2,110,764.54	$1,723,522.22	$109,805.70	2046	The Project as well as a Pledge of Assessment Revenues

TABLE 5: FINANCIAL RATIOS

Financial Ratio	Past Years (Avg)	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% | typical: 100% - 120% | strong: >120%	95% (weak) $343k/$361k	100% (typical) $379k/$379k
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% | typical: 100% - 125% | strong: >125%	83% (weak) ($343k-$252k) $110k	100% (typical) ($379k-$252k) $128k
Cash Reserves to Current Expenses weak: <50% | typical: 50% - 100% | strong: >100%	21% (weak) $77k/$361k	20% (weak) $77k/$379k
Annual Cost per Acre-Foot (1,200 AF) weak: >$24 | typical: $3 - $24 | strong: <$3	$301 (weak)	$316 (weak)

Collateral: Security for this loan will be a pledge of assessment revenues backed by an assessment covenant and the Project itself including all access, easements, rights, and appurtenances associated therewith. This security is in compliance with the CWCB financial Policy #5 (Collateral).

cc: Robert A. Easton, General Manager, Bergen Ditch and Reservoir Company
Jennifer Mele, Colorado Attorney General's Office

Attachments: Water Project Loan Program – Project Data Sheet

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Rehabilitation of Polly Deane Reservoir

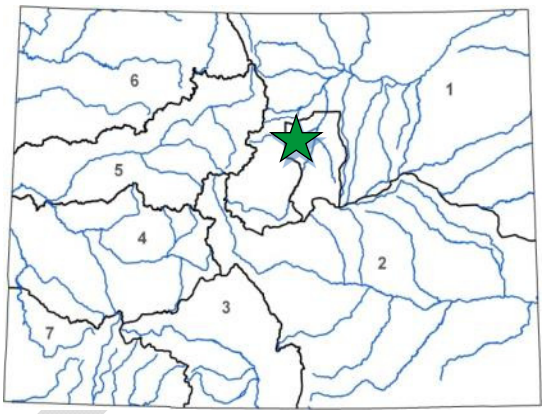
Bergen Ditch and Reservoir Company

November 2024 Board Meeting

LOAN DETAILS	
Project Cost:	$861,000
CWCB Loan (with 1% Service Fee):	$305,020
Loan Term and Interest Rate:	20 Yrs @ 2.60%
Funding Source:	Construction Fund

BORROWER TYPE		
Agriculture	*Municipal*	*Commercial*
0%	0% Low - 95% Mid - <1% High	5%

PROJECT DETAILS	
Project Type:	Reservoir Rehabilitation
Average Annual Delivery:	1,200 AF



LOCATION			
County:			Jefferson
Water Source:			Turkey Creek
Drainage Basin:			Metro
Division:	1	*District:*	9

The Bergen Ditch and Reservoir Company (Company) is a mutual ditch company formed in the 1874 to divert and store water west of Denver for agricultural irrigation use. The Company currently serves 22 shareholders for primarily municipal uses including irrigation of a regional park and a public golf course. Irrigation water is stored in three reservoirs that the Company owns and operates, one of which is Polly Deane Reservoir (Reservoir), a 490 AF high hazard dam.

In April 2019, the dam caretaker reported unusual seepage at the toe of the dam. After a series of inspections, Colorado Dam Safety determined that an internal erosion piping failure had started, and the Emergency Action Plan was activated as a precaution. Subsequently, a storage restriction was issued in May of 2019 to reduce the storage capacity by 144 AF while design and construction of required improvements were undertaken. Those improvements include replacement of the toe drain and outlet works. The Project will be co-funded with a HHPD grant from FEMA. Construction is expected to begin in the spring of 2025 and be completed before the end of the year.