WaterSMART Grant

Water & Energy Efficiency Grant for Fiscal Year 2018

Funding Opportunity Announcement No. BOR-DO-18-F006

May 9, 2018

Newton Lateral Piping Project

Cache Valley, Utah

Applicant

West Cache Irrigation Company

32 West Main St.

Trenton, Utah 84338

TEL 435-563-3501

Project Manager

Scott L. Archibald, PE

26 South Main St.

Smithfield, Utah 84335

TEL 435-563-3734

sarchibald@sunrise-eng.com

SUNRISE ENGINEERING

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Executive Summary

The executive summary should include:

- *The date, applicant name, city, county, and state*
- *A one paragraph project summary that specifies the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA.*
- *State the length of time and estimated completion date for the proposed project*
- *Whether or not the proposed project is located on a Federal facility*

Date:	May 9, 2018
Applicant:	West Cache Irrigation Company – Newton Lateral 32 West Main St. Trenton, Cache County, Utah 84338
Contact:	Scott Archibald, PE Sunrise Engineering, Inc 26 South Main St. Smithfield, Utah 84335 sarchibald@sunrise-eng.com 435.563.3734

Project Summary:

For this project the, Newton Lateral, 5.3 miles of open earthen canal will be replaced with pressurized pipe. The project will also eliminate 23 small inefficient pump stations with one centralized pump station that will efficiently pressurize the entire pipeline. This proposal includes the design, construction, and start-up of the pressurized irrigation system. The project consists of the following:

- Conserve ±2352.0 ac-ft of water annually
- Provide shareholders with a more reliable pressurized system
- Conserve 134,000 kWh of power/ energy savings
- Reduce impacts of drought
- Improve sustainability of rural communities
- Reduce operation and maintenance costs

Approximate Project Length:	18 months
Completion Date:	December 2019
Federal Facility:	This is not a Federal facility.

Background Data

As applicable, describe the source of water supply, the water rights involved, current water uses (e.g., agricultural, municipal, domestic, or industrial), the number of water users served, and the current and projected water demand. Also, identify potential shortfalls in water supply. If water is primarily used for irrigation, describe major crops and total acres served.

In addition, describe the applicant's water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements (e.g., type, miles, and acres). For municipal systems, please include the number of connections and/or number of water users served and any other relevant information describing the system.

If the application includes hydropower or energy efficiency elements, describe existing energy sources and current energy uses.

Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).

The West Cache Irrigation Company operates a 50-mile long open ditch earthen canal that diverts water from the Bear River near Riverdale, Idaho and extends across the Utah border for another 25 miles to the fields south of Newton, Utah. The Newton Lateral or branch, of the West Cache Canal, is the last 5.3 miles of the 50-mile network and provides water to 1800 acres of agricultural land.

Water shortfalls occur because the users dependent on Newton Lateral are located at the tail end of a 50 mile long system. There is a constant battle between the Company and the shareholders. If the Company supplies flows to satisfy the shareholders, the company provides the water high in the 50-mile long canal which increases water loss through seepage and evaporation but delivers the desired amount to the shareholders. If the water level in the canal is lowered to reduce canal losses, then shareholders in the Newton Lateral observe water shortages.

Figure 1: Existing Personal Irrigation Pumping Station

Twenty-six (26) shareholders along the Newton Lateral operate 2 diesel and 21 electric pump stations. These pump stations provide water from the open ditch canal into 10 miles of existing on-farm shareholder pipelines. The pipelines supply water to the irrigation pivots and wheel lines. A typical pump station is equipped with screening equipment at the intake.

During July 2017 irrigation season, the 21 electrical pump stations used approximately 509,000 kWh of electric power. It has been calculated that with the centralized pump station, the same volume of water will be able to be supplied with 375,000 kWh savings each month of operation. In turn this will save approximately $10,300 dollars per year of operating costs ($858.33 per month).

According to the Idaho Division of Water Rights, the water duty for this water right is 3.5 ac-ft per acre of water. The water demand for the Newton Later is 6,300 ac-ft of water annually.

The shareholders operate under 1,804 shares of West Cache Irrigation Company shares and irrigate 1,804 acres of ground. The shareholders primarily sprinkle-irrigate all the acres to grow wheat, oats, alfalfa, and grass hay. West Cache Canal supplies the Newton Lateral with 18 CFS of water to supply the needs of the irrigator. West Cache Irrigation Company operates under the following water right.

Table 1: Water Right Information

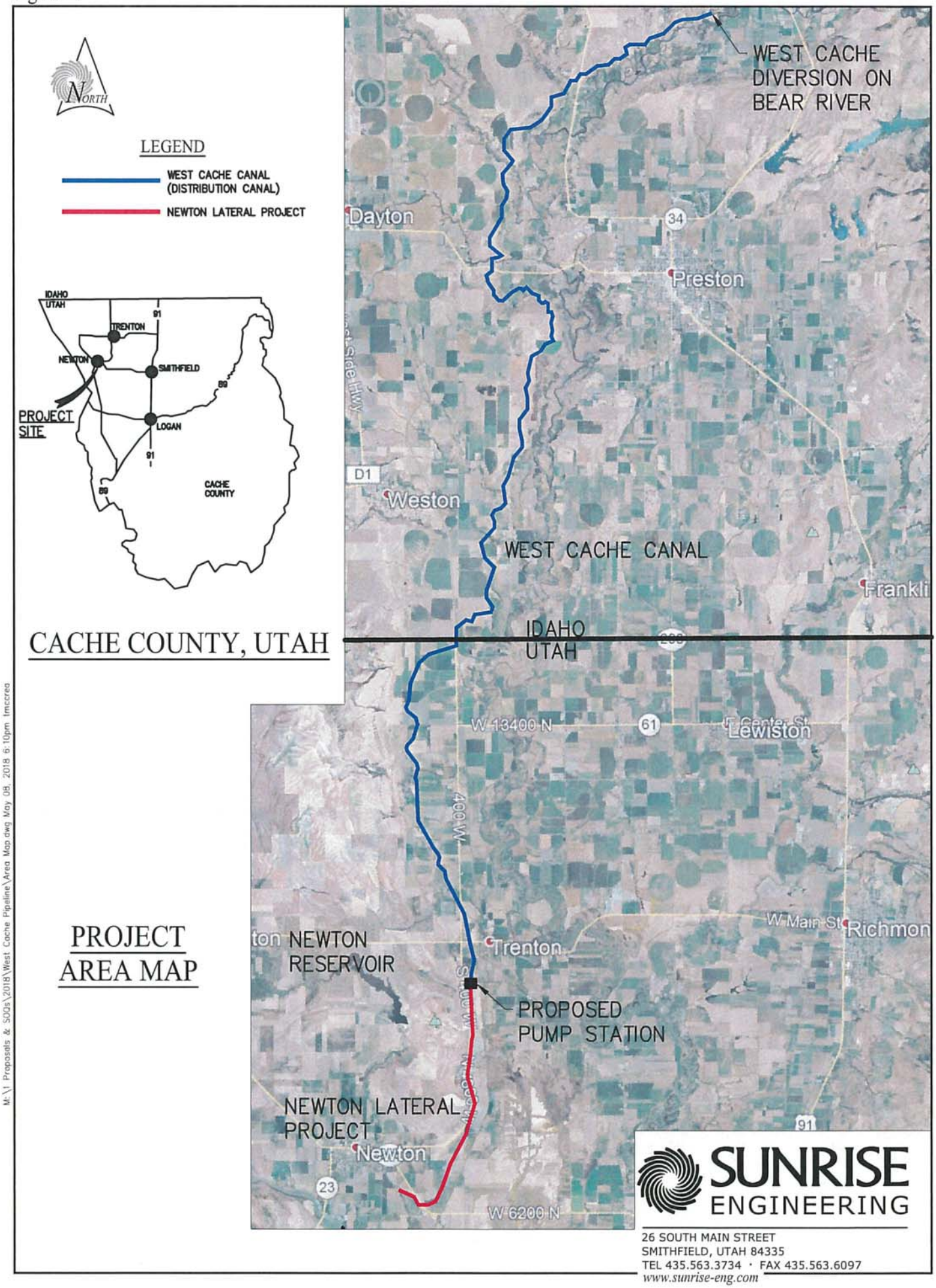
Idaho Water Right	Water Source	Priority Date	Flow	Ac-Ft
13-974	Bear River	1899	186 CFS	51,912 AC-FT

Project Location

Provide specific information on the proposed project location or project area including a map showing the geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g. northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}. For larger project areas, please provide location information in one of the following formats:

The Newton Lateral project is in Cache County, Utah east of Newton Utah. The headworks of the Newton Lateral are located at 41°54'24.22" N and 111°57'03.18" W. Figure 2 illustrates the location of the project in relation to its surroundings and 50-mile West Cache Irrigation Company supply canal.

Figure 2.



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Technical Project Description

The technical project description should describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal.

West Cache Irrigation Company currently owns and operates 50 miles of open irrigation ditches. The last 5.3 miles of this network is known as the Newton Lateral. The purpose of this project is to pipe and pressurize the Newton Lateral to conserve water that is currently being lost to seepage, evaporation, and undesired vegetation uptake. Additionally, this project will provide a more stable irrigation system to the farmers who depend on the Newton Lateral for irrigation water.

Upon receiving the WaterSMART Grant, The Utah Division of Water Resources (DWRe) has stated their support in funding this project; the support letter is attached in Appendix A. A preliminary engineering analysis has been conducted to determine potential pipe sizes and pipe lengths, pumping station locations, and the number of irrigation connections. The preliminary design includes a pump station located at the diversion point between the Newton Lateral and the Amalga Lateral. This pump station will be equipped with three pumps; one pump will be on a variable frequency drive while the other two are full drive pumps. This set up will provide one redundant pump while the variable frequency drive pump and one full drive pump can provide the required flow throughout the irrigation season.

The piping network will consist of a single back bone that is made of PVC Plastic Irrigation Pipe with a minimum pressure rating of 100 psi and sizes ranging from 24 into 12 in. A minimum of 23 connections will be installed along the main back bone. Each connection will consist of a gate valve for isolation or controlling the flow and an inline flow measuring device. The pump station along with each connection will be linked with a Supervisory Control and Data Acquisition (SCADA) system that will be accessible to the farmers using the Newton Lateral water.

With funding secured from both the WaterSMART Grant and the DWRe a full engineering design of piping the Newton Lateral will be completed by a professional engineering firm to ensure proper design and safety considerations. The design will be in accordance with industry design standards as well as design standards set forth by the Natural Resources Conservation Service (NRCS).

By piping the Newton Lateral, approximately 34.8% (2352 ac-ft /year) of the flow in the canal will be conserved. Currently this water is being lost to seepage, evaporation, and undesired vegetation uptake. Additionally, the energy demand will also decrease due to the farmers no long needing small inefficient pumps to pressurize their irrigation systems. The combined energy savings due to operating a single pump station in place of each farmer operating their own pump station is approximately 134,000 kWh or $10,300 annually at 7.7 cents/kWh.

Evaluation Criteria

Evaluation Criterion A—Quantifiable Water Savings

Up to 30 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings.

All applicants should be sure to address the following:

***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.*

Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.

According to the Canal Companies records, 18 cfs is diverted on average to the Newton Lateral during the irrigation season of approximately 189 days a year (52% of the year). This equates to 6752.5 ac-ft/irrigation season or 6752.5 ac-ft/year. Using the canal loss estimation method documented in the United Stated Department of Agriculture's National Engineering Handbook, a total estimated loss of 2352.0 ac-ft/ year was found. With a total demand of 6752.5 ac-ft/year and a loss of 2352.0 ac-ft/ year, the percent loss can be calculated as follows:

$$\frac{2352.0_{ac*ft/year}}{6752.5_{ac*ft/year}} = 0.348 = 34.8\%\ Loss$$

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

Currently the 2352 ac-ft/year loss is being lost to seepage through the earthen walls and bed of the existing canal, evaporation from the water surface exposed to sunlight, and mild vegetation growth covering the banks of the earthen canal. The amounts lost to each of these mechanisms are as follows:

- Seepage Loss = 1975 ac-ft/year
- Evaporation Loss = 197 ac-ft/year
- Vegetation Loss = 179 ac-ft/year

The accompanying calculations for these loss estimations can be found in Appendix B. Also included in Appendix B are the references for the supporting documentation of the water loss analysis used.

***Describe the support/documentation of estimated water savings:** Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are not sufficient to receive credit under this section.*

Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.

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

1. *Canal Lining/Piping: Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address the following:*

    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.*

    Seepage Losses were determined using a method outlined in the United States Department of Agriculture Soil Conservation Service's National Engineering Handbook Chapter 2 – Irrigation Water Requirements. The full reference has been included in Appendix B. This method is an empirically derived method that uses the geometry of the canal and the soil the canal is constructed from to determine the seepage loss per mile of canal. The geometric data was gathered via site visits, aerial imagery, and owner furnished data. The soil data was acquired from the United States Geological Survey (USGS) online data base and has been included in Appendix B. The accuracy of this method is limited to 0.5 ac-ft.

    The method outlined in the National Engineering Handbook also provides guidelines to determine water loss due to evaporation and vegetation uptake. Evaporation is generally taken as 10% of the amount lost due to seepage. This amount lost to evaporation is supported by the National Engineering Handbook as well as a published research article form Utah State University (USU) entitled "How Well Does your Irrigation Canal Hold Water? Does it Need Lining?", and a published presentation from the NRCS entitled "Irrigation Water Conveyance".

    Water loss due to vegetation is based on a percentage of the total flow within the earthen canal ranging from 0.5% to 1.0%. The Newton Lateral Canal's banks have moderate over growth and thus a 0.5% is used to determine total water loss due to undesired vegetation uptake. This method is supported in both the National Engineering Handbook and the presentation previously stated produced by the NRCS. All of the materials referenced in this section are referenced in full in Appendix B.

    b. *How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests 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 an 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.*

    Traditional methods of determining seepage loss such as ponding and inflow/outflow tests have not been performed on this canal section. This is primarily due to a lack of instrumentation in measuring flows throughout the canal. Part of the proposed project is to install flow measuring devices at key points in the system and at all diversion points.

Due to the lack of flow measurements throughout the system, an empirical method based on canal geometry and the material composing the canal was used to determine seepage loss. This method is described in detail in the previous section. The results of this method have been compared with observational data provided from Ed Cottle, who has been the West Cache Irrigation Company– Operator for the past 20 years. According to the observational data, the canal experiences approximately 25% to 35% total loss throughout the duration of the irrigation season depending on the flow demand.

c. *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 project will be replacing the earthen canals with buried PVC pipe. Losses due to seepage, evaporation, and undesired vegetation uptake will be effectively eliminated. Due to the nature of PVC, leakage through the pipe walls is negligible. Although, if fittings are not installed correctly, water can be lost at pipe junctions, service line connections, or similar pipe fittings. The National Engineering Handbook states that buried pipeline losses range from 0.01 to 0.15 ft^3/ft^2 per year of wetted perimeter depending on the age of the pipe. The pipe that will be installed will be new PVC pipe thus estimated loss through the pipe is 0.01 ft^3 per year per ft^2 of wetted perimeter. The calculations for wetted perimeter are presented in the following table.

Table 2: Data for Wetted Perimeter Calculations

Pipe Diameter (in)	Pipe Circumference (ft)	Pipe Length (ft)	Total Wetted Perimeter (ft^2)
24	6.3	5,900	37,200
20	5.2	8,300	43,200
16	4.2	8,500	35,700
12	3.1	900	2,800
		Total	**118,900**

$$118{,}900 ft^2 * 0.01 \frac{\frac{ft^3}{ft^2}}{yr} = 1{,}189 \frac{ft^3}{yr} = 0.027 \frac{acre\ ft}{yr}$$

This is less than a 0.001% loss after the proposed project completion.

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

The project consists of piping approximately 5.3 miles of open irrigation ditch. Currently the canal experiences a total loss of 443.5 ac-ft/ year per mile of earthen ditch (2352.0 ac-ft/year / 5.3 miles). After the proposed projects completion, the canal will experience approximately a total loss of 0.0051 ac-ft/year per mile of pipe (0.027 ac-ft/ year / 5.3 miles), which is negligible due to the shear difference of more than 5 degrees of magnitude difference. This equates to an annual transit loss reduction of essentially 100% or an annual reduction of the full pre-project total loss of 443.5 ac-ft/year per mile.

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

Flow measuring devices will be installed at key points along the pipe line to monitor the actual flow through these key points. Each turn out/irrigation connection will have a flow

measuring device to accurately measure and record the amount of water leaving the pipe system due to irrigation usage. A primary flow measuring device will be installed at the head works of the piping system. This measuring device will provide accurate readings of how much water is being placed in the piping system. The entire piping system will be linked using a SCADA system. This SCADA system will link measured flow rates at any given location to a specific date and time enabling detailed comparisons between inflow and total outflow measurements to determine and quantify seepage losses.

The information provided by the SCADA system will not only aid the canal company but the local farmers using the system. With the detailed information provided by the individual flow measuring devices, local farmers can control their individual irrigation systems remotely and with greater efficiency.

f. Include a detailed description of the materials being used.

The existing earthen canal will be replaced with PVC Plastic Irrigation Pipe (PIP) with a minimum pressure rating of 100 psi. The system will begin at the existing head works. Here a pumping station consisting of three pumps, an intake screening structure, flow measuring device, and SCADA devices will be placed. The three pumps will consist of two full drive pumps and one variable frequency drive pump allowing for a full range of flow operations with a spare pump for redundancy. The water will then be conveyed using a 24 in pipe. As irrigation demands take water from the system, the pipe line will be necked down from a 24 into a 12 in by small increments. Each irrigation connection will be made using a gate valve and a flow measuring device, both will be controlled and monitored using a SCADA system.

Note: a project that includes the installation of high-efficiency indoor appliances and fixtures, including toilets, whether through rebates, direct install, or by other means, is not eligible for funding under this FOA.

Evaluation Criterion B—Water Supply Reliability

Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

- *Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?*
    - *Is there widespread support for the project?*

      Yes, the shareholders have witnessed the benefits of these types of projects. As such, the shareholders are very supportive of the project.

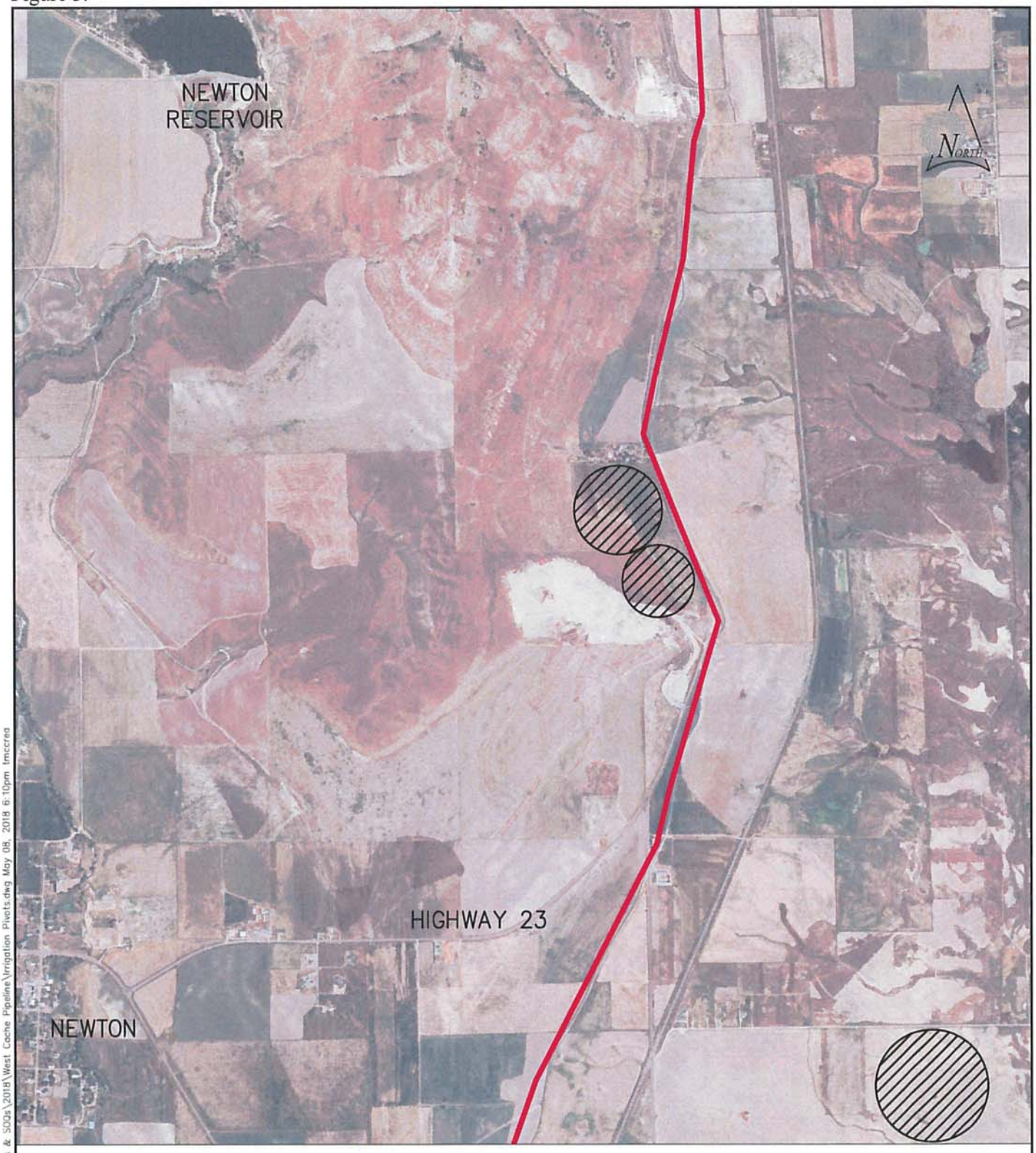
- *What is the significance of the collaboration/support?*

  Several meetings have been held with all the Newton Lateral shareholders and the West Cache Irrigation Company to discuss the project and how to make it feasible. This project will directly benefit the Newton Lateral shareholders; however, the remaining shareholders of the West Cache Irrigation Company will also benefit by not maintaining the canal so full of water to meet the needs of the Newton Lateral shareholders. This will reduce the seepage along the entire 50-mile-long West Cache canal. The West Cache Irrigation Company Board sees this as a large benefit.

- *Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?*

  Yes, there are three pivots that are immediately planned to be installed if this project is implemented. In addition, other shareholders of the West Cache Irrigation Company are watching to see how this project effects their irrigation practices. A successful project will greatly encourage other users along the 50-mile reach to follow and apply for WaterSMART funding for their laterals. In total there are approximately 186 cfs of water in the West Cache network, realistically 25% of this water could be saved. Figure 3 shows the location of the proposed On-Farm Improvements.

Figure 3.



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ON-FARM IMPROVEMENT MAP

NEWTON LATERAL

LEGEND

- PIVOT IRRIGATION
- NEWTON LATERAL PROJECT

SUNRISE ENGINEERING
26 SOUTH MAIN STREET
SMITHFIELD, UTAH 84335
TEL 435.563.3734 · FAX 435.563.6097
www.sunrise-eng.com

- *Will the project make water available to address a specific water reliability concern? Please address:*

    - *Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.*

      This project will assist in the reliability of the delivery of the Newton Lateral shareholders water. As has been stated, this is the end of a 50-mile canal. Currently West Cache Irrigation Company desires to keep the water in their canal as low as possible. Operating the canal in this manner, water has not consistently reached the end of the Newton Lateral. The main reasons the canal is operated in this manner is in response to avoiding the following:

        - High seepage and evaporation loss throughout the 50-mile canal segment
        - Canal failure due to high water levels in the canal
        - Landslides that have previously blocked the canal

      The proposed water savings will assure that the shareholders receive their water allocation by lowering the amount of water that is needed to be delivered in the West Cache Irrigation Company supply canal to the Newton Lateral. In addition, the proposed central pumping station will have a redundant pump, allowing irrigation water to be delivered at all times even if a pump fails.

    - *Describe where the conserved water will go/how it will be used. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)? Will it be left in the river system?*

      The 38% conserved water will be used in two methods. The first method will be to insure all shareholders receive their allocation of water during drought or low water years. The second method is that the water will remain in the Bear River. Downstream of the project along the Bear River is the Bear River Migratory Bird Refuge operated by the United States Fish and Wildlife Service. Conserved water will aid the refuge in providing habitats for critical migratory birds as they struggle to control diseases and maintain a healthy ecosystem with their limited water supply. Additional water supplies will be seen as farmers transition from flood to sprinklers.

    - *Describe how the project will address the water reliability concern?*

      As stated above, the project will assist in the reliability during drought and low water years and insure the delivery of the shareholders water allocations.

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

      There is constant tension between the shareholders of the Newton Lateral and the West Cache Irrigation Company with being able to reliably provide the allocated water. This project would assist West Cache Irrigation Company in supplying water to the Newton Lateral by lowering the amount of water that is needed to be delivered in the West Cache Irrigation Company supply canal to the Newton Lateral.

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

  The mechanism that will be used is the water shares certificates of the West Cache Irrigation Company.

- *Describe the roles of any partners in the process. Please attach any relevant supporting documents.*

  - West Cache Irrigation Company (including shareholders)
    - Owner and project stake holder
  - Sunrise Engineering Inc.
    - Providing engineering design and professional support for owner
  - Utah Division of Water Resources
    - Funding: loan
  - Reclamation
    - Funding: grant

- *Indicate the quantity of conserved water that will be used for the intended purpose.*

  The first priority is making sure the water right allocation to the Newton Lateral shareholders is met. Depending on the year this could take all of the saved water to meet their need. In wetter years the conserved water would not be diverted and would remain in the Bear River.

- *Will the project benefit Indian tribes?*

  This project will not benefit an Indian tribe.

- *Will the project benefit rural or economically disadvantaged communities?*

  This project will support rural and economically disadvantaged communities. The majority of the Newton Lateral shareholders live in Newton or Trenton, Utah. Newton has a population of 778 and Trenton has a population of 497. The median household income of both communities falls below the State median household income level and they are considered economically disadvantaged.

- *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.*

  The Yellow-Billed Cuckoo (threatened) is listed on the federal endangered species list and would benefit from the water that remains in the Bear River and makes it way to the Bear River Migratory Bird Refuge.

- *Will the project address water supply reliability in other ways not described above?*

  The central pumping station will help provide a reliable water supply with the redundant pump. The existing individual farmers pumping system are not equipped with a redundant pump or generator. Water supplies are cut short when pumps, motors, or power fail.

Evaluation Criterion C—Implementing Hydropower

*Up to **18 points** may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.*

If the proposed project includes construction or installation of a hydropower system, please address the following:

The piping and pressurizing of the existing earthen canal project does not include the installation of a hydropower system. There will be a reduction of energy consumption due to the elimination of individual irrigation pumping systems and the installation of a single pumping station. This energy conservation is discussed in detail in Evaluation Criterion E – 2.a.

Evaluation Criterion D—Complementing On-Farm Irrigation Improvements

*Up to **10 points** may be awarded for projects that describe in detail how they will **complement on-farm irrigation improvements** eligible for NRCS financial or technical assistance.*

*Note: Scoring under this criterion is based on an overall assessment of the extent to which the WaterSMART Grant project will complement ongoing or future on- farm improvements. Applicants should describe any proposal made to NRCS, or any plans to seek assistance from NRCS in the future, and how an NRCS-assisted activity would complement the WaterSMART Grant project. Financial assistance through the Environmental Quality Incentives Program (EQIP) is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information described in the bullet points below. **Applicants are not required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion.** Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.*

Please note: on-farm improvements themselves are not eligible activities for funding under this FOA. This criterion is intended to focus on how the WaterSMART Grant project will complement ongoing or future on-farm improvements. NRCS will have a separate application process for the on- farm components of selected projects that may be undertaken in the future, separate of the WaterSMART Grant project.

If the proposed project will complement an on-farm improvement 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.*

      Currently there are three plots of land that are irrigated using flood irrigation. Although flood irrigation is effective in watering crops, the amount lost to evaporation and seepage are significantly greater than using sprinklers. Those who currently irrigate with flood irrigation have developed plans to install pivots or wheel lines to irrigate their plots. The future use of pivots instead of flood irrigation will conserve water and decrease the irrigation demand.

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

  The farmers that are currently flood irrigating have started to work with the NRCS. The other farmers plan to work with the NRCS in the future once the project has been completed.

- *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.*

  N/A

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

  Located in Appendix A are various letters of intent/support of implementing pivots where flood irrigation is currently being used. These letters also state the intent to implement additional water conserving measures.

- *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 improvement? If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

    With the piping and pressurizing of the Newton Lateral, SCADA will be added to link the network. Irrigation connections will be made to the main pipe line using a gate valve and a flow measuring device that can both be monitored remotely. This ability will allow irrigators to evaluate their water usage closer and determine when and where water can be conserved. This control ability is currently not possible with the existing system.

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

    Currently there are three fields that are irrigated using flood irrigation. The respective owners of these fields have stated that they are committed to installing pivots or wheel lines to irrigate those fields after the completion of the proposed project. With the switch from flood irrigation to pivot irrigation, less water will be lost to seepage and evaporation while watering the crops. This reduction watering loss will increase the water use efficiency for the area. A map illustrating the location of these fields has been previously included as Figure 3.

- *Describe the on-farm water conservation or water use efficiency benefits that would result from the on-farm component of this project.*

    - *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.*

      One goal of the proposed project is to provide the opportunity for local farmers to implement on-farm water conservation measures. The switch from flood irrigation to sprinkler irrigation aids in the conservation of water within individual irrigation systems. Flood irrigation allows water to sit on the surface of the land for long durations of time. During these periods of time, large amounts of water are lost due to seepage and evaporation. With the switch to sprinkler irrigation, water is applied in a manner that aids in the elimination of water loss due to seepage and evaporation. The majority of the water applied using sprinkler irrigation is used by the crop itself instead of being lost due seepage and evaporation.

      However, data concerning potential on-farm water savings is not currently available for the specific region in which the intended on-farm improvements are planned for. With the completion of the on-farm improvements, water data will be recorded and compared to past water data to evaluate the increase in water efficiency and the amount of water savings. This data will be made available to the Reclamation upon request.

Note: On-farm water conservation improvements that complement the water delivery improvement projects selected through this FOA may be considered for NRCS funding and technical assistance to the extent that such assistance is available. For more information, including application deadlines and a description of available funding, please contact your local NRCS office. See the NRCS website for office contact information, www.nrcs.usda.gov/wps/portal/nrcs/ main/national/contact/states/.

Evaluation Criterion E—Department of the Interior Priorities

*Up to **10 points** may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.*

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*

    a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;*

       N/A

    b. *Examine land use planning processes and land use designations that govern public use and access;*

       N/A

c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards.*

N/A

d. *Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;*

N/A

e. *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;*

N/A

f. *Identify and implement initiatives to expand access to DOI lands for hunting and fishing;*

N/A

g. *Shift the balance towards providing greater public access to public lands over restrictions to access.*

N/A

2. *Utilizing our natural resources*

a. *Ensure American Energy is available to meet our security and economic needs;*

Currently each farmer using the Newton Lateral for irrigation is forced to use a pump to draw water out of the canal and pressurize their individual systems. Spread throughout the Newton Lateral there are 21 electric pumps and 2 diesel powered pumps. The electric pumps range form 1 Hp to 40 Hp. On average the collective pumps consume 509,000 kWh an irrigation season. At 7.7 Cents a kWh, that equates to $39,200 a year in energy costs.

With the completion of the proposed project, three 95 Hp pumps in parallel would replace the existing 21 electric pumps and 2 diesel pumps. Only two pumps would be running at any given moment with the third acting as a redundant pump incase of a pump failure. One of the two running pumps would have a variable frequency drive on it allowing it to adjust to the demand and to save energy when the peak demand is not required. With two 95 Hp pumps running, the pumps would consume 375,000 kWh an irrigation season. At 7.7 Cents a kWh, that equates to $28,900 a year in energy costs. The change from individual pumps to a single pump station equates to a 26.25% reduction in energy consumption and energy costs. Table 3 represents this data.

Table 3: Power Consumption and Power Cost Comparisons

	Number of Pumps to Maintain	Seasonal Power Consumption (kWh)	Energy Cost @ 7.70 Cents/kWh
Pre-Project Condition	23	509,000	$ 39,200
Post-Project Condition	3	375,000	$ 28,900
Energy Savings	N/A	134,000	$ 10,300
Reduction Percentage		26.25%	26.25%

b. *Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;*

N/A

c. *Refocus timber programs to embrace the entire 'healthy forests' lifecycle;*

N/A

d. *Manage competition for grazing resources.*

N/A

3. *Restoring trust with local communities*

a. *Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;*

This project will aid in reducing the tension and conflicts that exist between the shareholders and the West Cache Irrigation Company. This will be accomplished by reducing the amount of water that West Cache Irrigation Company has to deliver to the shareholders.

b. *Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.*

N/A

4. *Striking a regulatory balance*

    a. *Reduce the administrative and regulatory burden imposed on U.S. industry and the public;*

        N/A

    b. *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.*

        N/A

5. *Modernizing our infrastructure*

    a. *Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;*

        This project will help modernize the irrigation practices along the Newton Lateral. Additionally, this modernization of irrigation practices will save energy as more efficient motors replace old motors and as individual small pumps are replaced with a single pump station that services everyone.

    b. *Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;*

        The West Cache Irrigation Company is a privately owned and operated company that serves the irrigation needs for rural communities in and around Newton, Trenton, and Amalga, Utah as well as Weston, Dayton, Preston, and Riverdale, Idaho. The canal extends for over 50 miles providing for farmers all along its length. In many of these rural communities, the towns and cities do not provide secondary irrigation water to their residents nor surrounding communities. Canal and irrigation companies are vital private entities for these communities. The 5.3 mile section that will be piped and pressurized by this project will serve 1,804 acres of farm land in and around Newton, Utah.

    c. *Prioritize DOI infrastructure needs to highlight:*

        1. *Construction of infrastructure;*

            N/A

        2. *Cyclical maintenance;*

            N/A

        3. *Deferred maintenance.*

            N/A

Evaluation Criterion F—Implementation and Results

*Up to **6 points** may be awarded for these subcriteria.*

Subcriterion F.1— Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

***Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place?** Please self-certify, or provide copies of these plans where appropriate to verify that such a plan is in place.*

Provide the following information regarding project planning:

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

   Produced in January of 2004, DWRe published the "Bear River Basin Planning for the Future" a water plan specific to the Bear River Basin. The water in the West Cache Canal and the Newton Lateral come directly from the Bear River. The water from the Bear River Basin supplies large and small communities throughout Northern Utah, South Eastern Idaho, and South Western Wyoming. The water conservation plan can be viewed in Appendix C.

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

   The "Bear River Basin Planning for the Future" lays out, in Chapters 4 and 5, the need for water conservation and the development of efficient agricultural use of water. It states that between 20% and 65% of water diverted into a canal can be lost to seepage, evaporation, and transpiration from vegetation along the canal banks. The document than identifies various strategies that can help minimize these losses while increasing the efficiency of the water used in irrigation. One strategy discussed is the piping and pressurizing of open ditch canals. Another strategy outlined is the use of sprinkler irrigation rather than flood irrigation. A final strategy given is the automation of irrigation systems using SCADA and irrigation equipment that can be controlled or monitored using telemetry. The proposed project encompasses all three of these strategies in decreasing the amount of water lost from the open canal and increasing the efficiency of water usage during irrigation.

Subcriterion F.2— Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

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 or better managed, energy generated or saved). For more information calculating performance measure.

The benefits of the proposed project will be categorized into three areas:

1) reduction of water loss during water conveyance.
2) reduction of energy consumption and costs due to pumping requirements.
3) increase in water use efficiency due to improvements made on individual irrigation systems encouraged with the completion of the proposed project.

The reduction of water loss during water conveyance will be measured by comparing historic demands of the Newton Lateral to demands after the completion of the proposed project. This will be made possible with the installation of a flow measuring device at the head works of the proposed project and the installation of flow measuring devices at each point of diversion along the piped Newton Lateral.

Reduction of energy consumption and energy costs will be quantified by comparing past recorded electrical demands from the various individual pumps to the electrical demands of the new single pump station. Similarly, the electrical costs will be determined using the same comparison but comparing costs instead of electrical demands. Inflation will be accounted for to avoid artificial results.

The increase in water use efficiency will be a specific measure for those farmers that implement additional water conservation measures on their individual irrigation systems made possible/probable with the completion of the proposed project. These improvements include the switch from flood irrigation to using pivots or wheel lines. The efficiency will be quantified by comparing the past demand of water for individual fields/farmers and the demand after the improvements has been installed. Similar time periods will be used for comparison to ensure an accurate measurement.

Note: All Water and Energy Efficiency Grant applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grant recipients describing the performance measure, and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.

Evaluation Criterion G— Nexus to Reclamation Project Activities

*Up to **4 points** may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.*

- *Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:*
    - *Does the applicant receive Reclamation project water?*

      No.
    - *Is the project on Reclamation project lands or involving Reclamation facilities?*

      No.

- *Is the project in the same basin as a Reclamation project or activity?*

  Yes, the proposed project is located within the same basin as the Newton Project. The Newton Dam is located just over a mile east of the midpoint of the Newton Lateral. The Newton Lateral proposed project will place a drain/discharge valve to allow the new pipe line to drain into Clarkston Creek (Newton Dam's discharge stream).

- *Will the proposed work contribute water to a basin where a Reclamation project is located?*

  Yes, with water conservation measures in place, such as piping the canal or increasing water efficiency on irrigated land, the total demand from the Bear River will decrease. With the decrease in demand from the Bear River at the head of the West Cache Canal, more water will be allowed to continue to flow down the Bear River. As stated in the "Bear River Basin Planning for the Future", the Bear River Development Act of 1991 allocates 50,000 ac-ft of water to both the Jordan Valley Water Conservancy District and Weber Basin Water Conservancy District, 60,000 ac-ft to the Bear River Water Conservancy District, and 60,000 ac-ft to the water users in Cache County. These allocated waters impact a vast number of Reclamation projects, such as, the Weber Basin Project and its related projects and dams.

- *Will the project benefit any tribe(s)?*

  The project will not benefit an Indian tribe.

Evaluation Criterion H— Additional Non-Federal Funding

*Up to **4 points** may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:*

$$\frac{\boldsymbol{Non - Federal\ Funding}}{\boldsymbol{Total\ Project\ Cost}} = \frac{\$1,480,000}{\$2,480,000} = 60\%$$

Project Budget

The project budget includes:

1. *Funding plan and letters of commitment*
2. *Budget proposal*
3. *Budget narrative*

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability.

Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. Letters of commitment shall identify the following elements:

- *The amount of funding commitment*
- *The date the funds will be available to the applicant*
- *Any time constraints on the availability of funds*
- *Any other contingencies associated with the funding commitment*

Commitment letters from third party funding sources should be submitted with your application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the applicant's organization (e.g., loans or State grants), should be secured and available to the applicant prior to award.

Reclamation will not make funds available for an award under this FOA until the recipient has secured non-Federal cost-share. Reclamation will execute a financial assistance agreement once non-Federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-Federal funds will be available to the applicant subsequent to executing the agreement.

The funding plan for the project is as follows and will be split as follows:

- 60% West Cache Irrigation Company - Utah Division of Water Resources Loan: $1,480,000
- 40% Reclamation Water SMART Grant: $1,000,000
- Support letters from the Utah Division of Water Resources can be found in Appendix A. An official resolution supporting the project from the West Cache Irrigation Company can be viewed in Appendix G
- The funding plan is to borrow $1,480,000 at 1% for 30 years from the State of Utah Board of Water Resources
- Ratification of the loan will take place in the Water Resource Board meeting held fall of 2018. Once the loan is ratified by the Water Resource Board, funds are available.
- Passing of the loan by the Division of Water Resource Board is the only constraint on the funds
- There are no other known contingencies that are associated with the funding commitment

The funding plan must include all Project costs, as follows:

- *How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).*

The cost-share requirements will be meet by the West Cache Irrigation Company securing a loan from the Utah Water Resource Board.

- *Describe any donations or in-kind costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:*

    - *The project expenditure and amount*
    - *The date of cost incurrence*
    - *How the expenditure benefits the Project*
    - *Provide the identity and amount of funding to be provided by funding partners.*

    The West Cache Irrigation Company signed an engineering agreement with Sunrise Engineering for preliminary engineering and Reclamation application preparation.

    - Preliminary Design & Funding Assistance – Sunrise Engineering: $2,500
    - Expenses Occurred between April - May 2018
    - Without these expenditures the West Cache Irrigation Company would not have had the resources to make the application with Reclamation.
    - Newton Lateral shareholders are paying for these expenses on a per share basis

- *Describe any funding requested or received from other Federal partners. Note: other sources of Federal funding may not be counted towards the required cost share unless otherwise allowed by statute.*

    No other Federal funding is being applied for or will be used for this project.

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

    The $1,480,000 loan from the Utah Division of Water Resources is pending and is in process. It is anticipated that by the fall of 2018 the loan will be secured. If this funding is not approved, the applicant will not be able to continue with the project.

Please include the following chart (Table 1) to summarize all funding sources. Denote in-kind contributions with an asterisk (*).

Table 4: Summary of Non-Federal and Federal Funding Sources

Funding Source	Amount	Percentage
Non-Federal Entities		
*West Cache Irrigation Company– Division of Water Resources Water Loan	$ 1,480,000	60%
Other Federal Entities		
None	$ 0	0%
Reclamation Federal Entity		
REQUESTED RECLAMATION FUNDING	$ 1,000,000	40%
Total Project Funding	$ 2,480,000	100%

Budget Proposal

The budget proposal should include detailed information on the categories listed below and must clearly identify all Project costs, including those that will be contributed as non-Federal cost share. Unit costs must be provided for all budget items including the cost of work to be provided by contractors. The budget proposal should also include any in-kind contributions or donations of goods and services that will be provided to complete the project. It is strongly advised that applicants use the budget proposal format shown below on Table 2 or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs.

Note: The costs of preparing bids, proposals, or applications on potential Federal and non-Federal awards or projects, including the development of data necessary to support the non-Federal entity's should be treated as indirect costs and should not be included as a direct project cost (2 CFR §200.460).

Table 5: Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				
Included within Contractual	N/A	N/A	N/A	$ 0
Fringe Benefits				
Not Applicable for Current Budget	N/A	N/A	N/A	$ 0
Travel				
Not Applicable for Current Budget	N/A	N/A	N/A	$ 0
Equipment				
Included within Contractual	N/A	N/A	N/A	$ 0
Supplies and Materials				
Included within Contractual	N/A	N/A	N/A	$ 0
Contractual/Construction				
Engineering Professional Services	Refer to Appendix D			$ 263,000
Construction	Refer to Appendix E			$ 2,170,000
Environmental	Refer to Appendix F			$ 40,000
Legal Professional Services	$ 7,000	1	Lump Sum	$ 7,000
Other				
Not Applicable for Current Budget	N/A	N/A	N/A	$ 0
TOTAL DIRECT COSTS				**$ 2,480,000**
Indirect Costs				
Not Applicable for Current Budget	N/A	N/A	N/A	$ 0
TOTAL ESTIMATED PROJECT COSTS				**$ 2,480,000**

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. If in-kind contributions or donations of goods and services are included in the budget proposal, the narrative should identify the source(s) and describe how the value of the goods and services was determined The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of in-kind contributions and donations, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Salaries and Wages

Indicate the program manager and other key personnel by name and title. Other personnel should be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation. The labor rates must identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates must be allocated to specific tasks as outlined in the applicant's technical project description. Labor rates and proposed hours shall be displayed for each task. The budget proposal and narrative should include estimated hours for compliance with reporting requirements, including final project and evaluation. Please see Section F.3.2. Program Performance Reports for information on types and frequency of reports required.

Generally, salaries of administrative and/or clerical personnel will be included as a portion of the stated indirect costs. If these salaries can be adequately documented as direct costs, they should be included in this section; however, a justification should be included in the budget narrative.

Salaries and Wages are included in Contractual Costs. With the Contractual Costs, the budgeted amounts have been broken down to Salaries and Wages (Fee Schedule) where applicable. These cost break downs are included in Appendix D.

Fringe Benefits

Identify the rates/amounts, what costs are included in this category, and the basis of the rate computations. Indicate whether these rates are used for application purposes only or whether they are fixed or provisional rates for billing purposes. Federally approved rate agreements are acceptable for compliance with this item.

Fringe Benefits are not included in this budget. All compensation for employees with the engineering firm are expressed in the Fee Schedule attached in Appendix D. All other compensation for employees outside of the engineering firm are included in their Contractual Costs.

Travel

Include purpose of trip, destination, number of persons traveling, length of stay, and all travel costs including airfare (basis for rate used), per diem, lodging, and miscellaneous travel expenses. For local travel, include mileage and rate of compensation.

Travel Costs are not necessary for the completion of this project.

Equipment

If equipment will be purchased, itemize all equipment valued at or greater than $5,000. For each item, identify why it is needed for the completion of the Project and how the equipment was priced. Note: if the value is less than $5,000, the item should be included under materials and supplies.

If equipment is being rented, specify the number of hours and the hourly rate. Local rental rates are only accepted for equipment actually being rented or leased. If the applicant intends to use their own equipment for the purposes of the project, the proposed usage rates should fall within the equipment usage rates outlined by the United States Army Corps of Engineers (USACE) within their Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8)

Equipment Costs are included in Contractual Costs. Documentation of all contracts incurred during the project will be properly document as required and will be made available upon request.

Materials and Supplies

Itemize supplies by major category, unit price, quantity, and purpose, such as whether the items are needed for office use, research, or construction. Identify how these costs were estimated (i.e., quotes, past experience, engineering estimates, or other methodology). Note: If the materials/supplies will be furnished and installed under a contract, the equipment should be identified as a contractual cost in the budget proposal

Materials and Supplies are included in Contractual Costs. Documentation of all contracts incurred during the project will be properly document as required and will be made available upon request.

Contractual

Identify all work that will be accomplished by subrecipients, consultants, or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. Identify how the budgeted costs for sub-recipients, consultants, or contractors were determined to be fair and reasonable. Note: If a sub-recipient, consultant, or contractor is proposed and approved at the time of award, no other approvals will be required. Any changes or additions will require a request for approval.

Funding for the project will be used to pay for contractors, construction material, engineering consultants, environmental consultants, and attorney consultation. This includes construction, engineering, environmental, and legal services. A breakdown of these services can be viewed in the following appendixes.

Appendix D – Engineering Services
Appendix E – Construction Services
Appendix F – Environmental Services

The costs found in the above referenced Appendices were prepared by a professional engineering firm. Costs for construction were taken from recent bid documents from similar type of work and projects. This information is available for review upon request.

Environmental and Regulatory Compliance Costs

Applicants must include a line item in their budget to cover environmental compliance costs. "Environmental compliance costs" refer to costs incurred by Reclamation and the recipient in complying

with environmental regulations applicable to an award under this FOA, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), and other regulations depending on the project. Such costs may include, but are not limited to:

- *The cost incurred by Reclamation to determine the level of environmental compliance required for the project*
- *The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports*
- *The cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant*
- *The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures*

The amount of the line item should be based on the actual expected environmental compliance costs for the project, including Reclamation's cost to review environmental compliance documentation. How environmental compliance activities will be performed (e.g., by Reclamation, the applicant, or a consultant) and how the environmental compliance funds will be spent, will be determined pursuant to subsequent agreement between Reclamation and the applicant. The amount of funding required for Reclamation to conduct any environmental compliance activities, including Reclamation's cost to review environmental compliance documentation, will be withheld from the Federal award amount and placed in an environmental compliance account to cover such costs. If any portion of the funds budgeted for environmental compliance is not required for compliance activities, such funds may be reallocated to the project, if appropriate.

A budget of $40,000 is planned to complete the environmental requirements of this project. It is anticipated that a team of consultants will be used to prepare the environmental documents to a level acceptable by the National Environmental Policy Act (NEPA) requirements.

Other Expenses

Any other expenses not included in the above categories shall be listed in this category, along with a description of the item and why it is necessary. No profit or fee will be allowed.

There are no other expenses that have not been accounted for in the previous sections and previous budgets.

Indirect Costs

Applicants with a federally approved indirect cost rate agreement may include indirect costs as part of the project budget. Show the agreed upon rate, cost base, and proposed amount for allowable indirect costs. It is not acceptable to simply incorporate indirect rates within other direct cost line items.

If the applicant has never received a Federal negotiated indirect cost rate, the budget may include a de minimis rate of up to 10 percent of modified total direct costs. For further information on modified total direct costs, refer to 2 CFR §200.68 available at www.ecfr.gov.

If the applicant does not have a federally approved indirect cost rate agreement and is proposing a rate greater than the de minimis 10 percent rate, include the computational basis for the indirect expense pool and corresponding allocation base for each rate. Information on "Preparing and Submitting Indirect Cost Proposals" is available from Interior, the National Business Center, and Indirect Cost Services, at

www.doi.gov/ibc/services/finance/indirect-cost-services. If selected, the applicant will be required to obtain a negotiated Federal indirect cost rate agreement.

There are no Indirect Costs associated with this proposed project.

Total Costs

Indicate total amount of project costs, including the Federal and non-Federal cost share amounts.

Non-Federal Funding Amount	Reclamation Funding Amount	Total Project Cost
$ 1,480,000	$ 1,000,000	$ 2,480,000

Environmental and Cultural Resources Compliance

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants must respond to the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:

- *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 minimize the impacts.*

  Construction for this project will occur primarily along the bank of the existing canal system or within agricultural fields. This area has already been disturbed and is continually being disturbed due to farming practices. It is anticipated that the proposed project will have an insignificant impact on the environment. The creation of dust is the only concern at this point. If it is found that dust is becoming a problem, the use of water trucks will be required.

- *Are you aware of any species listed or proposed to be listed as a 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?*

  At this point, there are no species listed or proposed to be listed as a Federal threatened or endangered species that inhabit the area surrounding the proposed project site. An environmental report will be performed to ensure any threated or possibly threatened species are not harmed due to this projects completion.

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

  There are small patches of wetlands near Cutler Reservoir and near Clarkston Creek. These wetland areas will be easily avoided during the project. Primarily, the pipeline will be installed in disturbed farm ground or the in existing canal ditch.

- *When was the water delivery system constructed?*

  The existing canal system was built between 1898-1904.

- *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 any extensive alterations or modifications to those features completed previously.*

  The canals that were constructed between 1898-1904 will be modified to accept a buried pipe. Modern screen/pump structures, that have been constructed in the last 30 years, will be replaced with piping, meters, gate valves, and air relief valves.

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

  On the State of Utah Historical site data base, a query indicates that there is one site listed. The site is the canal itself.

- *Are there any known archeological sites in the proposed project area?*

  There are no known archeological sites in the proposed project area.

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

  The project will not have a disproportionately high and adverse effect on low income or minority populations.

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

  The Project will not limit access to and ceremonial use of Indian sacred sites, nor or will it impact tribal lands in any other manner.

- *Will the proposed 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.

Required Permits or Approvals

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals. Note that improvements to Federal facilities that are implemented through any project awarded funding through this FOA must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see P.L. 111-11, Section 9504(a)(3)(B). Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent

with the requirements of 43 CFR Section 429, and that the development will not impact or impair project operations or efficiency.

An environmental clearance will be required before construction can begin. Preliminary research with the Historic Places and National Wetlands Inventory suggest that there are no apparent areas to be concerned with at this time. Permits with Utah Department of Transportation, Storm Water Pollution & Prevention Plans, Cache County road crossing, and Rocky Mountain Power permits are required for the project, but it is not anticipated that these permits will have major consequences with the project.

Letters of Project Support

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/ partnership letters as an appendix. (Note: this will not count against the application page limit.) Letters of support received after the application deadline for this FOA will not be included with your application.

Letters of support for the project are attached in Appendix A.

Official Resolution

Include an official resolution adopted by the applicant's board of directors or governing body, or, for State government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA, verifying:

- *The identity of the official with legal authority to enter into an agreement*
- *The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted*
- *The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan*
- *That the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement*

An official resolution meeting the criteria set forth above is attached in Appendix G.

Unique Entity Identifier and System for Award Management

All applicants (unless the applicant has an exception approved by Reclamation under 2 CFR §25.110[d]) are required to:

i. *Be registered in the System for Award Management (SAM) before submitting its application;*
ii. *Provide a valid unique entity identifier in its application; and*
iii. *Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.*

The Company is currently registering with SAM, under DUNNS number 0683523220000. The SAM registration will be completed within the allotted 30 day window form the application due date. The West Cache Irrigation Company will maintain a SAM registration as required.

Appendix A

Commitment Letters And Support Letters

GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Water Resources
ERIC L. MILLIS
Division Director

April 2, 2018

Glade Griffin, President
West Cache Irrigation Company
338 North Center Street
Trenton, UT 84338

RE: Letter of Support for West Cache Irrigation Company pipeline project

Dear Mr. Griffin:

The Board of Water Resources is very supportive of your plans to pipe part of the West Cache Irrigation Company ditch system, and has helped fund this type of project in the past. Piping open, earthen canals typically saves up to one-third of the water available. For a system serving approximately 775 acres, this savings would be significant.

Sincerely,

Russell Hadley

Russell Hadley, P.E.
Water Resources Engineer

cc: Scott Archibald, P.E., Sunrise Engineering (via email)

1594 West North Temple, Suite 310, PO Box 146201, Salt Lake City, UT 84114-6201
telephone (801) 538-7230 • facsimile (801) 538-7279 • TTY (801) 538-7458 • *www.water.utah.gov*

USDA

United States Department of Agriculture

May 4, 2018

Glade Griffin, President
West Cache Irrigation Co.
338 North Center Street
Trenton, Utah 84338

RE: Letter of Support for West Cache Irrigation Company Pipeline Project

Dear Mr. Griffin:

I am writing on behalf of the North Logan Field office, USDA Natural Resources Conservation Service (NRCS) to let you know of our support of your plans to pipe and pressurize a portion of West Cache Irrigation Companies earth canals known as the Newton Lateral. NRCS continues to support the Bureau of Reclamation's WaterSMART Grant Program. In addition to achieving the benefits of piping of the Newton Lateral NRCS is committed to help local ag producers to upgrade their existing on-farm irrigation systems to achieve additional water management benefits. With the WaterSMART Grant awarded to the West Cache Irrigation Company to pipe the Newton Lateral, producers on the system may receive technical and financial assistance through the Environmental Quality Incentives Program (EQIP) to make the additional on-farm improvements.

Regards,

Jonathan Hardman
District Conservationist
(435) 557-5121
jonathan.hardman@ut.usda.gov
Natural Resources Conservation Service (NRCS)
United States Department of Agriculture (USDA)

CC Scott Archibald, PE Sunrise Engineering (via email)

Glade Griffin, President
West Cache Irrigation Co.
338 North Center Street
Trenton, Utah 84338

RE: West Cache Irrigation Co. – Newton Lateral Canal Piping

Dear Mr. Griffin:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the Newton Lateral by applying for funding to complete the project with the Bureau of Reclamation and the Utah Division of Water Resources. I believe this project will be beneficial to myself and the other shareholders. Upon completion of the project I anticipate making on-farm improvements through personal and/or NRCS funding.

Sincerely,

Signature

5/8/18

Date

Stephen Griffin

Print Name

Glade Griffin, President
West Cache Irrigation Co.
338 North Center Street
Trenton, Utah 84338

RE: West Cache Irrigation Co. – Newton Lateral Canal Piping

Dear Mr. Griffin:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the Newton Lateral by applying for funding to complete the project with the Bureau of Reclamation and the Utah Division of Water Resources. I believe this project will be beneficial to myself and the other shareholders. Upon completion of the project I anticipate making on-farm improvements through personal and/or NRCS funding.

Sincerely,

Jared Ashby

Signature

May 1, 2013

Date

Jared Ashby

Print Name

Glade Griffin, President
West Cache Irrigation Co.
338 North Center Street
Trenton, Utah 84338

RE: West Cache Irrigation Co. – Newton Lateral Canal Piping

Dear Mr. Griffin:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the Newton Lateral by applying for funding to complete the project with the Bureau of Reclamation and the Utah Division of Water Resources. I believe this project will be beneficial to myself and the other shareholders. Upon completion of the project I anticipate making on-farm improvements through personal and/or NRCS funding.

Sincerely,

Signature Ryan Merrill

Date 5-8-18

Ryan Merrill

Print Name

Glade Griffin, President
West Cache Irrigation Co.
338 North Center Street
Trenton, Utah 84338

RE: West Cache Irrigation Co. – Newton Lateral Canal Piping

Dear Mr. Griffin:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the Newton Lateral by applying for funding to complete the project with the Bureau of Reclamation and the Utah Division of Water Resources. I believe this project will be beneficial to myself and the other shareholders. Upon completion of the project I anticipate making on-farm improvements through personal and/or NRCS funding.

Sincerely,

Joseph G. Larsen — 5-1-18

Signature — Date

JOSEPH G LARSEN

Print Name

Glade Griffin, President
West Cache Irrigation Co.
338 North Center Street
Trenton, Utah 84338

RE: West Cache Irrigation Co. – Newton Lateral Canal Piping

Dear Mr. Griffin:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the Newton Lateral by applying for funding to complete the project with the Bureau of Reclamation and the Utah Division of Water Resources. I believe this project will be beneficial to myself and the other shareholders. Upon completion of the project I anticipate making on-farm improvements through personal and/or NRCS funding.

Sincerely,

Signature

1 May 2018

Date

David J. Larsen

Print Name

April 26, 2018

Glade Griffin, President
West Cache Irrigation Co.
338 North Center Street
Trenton, Utah 84338

RE: West Cache Irrigation Co. – Newton Lateral Canal Lining

Dear Mr. Griffin:

This letter is to assure the West Cache Irrigation Company that the intent of the shareholders on the Newton Lateral desire is to make application with the United States- BOR under the Water SMART program and with the Utah Division of Water Resources in the name of West Cache Irrigation Company. If successful, the shareholders along the Newton Lateral will be responsible for the additional costs and fees associated with the project and plan to create their own company after the award of funding for the project.

The intent is to not increase the share costs to the remaining shareholders of the West Cache Irrigation Company. However, the Newton Lateral shareholders need West Cache Irrigation Company as the entity to make application with the funding agencies.

Sincerely,

Newton Later Share Holder Representatives.

Reed H Jenkins

Dal J Carver

Appendix B

Canal Loss Calculations

LOSS CALCULATIONS

Client: **WEST CACHE IRRIGATION COMPANY**
Project: Piping the Canal
Analysis Performed By: Steven Wood

Date: 5/8/2018

Current Water Demand Flow:	18	cfs
Yearly Volume in Irrigation Duration:	6752.5	acre ft / year

Canal / System Characteristics

Irrigation Duration (t):	189	irrigation days/ year
	16329600	irrigation seconds/ year
Canal Cross Section Type	Trapezoid	Select
Side Slope (m):	1	1 Vertical to (m) Horizontal
Bed Width (B):	9	ft
Flow Depth (h):	4	ft
Wetted Perimeter (P):	20.31	ft
Length (L):	28000	ft
	5.30	miles
Wetted Area (P_A):	568783.838	ft^2

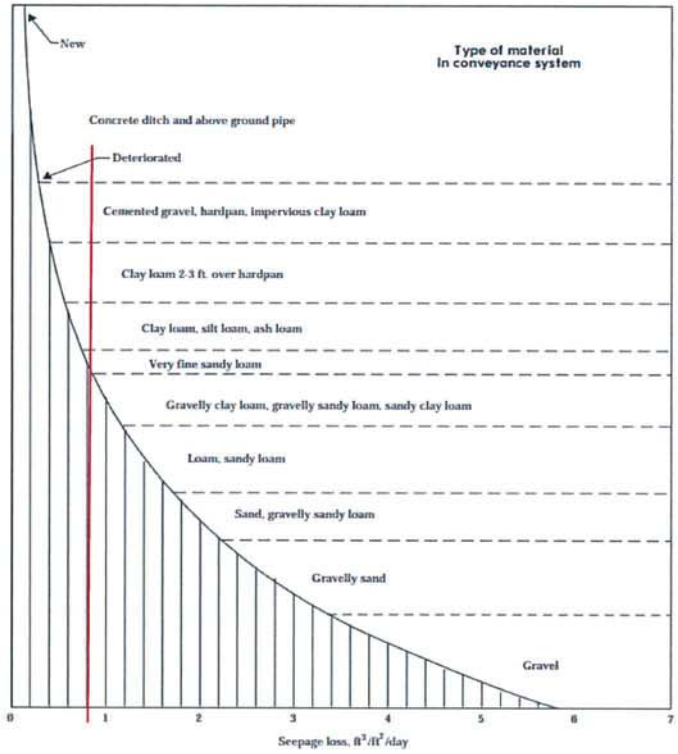
Data Output

Seepage Loss Factor:	0.8	ft^3/ft^2/Day - From Figure 2-50
Seepage Loss Rate:	455027	ft^3/Day
Seepage Loss Rate:	1975.5	acre ft / year (189 days in irrigation season)
Evaporation Loss Percentage	10%	Percentage of Seepage Loss
Evaporation Loss Rate:	45503	ft^3/Day
Evaporation Loss Rate:	197.5	acre ft / year (189 days in irrigation season)
Vegetation Loss Percentage	0.50%	Percentage of Total Flow per Mile
Vegetation Loss Rate:	41236	ft^3/Day
Vegetation Loss Rate:	179.0	acre ft / year (189 days in irrigation season)

Total Seepage and Evaporation Loss Rate

	541766	ft^3/Day
Total Loss Rate:	6.27	cfs
	2352.0	acre ft / year (189 days in irrigation season)
Current Percent Loss:	34.8%	Percentage of Current Water Demand Lost

Figure 2–50 Method to estimate seepage losses from irrigation delivery systems (adapted from USDA 1985)



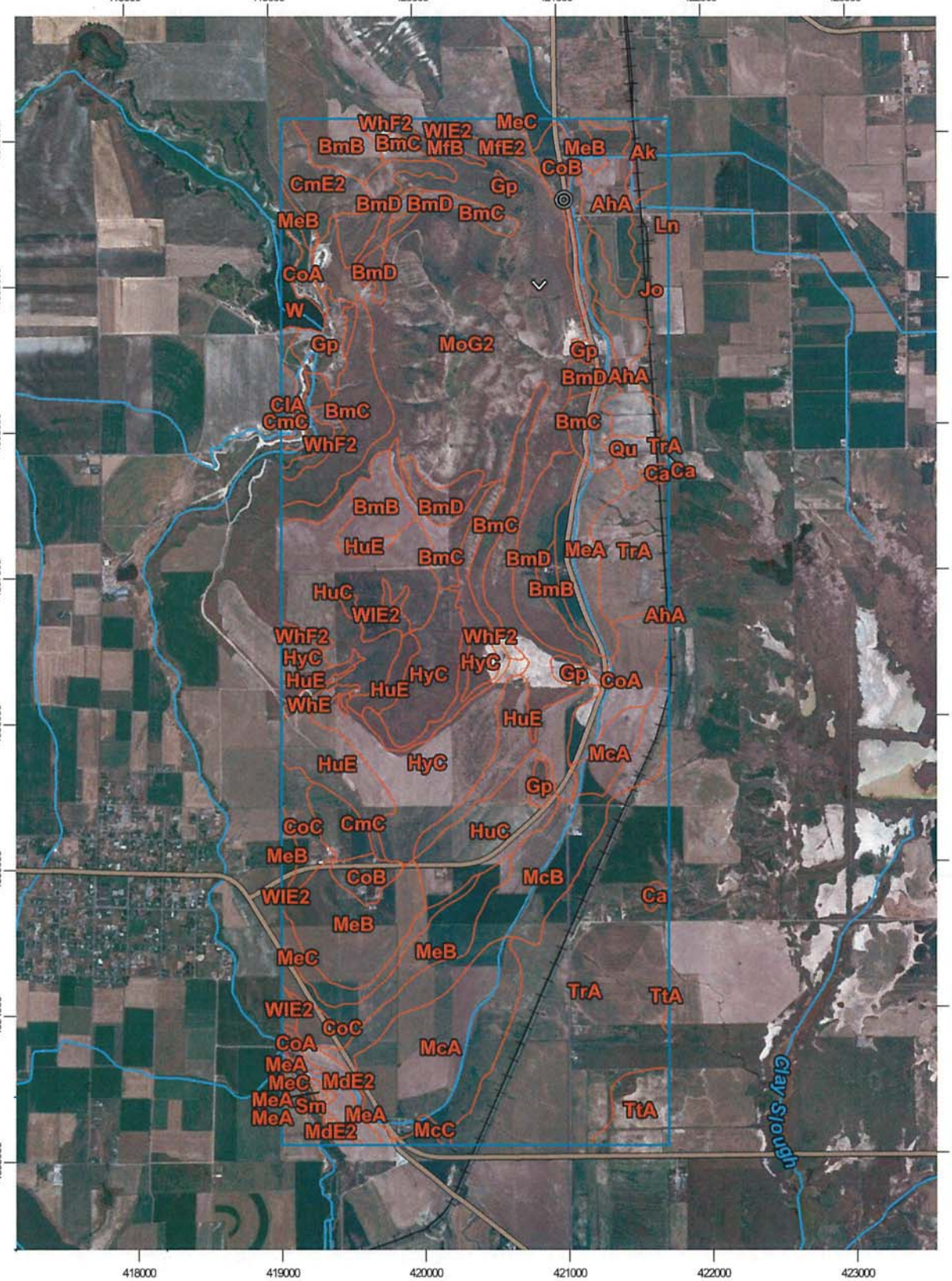
Method References:

National Engineering Handbook - Chapter 2 Irrigation Water Requirements (pp. 183-186). (1993). U.S. Dept. of Agriculture, Soil Conservation Service.

Hill,R.W.(2000). *"How Well Does your Irrigation Canal Hold Water? Does it Need Lining?"* All Archived Publications, Utah State University. Paper 148.

"Irrigation Water Conveyance." (2005). NRCS Irrigation Water Management Training, Fort Collins, CO. Presentation

Soil Map—Cache Valley Area, Parts of Cache and Box Elder Counties, Utah
(West Cache Irrigation Canal)



Map Scale: 1:41,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 500 1000 2000 3000

Feet: 0 2000 4000 8000 12000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cache Valley Area, Parts of Cache and Box Elder Counties, Utah
Survey Area Data: Version 10, Sep 6, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 22, 2005—Nov 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AhA	AIRPORT SILT LOAM, 0 TO 3 PERCENT SLOPES	124.7	2.7%
Ak	AIRPORT SILTY CLAY LOAM	38.8	0.8%
BmB	BLACKROCK GRAVELLY LOAM, 3 TO 6 PERCENT SLOPES	105.6	2.2%
BmC	BLACKROCK GRAVELLY LOAM, 6 TO 10 PERCENT SLOPES	235.3	5.0%
BmD	BLACKROCK GRAVELLY LOAM, 10 TO 20 PERCENT SLOPES	186.8	4.0%
Ca	CACHE SILTY CLAY	9.9	0.2%
ClA	COLLINSTON LOAMY FINE SAND, 0 TO 3 PERCENT SLOPES	10.1	0.2%
CmC	COLLINSTON LOAM, 1 TO 6 PERCENT SLOPES	57.5	1.2%
CmE2	COLLINSTON LOAM, 10 TO 30 PERCENT SLOPES, ERODED	60.6	1.3%
CoA	CROOKSTON LOAM, 0 TO 3 PERCENT SLOPES	100.4	2.1%
CoB	CROOKSTON LOAM, 3 TO 6 PERCENT SLOPES	61.5	1.3%
CoC	CROOKSTON LOAM, 6 TO 10 PERCENT SLOPES	60.7	1.3%
Gp	GRAVEL PIT	63.3	1.3%
HuC	HYRUM GRAVELLY LOAM, 4 TO 8 PERCENT SLOPES	303.6	6.5%
HuE	HYRUM GRAVELLY LOAM, 10 TO 25 PERCENT SLOPES	216.3	4.6%
HyC	HYRUM COBBLY LOAM, 4 TO 8 PERCENT SLOPES	277.2	5.9%
Jo	JORDAN SILTY CLAY LOAM	99.1	2.1%
Ln	LEWISTON FINE SANDY LOAM	0.8	0.0%
McA	MCMURDIE SILT LOAM, 0 TO 3 PERCENT SLOPES	257.3	5.5%
McB	MCMURDIE SILT LOAM, 3 TO 6 PERCENT SLOPES	202.0	4.3%
McC	MCMURDIE SILT LOAM, 6 TO 10 PERCENT SLOPES	4.3	0.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MdE2	MCMURDIE-HILLFIELD SILT LOAMS, 10 TO 30 PERCENT SLOPES, ERODED	25.2	0.5%
MeA	MENDON SILT LOAM, 0 TO 3 PERCENT SLOPES	128.1	2.7%
MeB	MENDON SILT LOAM, 3 TO 6 PERCENT SLOPES	312.5	6.6%
MeC	MENDON SILT LOAM, 6 TO 10 PERCENT SLOPES	48.5	1.0%
MfB	MENDON-COLLINSTON COMPLEX, 1 TO 6 PERCENT SLOPES	10.9	0.2%
MfE2	MENDON-COLLINSTON COMPLEX, 6 TO 30 PERCENT SLOPES,ERODED	22.2	0.5%
MoG2	MUNK-BLACKROCK GRAVELLY LOAMS, 30 TO 70 PERCENT SLOPES, ERODED	780.2	16.6%
Qu	QUINNEY SILT LOAM	29.2	0.6%
Sm	SHAY SILTY CLAY LOAM	9.7	0.2%
TrA	TRENTON SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	638.4	13.6%
TtA	TRENTON SILTY CLAY LOAM, MODERATELY DEEP WATER TABLE, 0 TO 2 PERCENT SLOPES	54.8	1.2%
W	WATER	27.5	0.6%
WhE	WHEELON SILT LOAM, 10 TO 30 PERCENT SLOPES	6.6	0.1%
WhF2	WHEELON SILT LOAM, 30 TO 50 PERCENT SLOPES, ERODED	99.1	2.1%
WlE2	WHEELON-COLLINSTON COMPLEX, 10 TO 30 PERCENT SLOPES, ERODED	33.8	0.7%
Totals for Area of Interest		**4,702.6**	**100.0%**

Appendix C

Conservation Plan

(Cover Page)

BEAR RIVER BASIN
PLANNING FOR THE FUTURE

January 2004

Prepared for:
The people of Utah
Under the direction of the Board of Water Resources

By:
The Division of Water Resources

With valuable input from the
State Water Plan Coordinating Committee:

Department of Natural Resources, Division of Water Rights, Division of Parks and Recreation, Division of Wildlife Resources, Department of Environmental Quality, Division of Drinking Water, Division of Water Quality, Department of Agriculture and Food, Governor's Office of Planning and Budget, Division of Comprehensive Emergency Management, Utah Water Research Laboratory

UTAH STATE WATER PLAN

This document and other state water plans are available online at: www.water.utah.gov.

Appendix D

Opinion of Engineering Costs

PIPING WEST CACHE IRRIGATION EARTHEN CANALS
West Cache Irrigation Company Pipeline Project
PROJECT MANAGEMENT PLAN
Sunrise Engineering Inc.
Project Engineer's Estimate of Design Services

Project No.:
Project Engineer: SLA
Completion Date:
Contract Amount:
Fee Schedule

SERVICE TYPE					Pump Station and Intake Structure Design				Piping the Canal Design		Additional Services					
PHASE				001	002	002	002	002	003	003	004	0004	005	006		
TASK				0001	0001	0002	0003	0004	0001	0002	0001	0002	0001	0002		
TASK DESCRIPTION				Topo Survey	Geotech Report	Plans, Specs, Contract Docs	Structural Design	Electrical / SCADA	Surge Analysis	Plans, Spec, Contract Docs	Permitting	Easement Acquisition	Bidding	Construction Administration & Observation	HOURS PER CLASS	COST PER CLASS
CLASS	DESCRIPTION	RATE	BUDGET →	7,600	$4,200	$43,900	$10,900	$10,000	$6,000	$39,400	$7,000	$14,000.00	$8,000	$112,000		
101	Engineer I	$97.00	Hours			70				41	4		1		116	
			Cost			$6,790				$3,977	$388		$97			$11,252
103	Engineer III	$133.00	Hours		10	130	30	20	30	150	28	30	29	231	688	
			Cost		$1,330	$17,290	$3,990	$2,660	$3,990	$19,950	$3,724	$3,990	$3,857	$30,723		$91,504
104	Engineer IV	$149.00	Hours				25								25	
			Cost				$3,725									$3,725
105	Engineer V	$169.00	Hours		3	54	10		12	44	8		24	150	305	
			Cost		$507	$9,126	$1,690		$2,028	$7,436	$1,352		$4,056	$25,350		$51,545
110	Principal Engineer	$190.00	Hours			16				10					26	
			Cost			$3,040				$1,900						$4,940
352	Const. Observer II	$108.00	Hours											518	518	
			Cost											$55,944		$55,944
353	Const. Observer III	$118.00	Hours													
			Cost													
354	Electric Engineer V	$134.00	Hours					32							32	
			Cost					$4,288								$4,288
402	CAD Drafting II	$77.00	Hours			100	20	40		80					240	
			Cost			$7,700	$1,540	$3,080		$6,160						$18,480
721	Survey Scan	$119.00	Hours													
			Cost													
935	One Man Crew	$140.00	Hours	36											36	
			Cost	$5,040												$5,040
945	Registered Serveyor	$158.00	Hours	16							10.00				26	
			Cost	$2,528							$1,580					$4,108
	Geotech Engineer	$130.00	Hours		18										18	
			Cost		$2,340											$2,340
-	Mileage	$0.59	Miles												-	
			Cost													
-	Field Vehicle	$50.00	Days												-	
			Cost													
-	Perdiem	$35.00	Days												-	
			Cost													
-	Misc. - Contingency	$1.00	Dollars									10000			-	
			Cost									$10,000				$10,000
TOTAL			HOURS	52	31	370	85	92	42	325	50	30	54	899	2030	$263,166
			TASK COST	$7,568	$4,177	$43,946	$10,945	$10,028	$6,018	$39,423	$7,044	$13,990	$8,010	$112,017		$263,166
			ROUNDED	$7,600	$4,200	$43,900	$10,900	$10,000	$6,000	$39,400	$7,000	$14,000	$8,000	$112,000		$263,000

SUNRISE ENGINEERING
FEE SCHEDULE

Work Code	Work Classification	Hourly Rate	Work Code	Work Classification	Hourly Rate
101	Engineer Intern (E.I.T.) I	$97	404	CAD Drafter IV	$101
102	Engineer Intern (E.I.T.) II	$105	455	Training Specialist	$130
103	Engineer III	$133	456	Training Manager	$156
104	Engineer IV	$149	460	Training Director	$180
105	Engineer V	$169	500	Funding Specialist	$122
110	Principal Engineer	$190	510	Plan Reviewer	$110
121	Electrical Engineer Intern (E.I.T.) I	$108	511	Building Inspector I	$65
122	Electrical Engineer Intern (E.I.T.) II	$118	512	Building Inspector II	$87
123	Electrical Engineer III	$134	513	Building Inspector III	$108
124	Electrical Engineer IV	$155	525	Building Official	$126
125	Electrical Engineer V	$170	601	GIS Tech	$62
126	Principal Electrical Engineer	$185	602	GIS Tech II	$72
301	Engineering Tech I	$75	604	GIS Specialist	$95
302	Engineering Tech II	$92	611	GIS Analyst	$105
303	Engineering Tech III	$105	620	GIS Project Manager	$82
304	Engineering Tech IV	$129	51	Administrative I	$44
311	Electrical Tech I	$81	52	Administrative II	$57
312	Electrical Tech II	$92	53	Administrative III	$72
313	Electrical Tech III	$102	712	Project Manager	$160
314	Electrical Tech IV	$112	721	Water Rights Specialist I	$94
315	Electrical Tech V	$123	722	Water Rights Specialist II	$105
351	Construction Observer I	$65	723	Water Rights Specialist III	$119
352	Construction Observer II	$85	921	Survey Tech	$75
353	Construction Observer III	$95	930	Survey CAD Tech	$100
354	Construction Observer IV	$105	935	One Man Survey Crew	$140
401	CAD Drafter I	$67	940	Survey Manager	$150
402	CAD Drafter II	$77	945	Registered Surveyor	$158
403	CAD Drafter III	$91	950	Principal Surveyor	$175

REIMBURSABLE EXPENSE SCHEDULE

Expense	Rate	Mark-Up
Mileage	$0.59 per mile	N/A
Field Vehicle (on site)	$50 per day	N/A
Per Diem Meals	$57 per day	N/A
Troxler Nuclear Density Gauge	$40 per day	N/A
High Density Scanner	$150 per hour	N/A
Material Testing Lab Work	Actual Cost	15%
Outside Consultants, Aerial Photography, etc.	Actual Cost	15%
Lodging	Actual Cost	10%
Other Expenses incurred	Actual Cost	10%

Fees automatically change after the beginning of the year, and are subject to change on other occasions. Base 01-2018

Appendix E

Opinion of Construction Costs

West Cache Irrigation Company – Newton Lateral

Opinion of Probable Construction Costs

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization	1	LS	$ 174,700	$ 174,700
2	Traffic Control	1	LS	$ 5,000	$ 5,000
3	Subsurface Investigation	10	HR	$ 150	$ 1,500
4	Imported Trench or Structual Backfill	1,355	LF	$ 30	$ 40,700
5	24" PVC 100 psi SDR 41	6,100	LF	$ 62	$ 379,500
6	20" PVC 100 psi SDR 41	8,400	LF	$ 47	$ 397,700
7	16" PVC 100 psi SDR 41	8,600	LF	$ 37	$ 314,100
8	12" PVC 100 psi SDR 41	4,000	LF	$ 20	$ 81,300
9	6" Connection (all inclusive)	22	EA	$ 7,545	$ 166,000
10	8" Connection (all inclusive)	3	EA	$ 7,733	$ 23,200
11	10" Connection (all inclusive)	2	EA	$ 9,600	$ 19,200
12	Pumping Station and Improvements	1	LS	$ 503,800	$ 503,800
13	UDOT Road Crossing	1	LS	$ 31,500	$ 31,500
14	Restoration Measures	1	LS	$ 31,800	$ 31,800
				Construction Subtotal	**$ 2,170,000**

Budget Narrative

The above cost estimate is based on unit prices. The unit prices were taken from actual construction bids tabulations from multiple projects of similar nature and/or type of work located in Cache County, Utah. Relative projects include the following:

Newton Water Users Canal Piping – 2016

Big Birch & North Fork Spring Redevelopment Project – 2016

Item 1 - Mobilization is based on 5% of the construction costs.

Item 2 – Traffic Control was based on the Newton Water Users project.

Item 3 – Subsurface Investigation was based on the Hyde park and Big Birch & North Fork Spring Redevelopment projects.

Item 4 – Imported trench or structural backfill was based on the Newton Water Users, Hyde Park and Big Birch & North Fork Spring Redevelopment projects.

Item 5 – 24" PVC was based on Newton Water Users and Big Birch & North Fork Spring Redevelopment Projects. Material costs were updated from local suppliers.

Item 6 – 20" PVC was based on Newton Water Users and Big Birch & North Fork Spring Redevelopment Projects. Material costs were updated from local suppliers.

Item 7 – 16" PVC was based on Newton Water Users and Big Birch & North Fork Spring Redevelopment Projects. Material costs were updated from local suppliers.

Item 8 – 12" PVC was based on Newton Water Users and Big Birch & North Fork Spring Redevelopment Projects. Material costs were updated from local suppliers.

Item 9 – 6" Connection was based on Newton Water Users project and includes valve, mag meter, air/vac vale, and labor and materials to make the connections to the existing farmers pipe.

Item 10 – 8" Connection was based on Newton Water Users project and includes valve, mag meter, air/vac vale, and labor and materials to make the connections to the existing farmers pipe.

Item 11– 10" Connection was based on Newton Water Users project and includes valve, mag meter, air/vac vale, and labor and materials to make the connections to the existing farmers pipe.

Item 12 – Pumping Station and Improvements was base material estimates for the pumps from suppliers along with Sunrise's professional experience and judgement.

Item 13 – UDOT Road Crossing was based on Newton Water Users project

Item 14 – Restoration Measures are based on the Newton Water Users project.

Appendix F

Opinion of Environmental Costs

Newton – West Cache Irrigation Company

Opinion of Probable Environmental Costs

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Archeologist Investigation					
1	Filed Work/Site Investigation	64	Hrs	$ 100.00	$ 6,400.00
2	Archelogy File Search	24	Hrs	$ 100.00	$ 2,400.00
3	Reporting and Deliverables	40	Hrs	$ 100.00	$ 4,000.00
				Archeologist Subtotal	$ 12,800.00
Flora and Fauna Investigation					
4	Filed Work/Site Investigation	40	Hrs	$ 100.00	$ 4,000.00
5	Biology/Habitat File Search	20	Hrs	$ 100.00	$ 2,000.00
6	Reporting and Deliverables	40	Hrs	$ 100.00	$ 4,000.00
				Flora and Fauna Subtotal	$ 10,000.00
Additional Required Items					
7	BOR Environmental Fees	1	LS	$ 10,000.00	$ 10,000.00
8	SHPO - Utah State History File Search	1	LS	$ 200.00	$ 200.00
9	Project Manager Coordination and Reporting	1	LS	$ 7,000.00	$ 7,000.00
				Additional Required Items Subtotal	$ 17,200.00
				Total	**$ 40,000**

Appendix G

Resolution

OFFICIAL RESOLUTION

OF THE

West Cache Irrigation Company

Resolution No. 2018 -1

The President of the Association is Glade Griffin, President, and he will be the legal authority on the project.

AUTHORIZING THE PRESIDENT OF THE WEST CACHE IRRIGATION COMPANY TO APPLY FOR A CONTRIBUTION GRANT FROM THE U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION, FOR THE RENOVATION AND ENCLOSURE OF THE WEST CACHE IRRIGATION CO. - NEWTON LATER.

WHEREAS, the West Cache Irrigation Company, (the "Company") of Trenton, Utah deems it necessary to apply to the Department of the Interior, Bureau of Reclamation, for funding through a cost sharing grant, shall not exceed ($2,480,000 Total Project, $1,240,000 Water SMART Grant) for design & construction to pipe the Newton Lateral canal network. The Company has reviewed and supports the application submitted.

WHEREAS, The Company intentions are to provide the remaining funding through a Utah Water Resources loan or in-kind services specified in the funding plan.

WHEREAS, the Company will work with Reclamation to meet established deadlines for the entering into a grant or cooperative agreement.

Date: 5/1/18

Glade Griffin, President

ATTEST:

Scott Archibald, Project Manager

Appendix H

Proposed Schedule

West Cache Irrigation Company