STATE OF COLORADO

Colorado Water Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 721
Denver, Colorado 80203
Phone: (303) 866-3441
Fax: (303) 866-4474
www.cwcb.state.co.us

TO: Colorado Water Conservation Board Members

FROM: Anna Mauss, P.E.
Mike Serlet, P.E., Chief
Water Supply Planning and Finance Section

DATE: May 12, 2009

SUBJECT: **Agenda Item 17d, May 19-20, 2009 Board Meeting**
Water Supply Planning and Finance Section – New Project Loans
North Sterling Irrigation District – Dam and Spillway Improvement Project

---

Introduction

The North Sterling Irrigation District (District) is applying for a $1,084,000 loan from the CWCB to construct its Dam and Spillway Improvement Project (Project). This Project involves enlarging the existing spillway, raising the dam crest, and installing a seepage collection system at North Sterling Reservoir (Reservoir). This Project will enable the continued use of the Reservoir water for irrigation within the District. The estimated total cost of the project is $1,240,450. See the attached Project Data Sheet for a location map and project summary.

Staff Recommendation

Staff recommends the Board approve a loan not to exceed $1,094,840 ($1,084,000 for Project costs and $10,840 for the 1% Loan Service Fee) to the North Sterling Irrigation District to construct its Dam and Spillway Improvement Project from the Construction Fund. The loan terms shall be 20 years at the agricultural interest rate of 2.25% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Staff further recommends an additional approval condition requiring the District to hold an election to obtain voter approval of the debt service prior to contracting with the CWCB.

Background

The District owns and operates the Reservoir, located in Logan County, and its associated structures for the benefit of the landowners within the District by providing stored and direct flow water. The District provides water for irrigation to a 40,917 acre service area. The District service area begins just east of the North Sterling Reservoir, approximately 15 miles northwest of Sterling, Colorado, and extends east to just northeast of Crook, Colorado.

The North Sterling Inlet Ditch diverts from the South Platte River approximately eight miles upstream of the Morgan/Washington County line. Water is then stored in the 74,590 acre-foot (AF) Reservoir and deliveries are made to the North Sterling Outlet Canal. The dam (known as Point of Rocks Dam) has a height of 59.5 feet, length of 5080 feet, and is classified as a High Hazard Dam. The Reservoir faces the possibility of a storage restriction without construction improvements to the current spillway and the dam. The District wants to complete this Project so it can retain the full storage capacity of the Reservoir.

The District also has an augmentation plan that provides water for 30 irrigation wells within the District and 13 residential wells in the Sterling area. Through the use of the District's augmentation plan, water can also be leased to Xcel Energy for use at its Pawnee Power Plant in Brush, Colorado on an as-needed basis. To facilitate the agreement with Xcel Energy, a company called Point of Rocks Water Company, LLC (Company) was created. Company members are made up of District landowners who volunteered a portion of their water for Xcel's benefit. Landowners representing 84% of the District joined the Company. The lease agreement allows Xcel to request up to 3,000 AF of fully consumable water annually during the months of November through March. The Company receives a base payment in November of each year regardless of whether Xcel requests water; however, if Xcel does request water, the Company receives an additional delivery payment. The District receives one third of the base payment from the Company and the remainder is distributed to the members of the Company. The lease between the Company and Xcel Energy is for 25 years.

Feasibility Studies

The Loan Feasibility Study, "Feasibility of Construction of the North Sterling Reservoir Dam and Spillway Improvement Project" dated March 2009, was prepared by James Yahn, P.E., Manager of the District. Additional engineering and technical support was provided by James Ferentchak, P.E., of W.W. Wheeler and Associates, Inc. The study was prepared in accordance with the CWCB guidelines and includes an alternative analysis, engineering design and cost estimates.

North Sterling Irrigation District

The District was formed in 1907 and operates as an Irrigation District under the Irrigation District Law of 1905 (C.R.S. 37-41-101 to 160). The District office is located in Sterling, Colorado. The Logan County Treasurer collects District assessments with property taxes. The District is governed by a three-member board of directors. The District may limit delivery of water to lands until all past due or delinquent assessments have been paid in full. Because this

loan contract exceeds $400,000, the Irrigation District Law of 1905 requires the District to hold a special election to authorize and ratify the contract.

Water Rights

Table 1. Water Rights

Water Right Use	Appropriation Date	Adjudication Date	Amount	Supply Source
Reservoir Storage	6/15/1908	1/1/1922	69,446 AF	So. Platte River Springdale Cr. Pawnee Cr. Cedar Cr.
Reservoir Storage	6/15/1908	1/1/1922	2,000 AF	Cedar Cr.
Reservoir Storage	6/15/1908	1/1/1922	5,000 AF	Pawnee Cr.
Reservoir Storage	8/1/1915	1/1/1922	11,954 AF	So. Platte River
Direct Flow	5/27/1914	1/13/1936	460 cfs	So. Platte River
Recreation, Wildlife, Piscatorial	12/1988	6/29/1989	69,446 AF 11,954 AF	So. Platte River
Recharge, Exchange, Augmentation	5/8/1996	7/21/2006	294 cfs (abs) 306 cfs (cond) 7,800 AF	So. Platte River
Recharge, Exchange, Augmentation	12/31/2002	7/21/2006	600 cfs (cond) 24,000 AF	So. Platte River
Industrial, Commercial, Fire Protection, Recharge, Exchange, Augmentation, Municipal, Domestic	12/31/2002	7/21/2006	15,000 AF	So. Platte River

On average, 82,207 AF of water are delivered from the Reservoir and approximately 59,654 AF are delivered to farm headgates.

Project Description

The purpose of this Project is to enlarge the spillway to meet current State Engineer's Office (SEO) requirements. In 1982, the District constructed a 530 foot spillway that was designed to pass 50% of the flows resulting from the Probable Maximum Precipitation (PMP). In 1999, the Project was revived when the District received notice from the SEO that the spillway must pass 75% of the flows from the PMP. A hydrological study was updated by W.W. Wheeler and Associates, Inc. and has been approved by the SEO. During the spillway investigation, it was determined that the crest of the dam needed to be leveled and a seepage area on the downstream side of the dam required the installation of a drain. It is the desire of the District to correct all the dam issues during the spillway enlargement.

Four alternatives were considered prior to reaching the current spillway design. The alternatives were:

1. The no-action alternative;
2. Enlarge the current spillway only;
3. Enlarge the current spillway and increase the dam freeboard with a parapet wall;
4. Enlarge the current spillway and increase the dam freeboard with soil;
5. Enlarge the current spillway, increase the dam height to increase freeboard and create additional storage.

Alternative No. 1 was considered unacceptable since it means the Reservoir storage would be restricted by the SEO.

Alternative No. 2 was ruled out because enlarging the spillway alone would require a substantial amount of earthmoving without addressing the dam crest.

Alternative No. 3 was ruled out due to the cost of construction of the parapet wall.

Selected Alternative No. 4 was selected because with additional freeboard, the width of the spillway is significantly less, therefore requiring less earth work and at the same time addresses the dam crest issue and spillway issue.

Alternative No. 5 was ruled out predominately due to cost but also due to the inability to attract partners in the increased storage.

The selected alternative, Alternative No. 4, consists of widening the current auxiliary spillway from 530 feet to 915 feet, lowering the crest of the auxiliary spillway by 0.5 feet (to match the primary spillway), and raising the dam crest approximately 2.5 feet. Also included in the Project is the construction of a seepage collection system on the downstream slope of the dam.

W.W. Wheeler and Associates, Inc. performed the design of the spillway. The design is currently being reviewed by the SEO. Construction is expected to begin in the summer/fall of 2009 with a 90 day construction window.

The District obtained a cost estimate from Cornerstone Construction of Sterling, Colorado, which is presented in Table 2.

TABLE 2
PROJECT COST

Construction	$ 999,350
Engineering	$ 48,000
Contingency	$ 157,100
TOTAL	$ 1,204,450

Financial Analysis

The total estimated cost of the Project is $1,204,450. District water ownership is 100% agricultural. The interest rate for this loan is based on the CWCB agricultural interest rate of 2.50% and reduced to 2.25% for a 20-year term.

TABLE 3
FINANCIAL SUMMARY

Total Project Cost	$1,204,450
CWCB Loan Amount	$1,084,000
CWCB Loan Amount (Including 1% Service Fee)	$1,094,840
CWCB Loan Payment	$68,590
CWCB Loan Payment (Including 10% Reserve)	$75,450
Current Assessment Levied per Acre	$12
Future (with Project) Levy per Acre	$14

Creditworthiness: The District has no existing debt service. The CWCB loan will be repaid from increases in the levied assessments. The District will pay 10% of the Project costs with its cash reserves. The District has enough cash set aside so that no increase in assessments is necessary for 2009; however, the 2010 budget will require a $2 increase in assessments. The current assessment is $12 per acre and will be increased to $14 per acre with the Project.

TABLE 4
FINANCIAL RATIOS

Financial Ratio	Past 2 Years	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% - average: 100% - 120% - strong: >120%	116% (Average) $734K/630K	116% (Average) $815K/705K
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% - average: 100% - 120% - strong: >120%	No Existing Debt	246% (Strong) $815-630K/75K
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	39% (Weak) $246K/630K	18% (Weak) $126K/705K
Annual Operating Cost per Acre-Foot (59,654 AF) weak: >$20 - average: $10 - $20 - strong: <$10	$11 (Average) $630K/60K AF	$12 (Average) $705K/60K AF

Collateral: As security for the loan, the District will pledge its assessment revenues backed by a rate covenant and annual financial reporting. This is in compliance with CWCB Financial Policy #5 (Collateral).

Staff Recommendation

Staff recommends the Board approve a loan not to exceed $1,094,840 ($1,084,000 for Project costs and $10,840 for the 1% Loan Service Fee) to the North Sterling Irrigation District to construct its Dam and Spillway Improvement Project from the Construction Fund. The loan terms shall be 20 years at the agricultural interest rate of 2.25% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Staff further recommends an additional approval condition requiring the District to hold an election to obtain voter approval of the debt service prior to contracting with the CWCB.

cc: James Yahn, P.E., North Sterling Irrigation District
James Ferentchak, P.E., W.W. Wheeler & Associates
Susan Schneider, AGO

Attachment: Project Data Sheet

CWCB Construction Loan Program
Project Data Sheet

Borrower: North Sterling Irrigation District

County: Logan

Project Name: Dam & Spillway Improvement

Project Type: Reservoir Rehabilitation

Drainage Basin: South Platte

Water Source: South Platte River

Total Project Cost: $1,240,450

Funding Sources: Construction Fund

Type of Borrower: Agricultural

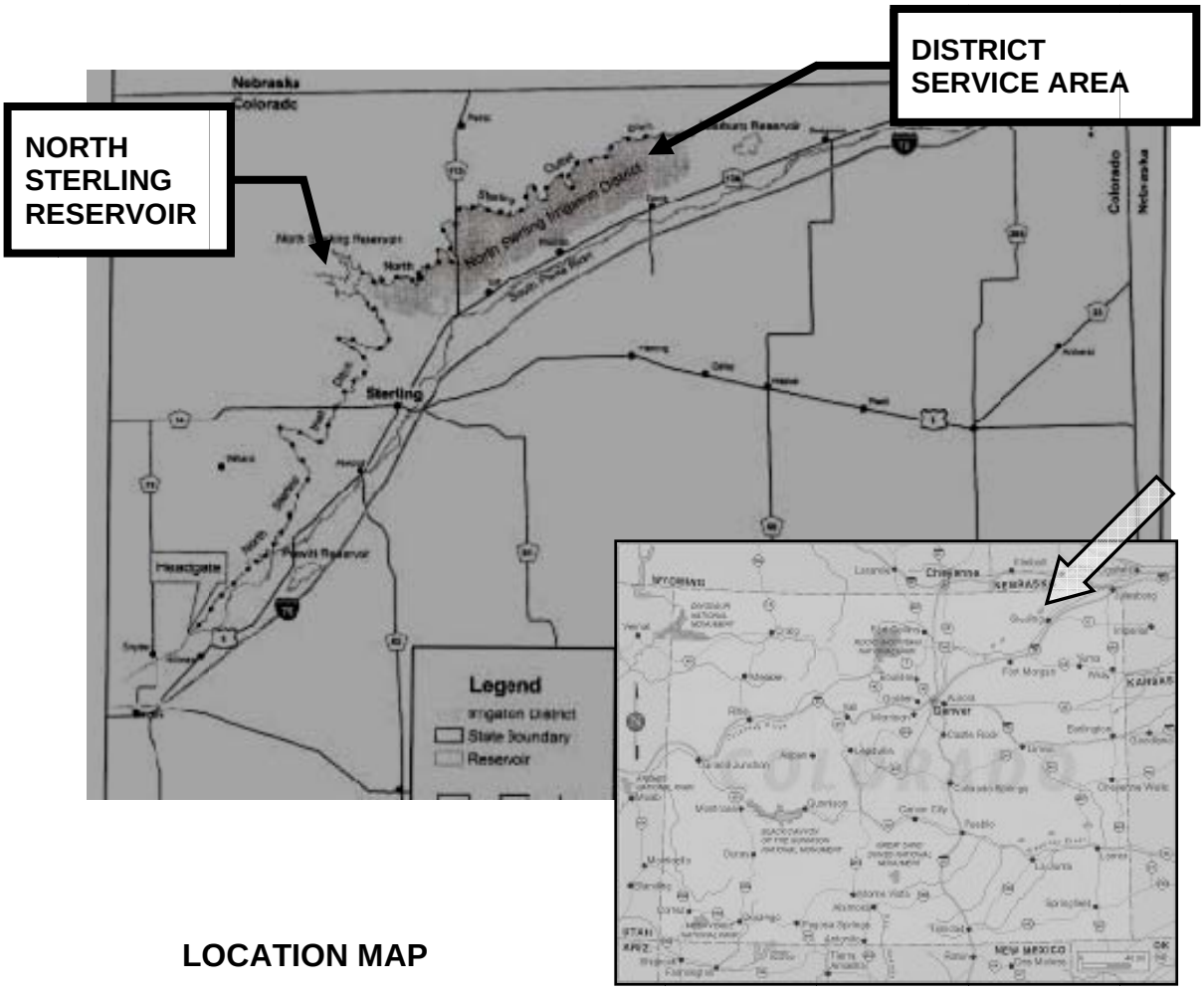
Average Delivery: 59,654 AF

Loan Amount: $1,094,840 (Including 1% fee)

Interest Rate: 2.25%

Term: 20 years

The District is applying for a loan to construct its Dam and Spillway Improvement Project (Project). The District owns and operates the North Sterling Reservoir (Reservoir) located in Logan County and provides stored and direct flow water to landowners within the District's 40,917 acre service area. The District service area begins just east of the North Sterling Reservoir approximately 15 miles northwest of Sterling, Colorado and extends east to just northeast of Crook, Colorado. The Reservoir faces the possibility of a storage restriction from the State Engineer's Office without the construction improvements to the current spillway and the dam. In order to retain full storage capacity, the District intends to enlarge the existing spillway, raise the dam crest, and install a seepage collection system at the Reservoir. Construction is expected to take place in the summer/fall of 2009 with a 90 day construction window.



LOCATION MAP