Salmon River Canal Company
Canal Lining and Energy
Conservation Project

Reclamation WaterSMART Water and Energy Efficiency Grant Proposal

Funding Opportunity Announcement No. R15AS00002

Prepared by

SALMON RIVER CANAL COMPANY

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January 21, 2015

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SECTION 1

Technical Proposal

1.1 Executive Summary

Date: January 21, 2015

Applicant: Salmon River Canal Company

City/County/State: Twin Falls, Twin Falls County, Idaho

This application is for funding by the U.S. Bureau of Reclamation's (Reclamation) WaterSMART: Water and Energy Efficiency Grants for FY 2015 Funding Opportunity Announcement (FOA) No. R15AS00002. This application from the Salmon River Canal Company (Canal Company) is seeking $300,000 in federal funding assistance for Federal Funding Group I. The funding will be used to line 19,619 lineal feet (LF) of earthen canal in the Canal Company's canal system to increase water conservation and water-use efficiency by significantly reducing seepage losses. As part of the project, the capacity of the canal segment will also be increased to facilitate future improvements that will nearly double the water savings by eliminating additional seepage losses after abandoning an adjacent canal lateral and increase energy efficiency by eliminating the need for pumping, as described in this grant application. The project will provide benefits within Task Area A – Water Conservation - as defined by Reclamation's Funding Opportunity Announcement (FOA). The project is located on U.S. Bureau of Land Management (BLM) lands and construction will be limited to the Canal Company's right-of-way. When complete, the project will result in an annual water savings of at least 2,069 acre-feet (AF) as well as improved overall water management. The requested funds ($300,000) comprise 42 percent of the $708,746 total project cost and will provide the resources needed to assist the Canal Company with implementing the Canal Lining and Energy Conservation Project (project). Canal lining and grading will begin in the fall 2015 following the irrigation season and will be complete by spring 2016.

1.2 Background Data

The Canal Company is located in south-central Idaho in Twin Falls County. Canal Company headquarters are located in the city of Hollister, Idaho. Canal Company lands begin at the Salmon Falls Dam diversion on the Salmon Falls Creek, a tributary to the Snake River. The total project service area is approximately 20 miles long by 9 miles wide.

The Canal Company was formed in 1910 to operate the Salmon Falls Dam and Reservoir. The Canal Company is a non-profit company and has 169 shareholders, who hold a total of 60,050.65 shares. The Canal Company's primary purpose is to deliver irrigation water to its shareholders on the irrigation project known as the Salmon Tract. The Salmon Tract is located south of Twin Falls, Idaho, and is known for its fertile soils and excellent crops. Primary crops grown are hay, beans, grains, and corn under a combination of pivots, sprinklers, and gravity irrigation systems.

Salmon Falls Dam is a concrete gravity arch dam 223.5-feet high with a crest length of 450 feet, and is owned and operated by the Canal Company. When full, the reservoir has an area of about 3,400 acres and a length of approximately 15 miles. The main purpose of Salmon Falls Dam is for irrigation storage; additional benefits are derived from recreation.

The water conserved by constructing the project will be used to satisfy existing irrigation demands in the northern part of the Canal Company system. The Canal Company serves approximately

13,000 irrigated acres. The Canal Company has not expanded beyond historical service area boundaries and has no intentions to expand.

1.2.1 Area Map and Project Map

Figure 1 shows an area map that depicts the Canal Company's service area, approximately 20 miles long by 9 miles wide. There are approximately 110 miles of mainline canals within the service area.

Figure 2 shows the project area, including existing features and future project improvements:

- **Canal Lining and Energy Conservation Project** – 19,619 LF of canal lining on Lateral 214, which includes canal grading to increase the capacity of Lateral 214 in preparation of future Canal Company improvements
- **Future Project Improvements**
  - Future gravity pressure pipelines
  - Abandon Lateral 213

1.2.2 Water Supply, Water Rights, Water Delivery System, and Current Water Uses

1.2.2.1 Water Supply

The Canal Company's water supply comes from surface water sources. The majority of surface water is derived from the Salmon Falls Creek basin, which drains portions of Elko County in Nevada and Owyhee and Twin Falls Counties in Idaho. The Salmon Falls Creek watershed spreads across approximately 2,103 square miles.

The typical growing season is 120 days and water is typically delivered from May 1 thru mid-September. In dry water years, such as in 2014, water deliveries can end as early as mid-July.

Table 1 summarizes the Canal Company's annual water supply from 2004 through 2014.

TABLE 1
Canal Company Annual Water Supply

Year	Annual Supply (AF)
2004	51,796
2005	63,780
2006	81,669
2007	83,772
2008	69,654
2009	73,107
2010	72,898
2011	85,243
2012	81,661
2013	57,290
2014	40,253
AVERAGE	**69,193**

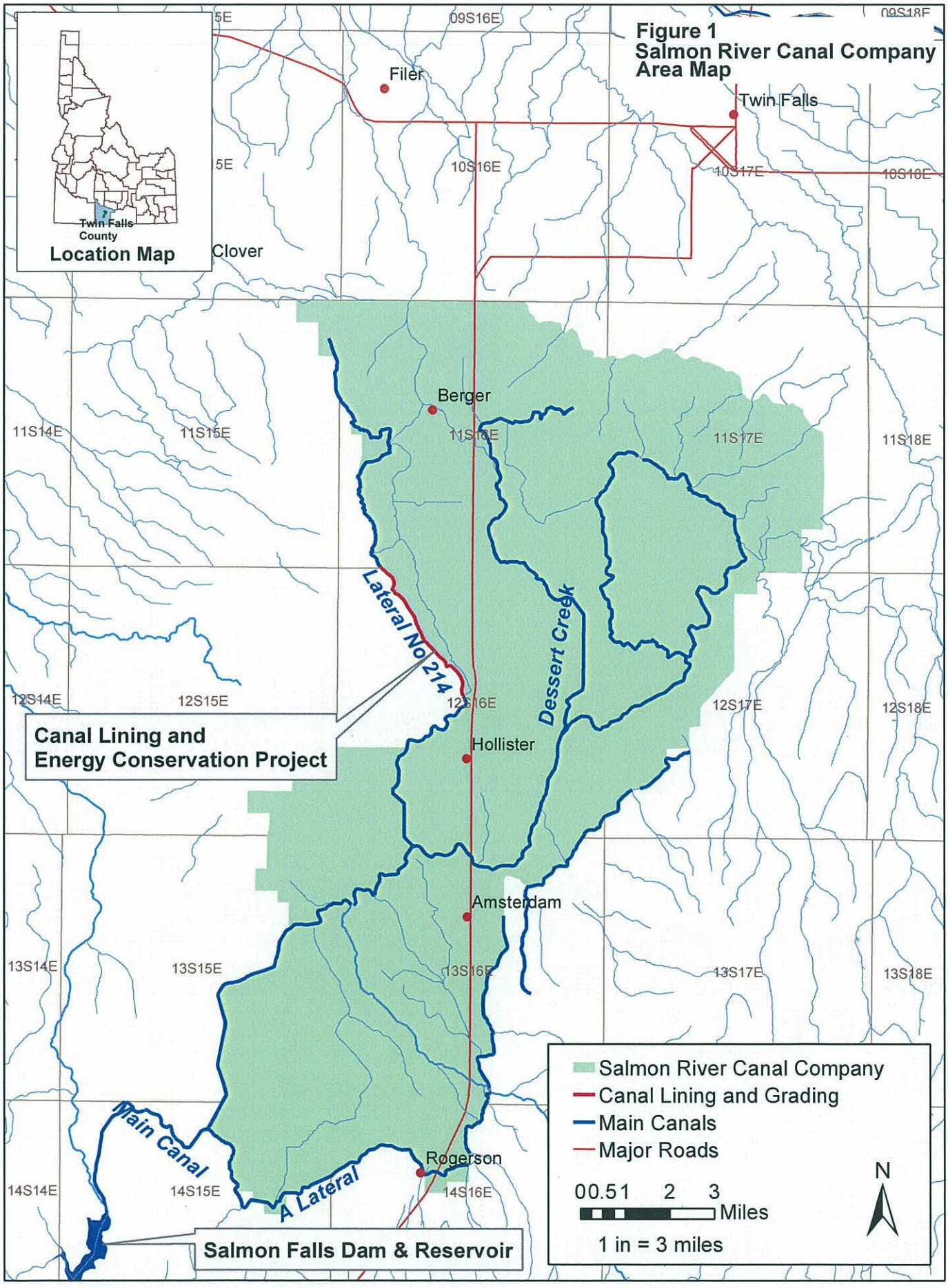
Figure 1
Salmon River Canal Company
Area Map
Twin Falls County
Location Map
Filer
Twin Falls
Clover
Berger
Hollister
Amsterdam
Rogerson
09S16E
10S16E
10S17E
10S18E
11S14E
11S15E
11S16E
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12S17E
12S18E
13S14E
13S15E
13S16E
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13S18E
14S14E
14S15E
14S16E
Lateral No 214
Dessert Creek
Main Canal
A Lateral
Canal Lining and
Energy Conservation Project
Salmon Falls Dam & Reservoir
Salmon River Canal Company
Canal Lining and Grading
Main Canals
Major Roads
0 0.5 1 2 3
Miles
1 in = 3 miles
N

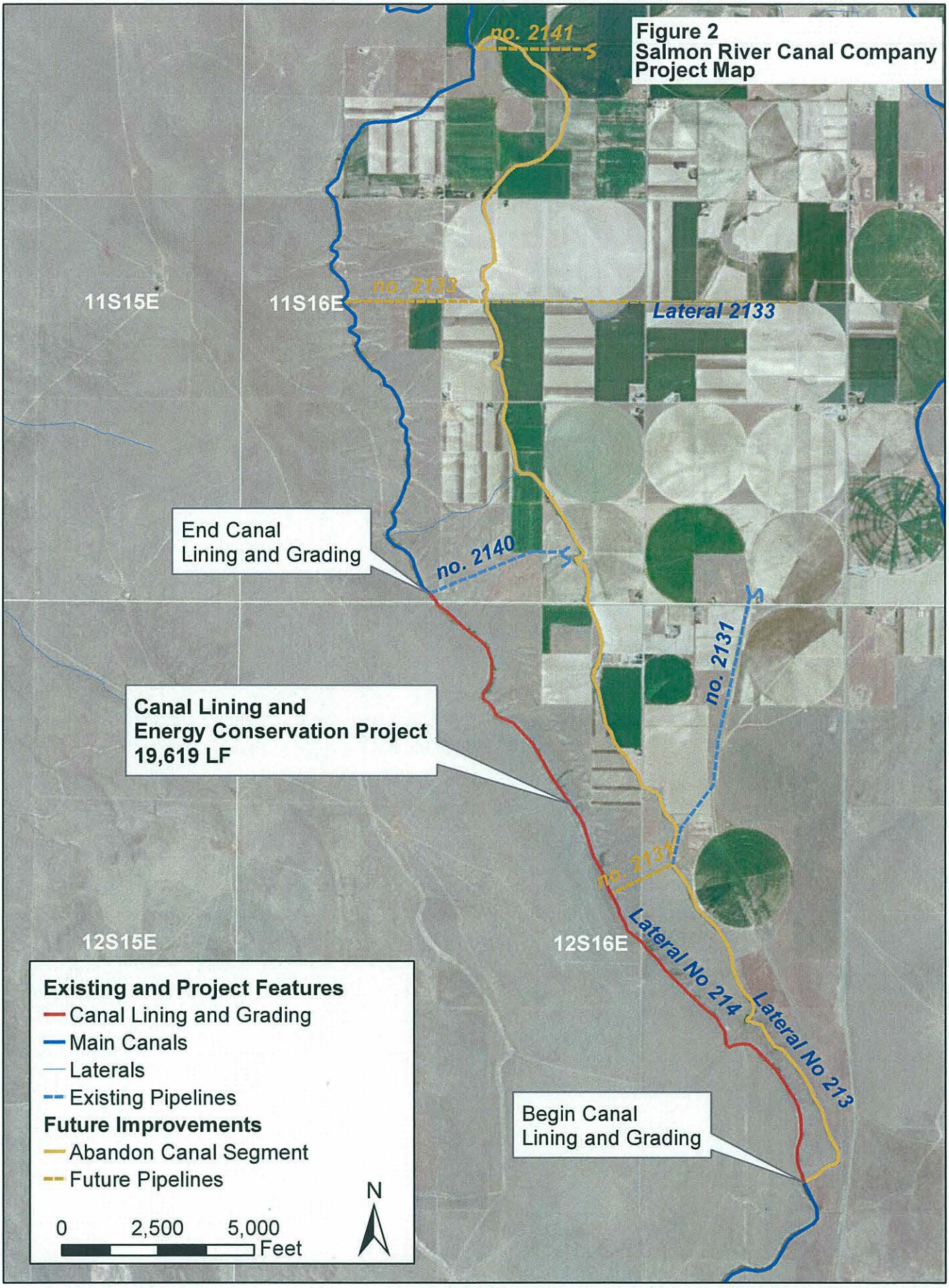


Figure 2
Salmon River Canal Company
Project Map
no. 2141
no. 2133
Lateral 2133
11S15E
11S16E
End Canal
Lining and Grading
no. 2140
no. 2131
Canal Lining and
Energy Conservation Project
19,619 LF
no. 2131
Lateral No 214
Lateral No 213
12S15E
12S16E
Existing and Project Features
Canal Lining and Grading
Main Canals
Laterals
Existing Pipelines
Future Improvements
Abandon Canal Segment
Future Pipelines
0
2,500
5,000
Feet
N
Begin Canal
Lining and Grading

1.2.2.2 Water Rights

The Canal Company has water rights for and is obligated to deliver 1.167 AF per share of stock when water is available. Table 2 summarizes historical average water deliveries per share.

TABLE 2
Canal Company Historical Water Allotments

	Allotment Delivered (AF per share)	Percentage of Full Water Allotment	Number of Years Full Allotment was Delivered
5-year Average Allotment (2009-2013)	0.782	67	1 out of 5
10-year Average Allotment (2004-2013)	0.758	65	2 out of 10
25-year Average Allotment (1989-2013)	0.706	60	5 out of 25
50-year Average Allotment (1964-2013)	0.839	72	18 out of 50

Canal Company-owned surface water rights are summarized in Table 3.

TABLE 3
Canal Company Surface Water Rights

Type	Source	Diversion Rate (cfs)	Diversion Volume (AF)	Priority
Natural flow	Salmon Falls Creek	1.55	388	1874
Natural flow	Salmon Falls Creek	19.414	4,629	1894
Natural flow	Salmon Falls Creek	7.321	2,447	1874
Natural flow	Salmon Falls Creek	2.744	542	1874
Natural flow	Salmon Falls Creek	10.17	3,061	1874
Natural flow	Salmon Falls Creek	25.786	9,910	1897
Natural flow	Salmon Falls Creek	8.583	2,189	1894
Natural flow	Salmon Falls Creek	1,250	-	December 29, 1906
Natural flow	Salmon Falls Creek	500	-	August 22, 1906
Natural flow	Salmon Falls Creek	1,000	-	September 7, 1909

cfs = cubic feet per second

1.2.3 Water Delivery System and Current Uses

1.2.3.1 Diversion and Storage Facilities

Water is diverted from the Salmon Falls Creek at Salmon Falls Dam, which is owned and operated by the Canal Company.

1.2.3.2 Distribution System

From the Salmon Falls Creek Reservoir, water is diverted through a tunnel and into an open-channel canal system. There are approximately 300 miles of mainline canal and laterals that deliver water to approximately 13,000 acres that are served by the Canal Company. As the water flows through the mainline canals and diversion laterals, it is delivered to farmland via metal head gates with either open concrete structures or closed pipeline systems. All head gates are equipped with a weir measuring system or a flowmeter. Any unused water not attributed to loss is stored at one of three storage ponds at the tail-end of the various canal systems.

1.2.4 Existing and Previous Reclamation Partnerships

In 1966 the Canal Company applied and was approved for a $900,000 loan from the Reclamation under the Small Reclamation Projects Act. The funds were released by Congress in 1971 and were subsequently used to construct a new siphon and improvements on the A-line Canal through Deep Creek as well as to install several miles of concrete lining and a Parshall flume at the beginning of Canal Company's system. Construction was completed in the fall of 1973 and the loan was paid in full in June of 1988.

1.2.5 Water Conservation Goals and Existing Water Conservation Program

The Canal Company's long-term goal is to ensure adequate deliveries. Water savings from the project is expected to total approximately 2,069 AF/year, or 103,436 AF over the 50-year life cycle of the canal-lining material.

1.3 Technical Project Description

This section includes a technical description of the project based on project planning completed to date. The project will significantly reduce seepage losses. Water conservation benefits from the project will be immediate and the savings expected from the project will result in enhanced water management.

The existing canal bottom on Lateral 214 is earth lined and many sections of the bottom are solid rock while others have some silt. Seepage losses have been apparent for many years based on annual water measurements, visual observations of seepage through the canal banks and frequent bank repairs, and vegetation growth downslope of the canal banks.

The proposed project will install a geocomposite fabric in Lateral 214 for a length of 19,619 LF. The Canal Company will also increase the capacity of Lateral 214 (widening the canal by grading) to allow for future improvements that will result in increased energy efficiencies and additional water conservation as described below in Section 1.3.1.2.

1.3.1 Planning to Date

1.3.1.1 Project Funding

In 2004 the Canal Company implemented a $0.50/share assessment. This assessment has been put into savings for future improvements. If awarded the WaterSMART grant, the Canal Company will now have the required funds to complete this high-priority project.

1.3.1.2 Project Location

As previously mentioned, seepage losses in Lateral 214 have been apparent for many years based on annual water measurements, observed seepage, and vegetation growth downslope of the canal banks.

This project also has the potential to increase energy efficiency by reducing pumping requirements. Lateral 214 is approximately 100 feet higher in elevation than Lateral 213 (see Figure 2). Subsequent project improvements include plans to abandon Lateral 213 and serve the irrigated acres, which currently require pumps on pivots, with water via pressurized pipelines from Lateral 214. These improvements would increase energy efficiencies by eliminating the need for pumping. Notable seepage losses in Lateral 213 have been evident based on water measurements. Once these improvements are completed and Lateral 213 is abandoned, water savings will nearly double as a result of reduced seepage losses. The timeframe for these future improvements is undetermined based on available funding; however, grading improvements on Lateral 214 that are necessary to facilitate these subsequent improvements are included as part of the WaterSMART grant application.

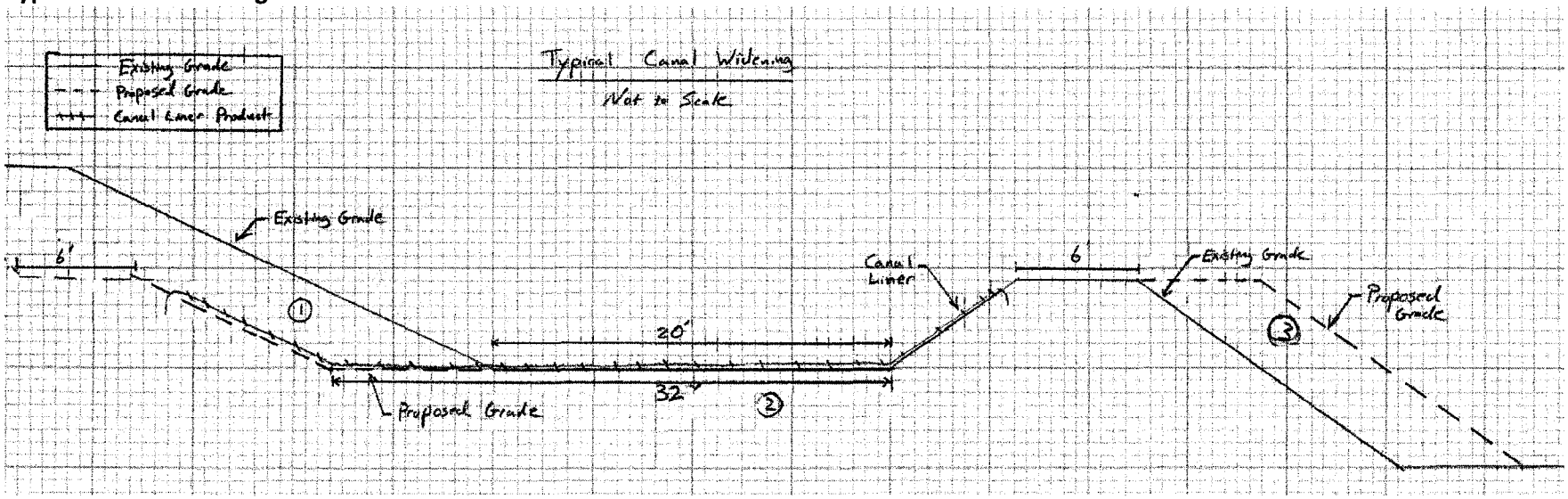
1.3.1.3 Canal Grading

The current capacity of Laterals 214 and 213 is 80 cfs and 50 cfs, respectively. The existing canal section of Lateral 214 has a bottom width of about 20 feet and an approximate depth of 3 feet. As mentioned above, future plans include the installation of gravity-pressurized pipelines from Lateral 214 to serve irrigated acres that are currently supplied by water from Lateral 213 and delivered to pivots pressurized by pumps. In order to make these future improvements, the Canal Company needs to increase the capacity of Lateral 214 to accommodate the demand that was previously supplied by Lateral 213.

The final capacity of Lateral 214 will be 130 cfs. Based on the cross-sectional geometry of the canal segment immediately upstream of Laterals 213 and 214, it is anticipated that Lateral 214 will be widened by approximately 12 feet. The Canal Company plans to contract with a consulting engineer during spring 2015 to assist in final design of the canal grading. Future tasks that are included in the budget estimate include hydraulic analysis, geotechnical recommendations, and civil grading plan development. The Canal Company will perform the earthwork grading. A conceptual cross section showing existing and proposed grading is presented in Figure 3.

FIGURE 3

Typical Canal Widening Section



Note 1 – Excavate the uphill slope and widen the bottom of the canal. Create an access road on the uphill canal bank.

Note 2 – Place lining product

Note 3 – Utilize excavated material on the downhill slope to stabilize and widen bank where required.

1.3.1.4 Canal Lining

The Canal Company plans to use a geocomposite to line Lateral 214. Selection of material is based on feedback from numerous canal companies and irrigation districts within the northwest. Huesker's Canal[3] 123012 is a geocomposite that consists of polyester nonwovens bonded to a polyethylene geomembrane. The Canal[3] 123012 geocomposite is inert to biological degradation and naturally encountered chemicals, alkalies, and acids. It is designed for water-containment applications offering an easy, reliable and cost-effective canal lining solution. Huesker's Canal[3] 123012 provides superior puncture resistance and increased interface friction properties that allow the liner to be deployed directly in contact with existing soils and steepened side slopes. This material has a projected 50-year lifespan.

1.3.1.5 Future Gravity-Pressure Pipelines

The Canal Company currently has two gravity pressurized pipelines on this section of the system (see Figure 2). Pipeline No. 2140 is approximately 1.5 miles long and provides water to about 450 acres. Pipeline No. 2131 is currently a little over 2 miles long and serves about 600 acres.

Once this project is completed, the Canal Company will be able to create three new segments of gravity pressurized pipelines. The first new pipeline segment will extend existing pipeline No. 2131 approximately 2,500 LF to an elevation that is approximately 100 feet higher, which will provide enough gravity pressure to irrigate 350 acres. Two new pressurized pipelines will also be installed downstream of the canal lining segment. The first will be created by converting Lateral 2133 to a pressurized pipeline that would serve approximately 750 acres. A second pipeline at the end of the 214 canal system would serve approximately 1,350 acres. These acres, a total of 2,450 acres, are currently supplied by Lateral 213 and water is delivered via pivots that require pumps.

1.4 Evaluation Criteria

1.4.1 Evaluation Criterion A: Water Conservation

The Canal Company's long-term goal is to ensure adequate deliveries.

Subcriterion No. A.1 – Quantifiable Water Savings

Describe the amount of water saved. For projects that conserve water, state the estimated amount of water conserved in AF per year as a direct result of this project.

The project is expected to conserve at least 2,069 AF on an annual basis which represents 3.0 percent of the average annual supply. The one-time investment of $708,746 is expected to save approximately 103,436 AF over a 50-year period. Table 5 summarizes the estimated water saved from the project.

In addition to the 2,069 AF in annual water savings as a direct result of the project, additional water savings will occur following subsequent improvements when the gravity-pressurized pipelines have been installed and Lateral 213 is abandoned, as described in Section 1.3.1.2. Based on current Lateral 213 measurements, it is estimated that 1,904 AF/year is lost due to seepage in Lateral 213. Combined water savings as a result of lining Lateral 214 and future abandonment of Lateral 213 is 3,973 AF/year, which represents 5.7 percent of the average annual supply.

What is the applicant's average annual acre-feet of water supply?

The Canal Company's average annual water supply is 69,193 AF (see Table 1 in Section 1.2.2).

Where is that water currently going (i.e., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)?

The water is returning to the ground. Any unused water not lost to seepage or evaporation is collected at one of three storage ponds at the tail-end of the system. No water is spilled at the end of the system or returned for beneficial use by other water users.

Where will the conserved water go?

Fewer diversions will result in less draw from stored water in Salmon Falls Creek Reservoir. Conserved water will remain in the Salmon Falls Creek watersheds instead of being diverted. Less draw on stored water will extend the irrigation for its water users.

Summary of Water Savings Calculations and Methodology

How has the estimated average annual water savings that will result from the project been determined?

Monthly supply at the head and tail end of Lateral 214 along with deliveries in Lateral 214 for representative dry and wet water years were used to evaluate seepage losses. Tables 4 and 5 present monthly water supplies, deliveries, and calculated losses for Lateral 214 for representative wet (2011) and dry (2014) water years. Total losses include both seepage and evaporation.

Evaporation losses were estimated using the average pan evaporation for the period of record (1963-2005) at the Twin Falls WSO climate station. The average pan evaporation was adjusted by a factor of 0.75 to more closely estimate the evaporation from natural waterbodies. The monthly evaporation was calculated based on the surface area of the canal lining segment.

Seepage losses account for the remainder of the total losses in Lateral 214. Annual seepage losses in Lateral 214 account for 65% and 52% of the annual supply in Lateral 214 for representative dry and wet water years, respectively. Annual seepage losses in Lateral 214 accounted for 3.6% and 3.0% of the total Canal Company's total annual supply in representative dry and wet water years, respectively.

The average monthly seepage rate was calculated based on the surface area of the canal lining segment. The average monthly seepage rate is 11.7 gal/ft^2/day. This high seepage rate is indicative of the rocky, earth-lined canal. Based on the average irrigation season of 120 days annual seepage losses are estimated to be 2,201 AF/year.

A case study evaluating various synthetic lining products demonstrated the potential for a 94 percent reduction in seepage losses following canal lining. Therefore, the estimated water savings as a result of this project is 2,069 AF/year, which is 94 percent of the total annual seepage losses in Lateral 214. These water savings account for 3.0% of the Canal Company's total annual water supply (69,193 AF).

TABLE 4
Monthly Water Supply, Delivery and Calculated Losses for Dry Water Year (2014)

Lateral 214	Supply (AF)	Deliveries (AF)	Total Losses (AF)	Average Pan Evaporation (in/day)	Evaporation Losses (AF)	Seepage Losses (AF)	Seepage Rate (gal/ft²/d)
May	700	237	463	0.26	5	458	12.2
June	908	341	567	0.31	7	560	11.9
July	582	160	422	0.45	7	415	11.5
August	NA	NA	-	-	-	-	-
September	NA	NA	-	-	-	-	-
October	NA	NA	-	-	-	-	-
ANNUAL	**2190**	**738**	**1452**		**19**	**1433**	

TABLE 5
Monthly Water Supply, Delivery and Calculated Losses for Wet Water Year (2011)

Lateral 214	Supply (AF)	Deliveries (AF)	Total Losses (AF)	Average Pan Evaporation (in/day)	Evaporation Losses (AF)	Seepage Losses (AF)	Seepage Rate (gal/ft²/d)
May	422	158	264	0.26	3	261	11.9
June	993	447	546	0.31	7	539	11.5
July	1299	712	587	0.33	7	580	11.9
August	1180	600	580	0.29	7	574	11.8
September	905	353	552	0.22	5	547	11.7
October	174	85	89	0.85	3	86	11.0
ANNUAL	**4973**	**2354**	**2619**		**31**	**2587**	

How have average annual canal seepage losses been determined?

As described above and presented in Tables 4 and 5, the canal seepage rate in Lateral 214 is estimated to be 11.7 gal/ft²/day which equates to 2,201 AF/year in seepage losses.

In addition to the annual water savings as a direct result of the project, additional water savings will occur following subsequent improvements when the gravity-pressurized pipelines have been installed and Lateral 213 is abandoned, as described in Section 1.3.1.2. Lateral 213 is 37,346 LF long and has an approximate width of 15 LF. Based on current Lateral 213 measurements, the seepage

rate is estimated to be 9.2 gal/ft^2/day which equates to 1,904 AF/year over the average irrigation season.

What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

The post-project seepage/leakage losses are anticipated to be 132 AF, which is 6 percent of the average annual losses in Lateral 214. This estimate is based on a 94 percent reduction in seepage losses following canal lining, as described above.

What are the anticipated annual transit loss reductions in terms of AF per mile for the overall project and for each section of the canal included in the project?

The anticipated annual transit loss reduction as a result of canal lining associated with this project is 557 AF/mile for the 19,619 LF segment of canal based on annual water savings of 2,069 AF/year.

How will actual canal loss seepage reductions be verified?

There are currently two weirs on Lateral 214 to measure flows. In addition, the Canal Company plans to upgrade to an automated measuring device at the head end before the project is complete (work not included in this grant application). Following construction, the Canal Company will continue to take daily water measurements to verify seepage reductions for Lateral 214.

Include a detailed description of the materials being used.

Huesker's Canal^3 123012 is a geocomposite that consists of polyester nonwovens bonded to a polyethylene geomembrane. The Huesker's Canal^3 123012 geocomposite is inert to biological degradation and naturally encountered chemicals, alkalies, and acids. It is designed for water containment applications offering an easy, reliable, and cost-effective canal-lining solution. Huesker's Canal^3 123012 provides superior puncture resistance and increased interface friction properties that allow the liner to be deployed directly in contact with existing soils and steepened side slopes. This material has a projected 50-year lifespan.

Subcriterion No. A.2 – Percentage of Total Supply

Provide the percentage of total water supply conserved.

Approximately 2,069 AF per year or, 3.0 percent, of the water used within the Canal Company's service area will be conserved. The total annual water supply is based on the average annual water supply over the last 10 years.

$$\frac{\text{Estimated Amount of Water Conserved} = 2{,}069\ \text{AF}}{\text{Average Annual Water Supply} = 69{,}193\ \text{AF}} = 3.0\%$$

1.4.2 Evaluation Criterion B: Energy-Water Nexus

Subcriterion No. B.2 – Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water management project (e.g., reduced pumping).

Though there will not be any direct increases in energy efficiency as a result of the current project, subsequent improvements once the capacity of Lateral 214 is increased will eliminate the need for pumping. Currently approximately 2,450 acres are served by the existing pipeline No. 2131 and open Laterals 2133 and 2141, which require pumps to pressurize the pivots. As described above in

Section 1.3.1.2, once the capacity of Lateral 214 is increased future improvements include installation of additional gravity-pressurized pipelines and the abandonment of Lateral 213. Based on water user feedback, it is estimated that pumping costs are approximately $27.50 per acre which equates to approximately $67,500 in annual savings for the Canal Company's water users. To realize these future reductions in energy use, grading improvements as part of the proposed project must be completed.

1.4.3 Evaluation Criterion E: Other Contributions to Water Supply Sustainability

Subcriterion No. E.2 – Expediting Future On-Farm Irrigation Improvements

This project will expedite future on-farm irrigation improvements by allowing the Canal Company's water users to irrigate their lands via gravity-pressurized pipelines instead of pumps. Following completion of the project, the Canal Company will have the ability to install gravity-pressure pumps from Lateral 214, which will ultimately allow them to abandon Lateral 213. These improvements will increase energy efficiency by eliminating the need for pumping as well as conserving additional water that was previously lost to seepage in Lateral 213.

Include a detailed listing of the fields and acreage that may be improved in the future.

Once this project is completed, the Canal Company will be able to create 3 new segments of gravity pressurized pipelines as shown on Figure 2. The first new pipeline segment will extend existing pipeline No. 2131 approximately 2,500 LF to an elevation approximately 100 feet higher, which would provide enough gravity pressure to irrigate 350 acres. Two new pressurized pipelines will be installed. The first will be created by converting Lateral No. 2133 to a pressurized pipeline that would serve approximately 750 acres. A second pipeline at the end of the 214 canal system would serve approximately 1,350 acres.

Describe in detail the on-farm improvements that can be made as a result of this project. Include discussion of any planned or ongoing efforts by farmers/ranchers that receive water from the applicant.

Following completion of this project, and following subsequent installation of gravity-pressurized pipelines by the Canal Company, water users will irrigate their lands via gravity-pressurized pipelines instead of pumps. Based on water user feedback, it is estimated that pumping costs are approximately $27.50 per acre which equates to approximately $67,500 in annual savings for the Canal Company's water users.

Provide a detailed explanation of how the proposed WaterSMART Grant project would help to expedite such on-farm efficiency improvements.

As part of this project, the Canal Company will increase the capacity of Lateral 214. Without this improvement, future plans to irrigate lands with pressurized pipelines diverting water from Lateral 214 for acres currently served by Lateral 213 would not be possible.

Fully describe the on-farm water conservation or water use efficiency benefits that would result from the enabled on-farm component of this project. Estimate the potential on-farm water savings that could result in AF per year.

Though this project will not expedite on-farm water conservation, it will facilitate additional water savings when the existing open Lateral 213 is abandoned. As was previously mentioned, the

seepage rate in Lateral 213 is estimated to be 9.2 gal/ft2/day which equates to 1,904 AF/year over the average irrigation season. Combined water savings as a result of lining Lateral 214 and abandoning Lateral 213 in the future is 3,973 AF/year, which represents 5.7 percent of the average annual supply. These additional water savings will be recognized by water users throughout the entire service area by reducing the existing demand and extending the irrigation season.

Describe the extent to which this project complements and existing NRCS-funded project or a project that either has been submitted or will be submitted to NRCS for funding.

No funding has been requested for this project from the NRCS. However, the Canal Company plans to request assistance from the NRCS in the form of surveying to support the grading design for widening Lateral 214.

Subcriterion No. E.3 – Building Drought Resiliency

This project will make water available to alleviate water supply shortages resulting from drought by conserving water that would normally be lost to seepage. Water would remain in the storage system, which would extend the length of the water season.

Explain in detail the existing or recent drought conditions in the project area. Describe the severity and duration of drought conditions in the project area. Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by drought.

Drought conditions continue to impact water users across the Magic Valley. It is not uncommon for early water shut off. The Canal Company has water rights for and is obligated to deliver 1.167 AF per share of stock when water is available. As shown in Table 2 above, in the last 10 years the Canal Company has delivered only 65 percent of the full water allotment to its water users. Over the last 25 years the Canal Company has delivered a full allotment only 20 percent of the time. In addition, since 1999, water shut off has occurred as early as July three times.

Describe the impacts that are occurring now or are expected to occur as a result of drought conditions. Provide a detailed explanation of how the proposed WaterSMART Grant project will improve the reliability of water supplies during times of drought.

The project will minimize economic losses from drought conditions by improving the reliability of water supplies during times of drought.

Subcriterion No. E.4 – Other Water Supply Sustainability Benefits

Less draw on stored water will enhance recreational activities such as fishing. The Salmon Falls Creek Reservoir is considered by some to be one of the most plentiful fisheries in southern Idaho. Many fish are stocked in the reservoir including brown trout, chinook salmon, kokanee salmon (landlocked sockeye), yellow perch, black crappie, channel catfish, and smallmouth bass.

1.4.4 Evaluation Criterion F: Implementation and Results

Subcriterion No. F.2 – Readiness to Proceed

Describe the implementation plan of the proposed project. Include a project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

A $0.50/share assessment was implemented in 2004 to save funds for future improvements. If awarded the WaterSMART grant, the Canal Company will now have the required funds to complete this project.

If awarded the WaterSMART grant by June 2015, the Canal Company will obtain permits and have the funding to finalize the design by fall 2015. The Canal Company will begin construction during fall 2015 following the irrigation season and have the project completed by spring 2016.

Describe any permits that will be required, along with the process for obtaining such permits.

Federal approvals for the project include the National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), and Endangered Species (ESA) compliance. If successful in obtaining the WaterSMART grant, the Canal Company will work with Reclamation to determine the appropriate level of NEPA compliance. Any work will be limited to the Canal Company's right-of-way and adjacent lands have been grazed or cultivated in prior decades. No known environmental or cultural resources of special value exist. Therefore, it is expected that activities required for NEPA, NHPA, and ESA compliance will be minimal. If awarded the WaterSMART grant by June 2015, the Canal Company is confident that the necessary approvals can be secured by fall 2015.

There are no state or local permitting requirements.

Subcriterion No. F.3 – Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved, increased energy efficiency).

Following construction, the Canal Company will continue to take daily water measurements in Lateral 214 that can be used to verify water savings resulting from the project. Post-project discharge data at the head and tail of Lateral 214, along with deliveries along this segment, will be compared to pre-project data.

Subcriterion No. F.4 – Reasonableness of Costs

Provide information related to the total project cost, annual acre-feet conserved, and the expected life of the improvement.

As described in detail in Section 7, the assembled cost of the project for planning and installation has been estimated to be $708,746, of which the federal share would be approximately $300,000. The expected life of the project is 50-years. The estimated project cost over the expected 50-year life of the project is $6.85/acre-foot. If the grant is awarded at the full amount requested, the federal investment would cost an estimated $2.90/acre-foot of water saved over a 50-year period.

$$\frac{\text{Total Project Cost} = \$708,746}{\text{2,069 AF Conserved x 50-year Improvement Life}} = \$6.85/\text{acre-feet}$$

1.4.5 Evaluation Criterion G: Additional Non-Federal Funding

The non-federal funding portion of the total project cost is 58 percent, assuming a WaterSMART grant in the amount of $300,000.

$$\frac{\text{Non-Federal Funding} = \$408,746}{\text{Total Project Cost} = \$708,746}$$

SECTION 2

Environmental and Cultural Resources Compliance

(1) Will the project impact the surrounding environment (i.e., soil [dust], air, water [quality and quantity], animal habitat, etc.)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The project will have minimal impacts on the surrounding environment. The project site will be accessed and all work will occur within the Canal Company's right-of-way. Excavation in soil and some rock will be required for canal widening. During construction, best management practices (BMPs), such as sprinkling the ground surface for dust control, will be maintained in ground-disturbance areas.

(2) Are you aware of any species listed or proposed to be listed as a Federal endangered or threatened species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

No known environmental resources of special value occur, including rivers, streams, lakes, fisheries, threatened plant and animal communities, spawning grounds, or flyways.

(3) Are there wetlands or other surface waters inside the project boundaries that potentially fall under Federal Clean Waters Act jurisdiction as "waters of the United States?" If so, please describe and estimate any impacts the project may have.

No wetlands or other surface waters that could fall under Clean Water Act jurisdiction exist in the project area.

(4) When was the water delivery system constructed?

Construction of Salmon Falls Dam began in 1908 with the first delivery in 1911. System improvements have been made to the present day.

(5) Will the project result in any modification of or effects to individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

As part of this project, the Canal Company plans to increase the width of the canal by approximately 12 feet. Widening of the canal and associated grading of the canal banks will be limited to the existing right-of-way. Although future evaluations will be needed for confirmation, it is anticipated that the existing hydraulic controls (culverts) in the section of canal to be lined are adequately sized for the necessary widening.

(6) Are there any buildings, structures, or features in the irrigation Canal Company listed or eligible for listing on the National Register of Historic Places?

The land adjacent to this project has been grazed or cultivated in prior years and does not likely represent historic conditions. No aboveground structures are present.

(7) Are there any known archeological sites in the proposed project area?

No identified or known cultural resources of significance exist within the Canal Company service area.

(8) Will the project have a disproportionately high and adverse effect on low income or minority populations?

The project will not have a disproportionally high and adverse effect on low income or minority populations. No communities exist adjacent to the project area.

(9) Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

This project will not limit access to and ceremonial use of Indian sacred sites.

(10) Will the project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

The project will not contribute to the spread of noxious weeds or non-native invasive species.

SECTION 3

Required Permits or Approvals

3.1 Federal Permitting

Federal approvals for the project include NEPA, NHPA, and ESA compliance. Earthwork will be limited to the right-of-way and there are no known environmental or cultural resources of special value; therefore, it is expected that activities required for NEPA, NHPA, and ESA compliance will be minimal.

- It is anticipated that the project does not have significant impacts on the environment and will fit within a recognized Categorical Exclusion (CE) to NEPA. Environmental impacts will be minimized during construction using BMPs.
- Federal cultural resource laws and regulations, including the NHPA and Native American Trust Assets, must also be reviewed prior to project construction. The Canal Company will cost share with Reclamation to conduct all necessary field surveys and literature reviews. It is anticipated that the project does not have the potential to cause effects to historic properties and that the findings will be concluded in the Section 106 process.
- It is anticipated that there are no endangered or threatened species or designated critical habitat in the project area and that no further compliance measures are required.

If awarded the WaterSMART grant by June 2015, the Canal Company is confident that necessary approvals can be secured by fall 2015.

3.2 State Permitting

There are no state permitting requirements.

3.3 Local Permitting

There are no local permitting requirements.

SECTION 4

Funding Plan and Letters of Commitment

(1) How will you make your contribution to the cost share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant?

This project will leverage $300,000 of federal investments against $408,746 of non-federal investments. There are no additional funding sources.

The Canal Company has the necessary funds fully fund this project with operating accounts and regular assessments, as well as savings from the pipeline water conservation fund that comes from the $0.50/share additional assessment. The Canal Company will provide $15,929 of match funding through in-kind staff resources (see Detailed Project Budget in Attachment A).

(2) Describe any in-kind costs incurred before the anticipated project start date that you seek to include as project costs. Include:

(a) What project expenses have been incurred

Expenses directly related to the project include the following:

- Determination of location for canal lining and canal grading
- Selection of liner manufacturer and material
- Planning for equipment and personnel needed to complete the project

(b) How they benefited the project

Planning efforts enable the Canal Company to identify and implement feasible projects that will provide significant water savings and energy efficiency benefits will benefit the Canal Company and its water users.

(c) The amount of the expense

It is estimated that the Canal Company has provided $1,519 of match funding through in-kind staff resources in support of planning for the project through December 2014.

(d) The date of cost incurrence

Planning efforts associated with canal liner selection and planning for equipment and personnel needs occurred from November thru December 2014, which are included in the Detailed Project Budget in Attachment A.

(3) Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment.

The non-federal portion of the project costs will be funded by the applicant only. No additional funding sources have been identified; therefore, no letters of commitment are included.

(4) Describe any funding requested or received from other Federal partners.

No federal funds have been requested or received from federal sources aside from Reclamation.

(5) Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

No federal funds have been requested or received from other sources. The Canal Company strongly desires to implement this project; if the Canal Company is not successful in securing a WaterSMART grant in the amount of $300,000, the Canal Company will proceed with portions of the project. However, in the absence of securing WaterSMART funding, the schedule or scope of the project may change.

TABLE 8
Summary of Non-Federal and Federal Funding Sources

Funding Sources	Funding Amount
Non-Federal Entities	
Salmon River Canal Company	$408,746
Non-Federal Subtotal	$408,746
Requested Reclamation Funding	$300,000
Total Project Funding	$708,746

SECTION 5

Letters of Project Support

The Canal Company plans to fully fund the non-federal portion of project costs; therefore, no letters of project commitment are included.

SECTION 6

Official Resolution

The Canal Company is committed to the financial and legal obligations associated with the receipt of financial assistance under the WaterSMART Grants Program. The Canal Company has the resources and capability to provide the amount of funding for contributions specified in the funding plan. The Canal Company will work with Reclamation to meet the established deadlines to enter into a cooperative agreement.

An official resolution that identifies the official with legal authority to enter into agreement was adopted by the Canal Company Board of Directors at its meeting on January 6, 2015 (see Attachment B).

SECTION 7

Budget Narrative

7.1 Budget Proposal

The assembled cost of the project has been estimated to be $708,746. The project estimate is based on reasonable and allowable costs; quotes from a local equipment rental company; input from engineering professionals; and historical costs and production rates. These costs were assembled with the intent for construction to begin in fall 2015 and be completed by spring 2016.

The detailed project budget is provided in Attachment A. A summary of non-federal and federal funding sources is shown in Table 9.

TABLE 9
Summary of Non-Federal and Federal Funding Sources

Funding Sources	Percent of Total Project Cost	Total Cost by Source
Recipient Funding	58	$408,746
Reclamation Funding	42	$300,000
Total Project Funding	100	$708,746

7.2 Salaries and Wages

As described in the budget table in Attachment A, the Canal Company expects to make an in-kind investment of $15,929 in salaries and wages. These investments support the project, as follows:

- Project planning and implementation from November 2014 thru spring 2015
- Construction and oversight associated with canal lining and grading from fall 2015 thru spring 2016

In-kind investments exclude general administration outside the project.

7.3 Fringe Benefits

As described in the budget table in Attachment A, the Canal Company expects to make an in-kind investment of $9,093 in fringe benefits. These investments provide for social security, Medicare, state pension, workers compensation, housing, mileage and phone allowances (where applicable), sick leave, and health insurance premiums.

7.4 Travel

There are no travel-related costs associated with the project.

7.5 Equipment

The Canal Company owns the majority of equipment necessary for completion of the project, and no funding is requested for reimbursement for Canal Company owned

equipment. However, it is anticipated that the Canal Company will rent an excavator with hydraulic hammer for 3 weeks, which will be used for rock excavation as part of canal grading. The cost of the rental is based on a written quote provided by a local equipment rental.

7.6 Materials and Supplies

The materials needed to complete this project include the geocomposite liner and the adhesive to assemble the lining project. The budget estimate assumes the liner will be approximately 35 feet in width and extend from the top of the bank on each side of the canal channel. The length of the canal improvements is 19,619 LF. The geocomposite liner is 17 feet in width and one roll is 361 feet in length. The cost of the geocomposite is $5,498.89 based on material purchased in winter 2014 for a one-quarter-mile canal lining project approximately 2 miles upstream of the proposed project. The cost of the adhesive is $172.22/bag and, based on the Canal Company's experience with their pilot geocomposite lining project, one bag of adhesive is needed for every 1.5 roll of geocomposite.

A detailed breakdown of the materials needed is provided in Attachment A.

7.7 Contractual

The Canal Company plans to contract with a consulting engineer in spring 2015 to assist with final design efforts for the project. Anticipated tasks include the following:

- Develop a scope-of-work for surveying needs
- Hydraulic analysis to determine the required cross-sectional geometry to increase the capacity of Lateral 214 in anticipation of future improvements
- Geotechnical recommendations for canal grading improvements
- Civil drawings with grading and earthwork requirements

The total budgeted amount for contractual expenses is $43,033.

7.8 Environmental and Regulatory Compliance Costs

For purposes of this budget proposal, environmental and regulatory compliance costs are estimated at approximately 1 percent of the total project cost. The Canal Company anticipates minimal environmental and regulatory compliance costs. The total budgeted amount for environmental and regulatory compliance costs for the project is $7,396.

It is anticipated that any environmental costs incurred would be related to time spent by the Canal Company and Reclamation to: determine the level of environmental compliance required for the project; prepare any necessary environmental compliance documents or reports; review any environmental compliance documents; and time required for approvals or permits.

7.9 Other – Reporting

This line item includes costs to be incurred while reporting to federal funders. In accordance with the FOA requirements, the Canal Company will prepare and submit to Reclamation an SF-425 Federal Financial Report, quarterly reports (four per year), and a final report.

7.10 Indirect Costs

For this project, the recipient will not have any indirect costs. All costs associated with the project are direct and can be documented as such.

7.11 Total Costs

The estimated total project cost is $708,746. The requested federal share is $300,000; the total non-federal share is $408,746. A copy of the completed SF 424C, Budget Information – Construction Programs, is provided in Attachment C.

SECTION 8

Detailed Project Budget

Please refer to the Detailed Project Budget provided in Attachment A. A copy of the completed SF 424C Budget Information – Construction Programs is provided in Attachment C.

Attachment A
Budget Proposal

Attachment A - Budget Proposal

Budget Item Description	Computation $/Unit	Quantity	Unit	Total Cost
Salaries and Wages				
PLANNING AND DESIGN				
John Shetler, Manager (2014)	$ 24.52	40	hour	$ 981
John Shetler, Manager (2015)	$ 25.50	80	hour	$ 2,040
John Shetler, Manager (2016)	$ 26.52	10	hour	$ 265
Wyly Jones, Assistant Manager (2014)	$ 18.21	20	hour	$ 364
Wyly Jones, Assistant Manager (2015)	$ 18.94	40	hour	$ 758
Wyly Jones, Assistant Manager (2016)	$ 19.70	10	hour	$ 197
Louise Lanting, Office Manager (2014)	$ 17.44	10	hour	$ 174
Louise Lanting, Office Manager (2015)	$ 18.14	20	hour	$ 363
Louise Lanting, Office Manager (2016)	$ 18.86	10	hour	$ 189
CONSTRUCTION AND CONSTRUCTION MANAGEMENT				
Canal Grading				
John Shetler, Manager (2015)	$ 25.50	40	hour	$ 1,020
John Shetler, Manager (2016)	$ 26.52	40	hour	$ 1,061
Equipment Operator (2015)	$ 13.23	160	hour	$ 2,117
Equipment Operator (2016)	$ 13.76	160	hour	$ 2,201
Canal Lining				
John Shetler, Manager (2015)	$ 25.50	40	hour	$ 1,020
John Shetler, Manager (2016)	$ 26.52	40	hour	$ 1,061
Equipment Operator (2015)	$ 13.23	78	hour	$ 1,038
Equipment Operator (2016)	$ 13.76	78	hour	$ 1,080
Subtotal				$ 15,929
Fringe Benefits				
PLANNING AND DESIGN				
John Shetler, Manager (2014)	$ 13.47	40	hour	$ 539
John Shetler, Manager (2015)	$ 14.01	80	hour	$ 1,121
John Shetler, Manager (2016)	$ 14.57	10	hour	$ 146
Wyly Jones, Assistant Manager (2014)	$ 11.55	20	hour	$ 231
Wyly Jones, Assistant Manager (2015)	$ 12.01	40	hour	$ 480
Wyly Jones, Assistant Manager (2016)	$ 12.49	10	hour	$ 125
Louise Lanting, Office Manager (2014)	$ 9.50	10	hour	$ 95
Louise Lanting, Office Manager (2015)	$ 9.88	20	hour	$ 198
Louise Lanting, Office Manager (2016)	$ 10.28	10	hour	$ 103
CONSTRUCTION AND CONSTRUCTION MANAGEMENT				
Canal Grading				
John Shetler, Manager (2015)	$ 14.01	40	hour	$ 560
John Shetler, Manager (2016)	$ 14.57	40	hour	$ 583
Equipment Operator (2015)	$ 7.75	160	hour	$ 1,240
Equipment Operator (2016)	$ 8.06	160	hour	$ 1,290

Attachment A - Budget Proposal

Budget Item Description	Computation $/Unit	Quantity	Unit	Total Cost
Canal Lining				
John Shetler, Manager (2015)	$ 14.01	40	hour	$ 560
John Shetler, Manager (2016)	$ 14.57	40	hour	$ 583
Equipment Operator (2015)	$ 7.75	78	hour	$ 608
Equipment Operator (2016)	$ 8.06	78	hour	$ 633
Subtotal				$ 9,093
Materials/Supplies				
Canal Lining				
Geocomposite	$ 0.90	686,665	SF	$ 616,121
Adhesive	$ 0.02	784,760	SF	$ 14,702
Subtotal				$ 630,823
Contractual/Construction				
ENGINEER				
Final Design				
Project Manager	$ 141.67	64	hour	$ 9,067
Senior Engineer	$ 229.61	8	hour	$ 1,837
Staff Engineer (Civil)	$ 116.49	100	hour	$ 11,649
Staff Engineer (Hydraulics)	$ 136.80	42	hour	$ 5,746
CAD	$ 72.89	20	hour	$ 1,458
Administrative Assistant	$ 71.72	4	hour	$ 287
CONSTRUCTION				
Equipment				
Site Preparation/Excavation				
Excavator with Hydraulic Hammer	$ 108.25	120	hour	$ 12,990
Subtotal				$ 43,033
Environmental and Regulatory Compliance				
Reclamation Cost Share	$ 136.80	20	hour	$ 2,736
Recipient Cost Share - Compliance Documents	$ 116.49	20	hour	$ 2,330
Recipient Cost Share - Mitigation Measures	$ 116.49	20	hour	$ 2,330
Subtotal				$ 7,396
Other				
Reporting (6 Reports in 2015 @ 12hr/report)	$ 25.50	72	hour	$ 1,836
Reporting (2 Reports in 2016 @ 12hr/report)	$ 26.52	24	hour	$ 636
Subtotal				$ 2,473
Total Direct Costs				**$ 708,746**
Indirect Costs - __%				0%
Total Project Costs				**$ 708,746**

Attachment B
Official Resolution

SALMON RIVER CANAL COMPANY, LTD.

HOLLISTER, IDAHO

2700 HWY 93, TWIN FALLS, IDAHO 83301

PHONE: 208-655-4220

PRESIDENT
Greg Rambo

MANAGER
John Shetler

SALMON RIVER CANAL COMPANY, LTD.

RESOLUTION NO. 1

SALMON RIVER CANAL COMPANY, LTD.

WHEREAS, The Board of Directors of the Salmon River Canal Company has reviewed and is in support of the SRCC WaterSMART Grant financial assistance.

WHEREAS, The Salmon River Canal Company is capable of providing the amount of funding with in-kind contributions, specified in the funding plan; and

WHEREAS, The Salmon River Canal Company will work with the Bureau of Reclamation to meet all established deadlines for entering in to a cooperative agreement.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors agrees and authorizes this resolution to approve and support this grant application and project:

NOW THEREFORE the Manager John Shetler, is authorized, empowered and directed to execute and deliver, in the name and on behalf of company, the Grant agreement if so awarded by Bureau of Reclamation.

DATED: January 6, 2015

Greg Rambo

President

Everett Messner

Secretary

Directors: Karl Joslin, Doug Jones, Greg Rambo, Jon McGregor, and Everett Messner