

STATE OF COLORADO

Colorado Water Conservation Board

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TO: Colorado Water Conservation Board Members

FROM: Ryan Edwards, P.E.
Kirk Russell, P.E., Chief
Finance & Administration Section

DATE: November 5, 2012

SUBJECT: **Agenda Item 14a, November 13-14, 2012 Board Meeting**
Finance – New Construction Fund Loans
Bergen Ditch and Reservoir Company – Bergen Reservoir No. 2 Rehabilitation Project

Introduction

The Bergen Ditch and Reservoir Company (Company) is applying for a loan for the Bergen Reservoir No. 2 Rehabilitation Project (Project). The purpose of the Project is to make improvements to the Bergen Reservoir No. 2 outlet works and dam, per the direction of the Dam Safety Branch of the State Engineer's Office (SEO), to avoid a restriction order. The loan request is for 90% of the \$2,225,000 total cost of the Project. See the attached Project Data Sheet for a location map and Project summary.

Staff Recommendation

Staff recommends the Board approve a loan, from the Construction Fund, not to exceed \$2,020,000 (\$2,000,000 for Project costs and \$20,000 for the 1% Loan Service Fee) to the Bergen Ditch and Reservoir Company for the Bergen Reservoir No. 2 Rehabilitation Project. The loan terms shall be 30 years at a blended interest rate of 3.15% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Background

The Bergen system was developed in the late 1800's to provide agricultural irrigation water to a service area located in central Jefferson County. There has been a shift in water use since the 1960's as a result of urbanization. The primary use of water is now for park and golf course irrigation by public agencies, along with a limited number of private shareholders using the water for residential landscape irrigation.

The Company utilizes the Bergen Ditch to divert water off Turkey Creek and deliver it to shareholders through a series of open and piped ditches, reservoirs, pumps and pipelines. The Company owns three reservoirs, Bergen No.1, Bergen No. 2 and Polly Deane, with a combined

storage capacity of 1,828 AF. Bergen No. 2, accounting for 40% of the Company's total storage capacity (726 AF), is the focus of this Project.

Bergen No. 2 was originally constructed in 1874. The dam has an ongoing history of slumping and seepage issues. Embankment and drain repairs were documented in 1925, 1943 and 1947-1949. Since 1949, no documented modifications were made until the overflow spillway was rebuilt in 1999 to bring the dam in compliance with current SEO guidelines. In 2007 the dam's outlet works were damaged and temporary repairs were made in 2009. Ongoing SEO inspection reports have monitored seepage, stability, erosion, and outlet concerns over recent years. Following the latest inspection report, the SEO verbally recommended the Company consider rehabilitation of the dam or face the possibility of a storage level restriction.

Loan Feasibility Study

The loan feasibility study titled "*Bergen Ditch and Reservoir Company Loan Feasibility Study*," dated August 2012, was prepared by Robert Easton, Manager, Bergen Ditch and Reservoir Company. Technical assistance was provided by James Ferentchak, P.E., of W.W. Wheeler & Associates, Inc., and legal support was provided by Julia Robinson, P.C. The study was prepared in accordance with CWCB guidelines and includes preliminary engineering design and an engineer's estimate of probable cost that were used in the determination of the total Project cost.

Two related studies were used in the preparation of the W.W. Wheeler feasibility study: 1) "*Dam Safety Review*," dated March 2008, prepared by BasePoint Design, assessed, identified and provided recommendations on several unsatisfactory items throughout the Bergen system and specifically noted the importance of addressing the Bergen No. 2 dam; and 2) "*Geotechnical Engineering Study and Feasibility Level Design Proposed Modifications to Bergen Dam No. 2*," dated October 2011, prepared by Kumar and Associates, provides specific design recommendations and preliminary design drawings for various Bergen No. 2 dam modifications.

Bergen Ditch and Reservoir Company

The Company is a Mutual Ditch Company formed in 1874 for the purpose of using acquired direct flow and storage rights to provide irrigation water for agricultural use by its shareholders. The Company owns a system of diversion structures, ditches, dams and reservoirs responsible for delivering water to 17 shareholders owning 403.5 shares of common stock. Daily operations and water deliveries are handled through an annual maintenance contract with Reservoir Management Company. On average, the Company delivers 800 AF annually.

The Company is controlled by a 3-member Board of Directors. Revenue is generated from the collection of annual shareholder assessments. The Board has the authority to set shareholder assessments at a level sufficient to offset operating and capital improvement costs. The Company has the right to restrict water deliveries on delinquent shares or sell shares to cover delinquent assessments. The Board has the authority to accept debt and pledge collateral on behalf of the Company.

Water Rights

The Company is located in the South Platte River Basin, District 9. The Company owns multiple direct flow and storage rights. No new water rights acquisitions are proposed with this Project. The Company's water rights, relative to this Project, are summarized in Table 1.

TABLE 1: PROJECT WATER RIGHTS

Name	Case No.	Source	Adjudication Date	Appropriation Date	Amount
Bergen Ditch	6832	Turkey Creek	2/4/1884	5/1/1874	12 cfs
Bergen Ditch	6832 / 67566	Turkey Creek	2/4/1884	9/6/1878	26.89 cfs
Bergen Ditch	6832 / 67566	Turkey Creek	2/4/1884	9/6/1878	4.01 cfs
Bergen Ditch	91471	Turkey Creek	9/24/1935	10/24/1885	128 cfs
Bergen No. 2 Res.	6832	Turkey Creek	2/4/1884	5/1/1874	574 AF
Bergen No. 2 Res. Enlgmt.	91471	Turkey Creek	9/24/1935	3/1/1884	316 AF

Project Description

The goal of the Project is to make the Reservoir a reliable source of raw water storage by rehabilitating the existing outlet works and making improvements to the dam, enabling the Company to preserve raw water storage. The following alternatives were analyzed:

Alternative No. 1 – No Action

Without the Project the expected outcome would be decreased outlet control and an eventual storage level restriction being issued by the SEO due to seepage and embankment instability.

Alternative No. 2 – Replace Outlet Works Only

This alternative involves breaching the dam and full replacement of the outlet works pipe and intake structure; however, it does not address the growing concerns over seepage and embankment instability.

Alternative No. 3 – Replace Outlet Works and Dam Rehabilitation

This alternative includes both replacing the outlet works as in Alternative No. 2, and complete rehabilitation of the dam and toe drain.

It was determined that the potential liability issues and safety risk of doing nothing is far too significant to ignore so the Company eliminated the “do nothing” alternative from consideration. After evaluation of the remaining options for technical, operational, safety, and economical considerations, the Company selected Alternative No. 3 as the preferred alternative. The alternative is significantly more expensive than Alternative No. 2; however, with the extent of earthwork required to breach the dam it is most economical to complete the dam rehabilitation in conjunction with the outlet works replacement. Table 2 provides a summary of the estimated costs related to the Project.

TABLE 2: TOTAL PROJECT COST SUMMARY

Task	Cost
Engineering Design & Permitting	\$129,000
Outlet Works Construction	\$455,000
Embankment Construction	\$1,158,000
Construction Management	\$161,000
Contingency	\$322,000
Total	\$2,225,000

Schedule: Pending loan approval, the Company plans to begin preparation of final engineering documents, with SEO approval anticipated by June 2013. The Company will begin the bidding process, with the intent of awarding a bid and beginning construction by August 2013, pending reservoir levels. Construction is expected to take up to 9 months. Permitting efforts are currently, or soon to be, underway with Jefferson County, the Colorado Department of Public Health and Environment, the State of Colorado and the Corps of Engineers.

Financial Analysis

The Company qualifies for a blended interest rate of 3.15% (64% high-income municipal and 36% middle-income municipal) for a 30-year term. Table 3 provides a summary of the financial criteria of the loan request.

TABLE 3: PROJECT FINANCIAL SUMMARY

Total Project Cost	\$2,225,000
Borrower Contribution	\$225,000
CWCB Loan Amount (90% of total Project cost)	\$2,000,000
CWCB Loan Amount (including 1% Service Fee)	\$2,020,000
CWCB Annual Loan Payment	\$105,067
CWCB Loan Obligation (including 10% debt reserve funding)	\$115,574
Number of Shareholders	17
Number of Shares	403.5
Current Assessment (per Share)	\$450
Annual Cost of Project (per Share)	\$286
Total Cost of Project per AF (based on 726 AF)	\$3,065

CWCB will disburse funds at a rate of no greater than 90% of the total invoice amount for construction activities related to the Project, up to the approved loan limit.

Creditworthiness: The Company has no current debt obligation and generates revenues through annual shareholder assessments, currently set at \$450 per share. For additional income, the Company leases recreation rights to both Bergen reservoirs, accounting for approximately 14% of annual revenue. The Company plans to build its cash reserves by increasing allocations from its operating revenues and, if necessary, through a special assessment. The Company will set assessment rates sufficient to cover annual operating expenses and its CWCB loan obligation. Table 4 provides financial ratios for the Company.

TABLE 4: FINANCIAL RATIOS

Financial Ratio	2010 - 2011	Future w/ Project
Operating Ratio (operating revenues/operating expenses) weak: <100% - average: 100% - 120% - strong: >120%	141% (strong) \$222K/\$157K	100% (average) \$273K/\$273K
Debt Service Coverage Ratio (total eligible revenues-operating expenses)/total debt service weak: <100% - average: 100% - 120% - strong: >120%	No Current Debt	100% (average) (\$273K-\$157K)/\$116K
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	51% (average) \$80K/\$157K	4% (weak) \$12K/\$273K
Annual Operating Cost per Acre-Foot (based on 800 AF) weak: >\$20 - average: \$10 - \$20 - strong: <\$10	\$196 (weak) \$157K/800 AF	\$341 (weak) \$273K/800 AF

Collateral: As security for the loan, the Company will pledge assessment revenues backed by a rate covenant and the Project itself (outlet works and toe drain). This is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Robert Easton, Manager, Bergen Reservoir and Ditch Company
Susan Schneider, AGO
Peter Johnson, AGO

Attachment: Water Project Loan Program – Project Data Sheet

Water Project Loan Program – Project Data Sheet

Borrower:	Bergen Ditch & Reservoir Company	County:	Jefferson
Project Name:	Bergen Reservoir No. 2 Rehabilitation	Project Type:	Dam Rehabilitation
Drainage Basin:	South Platte, District 9	Water Source:	Turkey Creek
Total Project Cost:	\$2,225,000	Funding Source:	Construction Fund
Type of Borrower:	Blended - (64% high-income muni, 36% middle-income muni)	Avg. Annual Diversion:	800 AF
CWCB Loan:	\$2,020,000 (w/ 1% service fee)	Interest Rate:	3.15%
		Term:	30 years

The Bergen Ditch and Reservoir Company utilizes Bergen Ditch to divert water off Turkey Creek and deliver it to shareholders through a series of open and piped ditches, reservoirs, pumps and pipelines. The Company owns three reservoirs, Bergen No.1, Bergen No. 2 and Polly Deane. Bergen No. 2 was originally constructed in 1874. The dam has an ongoing history of slumping and seepage issues. In 2007 the dam's outlet works were damaged and temporary repairs were made in 2009. Ongoing SEO inspection reports have monitored seepage, stability, erosion and outlet concerns over recent years. Following the latest inspection report the SEO verbally recommended the Company consider rehabilitation of the dam or face the possibility of a storage level restriction. This project consists of full replacement of the outlet works and rehabilitation of the dam.

Location Map

