The Bureau of Reclamation

WaterSMART Grant

Water and Energy Efficiency Grant

Highline Canal
Liner Project
Phase #2

FY 2023
R23AS00008

Twin Falls Canal Company Inc.
357 6th Avenue West
PO Box 326
Twin Falls, Idaho 83301

Grant Application for:
Department of Interior, Bureau of Reclamation
WaterSmart Water and Energy Efficiency Grant
Funding Opportunity Announcement No. R23AS00008

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1.0 Executive Summary

Date: July 28, 2022
Applicant Name: Twin Falls Canal Company
City, County, State: Twin Falls, Twin Falls, Idaho
Project Manager:

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Applicant Category: Category A – Funding Group II (up to $2,000,000)
Total Project Cost $818,490.46

The Twin Falls Canal Company (TFCC) is located in southcentral Idaho along the Snake River. The proposed project is to line 4,500 liner-foot (LF) of an earthen canal within the TFCC system with a High-Density Polyethylene (HDPE) geomembrane liner. TFCC seeks $401,060.33 in Federal funding assistance within Funding Group II, Category A. The 401,060.33 in Federal funding assistance is forty-nine percent (49%) of the total project cost of $818,490.46. The requested Federal funds will provide TFCC with the necessary financial assistance to implement the proposed water conservation and system efficiency improvement project. It is expected that the 4,500 LF of liner will help TFCC conserve 6,800 acre-feet (AF) on an annual basis. The section of the Highline Canal runs along gravels pits which fill with water throughout the irrigation season. This liner project will help conserve water, which allows for better water reliability for farmers downstream of this location, which leads to better crop production.

2.0 Project Location

The 2023 Highline Canal Liner Project Phase #2 is located in Twin Falls County, Idaho. It is 6.88 miles south of the intersection of Idaho State Highway 30 and Hansen, Idaho. Figure 1. shows the general location of the proposed project. The project starts at latitude 42°26'11.11"N and longitude 114°17'56.58"W. This is the end point of the 2019 Highline Liner Project No. 1 TFCC completed under the Water and Energy Efficiency Grant Funding Opportunity Announcement No, BOR-DO-19-F004.

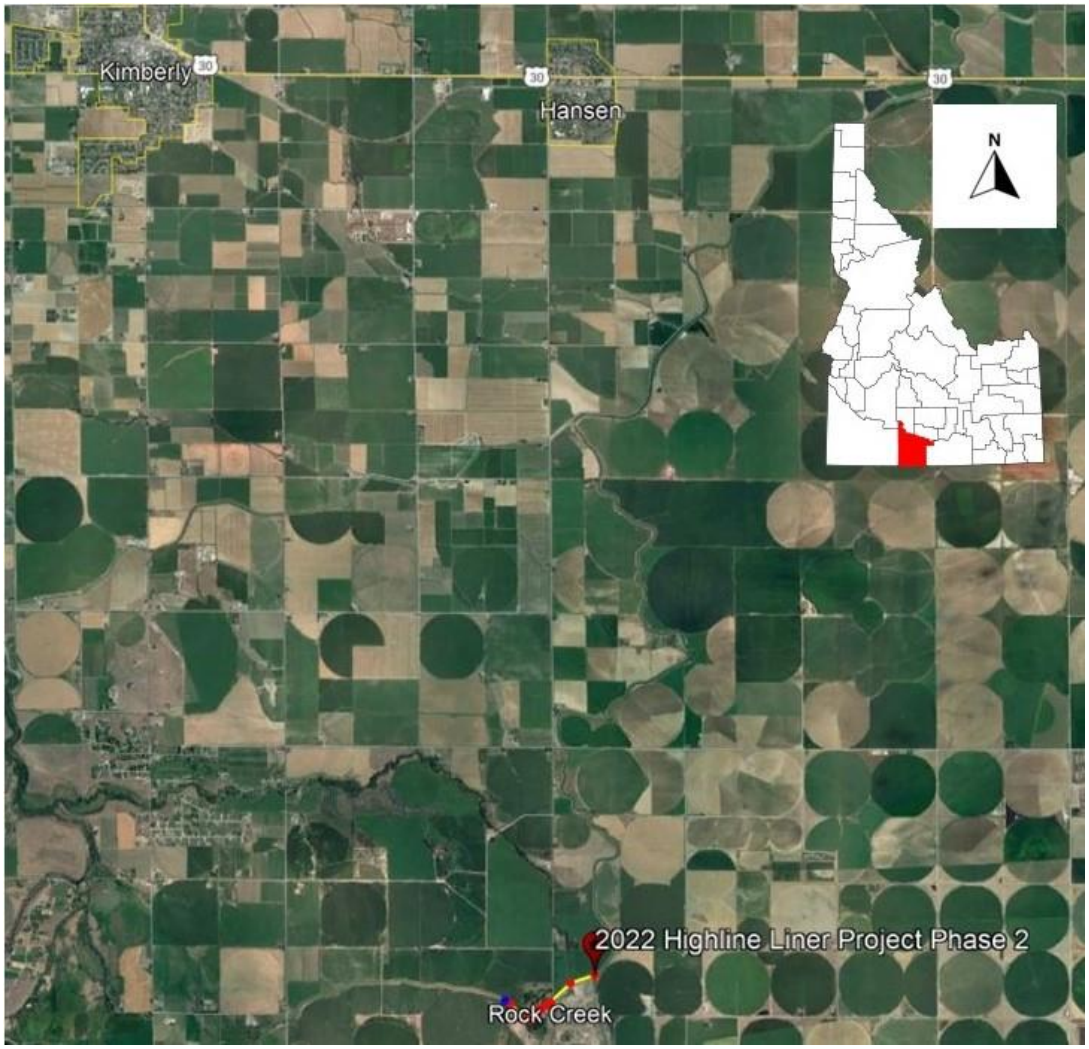

Figure 1: Location of 2023 Highline Canal Liner Project Phase 2

3.0 Technical Project Description

TFCC plans to install 4,500 LF of prefabricated geomembrane (High Density Polyethylene) liner in the Highline Canal at the project location, as described in Section 2.0. This canal lining projects requires 4,500 LF of geomembrane liner with a maximum width of 105-feet. Resulting in 620,400 square feet of total geomembrane liner required. The geomembrane liner will be provided in multiple rolls up to 12,925 square feet each.

The liner installation project will be performed in three main steps: (1) excavation, (2) liner placement, and (3) backfill. Each of these construction steps will be performed in succession for each liner panel section and construction will advance incrementally through the can reach. Excavation will consist of removing existing canal material from the bottom and side slopes. 2-foot by 2-foot keyways will be excavated along the top of the canal banks to anchor the liner. The liner will be unrolled along the canal bottom and then unfolded to allow for placement of the

liner panel across the entire width of the canal. The liner will be temporarily held in place using sand bags. The edges of the thine liner will be placed in the keyway and backfile material placed in the keyway to anchor the liner. Keyways will also be excavated at the upstream and downstream ends of the liner project extents. Back fill material will be placed on top of the liner along the bottom and sides. The material initially excavated will be used as backfill. The canal bottom and sides will be re-established to pre-project withs and slopes. Approximately 10 feet will be left exposed at the end of each panel section to allow welding of the adjoining section seams. Once the liner joint seams are welded, the backfilling process will advance, and the final grad of the canal bottom will be re-established.

Based on outcomes from previously successful installations, TFCC experiences estimates that approximately 24 field days will be required to complete this proposed Highline Canal Lining Project Phase #2, once the prefabricated geomembrane liner has been delivered to the site and the equipment and ancillary materials are staged for construction. Approximately twelve field construction staff (four operators and eight laborers) will be required throughout the liner installation period and the following list of equipment will be utilized: (1) three excavators, (2) two dozers, (2) one front-end loader, (4) one grader, and (5) four dump trucks. The information for the equipment is proved on the detailed budget in proposal in Attachment A.

4.0 Evaluation Criteria

4.1 Evaluation Criterion A – Quantifiable Water Savings

1) ***Describe the amount of estimated water savings***. *For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project*.

   TFCC conservatively estimates that more than 6,800 acre-feet of water will be saved as a result of lining the Highline Canal Liner Project Phase #2 through this section of the system.

2) ***Describe current losses:*** *Please explain where the water that will be conserved is currently going and (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?*

   a. *Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into ground)?*

   Current water losses within this reach of the Highline Canal are attributable to seepage into the ground through the canal sides and bottom during the irrigation season. This canal reach was constructed through coarse alluvium. Numerous large gravels and paving companies operate pits adjacent to the canal. These adjacent gravel pits fill with water each year when irrigation water starts flowing through the Highline Canal. Figure 2 shows the proposed project near these gravel pits.

b. *If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?*

The current losses are entering the gravel pits south of the proposed project. As you can see from Figure 2, this can be a substantial amount of water loss to the surrounding area.

c. *Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animals species?*

There are no known benefits associated with the current losses.

Figure 2: Location of Proposed Project Near Adjacent Gravel Pits

3) ***Describe the support/documentation of estimated water savings:*** *Please provide sufficient details supporting how the estimate was determined, including all supporting calculations.*

The project canal reach has existing seepage rate of 18 – 25 cfs per mile. To be conservative with the loss calculation, TFCC will use the 18 cfs as the basis of the seepage loss. TFCC contracts with a local firm to measure seepage loss at various locations in the canal system using Acoustic Doppler Current Profiler (ADCP) technology. The measurement of 18 cfs loss correlates to a flow through the Highline Canal of 1054 cfs. It is not uncommon for the Highline Canal to reach flows of 1,400 cfs during the irrigation season which would result in greater seepage losses. TFCC conveys irrigation water through this canal reach for 190 days on average. The resultant annual water loss using the 18 cfs would be 6,800 AF per year. The seepage loss at 25 cfs would be 9,400 AF per year. The supporting calculation is demonstrated below:

$$\frac{18\ ft^3}{1\ sec} * \frac{1\ acre}{43{,}506\ ft^2} * \frac{60\ sec}{1\ minute} * \frac{60\ minutes}{1\ hour} * \frac{24\ hours}{1\ day} * \frac{190\ days}{1\ Irrigation\ Season}$$

Losses along various stretches of TFCC's system are verified each year using the ADCP technology. TFCC also visually monitors the system each week by driving the canal banks look for seepage through the canal banks.

4) **Please address the following questions according to the type of infrastructure improvement you are proposing for funding.**

(1) Canal Lining/Piping Improvement Proposed for Funding

a. *How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.*

TFCC has conservatively estimated the seepage losses in the project canal reach based on seepage loss study findings for the canal. TFCC contracts with WaterWorks ULTD in Gooding, Idaho to preform seepage loss calculations with the Acoustic Doppler Current Profiler (ADCP) technology. ADCP transmitter was mounted to a boat which travels from bank to bank across the canal channel. This exercise is performed multiple times to verify the velocity across the channel. The ADCP transmitter gathers velocity data in hundreds of small segments all through the cross section to generate a flow. The data is then averaged from these various measurements to provide an average flow for this cross section. This was done upstream and downstream of the Highline Canal Project.

The annual average water savings for the Highline Canal Liner Project Phase #2 is determined to be 6,800 acre-feet.

b. *How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow test been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide and explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.*

Flow measurements were taken on June 12, 2019 to determine the flow in the Highline Canal upstream and downstream of the 2019 Highline Canal Liner Project Phase #1, which is immediately upstream of the Highline Canal Liner Project Phase #2. About 4.0 miles to the north of this proposed project TFCC controls the flow from a diversion structure referred to as the "Forks". The flows are controlled through the Highline Canal using radial gates and automation equipment.

Measurements were taken utilizing Acoustic Doppler Current Profiler (ADCP) technology. The use of ADCP technology allows for a greater degree of accuracy than other methods. An ADCP transmitter was mounted to a boat and was controlled from bank to bank across the canal channel. The ADCP devise was used to measure both an upstream flow and a downstream flow. This data was used to determine the loss of water through the proposed project area. The ADCP calculated the flow rate upstream of the liner project to 1054 cfs, and downstream of the proposed project was 1036 cfs. calculating a net difference of 18 cfs, or a 1.71% loss of flow through this area. Documentation showing the results of the ADCP on the Highline Canal are provided in Attachment B

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

Seepage losses are expected to be zero upon completion of this project.

d. *What are the anticipated annual transit loss reduction in terms of acre-feet per mile for the overall project and for each section of canal included in the project?*

The annual transit loss reductions are expected to be 9,400 AF per mile.

e. *How will actual canal loss seepage reductions be verified?*

TFCC will verify the loss reductions using Acoustic Doppler Current Profiler (ADCP) by taking velocity measurement (flow) at the upstream and downstream ends of the project reach. This flow verification will provide post-project canal seepage results.

f. *Include a detailed description of the material being used.*

TFCC has researched the available geomembranes available on the market and has consulted with manufactures representative. TFCC intend on using the Megaplast Textured 60 mil

Geomembrane. TFCC has used this same product on the 2019 Highline Canal Project Phase #1, and other lining project along the TFCC canal system. This has been an effective geomembrane for TFCC's purposes. A technical data sheet is provided as a reference for this product in Attachment C. TFCC also uses crushed and uncrushed material as backfill and cover for the liner.

4.2 Evaluation Criterion B – Renewable Energy

The Twin Falls Canal Company (TFCC) is submitting this application under the Water Conservation Projects portions of this Notice of Funding Opportunity No. R23AS00008. TFCC owns and operates, or is in partnership with other organizations for in canal hydroelectric facilities. These in canal hydroelectric systems help provide renewable energy to electrical costumers on the Idaho Power Energy Company power network. TFCC continues to look for opportunities to provide renewable energy and maximize water management efficiency. As demonstrated in Evaluation Criterion A – Quantifiable Water Savings, TFCC is committed to providing water to its shareholders in the most effective and efficient manner possible. Since TFCC is not seeking to install Renewable Energy systems in this application, TFCC believes that Evaluation Criterion B is not applicable to this application.

4.3 Evaluation Criterion C – Sustainability Benefits

Enhancing drought resiliency.

Does the project seek to improve ecological resiliency to climate change?

Not applicable.

Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintain water temperatures or water levels).

As noted in Evaluation Criterion A – Quantifiable Water Savings, TFCC is proposing the Highline Canal Liner Project Phase #2 to help retain water in the canal system and not loose water to seepage and other losses. As drought continues to loom over the arid West, TFCC continues to implement project that help not only conserve water, but also help protect the water resource we have. The Highline Canal Liner Project Phase #2 will conserve 6,800 acre-feet of water on an annual basis. The savings will assist TFCC's storage supplies and help maintain water in both American Falls and Jackson Lake Reservoirs, facilities that are part of Reclamation's Minidoka Project in the Upper Snake River Basin.

Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the

species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).

Not Applicable

Please describe any other ecosystem benefits as a direct result of the project.

Not Applicable

Will the project directly result in more efficient management of the water supply? For Example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

This project will directly result in more efficient management of TFCC water supply and savings of storage water for future dry years. TFCC controls 110 miles of major canals and 1,000 miles of smaller canals or laterals. The proposed project will reduce the amount of system water loss due to seepage and increase the resiliency of the system, allowing TFCC to provide irrigation water to its users on a more consistent basis in dry water years. TFCC's primary natural flow water right was decreed with a priority of October 11, 1900 for 3,000 cfs of water from the Snake River. Conserving water with projects like the Highline Canal Liner Project Phase #2 allows TFCC to better manage the water supply diverted under TFCC's water rights. Controlling seepage losses at the beginning of the canal system, helps the water mangers deliver more reliable water to the end of the 110 miles canal system. The conservation of the 6,800 acre-feet annually helps build greater flexibility in water management.

Addressing a specific water and/or energy sustainability concern(s).

Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortage due to drought and/or climate change, increased demand, or reduced deliveries.

The Western United States continues to see droughts more in recent years. The Highline Canal Liner Project Phase #2 help mitigate water shortages by conserving water as demand for the water increase across the TFCC system. As noted in Evaluation Criterion A – Quantifiable Water Savings, TFCC is looking to conserve 6,800 acre-feet of water annually. This conservation will help TFCC delivers water in shorts water years. Also, noted in the above sections, TFCC is dependent on a natural flow water right, and continues to see the natural flow in the Snake River decrease due to drought and the change in weather conditions.

Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruption in service.

Not Applicable

Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and comfort the shortage?

The Highline Canal Liner Project Phase #2 will directly address the drought and water shortages by saving 6,800 acre-feet annually due to the lining of the canal.

Please address where any conserved water as a result of the project will go and how it will be sued, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortage that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

The conserved 6,800 acre-feet of water resulting from this project will be used for a more reliable delivery to the agricultural producers and residential communities with in the TFCC system. A more reliable water delivery helps the reduction of groundwater pumping on an already taxed aquifer by reducing groundwater pumping for purposes other than domestic uses.

Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

TFCC works with the local Twin Falls County and the local Municipalities within its system boundaries to require the usage of surface water for pressurized irrigation systems in residential developments. Through the use of ordinances and proper planning the usage of surface water helps reduce the demands on groundwater pumping.

Indicate the quantity of conserved water that will be used for the intended purpose(s)

The ability to retain the 6,800 acre-feet in the TFCC will be able to be delivered to the water users in the system and put to use for crop production and regional stability.

Other project benefits. Please provide a detailed explanation of the project benefits and their significance. These benefits may include, but are not limited to the following:

(1) **Combating the Climate Crisis**: E.O. 14008: Tackling the Climate Crisis at Home and Abroad", focuses on increase resiliency to climate change and supporting climate-resilient development.

Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate cries.

Not Applicable

Does this proposed project strengthen water sustainability to increase resilience to climate change?

The ability to conserve water and deliver water for its intended use helps lessen the demands on a precious natural resource.

Will the proposed project establish and utilize a renewable energy source?

Not applicable.

Will the project result in lower greenhouse gas emissions?

The ability to conserve water and deliver water more efficiently, reduces the number of hours driving. The Highline Canal Liner Project helps TFCC conserve and deliver water, and therefore helps us reduce our need to drive and respond to water delivery calls.

(2) **Disadvantage or Underserved Communities**: E.O. 14008 and E.O. 13985 support environmental and economic justice by investing in underserved and disadvantaged communities and addressing the climate-related impacts to these communities, include impacts to public health, safety, and economic opportunities. Please describe how the project supports these Executive Orders, including:

a. *Does the prosed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to: public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.*

Yes, this project does serve and benefit a disadvantage community through economic growth opportunities. This project will enhance the water reliability of the TFCC system, which serves water users located in the following rurally and economically disadvantaged communities within Twin Falls County, Idaho: Murtaugh, Hansen, Filer, Buhl, and Castleford.

b. *If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.*

According to the U.S. Census Bureau, Twin Falls County has a "persons in poverty, percentage" of 11.1%, which shows the median household income in Twin Falls County. Attachment D provides the U.S. Census Bureau data. TFCC irrigation boundaries encompass approximately 203,000 acres within Twin Falls County, which includes some of the most fertile farm ground in the U.S. The agricultural production helps feed the world and underserved populations across the U.S. See Attachment D for the supporting documentation.

c. *If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well a geographic community, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.*

The U.S. Census Bureau provides a demographic breakdown of "Race and Hispanic Origin" along with other populations characteristics. Attachment D provides the U.S. Census Bureau data. TFCC irrigation boundaries encompass approximately 203,000 acres within Twin Falls County, which includes some of the most fertile farm ground in the U.S. The agricultural production helps feed the world and underserved populations across the U.S.

(3) **Tribal Benefits:** The Department of the Interior is committed to strengthen tribal sovereignty and the fulfillment of the Federal Tribal trust responsibilities. The President's memorandum "Tribal Consultation and Strengthening Nation-to-Nation Relationships" asserts the importance of honoring the Federal government's commitments to Tribal Nations. Please address the following, if applicable.

a. *Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?*

Not Applicable

b. *Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities*?

Not Applicable

(4) **Other Benefits:** Will the project address water and/or energy sustainability in other ways not described above?

a. *Will the project assist States and water users in complying with interstate compacts?*

Not Applicable

b. *Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?*

This project will help TFCC deliver water to agricultural and municipal areas more efficiently. TFCC provides irrigation water for both farmland and to certain urban water users for irrigation purposes. The service area has and continues to experience population goth and urbanization.

Project such as this liner project help TFCC stabilize the water delivery to the agricultural and municipal area irrigators on our system.

c. *Will the project benefit a larger initiative to address sustainability?*

Not Applicable

d. *Will the project help prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?*

TFCC has been a part of many litigation proceedings relating to production losses and crop damage in the early 1900's, due to high canal seepage losses and conflicts with groundwater pumpers. These proceeding culminated in the 2000's due to a series of back-to-back drought years and decreased reach gains, Water shortages in the system will be partially mitigated through the implementation of this proposed canal lining project by keeping the water in the canal rather than being lost to seepage. The water shortages will likely be reduced to a degree for TFCC water users as a result of this project.

4.4 Evaluation Criterion D – Complementing On-Farm Irrigation Improvements

If the proposed project will complement an on-farm implement eligible for NRCS assistance, please address the following:

- Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.

    - *Provide a detailed description of the on-farm efficiency improvements.*

      In Fiscal Year 2022, TFCC along with the Clover Pump Company was a funding through the NRCS Environmental Quality Incentive Program (EQIP) WaterSMART Initiative (WSI) Priority Area Allocation. The NRCS award will allow for approximately 3,000 acres to be converted to a pressurized system, and conserve 4,000 acre-feet of water annually. The Highline Canal Liner Project is upstream of this NRCS project. Both projects show the commitment to water conservation and more efficient use of water. These projects ill proved a safer, more reliable, and more efficient water delivery system for the canal. These types of improvements allow irrigation system to be more efficient and will also allow for higher crop yields.

    - *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*

Yes, TFCC and the Clover Pump Company have been awarded a funding opportunity through the NRCS-EQIP-WSI. This project is in design and review by the NRCS Idaho State Office. This project is to pipe and pressure approximately 3,000 acres of irrigated land within the TFCC service boundaries and converse 4,000 acre-feet annually.

- *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*

It is difficult to estimate how many farms will use the NRCS initiatives to provide on-farm improvements. However, over the history TFCC it is estimated that 65 to 70 percent of the irrigated tract has converted to pressurized irrigation. Some of these conversations have been done by using NRCS funding opportunities.

- *Applicants should provide letters of intent from farmers/rancher in the affected project area.*

Farmers have only indicated their interest but have not formally signed letters of intent. TFCC continue to see conversations from flood/furrow irrigation to modern pressurized irrigation systems on the TFCC irrigation tract. TFCC does inform sprinkler companies and farmers of the NRCS benefits associated with these conversations, but does not track the farms that use NRCS funding.

- *Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*

  - *Will the proposed WaterSMART project directly facilitate the on-farm improvements? If so, how? For example, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

  The installation of a canal liner through the WaterSMART funding opportunity will help TFCC demonstrate to its shareholders the commitment to efficient water usage. The more efficient use of water through this liner project by controlling seepage will help allow the shareholders to use their full water allocation. The improved efficiency will help build confidence in the shareholders to implement on-farm infrastructure improvement projects.

  OR

  - *Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?*

Not Applicable

- *Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.*

- *Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.*

As previously show, the Highline Canal Liner Project Phase #2 will save 6,800 acre-feet annually. In addition, the FY2022 EQIP-WSI Priority Area Allocation funding under NRCS is anticipated to save 4,000 acre-feet annually. Attachment E shows the NRCS application and priority funding documents.

- *Please provide a map of your water service are boundaries. If your project is selected for funder under this NOFO this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.*

NRCS is aware of the TFCC irrigation project. NRCS is heavily involved in on-farm improvements within the boundaries of the TFCC irrigation system and has several maps of the boundaries.

4.5 – Evaluation Criterion E – Planning and Implementation

4.5.1 Subcriterion E.1 – Project Planning

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address and adaptation strategy identified in a completed WaterSmart Basin Study? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate.

Yes, the Twin Falls Canal Company (TFCC) completed Water Management and Conservation Plan in February 2007 included in Attachment F. One of the major goals in this plan is to "Improve Delivery System Efficiency". This plan identifies the need for the reduction of these seepage losses for improvement in delivery system efficiency and facilitate water conservation. The 2022 Highline Canal Liner Project Phase #2 helps the accomplishment of these goals. In 2019 TFCC completed Phase #1 of the Highline Canal Liner Project under another WaterSMART funding opportunity.

(1) Identify and district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Pan or other planning efforts done to determine the priority of this project in relation to other potential projects.

TFCC completed Water Management and Conservation Plan in February 2007 included in Attachment F. This plan identifies the need to mitigate loss in the system due to seepage. The 2022 Highline Canal Liner Project would align with the goals of this plan.

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify and aspect of the project that implements a feature of an existing water plan(s)

In Section 6 of the 2007 Water management and Conservation Plan it identifies the Water Management Issues and Goals. The first problem described is the "long distribution system creates challenges in water management" and one of the goals identified is to "improve delivery system efficiency" by line a problem area. The Highline Canal Liner Project Phase #2 is a high priority area. This project conforms and meets the goals of the plan.

(3) If applicable, provide a detailed description of how a project is addressing and adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes).

Not Applicable

4.5.2 Subcriterion E.2 – Readiness to Proceed

Applications that include a detailed project implementation plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major task, milestones, and dates) will receive the most points under this criterion.

- *Identify and provide a summary description of the major tasks necessary to complete the project.*

TFCC has complete two major lining projects over the past few years. One project was completed using WaterSMART funding (High Line Canal Lining Project No. 1) in 2019. The other major liner project was complete last year using another funding source. Now having this experience in installing two major projects, both over 4,200 LF of geomembrane TFCC has been able to identify the major tasks associated with completing these types of process.

The timeline was based upon the Anticipated Award date of May 31, 2023. This timeline is an estimation based upon past projects.

Agreement Signed and Environmental: July 2023 – November 2023
Procurement of Geomembrane: July 2023 – November 2023
Excavation of material in canal: November 2023 – December 2023
Installation of geomembrane: December 2023 – January 2024
Backfill and covering of liner: January 2024 – February 2024
Reporting and closeout of project: March 2024 - July 2024

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

TFCC is not required to get any additional permits. TFCC is working within the confines of the canal system.

- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*

There will be no design work associated with this project. If engineering work is required, TFCC will use inhouse engineering or 3rd party if applicable.

- *Describe any new policies or administrative actions required to implement the project.*

No new policies will be created by this project.

- *Please also include an estimated project schedule that show the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expect timeline for the environmental and cultural compliance discussed with the local Reclamation Regional or Area Office?*

The timeline was based upon the Anticipated Award date of May 31, 2023. This timeline is an estimation based upon past projects.

July 2023 – November 2023
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March 2024 – July 2024
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4.6 – Evaluation Criterion F – Collaboration

- *Please describe how the project promotes and encourages collaboration. Consider the following*
- *Is there widespread support of the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?*

TFCC is part of two regional water coalitions, both organizations have shown their support for this project. TFCC does not have any partners involved in this specific project. However, TFCC's Board and its members, consisting over 4,600 water users support project that help secure reliable water deliveries, for which this canal lining project represents.

- *What is the significance of the collaboration/support?*

The broad support for water conservation projects of this nature by the TFCC Board, its water users, and the community as a whole ensure that success of this project. If this funding request is successful, the project supporters will endorse the project and be fully vested to see it through to completions. TFCC is part of two regional water coalitions, both organizations have shown their support for this project.

- Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

TFCC is part of two regional water coalitions, both organizations have shown their support for this project. As support is demonstrated by other water users in these coalitions, TFCC believes future water conservation improvement by other water users is likely in the future.

- Please attach any relevant supporting documents (e.g., letter of support or memorandum of understanding).

Please see Attachment G for letters of support from the Surface Water Coalition (SWC) and the Southern Idaho Water Quality Coalition (SIWQC).

4.7 Evaluation Criterion G – Additional Non-Federal Funding

State the percentage of non-Federal funding provided using the following calculation:

$$\frac{\$417{,}430.13\ TFCC\ Funding\ (Non-Federal)}{818{,}490.46\ Total\ Project\ Cost} = 51\%$$

4.8 Evaluation Criterion H – Nexus to Reclamation

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider:

- *Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?*

Yes, TFCC has storage rights in American Falls Reservoir and Jackson Lake Reservoir, both of which are controlled and considered Reclamation projects water part of the Minidoka Project.

- *If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?*

TFCC receives water from Reclamation controlled facilities.

- *Will the proposed work benefit a Reclamation project area or activity?*

Yes, TFCC receives water from the Minidoka Project area, specifically American Falls Reservoir and Jackson Lake Reservoir.

- *Is the applicant a Tribe?*

No

5.0 Performance Measures

TFCC is prepared to perform a seepage study for this canal reach upon completion of the lining project and when the water is ready for water user delivery the following year. TFCC will hire the same independent contractor that helped preform the initial seepage loss determination. TFCC will contract with Water Works ULTD out of Gooding, Idaho. Water Works ULTD used Acoustic Doppler Current Profiler (ADCP) technology to verify velocity and flow within the channel of the canal. The use of ADCP will help TFCC measure the inflow and outflow rates to determine the change in flowrate to verify seepage loss.

6.0 Project Budget

The project budge includes:

(1) Budget proposal
(2) Budget narrative
(3) Funding plan and letters of commitment

Budget Proposal and Funding Plan

This project will be funded through the use of $401,060.33 of Federal grant money obtained through this WaterSMART FOA and $417,430.13 of non-Federal investments. No federal funds will be applied outside of the Reclamation WaterSMART FOA. The non-federal investment money will be funded by TFCC through operating accounts, will be budgeted and available in TFCC FY 2023. There are no outside funding sources at this time, therefore not letters of commitment are necessary. Table 1 provides a summary of funding for this proposed project.

Table 1. Summary of Project Funding

Funding Source	Funding Amount
Non-Federal (Twin Falls Canal Company)	$417,430.13
Federal (Reclamation WaterSMART)	$401,060.33
Other (Non at this time)	$0.00
Total Project Funding	**$818,490.46**

The total estimated project cost is $447,222.86. the project cost estimate was prepared based on projected labor and equipment requirements using historical records from previous similar projects completed by TFCC, supplier inputs cost for labor and material, TFCC labor rates, and the 2019 FEMA schedule of equipment rates. Table 2 provides a summary of the estimated project costs.

Table 2. Project Cost Summary

Source	Amount	Percent of Total Project Cost
Cost to be reimbursed with requested Federal Funding	$401,060.33	49%
Cost to be paid by applicant	$417,430.13	51%
Value of third-party contributions	$0.00	0%
Total Project Cost	**$818,490.46**	**100%**

A detailed budget proposal is provided in Attachment A.

Budget Narrative

Salaries and Wages

As shown in the detailed budget proposal in Attachment A, TFCC expects to make an in-kind investment of $62,496.16 in salaries and wages. These investments support grant and project management specific to the project, as follows:

- Project Planning and Procurement in Fall 2023
    - TFCC estimates that a combined total of 4 work days will be required by staff for pre-construction planning and coordination, and for procurement.
- Construction and Construction Management in Fall 2023
    - TFCC estimates that onsite construction activities will require 24 field days, based on a daily average liner installation completion rate of 200 LF per day and a total of 3 days for mobilization and demobilization.

- The TFCC project superintendent in the field 8 hours per day and the project manger and office administrator providing 2 hours of project support each day on average.
- TFCC equipment operators (four) and laborer (8) are anticipated to be onsite for the entire duration of field work with and 8-hour workday.

In-kind investments exclude general administration outside the project.

Fringe Benefits

As shown in the detailed budget proposal in Attachment A, TFCC expects to make an in-kind investment of $33,409.12 in fringe benefits. These investments provide for Federal Insurance Contributions Act taxes, retirement, health insurance, unemployment tax, workers compensation, personal time off, and sick leave. Fringe benefits are applied to management, staff, operators, and laborers.

Travel

As shown in the detailed budget proposal in Attachment A., TFCC expects to make and in-kind investment of $937.50 in travel expenses related to this project. This cost is based on 30 site visits to and from TFCC's headquarters in Twin Falls, Idaho at $0.625 per mile. These investments pay for vehicle mileage for staff conducting site visits, providing construction oversight, and inspections.

Equipment

TFCC owns the equipment necessary for constitution of this project. The project budget includes Canal Company owned equipment in excess of $5,000 and having a useful life of more than 1 year. Hourly rats were established using the 2019 FEMA Schedule of Equipment Rates. The following is a projected list of the equipment that will be furnished and used by TFCC for completion of this project: (1) four excavators, (2) two dozers, (3) one front-end loader, (4) one grader, and (5) three dump trucks.

It is anticipated that the equipment will be required onsite for the entire duration of field work.

Material and Supplies

The material needed to complete this project are the geomembrane liner, sandbags, and incidental tools for a total of $453,288.00.

This canal lining project requires 4,500 LF of geomembrane liner with a width of 105 feet, resulting in 620,400 square feet of geomembrane liner. The geomembrane liner will be provided in multiple rolls up to 12,925 square feet each. A quotation was obtained from a reputable supplier that TFCC has used for its other project. The total delivered cost of

$446,688.00, including freight and an installation crew to unroll the liner panels and perform the necessary filed seam welding.

An estimated total of 100 sandbags are required to temporarily hold down edges of the liner panels, at cost of $6.00 per filled sandbag.

Refer to the detailed budget proposal in Attachment A.

Contractual

There are no contractual cost anticipated to complete this project.

Environmental and Regulatory Compliance Costs

For the purposes of this budget proposal, environmental and regulatory compliance cost are estimated at 1 percent of the total project cost. TFCC anticipates minimal environmental and regulatory compliance cost. The total budged amount for environmental and regulatory compliance cost for the project is $7,5000.00.

It is anticipated that nay environmental cost incurred would be related to time spent by TFCC and Reclamation required to determine levels of environmental compliance required for this project, prepare any necessary environmental compliance documents or reports, review any environmental compliance documents, and time required for approval or permits.

Other

This line item includes cost to be incurred while reporting to federal funders. In accordance with the FOA requirements, TFCC will prepare and submit post-award reporting to Reclamation and SF-425 Federal Financial Report.

A contingency cost of 10 percent of the project subtotal has been applied. While TFCC has performed its due diligence and project pre-planning, the potential exists for unanticipated events and unforeseen challenges to occur prior to or during project execution that could impact cost.

Indirect Cost

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.

Total Costs

The estimated total project cost is $815,740.46. the request feral share is $399,712.83, and the total non-federal share is $416,027.63. A copy of the completed SF 424C, Budget Information-Construction Programs is provided with the electronic application.

Pre-Award Costs

Not Applicable

7.0 Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? 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 minizine the impacts.

Impacts will be those associated with excavation and construction. TFCC will excavate approximately 2 feet of existing can material within the proposed can reach, place the liner, and then redistribute the canal material. Potential environmental impacts are minimal and consist of excess dust and equipment leakage spills. These potential impacts will be mitigated through good housekeeping practices (e.g., proper equipment maintenance) and use of best management practices (e.g., watering sources to control dust, spill containment, etc.).

Access to the work site will be via existing TFCC access roads, therefore no impacts to wildlife is anticipated.

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

There are no know environmental resources or special value including rivers, streams, lakes, fisheries, threatened plant and animal communities, spawning grounds, or flyways that are present at the prosed project location.

Are there wetland or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Water of the United State"? If so, please describe and estimate any impacts the proposed project may have.

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

When was the water delivery system constructed?

The Highline Canal was first constructed through the Rock Creek reach in 1906 and water delivery began shortly after the initial construction. TFCC's first opened the Milner Gates in 1905.

Will the proposed 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 nay extensive alterations or modifications to those features completed previously.

Aside from the proposed canal lining project, no other modifications will be made to the system as part of this project.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resource specialist at your local Reclamation office or the Stat Historic Preservation Office can sis in answering this question.

There are not structures present within the limits of the proposed project and all immediately adjacent land is cultivated farmland or gravel pits associated with private business.

Are there any known archeological sites in the prosed project area?

There are no know cultural resources of significance within the TFCC service area

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

No, there are not low income or minority populations in the immediate vicinity of the proposed project.

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

No, the proposed project will not limit access to any ceremonial uses of Indian sacred sites or result in other impacts on tribal lands.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasives species know to occur in the area?

No, the proposed project will not contribute to the introduction, continued existence, or spread of noxious weeks or non-native invasive species.

8.0 Required Permits or Approvals

No permits are expected to be required. All the work is within the canal channel. However, TFCC has been in contact with local Bureau of Reclamation staff to confirm the need to any National Environmental Policy Act (NEPA) requirements. TFCC has budgeted for a NEPA review if necessary. In 2019 BOR conducted a Categorical Exclusion Checklist (CEC) and review. The 2023 Highline Canal with be working downstream of the 2019 High Line Canal Liner Project No. 1 which did receive a CEC.

9.0 Overlap or Duplication of Effort Statement

The Twin Falls Canal Company (TFCC) diverts water out of the Snake River at Milner Dam and controls the water delivery to an area of approximately 203,000 acres. Inside of the boundaries of the company, TFCC has over 110 miles of major canals and approximately 1,000 miles of smaller laterals. TFCC controls approximately 5,300 service gates (turnout gates) and we are proud of our consistency of delivery, and accuracy of measurement water to our shareholders. Since the 2023 Highline Canal Liner Project Phase #2 project lies within TFCC's service boundaries, there is no overlap between any other proposed project and any other active or anticipated project proposals. TFCC has used the WaterSmart grant previously to help fund these projects.

10.0 Conflict of Interest Disclosure Statement

TFCC does not have any actual or potential conflicts of interest at the time of this submittal.

OFFICIAL RESOLUTION OF THE TWIN FALLS CANAL COMPANY

RESOLUTION 2022-_002__

WaterSMART Grant: Water and Energy Efficiency Grant

Funding Opportunity Announcement No. R23AS00008

WHEREAS, the Twin Falls Canal Company is in receipt of the U.S. Bureau of Reclamation Funding Opportunity Announcement No. R23AS00008, WaterSMART Grant: Water and Energy Efficiency Grant Project for FY 2023; and

WHEREAS, the Twin Falls Canal Company has legal authority to enter into a grant agreement with the U.S. Bureau of Reclamation; and

WHEREAS, the Board of Directors of the Twin Falls Canal Company support the application submitted; and

WHEREAS, the Twin Falls Canal Company is capable of providing the amount of funding specified in the funding plan; and

WHEREAS, the Twin Falls Canal Company will work with the U.S. Bureau of Reclamation to meet establish deadlines for entering into a cooperative agreement; and

WHEREAS, receiving financial assistance through a WaterSMART Grant does not subject the Twin Falls Canal Company to the discretionary provision of the Reclamation Reform Act of 1982,

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors that the Twin Falls Canal Company is committed to the financial and legal obligations associated with the receipt of WaterSMART Grant financial assistance.

DULY ADOPTED during the regular meeting of the Board of Directors this 14th day of June, 2022

DATED: JUNE 14, 2022

Roger Blass
President, Twin Falls Canal Company

ATTEST:

David Patrick, Secretary

Attachment G - Letters of Support

Barker Rosholt & Simpson LLP

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July 26, 2022

U.S. Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007
Denver, Colorado 80225

RE: Letter of Support for Twin Falls Canal Company High Line Canal Liner Project (Water and Energy Efficiency Grant Application)

To Whom it May Concern:

I am writing on behalf of the Surface Water Coalition, Inc., an Idaho non-profit corporation comprised of the following irrigation entities in southern Idaho: A&B Irrigation District, American Falls Reservoir District #2, Burley Irrigation District, Milner Irrigation District, Minidoka Irrigation District, North Side Canal Company, and Twin Falls Canal Company.

The Coalition, like other water right holders in southern and eastern Idaho, relies upon the Snake River and the Eastern Snake Plain Aquifer (ESPA) for its members' water supplies for irrigation purposes. Critically, the Coalition relies upon storage water from Reclamation's Upper Snake River Basin reservoir system. The Coalition has worked with local and regional entities to promote and implement water conservation as a means to stabilize and improve water supplies for its landowners and shareholders, including as a means to preserve storage for future dry years. The Coalition supports Reclamation's efforts to develop efficiency improvement projects in the basin through the WaterSMART water and energy efficiency grant program, and appreciates the opportunity that local water users have to partner in such endeavors.

To that end, the Coalition supports the development of efficiency projects that will help canal companies save water. The Twin Falls Canal Company (TFCC) High Line Canal liner project is a prime example of a project that will save water and improve water delivery. TFCC has a proven track record of implementing such liner projects and the proposal will benefit its shareholders and area water users. The Coalition supports projects that have the potential to assist in saving storage water as well as those that will help overall storage fill, including storage water rights with junior priorities.

In summary, the Surface Water Coalition fully supports the TFCC High Line Canal Liner Project and its application for funding through the WaterSMART Water and Energy Efficiency Program.

Sincerely,

BARKER ROSHOLT & SIMPSON LLP

Travis L. Thompson

cc: Justin Temple, A&B
Kevin Lakey, AFRD#2
John Lind, BID
Jeff Warr, Milner
Dan Davidson, MID
Alan Hansten, NSCC
Jay Barlogi, TFCC

SOUTHERN IDAHO
Water Quality Coalition

357 6th Ave. West
Twin Falls, Idaho
SIWQC.msr@gmail.com

U.S. Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007
Denver, Colorado 80225

RE: Letter of Support for Twin Falls Canal Company Highline Canal Liner Project Phase #2 (Water and Energy Efficiency Grant Application)

Dear Reclamation:

The Southern Idaho Water Quality Coalition (SIWQC) is submitting this letter of support for the Twin Falls Canal Company Highline Canal Liner Project Phase #2.

SIWQC was formed as a non-profit corporation for the following purpose as set forth in its Articles of Incorporation:

> To engage a broad coalition of stakeholders to develop a cost-effective framework to identify, manage, and implement water quality improvement projects to benefit the Snake River, its tributaries and related waterbodies; to promote, aid and assist with the conservation, preservation and utilization of the water resources of the Snake River, its tributaries and related waterbodies and to cooperate with similar organizations to promote the same; to work collaboratively and voluntarily to invest and obtain resources to implement water quality improvement projects and raise awareness for water availability and quality, and overall environmental health of the watershed in the area

TFCC's proposed liner project assists in this purpose as it aids in water conservation in the area and will further contributed to improved water quality through more efficient water delivery operations. SIWQC has worked with TFCC on various projects in Twin Falls County and appreciates the value of water savings and conservation for future dry years. Improving efficiency is a key component to overall water sustainability, as well as quality in the Upper Snake River Basin reservoirs.

SIWQC urges federal support for this important project.

Respectfully,

Wade Allred
SIWQC - President