

Proposal to add SCADA and Automation to the East Branch of the Martin Canal

January 2017

New Sweden Irrigation District
2350 W 17th S
Idaho Falls, Idaho 83402

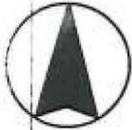
Project Manager
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Martin Canal, A lateral within the New Sweden Irrigation System, Located in Bonneville County west of Idaho Falls, Idaho

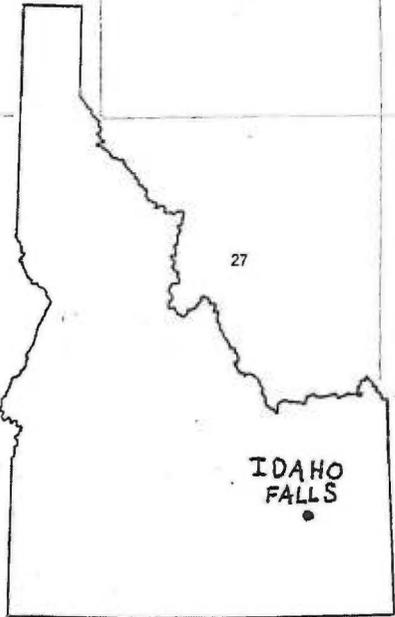
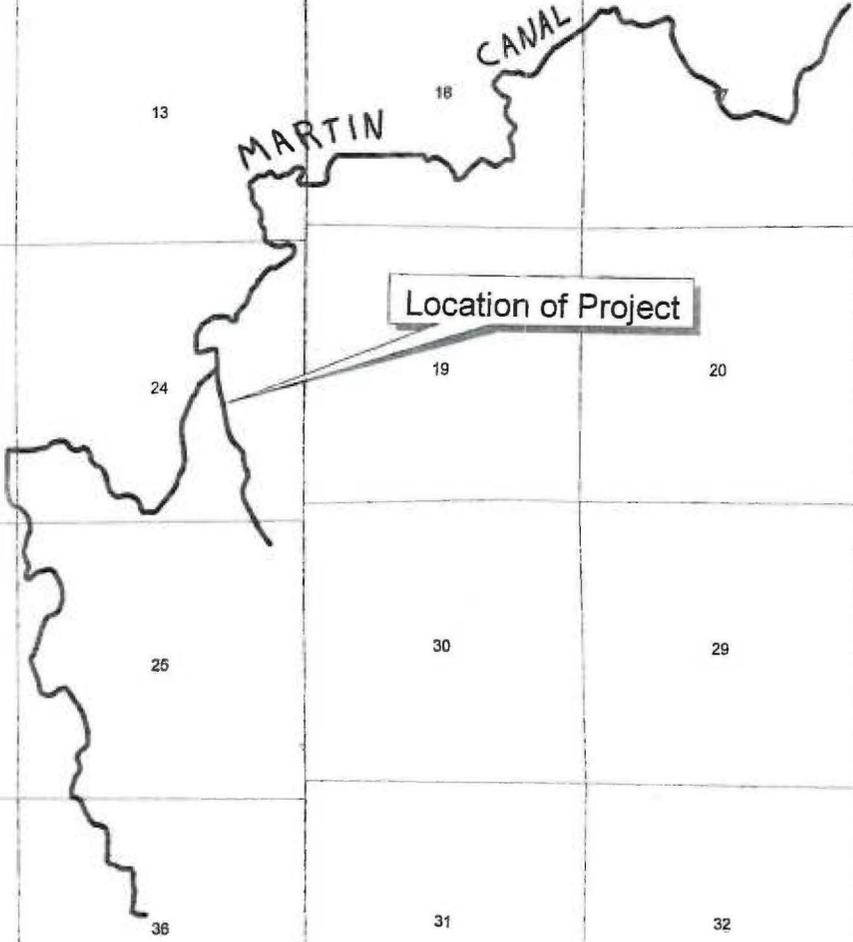


T2N R36E

T2N R37E

Idaho Falls

Location of Project



Executive Summary

January 2017
New Sweden Irrigation District
Idaho Falls, Bonneville County, Idaho

New Sweden Irrigation District proposes to add SCADA and Automation to the East Branch of the Martin Canal, which is a small lateral within the District's canal system. If funded, the District would purchase the necessary equipment to add the site to the District's existing SCADA system, and to add automation control to the existing regulating gate, which are within the requirements of eligible projects listed in section C.3.1 of the FOA.

It is estimated that the project would be started in the fall of 2017, and be completed prior to the beginning of the 2018 irrigation season.

This project is **not** located on a Federal facility

Background Data

New Sweden Irrigation District currently supplies surface irrigation water to 27,817 Acres within the District boundary, and an additional 4082 acres for which privately owned water right are carried through the District's system. District water rights include multiple decreed natural flow rights with priorities ranging from June 1880 through April 1939 with a cumulative total of over 1000 CFS. The District also has Storage contracts for space in Jackson Lake, Palisades and American Falls reservoirs, for a total of 88,313 acre feet. There are currently 1119 patrons of the District supplied from approximately 840 diversions who use the water for agricultural and small residential irrigation. The primary agricultural crops supplied by the District include alfalfa, small grains, potatoes and pasture. Annual total diversions in the District for the past 5 years average just under 94,000 acre feet which is about 2.94 A.F. /acre.

The District's system is comprised of 2 large canals, the Great Western and the Porter, which divert from the Snake River north of Idaho Falls. They supply 26 lateral canals which all combined have a length of about 125 miles. The District is located on the west side of the Snake River in Jefferson, Bonneville and Bingham counties in eastern Idaho. Almost all of the canals are open channel, and unlined except for a few locations where sinkhole prone areas have been lined or piped. The District has installed a SCADA system with measurement locations at 13 major control sites and points where water leaves the system. There is also currently automated control at 3 key locations. The SCADA and automation equipment have been partly added with financial assistance through the WCFSP beginning in 1999. Some of the lining has also been done through that program beginning in 2006.

Project Description

The District proposes to add SCADA and automation control to the East Branch of the Martin canal. This canal is a small lateral which serves about 660 acres, and is approximately ½ mile long. It is controlled by a small manual gate near the point where the Martin Canal splits into 2 branches. It dead-ends at 2 diversion head gates and has a drilled sink well which serves as a partial overflow. The diversions from this canal are all to pressurized systems, most of which supply center pivots, which may end their irrigation cycles at all times of the day. This then necessitates adjustments to the flow in the canal. Compounding the issue is the limited and problematic access to the control point due to irrigation over or near the access roads from any direction. Due to the situation at this location, District employees must spend a disproportionate amount of time to regulate the flow and prevent over topping the canal.

The District would install a WT- 200 Medium lift gate actuator supplied from Watch Technologies to the existing control gate. A submersible depth transducer would be installed between the gate and the rectangular plate weir just downstream to provide water level information. Teton Communication would install the necessary equipment to add a Zetron RTU and radio connection to the existing SCADA system. All equipment would be operated with a solar power system, which would provide control capability even if local power was lost.

The addition of this site to the SCADA system and automation to the control structure would allow District personnel to remotely monitor or adjust the level in the canal to meet the changing demands, regardless of the condition of the access roads. It would also save considerable time, freeing District employee's for other needed tasks. In conjunction with the weir that was recently constructed below the control gate, accurate adjustments based on level readings would be possible.

Evaluation Criteria

Planning Efforts Supporting the Project

This project was listed in the District's latest Conservation Plan, which was submitted in March 2013. This project has been discussed and evaluated by the District for several years as something that would help resolve some long standing issues that have been problems since the District annexed the Martin Canal in 1984. After the District consolidated the ditch rider routes from 3 to 2 in 2012 to be more efficient financially, this project became a higher priority due to the amount of time spent at this location regulating the water.

Project Benefits

The proposed project would help make better use of District personnel time by allowing water regulation remotely instead of on site. This regulation may occur several times in a 24 hour period due to the fluctuating demand and the fact that this is a dead end canal with an inadequate overflow for large spills. It would also allow for safer operation to prevent potential flooding to a nearby property caused by over topping the canal if pumps are shut down or power is lost. District employees can access the SCADA system via the internet from any location and would be able to make corrections when they are required. Better control of the water level also minimizes the loss of water which currently must be wasted at the sink well until the gate can be regulated manually.

Project Implementation

This project would be completed in a short amount of time. If funded, the necessary equipment would be ordered and could be installed as soon as it was available. The modifications needed to mount the actuator to the existing gate would be minor and would be fabricated by District personnel. They would also construct the mounting for the RTU, radio antenna, level sensor and solar equipment, which would be modeled after previous installations in the District's SCADA system. Teton Communications would install the electronic equipment and would assist the District in calibration. Once the ordered equipment was available and installation scheduled, the project would be completed within a few weeks. All needed tools and equipment to be used for this project are currently owned by the District.

Nexus to Reclamation

New Sweden Irrigation District has contracts with the Bureau of Reclamation for storage space in Jackson Lake, Palisades and American Falls reservoirs. This project is on a District lateral which supplies District water, including storage when needed to District patrons in this area.

Environmental and Cultural Resources Compliance

This project would have minimal earth disturbing work, which would be done for the installation of the mounting structure for the RTU equipment and radio antenna, and for the wiring connecting it to the gate actuator if installed in a buried conduit. There should be no impact to the air, water or animal habitat.

There are no known issues in this location concerning federally listed threatened, endangered species, or critical habitat in the project area.

There are no known wetland issues with this project. This canal has no return flow to any other surface water and should be exempt from "Waters of the United States" jurisdiction.

New Sweden Irrigation District's system was constructed beginning in 1886 and was generally completed prior to 1900. The Martin Canal, where this project is located was constructed by a private company around 1908, which contracted with the District for the delivery of privately held water rights. It was annexed into the District in 1984.

The installation of the actuator will be on a gate that was fabricated by the District in the mid 1990's. This modification will not modify the normal operation of the structure except to allow remote control capability.

There are no listed structures or features within the District's system. There are several structures that may be eligible due to their age. None of these sites are located in the vicinity or are directly connected to the proposed project.

This project is located in the midst of an active agricultural operation. There are no known archaeological sites near the project.

This project would have no known effect on any low income or minority population.

There is no known impact to any ceremonial sacred sites used by Indians. This site is located on property owned and farmed by a patron of the District.

There will be no known impact from this project contributing to noxious weeds or non native species.

Permits or Approvals

No permits will be required for the construction of this project. The District has a statutory right of way upon which all installations would be made. We have sought and received verbal approval from the landowner, who is a patron of the District and will benefit from the project.

Teton Communications, Inc.

545 South Utah Circle
Idaho Falls, ID 83402

Phone # 208-522-0750 Fax # 208-525-3400



Project Quote

Date	Quote No.
12/1/2016	th1

Customer Name / Info	
New Sweden Irrigation 2350 West 17th South Idaho Falls, ID 83401	
C3 / Cell	Kale Sheppard
C3 Phone / Fax	
C3 E-mail	

Salesman Name / Info	
Tony Hafla	
Salesman E-Mail	tony@tetoncommunications.com

Project Description
New RTU

Qty	Item	Description	Price	Amount
1	1708 RTU Package	Zetron 1708 RTU complete with: Steel Nema Enclosure, Backup Battery, UHF Radio, Lightning Arrestor, Hookup Cables, 40' Coax, Yaggi Antenna, and Antenna Support Pipe/Tripod.	5,150.00	5,150.00
1	Solar Package	Solar Package for SCADA RTU's.	1,210.00	1,210.00
10	In Shop T&M Rate	Estimated Labor to Assemble and test the new RTU. Travel to the new RTU site location and install the RTU equipment and solar package. Modify the Lookout program to communicate and display the new RTU information. Estimate	90.00	900.00

Terms	50% Dn/50% at Install	Subtotal	\$7,260.00	Sales Tax (6.0%)	\$0.00
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Signature: _____

Grand Total	\$7,260.00
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THE NEW SWEDEN IRRIGATION DISTRICT

2350 W. 1700 SO.
IDAHO FALLS, IDAHO

OFFICE OF THE SECRETARY-TREASURER

208-523-0175



Be It Resolved,

That the New Sweden Irrigation District commits to fund a minimum of 50 percent of the costs to add automation and SCADA capabilities at the proposed location on the East Branch of the Martin canal, located in Section 24, T 2 N, R 36E in Bonneville County Idaho, Contingent to the project being funded through Funding Opportunity BOR-DO-17-FO11 with the Water Conservation Field Service Program. The projected total cost of this proposal is \$ 13,037.00

Approved at the regular Board Meeting, January 10, 2017

Louis Thiel

Title Chairman of the Board

Louis Thiel