

WaterSMART Grant

Water and Energy Efficiency Grant for Fiscal Year 2021
Funding Opportunity Announcement No. BOR-DO-21-F001

Tier II Application - \$950,000 Grant Request

September 17, 2020

North and South Litz Laterals Piping Project

Cache Valley, Utah

Applicant

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Project Manager

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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 provides the location of the project, a brief description of the work that will be carried out, any partners involved, expected benefits and how those benefits relate to the water management issues you plan to address.*
- *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: September 17, 2020

Applicant: West Cache Irrigation Co.
North and South Litz Laterals Piping Project
32 West Main St.
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Project Summary:

For this project, the North and South Litz Laterals, 2.5 miles of open earthen canal and 0.5 miles of concrete lined canal will be replaced with pressurized pipe. The project will also eliminate five individual inefficient pump stations with one centralized pump station that will efficiently pressurize the entire pipeline. This proposal includes the funding of the design, construction, and start-up of the pressurized irrigation system. The project consists of the following:

- Conserve $\pm 1,083.5$ ac-ft of water annually
- Provide shareholders with a more reliable pressurized system
- Elimination of 5 individual electric/ gas pump stations
- Reduce impacts of drought
- Improve sustainability of rural communities
- Reduce operation and maintenance costs

Approximate Project Length: 20 months

Completion Date: May 2022

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 a hydropower component, 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 25 miles into Utah. The North & South Litz Laterals are located approximately 2.0 miles into Utah south of the Town of Trenton, Utah. The North & South Litz Laterals are primarily earthen canals, with a small section of concrete lining, extending off the main West Cache Canal. The North Litz Lateral is 9,500 feet long and is completely open earthen canals and the South Litz Lateral consists of 3,600 feet of open earthen canals and 2,500 feet of open concrete lined canals.

Water shortfalls occur because the users dependent on the North & South Litz Laterals are located 30 miles from the diversion and they service 902 acres of farm ground. Seventy nine percent (79 %) of the shareholders on these two canals flood irrigate. There are just five pumps that pressurize the remaining twenty one percent (21%) of the water delivered. This project will increase the water efficiency by providing pressurized irrigation for the entire North and South Litz system.



Figure 1: Example of an Existing Personal Irrigation Pumping Station

Five (5) shareholders along the North and South Litz Laterals use individual pump stations to pressurize their water. These pump stations provide water from the open ditch canal into approximately 3 miles of existing on-farm shareholder pipelines. The pipelines supply water to the hand lines and wheel lines. A typical pump station is equipped with screening equipment at the intake, see Figure 1 for an Example of an Existing Personal Pumping Station.

The primary crops in the area are corn, alfalfa, and small grains. The amounts are broken up into percentages and total acreages as follows:

Table 1: Crop Information

| Crop Type | Percentage of Project Area | Total Acres of Crop |
|--------------------|----------------------------|---------------------|
| Grass Hay/ Alfalfa | 59% | 535 |
| Small Grain | 14% | 125 |
| Corn | 27% | 242 |
| Total | 100% | 902 |

According to the Idaho Division of Water Rights, the water duty for this water right is 3.5 ac-ft per acre of land. Following this, the water demand for the North and South Litz service area is 3,157 ac-ft of water annually.

The shareholders of the North and South Litz Laterals operate under 1,532 shares of West Cache Irrigation Company shares and irrigates 902 acres of ground. The shareholders sprinkle approximately 188 acres and flood irrigate 714 acres. This project will provide the necessary pressures and flows to convert all the flooded acres to sprinkled acres.

The West Cache Irrigation Company was and is working with the Bureau of Reclamation on several projects. Table 2 provides the general information for each project in connection with the Bureau.

Table 2: Past Working Relations with the Bureau of Reclamation

| Project | Description | Bureau Relationship | Year |
|---------------------------------|---|---|------|
| Newton Lateral Piping Project | Building one central pump station and piping ~ 5.3 miles of earthen canals | Recipient of a Tier II WaterSMART Grant | 2018 |
| Southfields Area Piping Project | Building one central pump station and piping ~ 2.25 miles of earthen canals | Recipient of a Tier II WaterSMART Grant | 2019 |
| Hansen & Ezola Piping Project | Building one central pump station and piping ~ 2.2 miles of earthen canals | Recipient of a Tier II WaterSMART Grant | 2019 |

The West Cache Irrigation Company operates off of an Idaho Water Right. Their Water Right information is contained in Table 3.

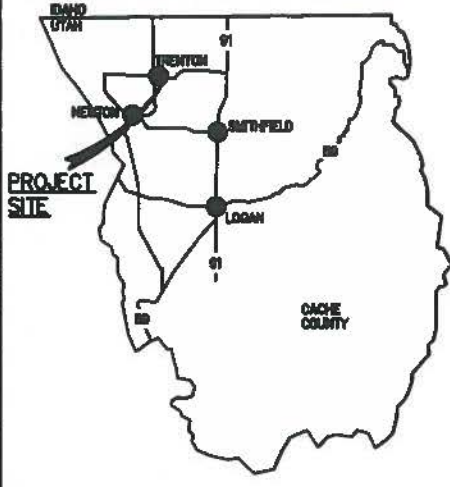
Table 3: Water Right Information

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

Project Location

Provide detailed information on the proposed project location or project area including a map showing the specific 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}.

The North and South Litz Laterals Piping Project is in Cache County, Utah within Trenton, Utah. The headworks of the North and South Litz Laterals are located at 41°54'19.07"N and 111°55'58.63"W. Figure 2 illustrates the location of the project in relation to its surroundings. Both the North and South Litz Laterals pull their water from the same location on the West Cache Canal, but they split about 750 feet after the diversion. The North Litz Lateral is approximately 1.8 miles long and the South Litz Lateral is approximately 1.2 miles long (3.0 miles total) and are part of the 50-mile West Cache Irrigation Company supply canal system.

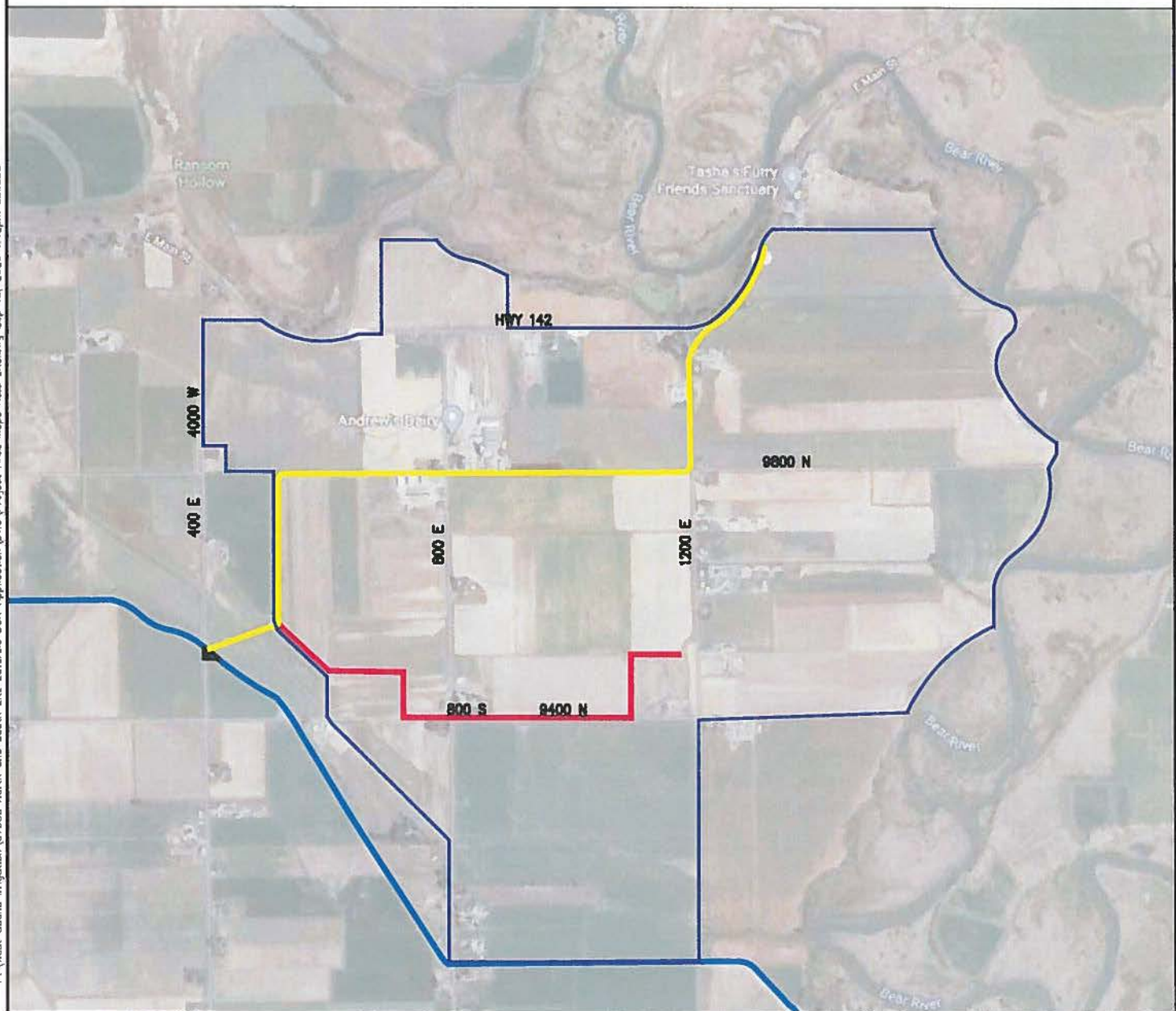


CACHE COUNTY, UTAH



LEGEND

- WEST CACHE CANAL
- NORTH LITZ LATERAL
- SOUTH LITZ LATERAL
- NORTH & SOUTH LITZ LATERALS SERVICE BOUNDARY



P:\West Cache Irrigation\07805 North and South Litz Laterals BOR Application\DWG\Project Area Maps N&S Litz.dwg Sep 15, 2020 1:12pm adwood

PROJECT LOCATION MAP
FIGURE 2



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Technical Project Description

Provide a more comprehensive description of the technical aspects of your project, including the work to be accomplished and the approach to complete the work. This description should provide detailed information about the project including materials and equipment and the work to be conducted to complete the project. This section provides an opportunity for the applicant to provide a clear description of the technical nature of the project and to address any aspect of the project that reviewers may need additional information to understand.

West Cache Irrigation Company currently owns and operates 50 miles of open irrigation ditches. Several earthen laterals extend from the main canal to service farms. The North and South Litz Laterals are located about 30 miles from the main diversion. The North Litz Lateral is 9,500 feet long and the south Litz Lateral is 3,600 feet long. The purpose of the project is to pipe the North and South Litz Laterals which will increase water efficiency by providing the necessary infrastructure to convert the 714 acres currently being flood irrigated to pressurized irrigation systems and eliminating the five individual pump stations. It is projected that there will be 1,083.5 ac-feet of water savings.

This project will pipe and pressurize the North & South Litz Laterals. Piping these laterals will 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 shareholders who depend on the laterals 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 location, and the number of irrigation connections. The preliminary design includes a pump station located near the diversion from the West Cache Canal. This pump station will be equipped with three pumps; all three pumps will have a variable frequency drive. This set up will allow each pump to be adjusted to provide the required flows and pressures. In addition, in the event one pump fails, the other two can support the system close to 75% operation levels while the other pump is repaired.

The piping network will consist of a two back bones, one for the North Litz and one for the South Litz. Both will be made of PVC Plastic Irrigation Pipe with a minimum pressure rating of 100 psi and sizes ranging from 27 in to 8 in. A minimum of twenty-one connections will be installed along the pipe network. Each connection will consist of a gate valve for isolation or controlling the flow and an inline flow measuring device. The pump station will be controlled with an internal telemetry system/ Supervisory Control and Data Acquisition (SCADA) system. Each flow meter will have the out puts necessary for the individual irrigators to use for their on-farm practices if they so desire. A schematic of the service connection for the individual irrigators is shown in Figure 3.

With funding secured from both the WaterSMART Grant and the DWRe a full engineering design of the pump station and piping for the North and South Litz Laterals 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 North and South Litz Laterals, approximately 24.9% (1,083.5 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, all users along the North and South Litz Laterals will now have pressurized water available directly on their farms.

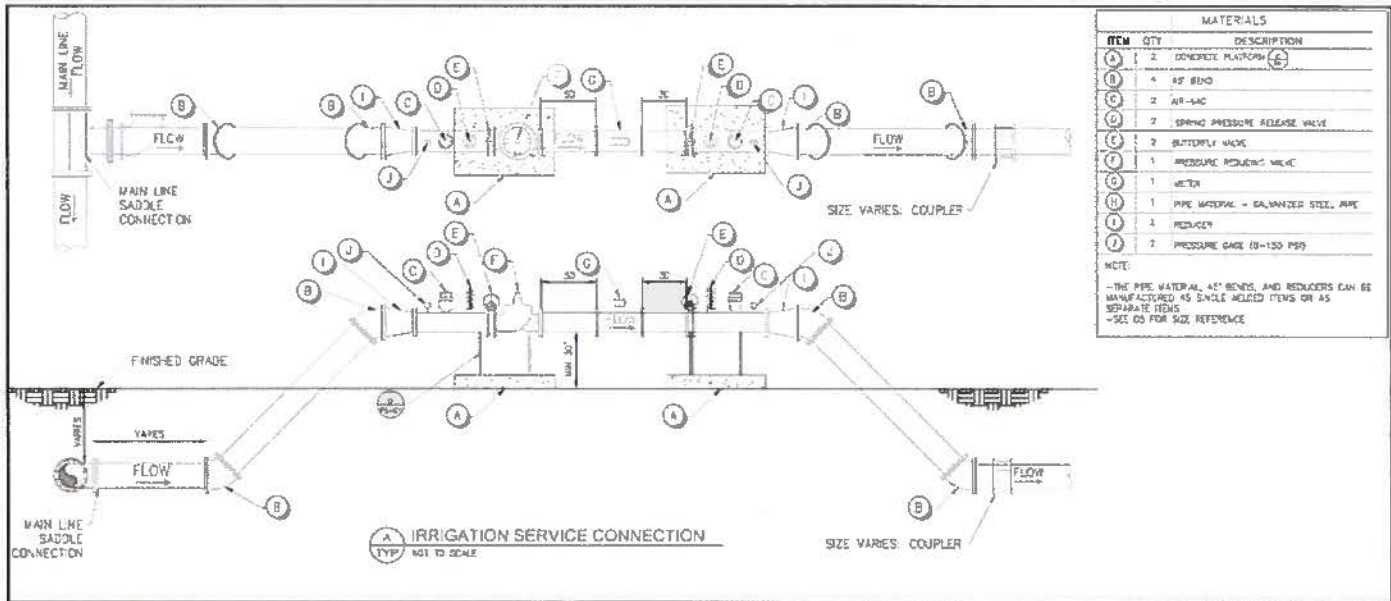


Figure 3: Irrigation Service Connection Schematic

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 West Cache Irrigation Companies canal records, approximately 8 cfs is diverted to the North Litz Lateral and approximately 4 cfs is diverted to the South Litz Lateral during the irrigation season of approximately 183 days a year (50% of the year). This equates to 4358.5 ac-ft/irrigation season or 4,358.5 ac-ft/year (2,905.5 ac-ft/year from the North Litz and 1,453.0 ac-ft/year from the South Litz). Using the canal loss estimation method documented in the United States Department of Agriculture’s National Engineering Handbook, a total estimated loss of 1,083.5 ac-ft/ year was found. Each lateral was evaluated individually to determine the total water loss. Table 4 illustrates both laterals and their respective water losses due to seepage loss, evaporation loss, and vegetation loss.

Table 4: Water Loss Data

| Evaluation Section/Area | Wetted Area (ft ²) | Seepage Loss (acre ft/year) | Evaporation Loss (acre ft/year) | Vegetation Loss (acre ft/year) | Total Loss (acre ft/year) |
|-------------------------------|--------------------------------|-----------------------------|---------------------------------|--------------------------------|---------------------------|
| North Litz | 160,790 | 676.0 | 67.5 | 52.5 | 796.0 |
| South Litz (earthen section) | 49,631 | 208.5 | 21.0 | 9.5 | 239.0 |
| South Litz (concrete section) | 30,155 | 38.0 | 4.0 | 7.0 | 48.5 |
| Total | 240,576 | 922.5 | 92.5 | 69.0 | 1,084.0 |

With a total demand of 4,358.5 ac-ft/year and a loss of 1,084.0 ac-ft/ year, the percent loss can be calculated as follows:

$$\frac{1,084.0 \text{ ac*ft/year}}{4,358.5 \text{ ac*ft/year}} = 0.249 = 24.9\% \text{ Loss}$$

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 1,084.0 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 heavy vegetation growth covering the banks of the earthen canal. The amounts lost to each of these mechanisms are as follows:

- Seepage Loss = 922.5 ac-ft/year
- Evaporation Loss = 92.5 ac-ft/year
- Vegetation Loss = 69.0 ac-ft/year

Figure 4 illustrates an area of the canal that is severely seeping and coming up on neighboring farm ground as standing water.



Figure 4: Litz Lateral prior to separation into North and South sections - Illustrating Seepage Loss

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 from 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 canal banks for the North and South Litz Laterals have heavy vegetation growth and thus a 1.0% 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 20% to 30% 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 ft³/ft² 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 ft³ per year per ft² of wetted perimeter. The calculations for wetted perimeter are presented in the following table.

Table 5: Data for Wetted Perimeter Calculations

| Pipe Diameter (in) | Pipe Circumference (ft) | Pipe Length (ft) | Total Wetted Perimeter (ft ²) |
|-----------------------|----------------------------|---------------------|--|
| 27 | 7.1 | 750 | 5,400 |
| 21 | 5.5 | 3,450 | 19,000 |
| 18 | 4.7 | 4,500 | 21,300 |
| 15 | 3.9 | 3,150 | 12,400 |
| 12 | 3.1 | 700 | 2,200 |
| 10 | 2.6 | 3,350 | 8,800 |
| Total | | | 69,100 |

$$69,100 \text{ ft}^2 * 0.01 \frac{\text{ft}^3}{\text{ft}^2 \text{ yr}} = 691 \frac{\text{ft}^3}{\text{yr}} = 0.01587 \frac{\text{acre ft}}{\text{yr}}$$

This is less than a 0.00036% 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 3.0 miles of open irrigation ditches. Currently the canal experiences a total loss of 361.2 ac-ft/ year per mile of earthen ditch (1,083.5 ac-ft/year / 3.0 miles). After the proposed projects completion, the canal will experience approximately a total loss of 0.00529 ac-ft/year per mile of pipe (0.01587 ac-ft/ year / 3.0 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 361.2 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 pipeline 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. A pumping station consisting of three pumps, an intake screening structure, flow measuring device, and SCADA devices will be placed at the head works. The three pumps will all be equipped with variable frequency drives allowing for a full range of flow operations. The water will then be conveyed using a 27-inch pipe. The pipe will then split into two separate alignments approximately 760 feet from the pump station, one alignment will service the North Litz users and the other will service the South Litz users. As irrigation demands take water from the system, the pipeline will be necked down from a 27 inch to an 8 inch by 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.

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.

Note that an agreement will not be awarded for an improvement to conserve irrigation water unless the applicant agrees to the terms of Section 9504(a)(3)(B) of Public Law 111-11 (see p. 52 of the FOA for additional information).

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:

1. Will the project address a specific water reliability concern? Please address the following:

- 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. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?*

This project will assist in the reliability of the delivery of water to the shareholders using the North and South Litz Laterals. Currently West Cache Irrigation Company desires to keep the water in their canal as low as possible. Operating the canal in this manner, the proper amount of water has not consistently been available to the shareholders along the North and South Litz Laterals. The main reasons the canal is operated in this manner is in response to avoiding the following:

- High seepage and evaporation loss throughout the canal segment
- Canal failure due to high water levels in the canal resulting in flooding
- 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 North and South Litz Laterals. In addition, the proposed central pumping station will have the ability to service one pump while keeping the other two pumps in full service, allowing irrigation water to be delivered at all times even if a pump fails.

- Describe how the project will address the water reliability concern? In your response, please address where the conserved water will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

The 24.9% conserved water will be used in two methods. The first method will be to ensure 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. Also downstream are other irrigation companies who rely on the Bear River for their water. Water left in the river will help ensure other irrigation companies also have enough water to use on their fields. Additional water savings will be seen as farmers transition from flood irrigation to sprinkler irrigation.

- *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 share certificates of the West Cache Irrigation Company.

- *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 North and South Litz Laterals water users 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. During the wetter years, the full 1,084.0 ac-ft saved would be allowed to remain in the Bear River. However, during dryer years, this water will be used to ensure crops have proper yields for the year.

2. *Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:*

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

- *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 benefit a larger initiative to address water reliability?*

The benefits that will be realized from the completion of this project are aligned with Utah's water conservancy goals outlined in the document entitled "Bear River Basin Planning for the Future". The cover page of this document has been included as Appendix C.

- *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 North and South Litz Laterals water users live in Trenton, Utah. Trenton has a population of ~ 500 and has a MAGI (medium average gross income) of \$41,600. This falls below the Statewide MAGI and they are considered economically disadvantaged.

- *Describe how the project will help to achieve these multiple benefits. In your response, please address where the conserved water will go and where it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

As described previously, the conserved water will be used in two main methods: first ensuring the current shareholders have access to their allocated water and second is to not divert the saved water and leave it in the river system.

Historically, the West Cache Irrigation Company has diverted more water than the shareholders are allocated to account for the water that will be lost during the hydraulic conveyance through the earthen canals. With the loss due to seepage, evaporation, and undesired vegetation uptake eliminated, the West Cache Irrigation Company can reduce the total amount of water diverted to the North and South Litz Laterals. This reduction in the total amount delivered will result in the reduction of water pulled from the Bear River, or allow West Cache Irrigation Company to transfer the excess water to additional farmers indeed, or use it to farm currently unirrigated farmland.

3. *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 majority of the shareholders along the North and South Litz Laterals are very supportive of the project.

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

Several meetings have been held with the West Cache Irrigation Company shareholders currently using the North and South Litz Laterals and the West Cache Irrigation Company to discuss the project and how to make the project feasible. This project will directly benefit the North and South Litz Laterals water users; however, the remaining shareholders of the West Cache Irrigation Company will also benefit by the reduction in open canal ditches that require constant maintenance. The West Cache Irrigation Company Board sees this as a large benefit to the entire system.

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

Yes, the 714 acres currently being flooded can all be converted into sprinkler irrigation. Currently two of the main shareholders have already talked with the NRCS to begin looking into their farms.

In addition, other water users of the West Cache Canal system are watching to see how this project effects their irrigation practices. A successful project will greatly encourage other users along the West Cache Canal to follow and apply for WaterSMART funding for their laterals. In total there are approximately 186 cfs of water in the West Cache Canal network, realistically 25% of this water could be saved. Figure 5 shows the location of the proposed On-Farm Improvements.

- *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 periodic tension between the water users of the North and South Litz Laterals and the West Cache Irrigation Company with being able to reliably provide the allocated water. This project will aid in the elimination of this tension by enabling West Cache Irrigation Company to supply the proper amount of water. This will be accomplished in two ways:

- (a) The amount that West Cache Irrigation Company has historically delivered accounted for a certain percentage to be lost due to seepage, evaporation, and undesired vegetation uptake. With these forms of loss eliminated, West Cache Irrigation can now divert less water while still maintaining the proper water availability to all the shareholders along the North and South Litz Laterals.
 - (b) This project includes the installation of water meters to accurately measure the total amount of water each shareholder is using. This will be able to definitively quantify if the West Cache Irrigation Company is honoring it's responsibility in delivering the correct amount of water or not.
- *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
 - Users of the North and South Litz Laterals
 - Sub-group of West Cache Irrigation Company shareholders that will directly use the proposed piping network
 - Sunrise Engineering Inc.
 - Providing engineering design and professional support for owner
 - Natural Resources Conservation Services (NRCS)
 - Providing engineering design, professional support, and funding for on farm improvements
 - Utah Division of Water Resources
 - Funding: loan
 - Reclamation
 - Funding: grant

Support letters from partners are included in Appendix A.

4. *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 variable frequency drives. The existing individual pumping systems are not equipped with the ability to regulate flow and pressure. Additionally, the new pump station will be able to continue to operate even with a pump put of service. 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.

The piping and pressurizing project of the existing North and South Litz Laterals 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 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.*

Of the 902 acres of farm ground involved in this project, 21% (188 acres) is currently sprinkler irrigated and the remaining 79% (714 acres) is flood irrigated. Currently there are 16 plots making up the 714 acres 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. Many of those who currently irrigate with flood irrigation have, and currently are developing plans to install pivots, hand lines, or wheel lines to irrigate their plots. The future use of pivots, hand lines, or wheel lines instead of flood irrigation will conserve water and decrease the irrigation demand.

Additionally, With the conserved water and the improved delivery rate from the piped section, farmers will have the ability to alter and improve their watering practices to improve the water usage. Currently there is rigid schedule that has to be followed to provide shareholders their water allotments. Often times, watering schedules have to be altered due to water shortfalls or slow delivery rates which restricts how the farmers are able to utilize the water on their farms. The decrease in water loss and the increase in delivery rate will provide additional flexibility to allow the farmers to use water in more effective ways such as:

- avoiding watering fields in the peak heat periods of the day
 - slowly water fields and allowing for deeper water penetration instead of being rushed to use their allotted water in their time frame
 - allowing farmers to borrow or trade excess water amongst each other instead of wasting their allotment
- *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*

Various farmers that are currently flood irrigating have started to work with the NRCS or plan on working with the NRCS in the next round of applications. 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 or wheel lines where flood irrigation is currently being used.

- *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 North and South Litz Laterals, SCADA will be added to link the network. Irrigation connections will be made to the main pipeline using a gate valve and a flow measuring device. Each meter will have the necessary output abilities that 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.

Additionally, with the piping of the North and South Litz Laterals and the decrease of water losses and increase of water delivery, the tight restricting watering schedule can be relaxed. By relaxing the watering schedule, shareholders utilizing the system can update their watering practices to conserve water. One such improvement to watering practice would be to reprogram existing systems to decrease the application rate on the farm. This would decrease the amount lost on the farm due to evaporation/ seepage and increase the efficiency of water use on the farms.

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

Currently there are 16 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 sprinkler irrigation, less water will be lost to seepage and evaporation while watering the crops. This reduction in water loss will increase the water use efficiency for the area. A map illustrating the location of these fields has been included as Figure 5.

Also, the improved watering practices from the relaxed watering schedule, less water will be lost to seepage and evaporation while watering the crops. This reduction in water loss will also increase the water use efficiency for the area.

- *Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.*
 - *Estimate the potential on-farm water savings that could result in acre- feet per year. Include support or backup documentation for any calculations or assumptions.*

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 to 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.

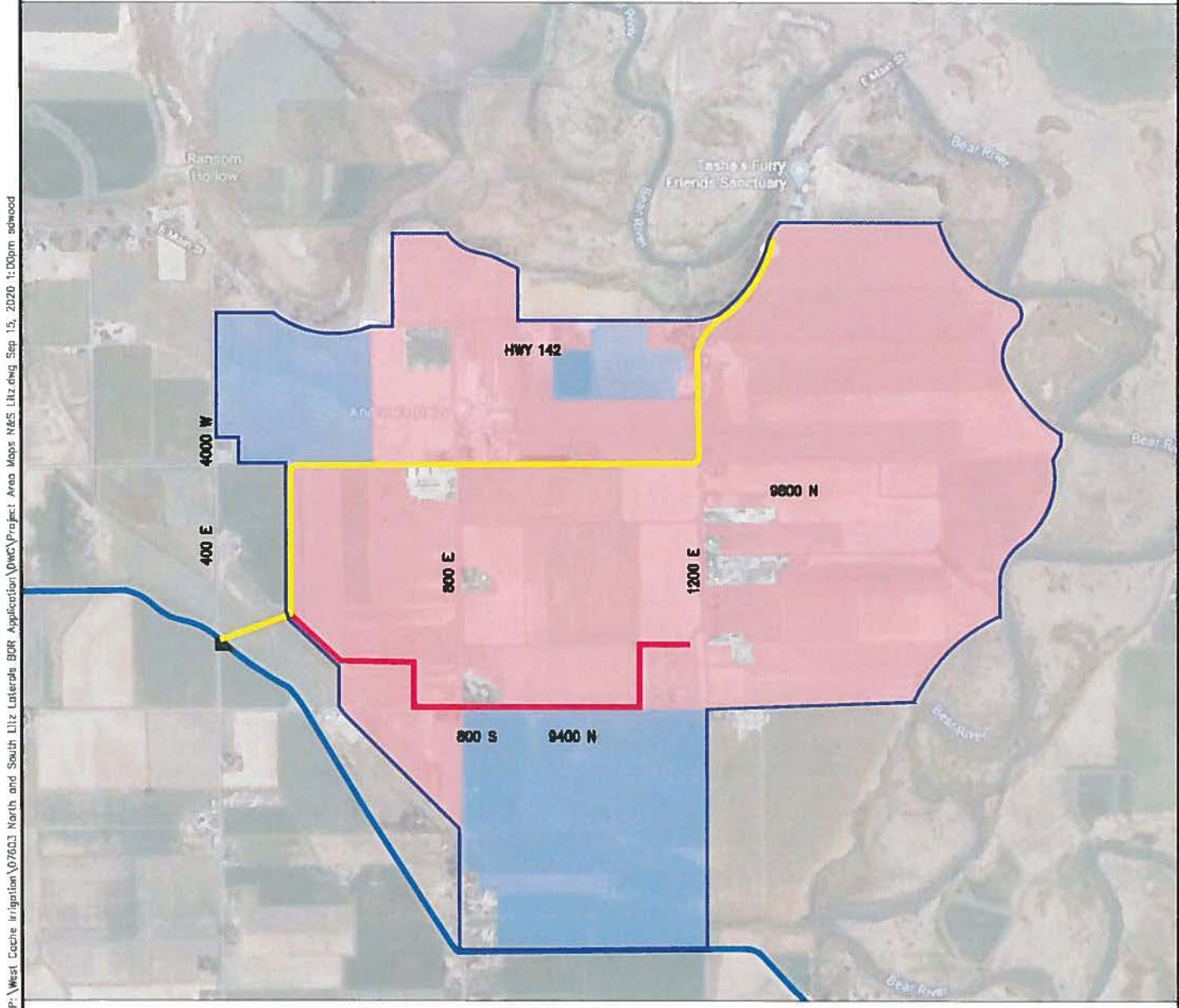
- *Please provide a map of your water service area boundaries. If your project is selected for funding under the FOA, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.*

A depiction of the area serviced by this project has been included in Figure 2 and Figure 5.

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/.



POTENTIAL ON FARM IMPROVEMENTS
FLOOD TO SPRINKLER
FIGURE 5



P:\West Cache Irrigation\07603 North and South Litz Laterals BOR Application\DWG\Project Area Maps N&S Litz.dwg Sep 15, 2020 1:00pm adwood

LEGEND

- | | | | |
|---|---|---|---|
|  | WEST CACHE CANAL |  | EXISTING SPRINKLER IRRIGATION 21% - 168 AC |
|  | NORTH LITZ LATERAL |  | EXISTING FLOOD IRRIGATION 76% - 714 AC |
|  | SOUTH LITZ LATERAL | | |
|  | NORTH & SOUTH LITZ LATERALS SERVICE BOUNDARY | | |



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TEL 435.563.3734 • FAX 435.563.6097
www.sunrise-eng.com

Evaluation Criterion E—Department of the Interior and Bureau of Reclamation Priorities

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department and Reclamation 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.

I. 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;*

This project will utilize magnetic (mag) flow meters to accurately measure water being pulled into the system and being delivered to individual farmers. This flow information can then be used to properly appropriate water to those in short supply to allow all the irrigators in the area to maximize the use of their land and water.

- 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 Department 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 Department 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 the farmers along the North and South Litz Laterals irrigate using various methods including flood, hand lines, wheel lines, and single guns. The majority of these farmers use flood irrigation as their main method of irrigation. Only 21% of the users are using a sprinkler method. There are currently five pump stations with their own electrical service or diesel generator.

Over time more farmers will convert their farms to sprinkler systems, each using their own pump system. This would equate to a total of approximately 20 different pump systems to service this area.

By providing pressurized water to all the users of the North and South Litz Laterals at once, it allows for only one pump station instead of 20 plus to achieve full pressurization. By reducing the number of pumps and pump stations, electrical energy that is typically lost in motor and pump efficiencies would be conserved.

Additionally, the internal telemetry for the pumps will allow the pumps to operate in a flexible manner. This will allow the pumps to speed up and down, shut off and turn on as needed and thus saving energy.

Also, downstream from the Company's diversion point on the Bear River, Rocky Mountain Power owns and operates a hydro power plant on the north end of Cutler Reservoir known as the Cutler Dam. All water in the region flows into Cutler Reservoir and out through the Bear River. Water conserved that is not diverted down the irrigation systems will be available for power generation at the Cutler Dam. This electricity is then used locally to support the various communities in Cache Valley.

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 that exist between the shareholders that use the North and South Litz Laterals and the West Cache Irrigation Company. This will be

accomplished by ensuring that each shareholder will receive their allotted water share. This can be realized due to the system no longer losing water due to seepage and the increased reliability of the pump and pipe system.

- 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 for the project area. Additionally, this modernization of irrigation practices will save energy as more efficient motors replace old motors and as individual pumps are replaced with a single pump-station.

This project will also include internal telemetry and mag flow meters that help collect data and control the irrigation system. These modernizing practices help irrigation practices become more efficient and require less manpower.

- 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 irrigation 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 3.0-mile section that will be piped and pressurized by this project will serve 902 acres of farmland in and around Trenton, Utah.

- c. *Prioritize Department infrastructure needs to highlight:*

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 North and South Litz Laterals 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 then 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, see Appendix A: Benefit Quantification and Performance Measure Guidance.



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 North and South Litz Laterals 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 North and South Litz Laterals.

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 Grants 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 Grants 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.

Note: program funding may be used to install necessary equipment to monitor progress. However, program funding may not be used to measure performance after project construction is complete (these costs are considered normal operation and maintenance costs and are the responsibility of the applicant).

Subcriterion F.3— Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement.

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

- Identify and provide a summary description of the major tasks necessary to complete the project. Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

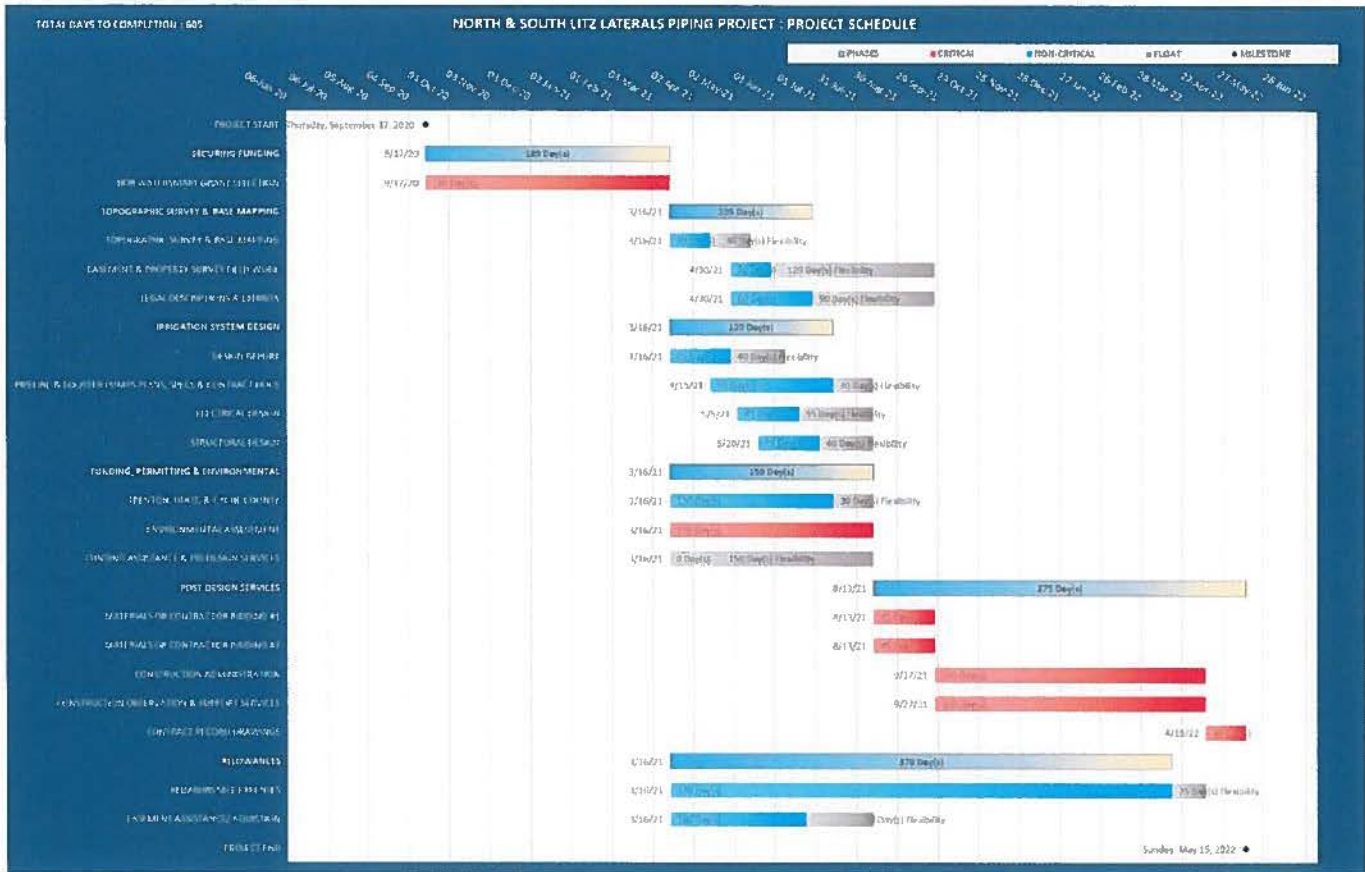


Figure 6: Project Timeline (see Appendix H for a large print of the schedule)

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

Various permits will be required for this project. The permits and the general process for their approval are listed below:

- Trenton Town Conditional Use – this permit requires an application and a meeting in which plans, easements, and documentation for use are needed.
 - Trenton Town Encroachment – this permit requires an application in which the plans are needed. This permit is obtained by the Contractor at the time of construction.
 - Cache County Conditional Use - this permit requires an application and a meeting in which plans, easements, and documentation for use are needed.
 - Storm Water Pollution Prevention Plan – this permit requires an application and a special storm water prevention plan set. The plan set will be provided by the Engineer, but the full permit will be obtained by the Contractor at the time of construction.
- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*

Sunrise Engineering has prepared hydraulic water model of the pipe network, evaluated pump sizing, pumping energy cost evaluations, performed seepage calculation with regards to the soil types, and conducted preliminary environmental reviews.

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

West Cache has updated bylaws allowing shareholders to be charged a different rate depending on the lateral or section of the canal their shares are located on. This was needed to accommodate the shareholders that desire to participate in WaterSMART canal piping projects.

- *Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?*

The environmental compliance estimates were taken from Sunrise's experience with completing NEPA documents. Sunrise has reviewed these costs with BOR.

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 in the Bear River Basin. Various projects have been completed through the Reclamation. Below is a brief list of some of the projects.

- Newton Lateral Piping Project (currently in progress)
- South Fields Earthen Canal Piping Project (currently in progress)
- Hansen and Ezola Piping Project (currently in progress)
- Quarter Circle Drive Section (currently in progress)
- Newton Water Users Piping Project (completed)
- Newton Dam Outlet Project (completed)
- Benson Canal Enclosure (completed)

- *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, 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:

$$\frac{\text{Non – Federal Funding}}{\text{Total Project Cost}} = \frac{\$1,105,000}{\$2,055,000} = 54\%$$

Project Budget

The project budget includes:

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

Project costs for environmental and cultural compliance and engineering/design that were incurred or are anticipated to be incurred prior to award should be included in the proposed project budget.

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:

- 8.0 % West Cache Irrigation Company: \$165,000
- 46% West Cache Irrigation Company through the Utah Division of Water Resources Loan: \$940,000
- 46% Reclamation Water SMART Grant: \$950,000
- Support letters from the Utah Division of Water Resources can be found in Appendix A. A draft copy of the official resolution supporting the project from the West Cache Irrigation Company can be viewed in Appendix G
- The funding plan is to borrow \$940,000 at 0% for 25 years from the State of Utah Board of Water Resources
- Ratification of the loan will take place in the Water Resource Board meeting held in the winter/spring of 2021 after the awarding of the WaterSMART Grant. 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

Please identify the sources of the non-Federal cost share contribution for the project, including:

- *Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)*

West Cache Irrigation Company will be placing monetary contributions directly to the project in the amount of \$165,000 (8%) at this stage of planning. West Cache Irrigation Company will be securing a loan from the Utah Division of Water Resources to provide for their remaining cost-sharing requirements.

- *Any costs that will be contributed by the applicant*

West Cache Irrigation Company will be securing a loan from the Utah Division of Water Resources to provide for their cost-sharing requirements. The Utah Division of Water Resources requires that the applicant provides some funding. Therefore, the West Cache Irrigation Company will be putting \$165,000 (8%) towards the project

- *Any third party in-kind costs (i.e., goods and services provided by a third party).*

There are no third party individuals or entities that will be participating in the cost sharing of this project other than the State of Utah Division of Water Resources. as will be explained further in the application.

- *Any cash requested or received from other non-Federal entities.*

The cost-share requirements will be met by the West Cache Irrigation Company securing a loan from the Utah Water Resource Board as administered from the Utah Division of Water Resources.

- *Any pending funding requests (i.e. grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.*

The loan from the Utah Division of Water Resources is currently pending, although they have stated their support of the project as indicated in their support letter in Appendix A. If this loan cannot be secured, this project cannot move forward.

In addition, please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:

- *The project expenditure and amount.*
- *The date of cost incurrence.*
- *How the expenditure benefits the project.*

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: \$3,000
- Expenses Occurred between February-March 2018

- Without these expenditures the West Cache Irrigation Company would not have had the resources to make the application with Reclamation.
- West Cache Irrigation Company shareholders are paying for these expenses on a per share basis and this cost is NOT included as costs to be funded by this budget proposal.

Table 6: Summary of Non-Federal and Federal Funding Sources

| Funding Source | Amount | Percentage |
|---|---------------------|-------------|
| Non-Federal Entities | | |
| West Cache Irrigation Company | \$ 165,000 | 8% |
| *West Cache Irrigation Company – Division of Water Resources Water Loan | \$ 940,000 | 46% |
| Other Federal Entities | | |
| None | \$ 0 | 0% |
| Reclamation Federal Entity | | |
| Requested Reclamation Funds | \$ 950,000 | 46% |
| Total Project Funding | \$ 2,055,000 | 100% |

Budget Proposal

The total project cost (Total Project Cost), is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project.

Table 7: Total Project Cost

| Source | Amount |
|---|---------------------|
| Costs to be reimbursed with the requester Federal funding | \$ 950,000 |
| Costs to be paid by the applicant | \$ 165,000 |
| Costs to be paid by the applicant (through a Utah DWR Loan) | \$ 940,000 |
| Value of third party contributions | \$ 0 |
| Total Project Cost | \$ 2,055,000 |

The budget proposal should include detailed information on the categories listed below and must clearly identify all items of cost, including those that will be contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested pre-award costs. Unit costs must be provided for all budget items including the cost of services or other work to be provided by consultants and contractors. Applicants are strongly encouraged to review the procurement standards for Federal awards found at 2 CFR §200.317 through §200.326 before developing their budget proposal. If you have any questions regarding your budget proposal or eligible costs, please contact the grants management specialist identified in Section G. Agency Contacts.

It is also strongly advised that applicants use the budget proposal format shown on the next page in 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. It is not necessary to include separate

columns indicating which cost is being contributed as non-Federal cost share or which costs will be reimbursed with Federal funds.

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 application are not eligible project costs and should not be included in the budget proposal (2 CFR §200.460).

Table 8: 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 | | | \$ 264,000 |
| Construction | Refer to Appendix E | | | \$ 1,736,000 |
| Environmental | Refer to Appendix F | | | \$ 35,000 |
| Legal Professional Services | \$ 20,000 | 1 | Lump Sum | \$ 20,000 |
| Other | | | | |
| Not Applicable for Current Budget | N/A | N/A | N/A | \$ 0 |
| TOTAL DIRECT COSTS | | | | \$ 2,055,000 |
| Indirect Costs | | | | |
| Not Applicable for Current Budget | N/A | N/A | N/A | \$ 0 |
| TOTAL ESTIMATED PROJECT COSTS | | | | \$ 2,055,000 |

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. 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 third-party in-kind contributions, 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 Project Manager and other key personnel by name and title. The project Manager must be an employee or board member of the applicant. 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. Program Performance Reports for information on types and frequency of reports required.

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. 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

Identify the purpose of each anticipated 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 within their Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8) at www.publications.usace.army.mil/USACE-Publications/Engineer-Pamphlets/u43545q/313131302D312D38.

Note: If the equipment will be furnished and installed under a construction contract, the equipment should be included in the construction contract cost estimate.

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, engineering estimates, or other methodology). Note: If the materials/supplies will be furnished and installed under a contract, the equipment should be included in the construction contract cost estimate.

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

Contractual

I Identify all work that will be accomplished by 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. For each proposed contract, identify the procurement method that will be used to select the consultant or contractor and the basis for selection. Please note that all procurements with an anticipated aggregate value that exceeds the Micro-purchase Threshold (currently \$10,000) must use a competitive procurement method (see 2 CFR §200.320 – Methods of procurement to be followed). Only contracts for architectural/engineering services can be awarded using a qualifications-based procurement method. If a qualifications-based procurement method is used, profit must be negotiated as a separate element of the contract price. See 2 CFR §200.317 through §200.326 for additional information regarding procurements, including required contract content. Note: A modification to an existing contract for services without first obtaining multiple quotes or proposals is considered a noncompetitive procurement, regardless of the method used to award the existing contract.

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 Appendices.

- 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.

Third-Party In-Kind Contributions

Identify all work that will be accomplished by third-party contributors, 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. Third-party in-kind contributions, including contracts, must comply with all applicable administrative and cost principles criteria, established in 2 CFR Part 200, available at www.ecfr.gov, and all other requirements of this FOA.

At this point in the project, West Cache Irrigation Company does not anticipate work to be completed from a third-party contributor.

Environmental and Regulatory Compliance Costs

Prior to awarding financial assistance, Reclamation must first ensure compliance with Federal environmental and cultural resources laws and other regulations (“environmental compliance”). Every project funded under this program will have environmental compliance activities undertaken by Reclamation and the recipient.

Depending on the potential impacts of the project, Reclamation may be able to complete its compliance activities without additional cost to the recipient. Where environmental or cultural resources compliance requires significant participation by Reclamation, costs incurred by Reclamation will be added as a line item to the budget during development of the financial assistance agreement and cost shared accordingly (i.e., withheld from the Federal award amount). Any costs to the recipient associated with compliance will be identified during the process of developing a final project budget for inclusion in the financial assistance agreement.

To estimate environmental compliance costs, please contact compliance staff at your local Reclamation Office for additional details regarding the type and costs of compliance that may be required for your project. Note, support for your compliance costs estimate will be considered during review of your application. Contact the Program Coordinator (see Section G. Agency Contacts) for Reclamation contact information regarding compliance costs and requirements.

Environmental compliance costs are considered project costs and must be included as a line item in the project budget and will be cost shared accordingly.

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. Environmental compliance costs will vary based on project type, location, and potential impacts to the environment and cultural resources.

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.

Costs associated with environmental and regulatory compliance must be included in the budget. compliance costs include costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include 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*

A budget of \$30,000 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. This cost estimate includes the Bureau's anticipated costs and the costs required by the private consultants. The Local BOR office was also contacted regarding the Environmental Costs. Their comments have been attached in Appendix F.

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

Indirect costs are costs incurred by the applicant for a common or joint purpose that benefit more than one activity of the organization and are not readily assignable to the activities specifically benefitted without undue effort. Costs that are normally treated as indirect costs include, but are not limited to, administrative salaries and fringe benefits associated with overall financial and organizational administration; operation and maintenance costs for facilities and equipment; and, payroll and procurement services. If indirect costs will be incurred, identify the proposed rate, cost base, and proposed amount for allowable indirect costs based on the applicable cost principles for the applicant's organization. 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 the Department, the Interior Business Center, and Indirect Cost Services, at www.doi.gov/ibc/services/finance/indirect-cost-services. If the proposed project is selected

for award, the recipient will be required to submit an indirect cost rate proposal with their cognizant agency within three months of award. Reimbursement of indirect costs will not be allowable until the recipient enters into the indirect cost rate agreement.

There are no Indirect Costs associated with this proposed project.

Total Costs

| | | |
|-----------------------------------|-----------------------------------|---------------------------|
| <u>Non-Federal Funding Amount</u> | <u>Reclamation Funding Amount</u> | <u>Total Project Cost</u> |
| \$ 1,105,000 | \$ 950,000 | \$ 2,055,000 |

Environmental and Cultural Resources Compliance

All projects being considered for award funding will require compliance with the National Environmental Policy Act (NEPA) before any ground-disturbing activity may begin. Compliance with all applicable state, Federal and local environmental, cultural, and paleontological resource protection laws and regulations is also required. These may include, but are not limited to, the Clean Water Act (CWA), the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), consultation with potentially affected tribes, and consultation with the State Historic Preservation Office.

Reclamation will be the lead Federal agency for National Environmental Policy Act (NEPA) compliance and will be responsible for evaluating technical information and ensuring that natural resources, cultural, and socioeconomic concerns are appropriately addressed. As the lead agency, Reclamation is solely responsible for determining the appropriate level of NEPA compliance. Further, Reclamation is responsible to ensure that findings under NEPA, and consultations, as appropriate, will support Reclamation's decision on whether to fund a project. Depending on the potential impacts of the project, Reclamation may be able to complete its compliance activities without additional cost to the recipient. Where environmental or cultural resources compliance requires significant participation by reclamation, costs anticipated to be incurred by Reclamation will be added as a line item to the budget during development of the financial assistance agreement and cost shared accordingly. Any costs to the recipient associated with compliance will be identified during the process of developing a final project budget for inclusion in the financial assistance agreement. Environmental and cultural resources compliance costs are considered project costs. These costs will be considered in the ranking of applications.

Reclamation's estimated cost to complete environmental and cultural compliance activities will be withheld from the initial obligation of Federal funding. After compliance activities are completed, any remaining Federal funding will be obligated to the Agreement.

Note, if mitigation is required to lessen environmental impacts, the applicant may, at Reclamation's discretion, be required to report on progress and completion of these commitments. Reclamation will coordinate with the applicant to establish reporting requirements and intervals accordingly.

Under no circumstances may an applicant begin any ground-disturbing activities (e.g., grading, clearing, and other preliminary activities) on a project before environmental and cultural resources compliance is complete and a Reclamation Grants Officer provides written notification that all such clearances have been obtained. This pertains to all components of the proposed project, including those that are part of the applicant's non-Federal cost-share. An applicant that proceeds before environmental and cultural resources compliance is complete may risk forfeiting Reclamation funding under this FOA. Costs incurred for ground-disturbing activities performed prior to award are not eligible for reimbursement or cost share unless the recipient can provide documentation that Federal

environmental and cultural resource clearances were obtained for the project prior to the commencement of the activities.

West Cache Irrigation Company understands that in no circumstances they are to begin with any ground-disturbing activities on this project prior to the acceptance of their completed environmental and cultural resources compliance as approved by a Reclamation Grants Officer as documented in a written notification. West Cache Irrigation Company further understands that this pertains to all components of this project including those funded by the non-Federal cost-sharing entities, namely West Cache Irrigation Company and the State of Utah's Department of Natural Resources. Lastly, West Cache Irrigation Company understands that in the event of the occurrence of any ground-disturbing activities, they may be at risk of forfeiting Reclamation funding.

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 suggests 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, Town of Trenton, 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 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. Letters of support received after the application deadline for this FOA will not be considered in the evaluation of the proposed project.

Letters of support for the project are attached in Appendix A. Appendix A includes Letters of Support from the following individuals or groups:

- Local NRCS Office: Brandon Todd
- Department of Natural Resources – Division of Water Resources: Todd Stonely/ Russell Hadley
- West Cache Irrigation Company Shareholders in support of on-farm improvements that will result from the project
- Cache Water District: Nathan Daus

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 requirements set forth above is mandatory. If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline, via email to the contact listed in Section D.1. of this FOA.

An official resolution meeting the criteria set forth above will be signed and submitted to the Bureau of Reclamation within the allotted 30 days permitted after the application deadline. A draft copy of the resolution has been 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.*

Meeting the requirements set forth above is mandatory. If the applicant is unable to complete registration by the application deadline, the unique entity identifier must be obtained, and SAM registration must be initiated within 30 days after the application deadline in order to be considered for selection and award.

Reclamation will not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements and, if an applicant has not fully complied with the requirements by the time Reclamation is ready to make an award, Reclamation may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.

The Company is currently registered with SAM, under DUNNS number 0683523220000. 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

BRIAN C. STEED
Executive Director

Division of Water Resources

TODD D. ADAMS
Division Director

September 9, 2020

Sid Munk, President
West Cache Irrigation Company
2598 W. 5800 N.
Amalga, UT 84335

RE: Letter of Support for West Cache Irrigation Company Pipeline Project – North and South Litz Laterals

Dear Mr. Munk:

The Board of Water Resources is very supportive of your plans to pipe and pressurize a part of the West Cache Irrigation Company ditch system, known as the North and South Litz Laterals. The Board of Water Resources has helped fund these types of projects in the past. Piping open, earthen canals typically saves up to one-third of the water available. For a system that is composed of approximately 2.5 miles of open ditch and 0.6 of concrete lined ditches, the water savings would be significant.

Best regards,

Russell Hadley, P.E.
Project Funding Manager

Attachment

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



September 9, 2020

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: Letter of Support for West Cache Irrigation Company Pipeline Project – North and South Litz Laterals

Dear Mr. Munk:

The Natural Resources Conservation Service (NRCS) would like to state their official support of your plans to pipe and pressurize a portion of West Cache Irrigation Companies earth canals known as the North and South Litz Laterals. In the past the NRCS has been encouraged to support the WaterSMART Grant Program and the piping of these two laterals provides a wonderful opportunity for the NRCS to help the local farmers that depend on the North and South Litz Laterals for irrigation.

With the WaterSMART Grant awarded to the West Cache Irrigation Company to pipe the North and South Litz Laterals, the NRCS can potentially provide additional aid to the local farmers. This aid would be offered in the form of funding opportunities and technical advice/expertise to help the local farmers improve their individual irrigation systems to further conserve and protect the environment.

Regards,

**BRANDON
TODD**

Digitally signed by
BRANDON TODD
Date: 2020.09.09
09:45:15 -06'00'

Brandon Todd
District Conservationist
(435) 793-3905 – Randolph, Utah Office
(435) 753-5616 – North Logan, Utah Office
brandon.todd@ut.usda.gov
Natural Resources Conservation Service (NRCS)
United States Department of Agriculture (USDA)

CC Scott Archibald, PE Sunrise Engineering (via email)



September 12, 2020

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: Letter of Support for West Cache Irrigation Company Pipeline Project – North and South Litz Laterals

Dear Mr. Munk:

The purposes of the Cache Water District include planning for and facilitating the long-term conservation, development, protection, distribution, management and stabilization of water rights and water supplies for domestic, irrigation, power, manufacturing, municipal, recreation and other beneficial uses, including the natural stream environment, in a cost effective way to meet the needs of the residents and growing population of Cache County. It is our goal to help all water users in the Cache Valley area to manage, use, and conserve water in the most economical and effective way possible. This includes helping communities and irrigation companies manage their water more effectively with elements such as meters, SCADA data bases, quality distribution systems, etc.

The West Cache Irrigation Company is currently planning on piping and pressurizing a section of their system known as the North and South Litz Laterals. These laterals consist of approximately 2.5 miles of open earth ditches and about 0.6 miles of open concrete ditches. By piping and pressurizing these laterals, a significant amount of water can be conserved as well as the farmers in the area would be able to implement on farm improvements. We believe this project will be a great benefit to the water users along the North and South Litz Laterals and Cache Valley.

Thank you for your consideration,

A handwritten signature in blue ink, appearing to read "Nathan Daus", is written over a faint blue line.

Nathan Daus, Manager
Cache Water District
435-999-0051

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: West Cache Irrigation Co. – North and South Litz Laterals Piping Project

Dear Mr. Munk:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the North Litz Lateral and the South Litz 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

9-14-20
Date

Tom Griffin
Print Name

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: West Cache Irrigation Co. – North and South Litz Laterals Piping Project

Dear Mr. Munk:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the North Litz Lateral and the South Litz 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,

Darrell R Merrill

Signature

9-14-20

Date

Darrell R Merrill

Print Name

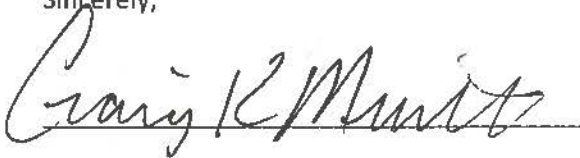
Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

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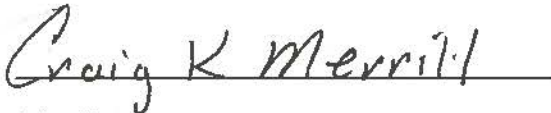
Sincerely,



Signature

9-14-2020

Date



Print Name

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: West Cache Irrigation Co. – North and South Litz Laterals Piping Project


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Sincerely,



Signature



Date



Print Name

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: West Cache Irrigation Co. – North and South Litz Laterals Piping Project

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Sincerely,



Signature

9-14-20

Date



Print Name

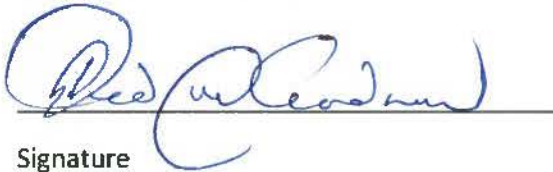
Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: West Cache Irrigation Co. – North and South Litz Laterals Piping Project


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Sincerely,


Signature

9-14-2020
Date


Print Name

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

RE: West Cache Irrigation Co. – North and South Litz Laterals Piping Project

Dear Mr. Munk:

I am writing this letter in support of the West Irrigation Co. piping the canal section known as the North Litz Lateral and the South Litz 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

9-14-20
Date

Jared Butters
Print Name

Sid Munk, President
West Cache Irrigation Co.
1207 South 400 East
Trenton, Utah 84338

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Sincerely,

Joan Hansen

Signature

9-14-20

Date

Joan Hansen

Print Name

Appendix B

Water Loss Calculations

LOSS CALCULATIONS

Client: **West Cache Irrigation Company**
 Project: North Litz Lateral
 Analysis Performed By: Steven Wood

Date: 9/7/2020

Current Water Demand Flow:

| | |
|---|-----|
| 8 | cfs |
|---|-----|

 Yearly Volume in Irrigation Duration:

| | |
|--------|----------------|
| 2905.5 | acre ft / year |
|--------|----------------|

Canal / System Characteristics

| | | |
|--------------------------------|-------------|------------------------------|
| Turn Water In | 4/15 | month / day |
| Turn Water Out | 10/15 | month / day |
| Irrigation Duration (t): | 183 | irrigation days/ year |
| | 15811200 | irrigation seconds/ year |
| Canal Cross Section Type | Trapezoid | Select |
| Side Slope (m): | 2 | 1 Vertical to (m) Horizontal |
| Bed Width (B): | 3.5 | ft |
| Flow Depth (h): | 3 | ft |
| Wetted Perimeter (P): | 16.92 | ft |
| Length (L): | 9505 | ft |
| | 1.8 | miles |
| Wetted Area (P _A): | 160790.4568 | ft ² |

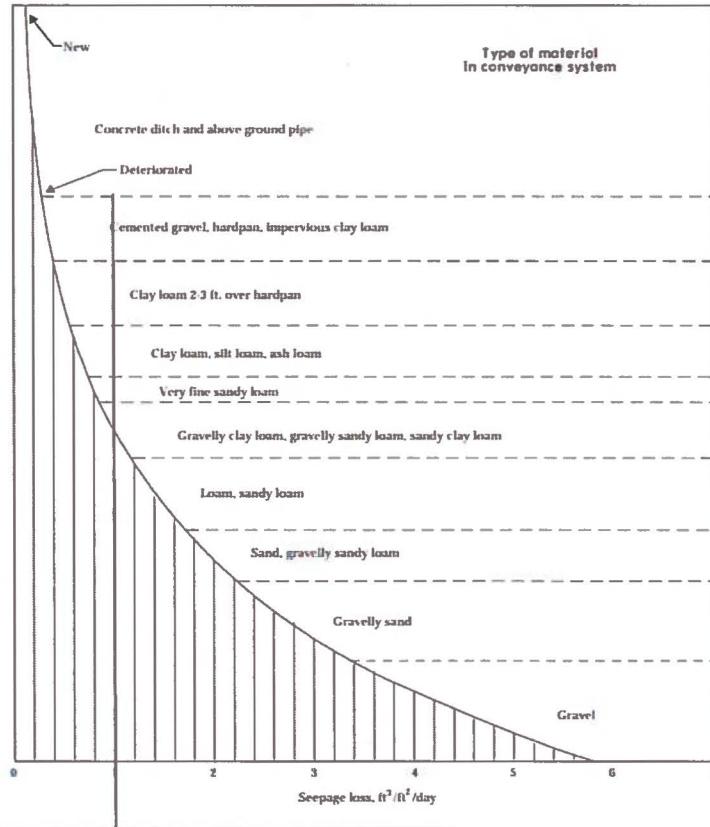
Data Output

| | | |
|-----------------------------|--------|--|
| Seepage Loss Factor: | 1 | ft ³ /ft ² /Day - From Figure 2-50 |
| Seepage Loss Rate: | 160790 | ft ³ /Day |
| Seepage Loss Rate: | 676.0 | acre ft / year (183 days in irrigation season) |
| Evaporation Loss Percentage | 10% | Percentage of Seepage Loss |
| Evaporation Loss Rate: | 16079 | ft ³ /Day |
| Evaporation Loss Rate: | 67.5 | acre ft / year (183 days in irrigation season) |
| Vegetation Loss Percentage | 1.00% | Percentage of Total Flow per Mile |
| Vegetation Loss Rate: | 12443 | ft ³ /Day |
| Vegetation Loss Rate: | 52.5 | acre ft / year (183 days in irrigation season) |

Total Seepage and Evaporation Loss Rate

| | | |
|--|--------|--|
| Total Seepage and Evaporation Loss Rate: | 189312 | ft ³ /Day |
| Total Loss Rate: | 2.19 | cfs |
| | 796.0 | acre ft / year (183 days in irrigation season) |
| Current Percent Loss: | 27% | 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

LOSS CALCULATIONS

Client: West Cache Irrigation Company
 Project: South Litz Lateral - Earth Ditch Section
 Analysis Performed By: Steven Wood

Date: 9/7/2020

| | | |
|---------------------------------------|--------|----------------|
| Current Water Demand Flow: | 4 | cfs |
| Yearly Volume In Irrigation Duration: | 1453.0 | acre ft / year |

Canal / System Characteristics

| | | |
|--------------------------------|-------------|------------------------------|
| Turn Water In | 4/15 | month / day |
| Turn Water Out | 10/15 | month / day |
| Irrigation Duration (t): | 183 | irrigation days/ year |
| | 15811200 | irrigation seconds/ year |
| Canal Cross Section Type | Trapezoid | Select |
| Side Slope (m): | 2 | 1 Vertical to (m) Horizontal |
| Bed Width (B): | 3 | ft |
| Flow Depth (h): | 2.5 | ft |
| Wetted Perimeter (P): | 14.18 | ft |
| Length (L): | 3500 | ft |
| | 0.7 | miles |
| Wetted Area (P _w): | 49631.18961 | ft ² |

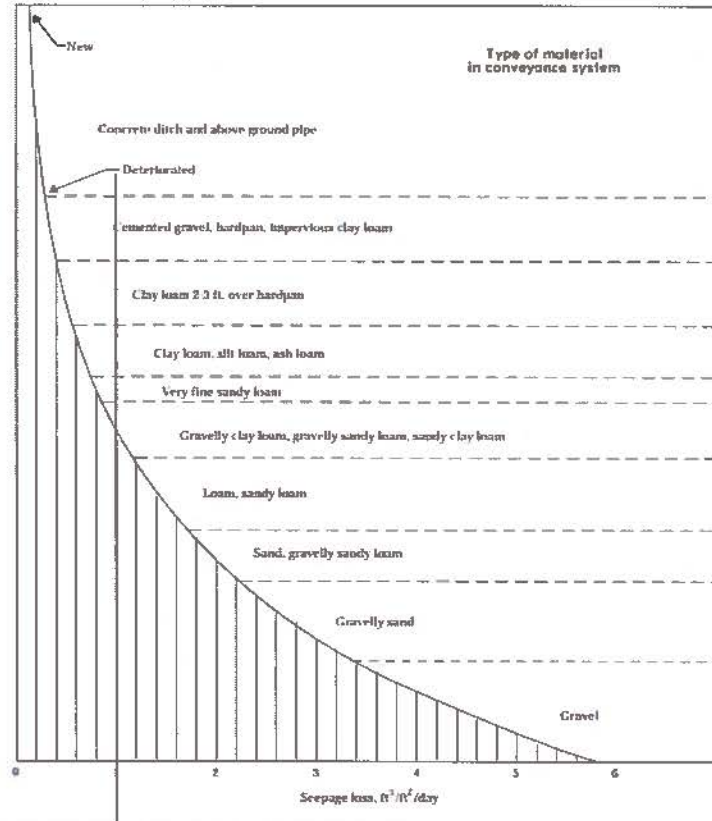
Data Output

| | | |
|-----------------------------|-------|--|
| Seepage Loss Factor: | 1 | ft ³ /ft ² /Day - From Figure 2-50 |
| Seepage Loss Rate: | 49631 | ft ³ /Day |
| Seepage Loss Rate: | 208.5 | acre ft / year (183 days in irrigation season) |
| Evaporation Loss Percentage | 10% | Percentage of Seepage Loss |
| Evaporation Loss Rate: | 4963 | ft ³ /Day |
| Evaporation Loss Rate: | 21.0 | acre ft / year (183 days in irrigation season) |
| Vegetation Loss Percentage | 1.00% | Percentage of Total Flow per Mile |
| Vegetation Loss Rate: | 2291 | ft ³ /Day |
| Vegetation Loss Rate: | 9.5 | acre ft / year (183 days in irrigation season) |

Total Seepage and Evaporation Loss Rate

| | | |
|-----------------------|-------|--|
| | 56885 | ft ³ /Day |
| Total Loss Rate: | 0.66 | cfs |
| | 239.0 | acre ft / year (183 days in irrigation season) |
| Current Percent Loss: | 16% | 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

LOSS CALCULATIONS

Client: West Cache Irrigation Company
 Project: South Litz Lateral - Concrete Section
 Analysis Performed By: Steven Wood

Date: 9/7/2020

Current Water Demand Flow: 4 cfs
 Yearly Volume in Irrigation Duration: 1453.0 acre ft / year

Canal / System Characteristics

Turn Water In: 4/15 month / day
 Turn Water Out: 10/15 month / day
 Irrigation Duration (t): 183 irrigation days / year
 15811200 irrigation seconds / year
 Canal Cross Section Type: Trapezoid Select
 Side Slope (m): 2 1 Vertical to (m) Horizontal
 Bed Width (B): 2 ft
 Flow Depth (h): 2.25 ft
 Wetted Perimeter (P): 12.06 ft
 Length (L): 2500 ft
 0.5 miles
 Wetted Area (P_w): 30155.76475 ft²

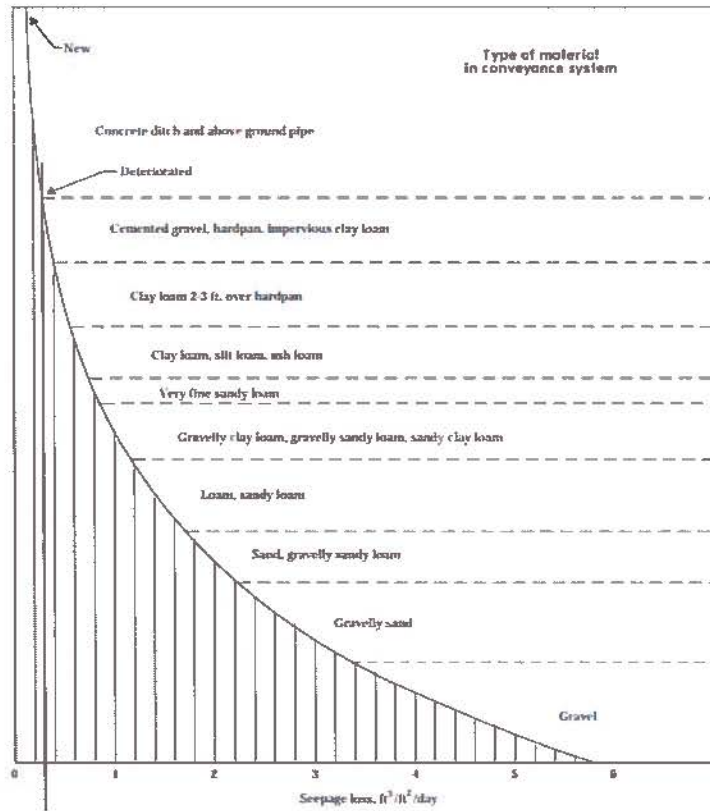
Data Output

Seepage Loss Factor: 0.3 ft³/ft²/Day - From Figure 2-50
 Seepage Loss Rate: 9047 ft³/Day
 Seepage Loss Rate: 38.0 acre ft / year (183 days in irrigation season)
 Evaporation Loss Percentage: 10% Percentage of Seepage Loss
 Evaporation Loss Rate: 905 ft³/Day
 Evaporation Loss Rate: 4.0 acre ft / year (183 days in irrigation season)
 Vegetation Loss Percentage: 1.00% Percentage of Total Flow per Mile
 Vegetation Loss Rate: 1636 ft³/Day
 Vegetation Loss Rate: 7.0 acre ft / year (183 days in irrigation season)

Total Seepage and Evaporation Loss Rate

Total Seepage and Evaporation Loss Rate: 11588 ft³/Day
 Total Loss Rate: 0.13 cfs
 48.5 acre ft / year (183 days in irrigation season)
 Current Percent Loss: 3% 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



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Cache Valley Area, Parts of Cache and Box Elder Counties, Utah

N & S Litz Laterals Soil Map

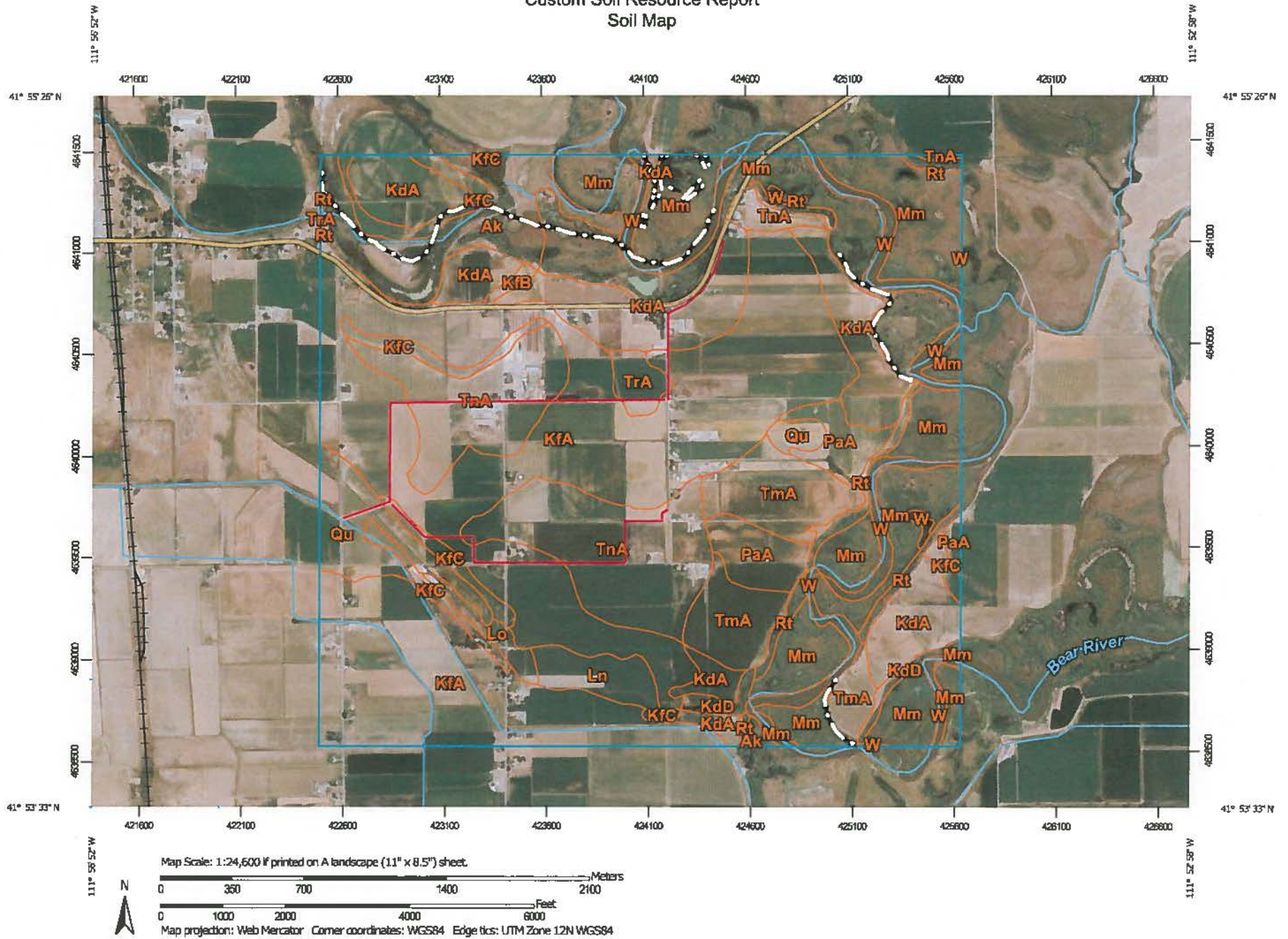


September 7, 2020

Soil Map





































The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Custom Soil Resource Report

MAP LEGEND

| | | | |
|--|--|---|--|
| Area of Interest (AOI) | |  Spoil Area | |
|  Area of Interest (AOI) | |  Stony Spot | |
| Soils | |  Very Stony Spot | |
|  Soil Map Unit Polygons | |  Wet Spot | |
|  Soil Map Unit Lines | |  Other | |
|  Soil Map Unit Points | |  Special Line Features | |
| Special Point Features | | Water Features | |
|  Blowout | |  Streams and Canals | |
|  Borrow Pit | | Transportation | |
|  Clay Spot | |  Rails | |
|  Closed Depression | |  Interstate Highways | |
|  Gravel Pit | |  US Routes | |
|  Gravelly Spot | |  Major Roads | |
|  Landfill | |  Local Roads | |
|  Lava Flow | | Background | |
|  Marsh or swamp | |  Aerial Photography | |
|  Mine or Quarry | | | |
|  Miscellaneous Water | | | |
|  Perennial Water | | | |
|  Rock Outcrop | | | |
|  Saline Spot | | | |
|  Sandy Spot | | | |
|  Severely Eroded Spot | | | |
|  Sinkhole | | | |
|  Slide or Slip | | | |
|  Sodic Spot | | | |

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 13, Jun 11, 2020

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

Date(s) aerial images were photographed: Apr 25, 2019—Aug 2, 2019

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 |
|------------------------------------|---|----------------|----------------|
| Ak | AIRPORT SILTY CLAY LOAM | 103.4 | 4.6% |
| KdA | KIDMAN FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES | 245.0 | 10.8% |
| KdD | KIDMAN FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES | 15.9 | 0.7% |
| KfA | KIDMAN FINE SANDY LOAM, DEEP WATER TABLE, 0 TO 2 PERCENT SLOPES | 723.2 | 31.9% |
| KfB | KIDMAN FINE SANDY LOAM, DEEP WATER TABLE, 2 TO 4 PERCENT SLOPES | 3.8 | 0.2% |
| KfC | KIDMAN FINE SANDY LOAM, DEEP WATER TABLE, 4 TO 8 PERCENT SLOPES | 68.9 | 3.0% |
| Ln | LEWISTON FINE SANDY LOAM | 30.4 | 1.3% |
| Lo | LEWISTON FINE SANDY LOAM, STRONGLY ALKALI | 14.5 | 0.6% |
| Mm | MIXED ALLUVIAL LAND | 431.5 | 19.0% |
| PaA | PARLEYS SILT LOAM, 0 TO 3 PERCENT SLOPES | 61.7 | 2.7% |
| Qu | QUINNEY SILT LOAM | 66.5 | 2.9% |
| Rt | ROUGH BROKEN LAND | 36.7 | 1.6% |
| TmA | TIMPANOGOS SILT LOAM, 0 TO 3 PERCENT SLOPES | 117.9 | 5.2% |
| TnA | TIMPANOGOS SILT LOAM, DEEP WATER TABLE, 0 TO 3 PERCENT SLOPES | 245.4 | 10.8% |
| TrA | TRENTON SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES | 16.8 | 0.7% |
| W | WATER | 87.8 | 3.9% |
| Totals for Area of Interest | | 2,269.4 | 100.0% |

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the

Custom Soil Resource Report

landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present

Custom Soil Resource Report

or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

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

NORTH & SOUTH LITZ LATERALS PIPING PROJECT
WEST CACHE IRRIGATION COMPANY
ENGINEER'S FEE PROPOSAL

| <u>Description</u> | <u>Cost</u> | <u>Fee Type</u> |
|---|-------------------------|-----------------|
| TOPOGRAPHIC SURVEY & BASE MAPPING | \$17,000 | Lump Sum |
| TOPOGRAPHIC SURVEY & BASE MAPPING | \$6,500 | Lump Sum |
| EASEMENT & PROPERTY SURVEY FIELD WORK | \$6,500 | Lump Sum |
| LEGAL DESCRIPTIONS & EXHIBITS | \$4,000 | Lump Sum |
| IRRIGATION SYSTEM DESIGN | \$94,000 | Lump Sum |
| DESIGN REPORT | \$17,000 | Lump Sum |
| PIPELINE & BOOSTER PUMPS PLANS, SPECS & CONTRACT DOCS | \$54,000 | Lump Sum |
| ELECTRICAL DESIGN | \$20,000 | Lump Sum |
| STRUCTURAL DESIGN | \$3,000 | Lump Sum |
| FUNDING, PERMITTING & ENVIRONMENTAL | \$17,500 | Lump Sum |
| TRENTON, UDOT, & CACHE COUNTY | \$10,000 | Lump Sum |
| FUNDING ASSISTANCE & PREDESIGN SERVICES | \$7,500 | Lump Sum |
| POST DESIGN SERVICES | \$115,500 | Lump Sum |
| MATERIALS OR CONTRACTOR BIDDING #1 | \$5,000 | Lump Sum |
| MATERIALS OR CONTRACTOR BIDDING #2 | \$5,000 | Lump Sum |
| CONSTRUCTION ADMINISTRATION | \$42,000 | T & M |
| CONSTRUCTION OBSERVATION & SUPPORT SERVICES | \$60,000 | T & M |
| CONTRACT RECORD DRAWINGS | \$3,500 | Lump Sum |
| ALLOWANCES | \$20,000 | Lump Sum |
| REIMBURSABLE EXPENSES | \$5,000 | T & M |
| EASEMENT ASSISTANCE/ ACQUISITION | \$15,000 | T & M |
| <u>Estimated Total</u> | <u>\$264,000</u> | Lump Sum |

Appendix E

Opinion of Construction Costs

West Cache Irrigation Company
North & South Litz Laterals Piping Project

Opinion of Probable Construction Costs

| ITEM NO. | ITEM | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|----------|---|----------|--------|------------|-----------|
| 1 | Mobilization (5%) | | 1 | L.S. | \$ 85,000 |
| 2 | Traffic Control | | 1 | L.S. | \$ 16,000 |
| 3 | Subsurface Investigation | | 20 | HR. | \$ 150 |
| 4 | Imported Pipe Bedding | | 15,900 | LN.FT. | \$ 9 |
| 5 | 27" PVC P.I.P. 125 psi SDR 32.5 Pipe | | 750 | LN.FT. | \$ 57 |
| 6 | 21" PVC P.I.P. 125 psi SDR 32.5 Pipe | | 3,450 | LN.FT. | \$ 40 |
| 7 | 18" PVC P.I.P. 125 psi SDR 32.5 Pipe | | 4,500 | LN.FT. | \$ 31 |
| 8 | 15" PVC P.I.P. 125 psi SDR 32.5 Pipe | | 3,150 | LN.FT. | \$ 24 |
| 9 | 12" PVC P.I.P. 125 psi SDR 32.5 Pipe | | 700 | LN.FT. | \$ 21 |
| 10 | 10" PVC P.I.P. 125 psi SDR 32.5 Pipe | | 3,350 | LN.FT. | \$ 19 |
| 11 | 2" Irrigation Service Connection | | 1 | EA | \$ 5,000 |
| 12 | 4" Irrigation Service Connection | | 1 | EA | \$ 7,000 |
| 13 | 6" Irrigation Service Connection | | 1 | EA | \$ 8,000 |
| 14 | 8" Irrigation Service Connection | | 16 | EA | \$ 9,000 |
| 15 | 15" Irrigation Service Connection | | 2 | EA | \$ 10,500 |
| 16 | Boring and Jacking w/ Steel Casing | | 200 | LN.FT. | \$ 140 |
| 17 | Removal of Bituminous Surface | | 67 | SQ.YD | \$ 18 |
| 18 | Replace 3" Bituminous Surface | | 67 | SQ.YD | \$ 120 |
| 19 | Removal of Concrete Driveway | | 33 | SQ.YD | \$ 36 |
| 20 | Replace 4" Concrete Surface | | 33 | SQ.YD | \$ 150 |
| 20 | Removal of Concrete Canal | | 2,500 | LN.FT. | \$ 10 |
| 21 | Replace 4" Gravel Surface | | 100 | SQ.YD | \$ 20 |
| 22 | Untreated Base Course | | 33 | CU.YD. | \$ 30 |
| 23 | Materials Sampling and Testing | | 1 | L.S. | \$ 8,500 |
| 24 | Pavement Saw Cutting | | 180 | LN.FT. | \$ 10 |
| 25 | Air/Vacuum Relief Valve | | 4 | CU.YD. | \$ 3,000 |

| | | | | | |
|------------------------------|--|--|--------|--------|--------------------|
| 26 | Pipeline Drain | | 4 | LN.FT. | \$ 4,000 |
| 27 | Diversion Site Work | | 1 | L.S. | \$ 20,000 |
| 28 | Diversion Pump Station | | 1 | L.S. | \$ 250,000 |
| 29 | Diversion Screening Structure | | 1 | L.S. | \$ 145,000 |
| 30 | Install Electrical Pump Station Service | | 1 | L.S. | \$ 46,000 |
| 31 | Install Electrical Pump Station Equipment | | 1 | L.S. | \$ 200,000 |
| 32 | Reclaim Existing Canal & Backfill w/ Native Material | | 15,900 | LN.FT. | \$ 3 |
| 33 | Connection of Service Connections | | 21 | EA | \$ 524 |
| Construction Subtotal | | | | | \$1,736,000 |

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. Additional research was performed to aid in the developing of this cost estimate (such as contacting suppliers, etc.) Relative projects include the following:

Newton Lateral Piping Project - 2020

Newton Water Users Canal Piping – 2016

Big Birch & North Fork Spring Redevelopment Project – 2016

Benson Canal Enclosure Project - 2018

And additional miscellaneous piping projects throughout Cache County

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

Item 2 – Traffic Control was based on the Newton Lateral Piping Project, Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 3 – Subsurface Investigation was based on the Newton Lateral Piping Project, Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 4 Imported Pipe Bedding was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 5 – 27” PVC P.I.P. 125 psi SDR 32.5 Pipe was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 6 – 21” PVC P.I.P. 125 psi SDR 32.5 Pipe was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 7 – 18” PVC P.I.P. 125 psi SDR 32.5 Pipe was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 8 – 15” PVC P.I.P. 125 psi SDR 32.5 Pipe was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 9 – 12” PVC P.I.P. 125 psi SDR 32.5 Pipe was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 10 – 10” PVC P.I.P. 125 psi SDR 32.5 Pipe was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 11 – 2” Irrigation Service Connection was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 12 – 4” Irrigation Service Connection was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 13 – 6” Irrigation Service Connection was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 14 – 8” Irrigation Service Connection was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 15 – 15” Irrigation Service Connection was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 16 – Boring and Jacking w/ Steel Casing was based on the Newton Lateral Piping Project, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 17 – Removal of Bituminous Surface was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 18 – Replace 3” Bituminous Surface was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 19 – Removal of Concrete Driveway was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 20 – Removal of Concrete Canal was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 21 – Replace 4” Gravel Surface was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 22 – Untreated Base Course was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 23 – Materials Sampling and Testing was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 24 – Pavement Saw Cutting was based on the Newton Lateral Piping Project, Newton Water Users, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 25 – Air/Vacuum Relief Valve was based on the Newton Lateral Piping Project, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 26 – Pipeline Drain was based on the Newton Lateral Piping Project, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 27 – Diversion Site Work was based on the Newton Lateral Piping Project, Benson Canal Enclosure

Item 28 – Diversion Pump Station was based on the Newton Lateral Piping Project, Benson Canal Enclosure

Item 29 – Diversion Screening Structure was based on the Newton Lateral Piping Project, Benson Canal Enclosure

Item 30 – Install Electrical Pump Station Service was based on the Newton Lateral Piping Project, Benson Canal Enclosure

Item 31 – Install Electrical Pump Station Equipment was based on the Newton Lateral Piping Project, Benson Canal Enclosure

Item 32 – Reclaim Existing Canal & Backfill w/ Native Material was based on the Newton Lateral Piping Project, Benson Canal Enclosure

Item 33 – Connection of Service Connections was based on the Newton Lateral Piping Project, Benson Canal Enclosure

Appendix F

Opinion of Environmental Costs

West Cache Irrigation Company
North & South Litz Laterals Piping Project

Opinion of Probable Environmental Costs

| ITEM NO. | ITEM | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|--|--|----------|------|--------------|---------------------|
| Archeologist & Cultural Investigation | | | | | |
| 1 | Filed Work/Site Investigation | 20 | Hrs | \$ 100.00 | \$ 2,000.00 |
| 2 | Archeology File Search | 12 | Hrs | \$ 100.00 | \$ 1,200.00 |
| 3 | Reporting and Deliverables | 20 | Hrs | \$ 100.00 | \$ 2,000.00 |
| Archeologist Subtotal | | | | | \$ 5,200.00 |
| Flora and Fauna Investigation | | | | | |
| 4 | Filed Work/Site Investigation | 15 | Hrs | \$ 100.00 | \$ 1,500.00 |
| 5 | Biology/ Habitat File Search | 10 | Hrs | \$ 100.00 | \$ 1,000.00 |
| 6 | Reporting and Deliverables | 10 | Hrs | \$ 100.00 | \$ 1,000.00 |
| Flora and Fauna Subtotal | | | | | \$ 3,500.00 |
| Additional Required Items | | | | | |
| 7 | BOR Environmental Fees | 1 | LS | \$ 14,000.00 | \$ 14,000.00 |
| 8 | SHPO - Utah State History File Search | 1 | LS | \$ 200.00 | \$ 200.00 |
| 9 | Project Manager Coordination and Reporting | 1 | LS | \$ 4,100.00 | \$ 4,100.00 |
| 10 | EA Draft Writing | 1 | LS | \$ 8,000.00 | \$ 8,000.00 |
| Additional Required Items Subtotal | | | | | \$ 26,300.00 |
| Total | | | | | \$ 35,000.00 |

Budget Narrative

The above cost estimate is based Sunrise’s professional experience and judgement. Additionally, it is based on recent projects that environmental reviews and approvals have been required. These projects include:

- Newton Lateral Piping Project (with BOR)
- North and South Litz Piping Project (with BOR)
- Quarter Circle Drive Piping Project (with BOR)
- Newton Dam – Pipeline through the Dam (with BOR)
- Southfields Piping Project (with BOR)



- Weston, Idaho Capital Facility Water Master Plan
 - Tank Construction
 - Well Construction
 - Transmission Line Construction
- Laketown, Utah Capital Facility Water Master Plan
 - Tank Construction
 - Transmission Line Construction

The local Reclamation Office was also contacted during the preparation of this application. Their comments are as follows:

Steven D. Wood

From: White, Brittany L <blwhite@usbr.gov>
Sent: Tuesday, September 15, 2020 12:47 PM
To: Steven D. Wood
Cc: Smith, Carley B; Crookston, Peter L; Blake, Scott D; Snyder, David J
Subject: RE: [EXTERNAL] FW: Request for BOR Input Concerning Environmental Requirements and Costs for the North and South Litz Laterals Piping Project

Steven,

Thanks for reaching out to get an idea of what Reclamation's environmental costs may be for your proposed North and South Litz Laterals Piping Project for the West Cache Irrigation Company. First, note that my response does not commit Reclamation to awarding your project a WaterSMART grant, nor does it commit Reclamation to a certain level of NEPA documentation or funding required to provide an environmental review of your project. I am only providing a range that is an estimate based on the information you've provided in this email, and that the actual amount needed to cover Reclamation's environmental compliance costs could be higher or lower.

Addressing the concerns you've listed below, I'd like to add:

Regarding the potential historical significance of the canal. Consultation with the Utah State Historic Preservation Officer would determine the eligibility for the National Register of Historic Places and any potential mitigation needed if the canal is eligible and would be adversely affected by the proposed project.

You also state there is not a great concern for impacts to endangered flora and fauna (mainly Ute ladies' tresses). However, further research, to include a data review and/or field surveys by a qualified biologist following USFWS protocols will need to be conducted to correctly evaluate impacts or presence.

As for the costs:

Under NHPA compliance, if the canal is eligible and it is an adverse effect, then we could request \$15,000 for reviewing survey reports, consultation with the SHPO, and for mitigation. We have a Programmatic Agreement that your project may fit under that could reduce costs and time. The cost would also be greatly reduced if the canal is not eligible, or if the proposed project would not have an adverse effect on the canal even if it is eligible.

For NEPA, ESA, CWA, etc., if an EA is required, it may cost around \$20,000. If no consultation is required with the USFWS or the USACE, and minimal or no controversy as to the effects, then the cost would be greatly reduced. If a categorical exclusion is possible, then that would also reduce costs for NEPA.

To summarize, the Reclamation costs could be in the range of \$35,000. If the project remains straightforward with minimal or no impacts, then environmental costs may be closer to \$10,000.

I cannot say what to put in your application, and again, I want to reiterate that these are estimates and actual costs could be more or less than what I mentioned.

Thanks,

--

Brittany White
Fish & Wildlife Biologist

Bureau of Reclamation
Interior Region 7 - Upper Colorado Basin
302 East Lakeview Parkway
Provo, Utah 84606
Phone: (801) 379-1052



From: Steven D. Wood <sdwood@sunrise-eng.com>
Sent: Tuesday, September 15, 2020 9:38 AM
To: White, Brittany L <blwhite@usbr.gov>
Subject: [EXTERNAL] FW: Request for BOR Input Concerning Environmental Requirements and Costs for the North and South Litz Laterals Piping Project

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good Morning Brittany,

I would like to request the Bureau of Reclamations' input on the environmental needs for the North and South Litz Laterals Piping Project. To provide a brief summary of the project, the West Cache Irrigation Company is currently pursuing a WaterSMART Grant with the Bureau of Reclamation for the Piping and pressurizing of a section of canal known as the North and South Litz Laterals.

It is approximately 3.1 miles long. Currently the section is an earthen ditch that runs through farm fields with about 0.6 miles lined with concrete. The goal for the Irrigation Company is to enclose the canal by piping the system. This would reduce the water loss significantly and provide a centralized pressurizing pump station and providing the means to perform on farm improvements. I have included a KMZ file of the stretch of canal we are enclosing.

Sunrise has preliminarily evaluated the project and has identified a couple of elements that would be a concern with the environmental clearances for this project. The items are generally listed below:

- The historical significance of the canal. This would be evaluated with a pedestrian archeological survey and review with the state preservation office to determine the historical significance.
- There is not a great concern for the impact of this project to endangered flora and fauna of the area because the endangered species in the area do not compete well with humans in close proximity or heavy vegetation. Although, further research will be conducted to correctly evaluate this.

Sunrise has prepared a cost estimate for the environmental portion of the project, it is shown below.

West Cache Irrigation Company
North & South Litz Laterals Piping Project

Opinion of Probable Environmental Costs

| ITEM NO. | ITEM | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|--|--|----------|------|-------------|---------------------|
| Archeologist & Cultural Investigation | | | | | |
| 1 | Filed Work/Site Investigation | 20 | Hrs | \$ 100.00 | \$ 2,000.00 |
| 2 | Archeology File Search | 12 | Hrs | \$ 100.00 | \$ 1,200.00 |
| 3 | Reporting and Deliverables | 20 | Hrs | \$ 100.00 | \$ 2,000.00 |
| Archeologist Subtotal | | | | | \$ 5,200.00 |
| Flora and Fauna Investigation | | | | | |
| 4 | Filed Work/Site Investigation | 15 | Hrs | \$ 100.00 | \$ 1,500.00 |
| 5 | Biology/ Habitat File Search | 10 | Hrs | \$ 100.00 | \$ 1,000.00 |
| 6 | Reporting and Deliverables | 10 | Hrs | \$ 100.00 | \$ 1,000.00 |
| Flora and Fauna Subtotal | | | | | \$ 3,500.00 |
| Additional Required Items | | | | | |
| 7 | BOR Environmental Fees | 1 | LS | \$ 9,000.00 | \$ 9,000.00 |
| 8 | SHPO - Utah State History File Search | 1 | LS | \$ 200.00 | \$ 200.00 |
| 9 | Project Manager Coordination and Reporting | 1 | LS | \$ 4,100.00 | \$ 4,100.00 |
| 10 | EA Draft Writing | 1 | LS | \$ 8,000.00 | \$ 8,000.00 |
| Additional Required Items Subtotal | | | | | \$ 21,300.00 |
| Total | | | | | \$ 30,000.00 |

Sunrise would like to request your input on the environmental portion for the North and South Litz Laterals Piping Project for the West Cache Irrigation Company. Thank you for your input and support for this project.

Regards,

Steven D. Wood

Appendix G

Resolution

OFFICIAL RESOLUTION
OF THE
West Cache Irrigation Company
Resolution No. 2020 -1

The President of the Association is Sid Munk, 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 PART OF THE WEST CACHE CANEL SYSTEM KNOWN AS THE NORTH AND SOUTH LITZ LATERALS.

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 (\$ 2,055,000 Total Project, \$ 950,000 Water SMART Grant) for design & construction to pipe the North and South Litz Laterals. 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 and or company finances specified in the funding plan.

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

Date: _____

Sid Munk, President

DRAFT

ATTEST:

Scott Archibald, Project Manager

*Signed Copy was sent to BOR as part of the Final Submission

Appendix H

Proposed Schedule

TOTAL DAYS TO COMPLETION : 605

NORTH & SOUTH LITZ LATERALS PIPING PROJECT : PROJECT SCHEDULE

■ PHASES ■ CRITICAL ■ NON-CRITICAL ■ FLOAT ◆ MILESTONE

06-Jun-20 06-Jul-20 05-Aug-20 04-Sep-20 04-Oct-20 03-Nov-20 02-Dec-20 02-Jan-21 01-Feb-21 03-Mar-21 02-Apr-21 02-May-21 01-Jun-21 01-Jul-21 31-Jul-21 30-Aug-21 29-Sep-21 29-Oct-21 28-Nov-21 28-Dec-21 27-Jan-22 26-Feb-22 28-Mar-22 27-Apr-22 27-May-22 26-Jun-22

