WaterSMART Grant

Water & Energy Efficiency Grant for Fiscal Year 2020
Funding Opportunity Announcement No. BOR-DO-20-F001

Tier I Application - $300,000 Grant Request

October 3, 2019

Quarter Circle Drive Piping Project

Cache Valley, Utah

Applicant

Nibley Blacksmith Fork Irrigation Company
4785 Hollow Rd.
Nibley, Utah 84321
TEL 435-757-1138

Project Manager

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SUNRISE ENGINEERING

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Executive Summary

The executive summary should include:

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

Date:	October 3, 2019
Applicant: Project	Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Piping 4785 Hollow Rd. Nibley, Cache County, Utah 84321
Contact:	Scott Archibald, PE Sunrise Engineering, Inc 26 South Main St. Smithfield, Utah 84335 sarchibald@sunrise-eng.com 435.563.3734

Project Summary:

For this project, the Quarter Circle Drive Section, 2200 feet of open earthen canal will be replaced with irrigation pipe. This section of the Nibley Blacksmith Fork Canal runs through an alluvial fan deposits that are primarily gravels, sands, and loams. As such, the canal experiences major losses through this section. Additionally, this section of canal is located on a bluff in a residential area and poses safety risks such as drowning and flooding. This proposal includes the funding of the design, construction, and start-up of the pressurized irrigation system. The project consists of the following:

- Conserve ±814.15 ac-ft of water annually
- Reduce high risk of flooding and drowning from open earth ditches and canal failures
- Reduce impacts of drought
- Improve sustainability of rural communities
- Reduce operation and maintenance costs

Approximate Project Length:	18 months
Completion Date:	March 2021
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 Nibley Blacksmith Fork Irrigation Company operates an approximately 20 miles of irrigation earthen ditches and pipes that divert water from the Blacksmith Fork River southeast of Nibley, Utah. The irrigation system is primarily open ditches with only a short section piped in a dense residential area. The Company uses this system of canals and pipes to service approximately 3,100 acres of irrigated land. The irrigated land is a combination of residential areas (~25%) and farmland/ agricultural land (~75%).

The Company currently has issued 2650 shares as reported by the Utah Division of Water Rights. Originally, the Company had defined that one share was to be used to service one acre. Over the years, shares have moved/sold but the acreage serviced by the shares have remained in service. This has resulted in more acres being serviced by the system than shares issued within the Company. The Company can service more acres due to the increased efficiency of watering practices.

According to the Utah Division of Water Rights, the water duty for this water right is 3.0 ac-ft per acre of land. Based on the actual irrigated acres of the Company, the water demand for the Nibley Blacksmith Fork Canal is 9,600 ac-ft of water annually. The main water rights for the Nibley Blacksmith Fork Irrigation Company are provided in Table 1. The Company does own more water rights than those presented, but these are the primary ones that provide for the canal at the main diversion point.

The Quarter Circle Drive section is a main section that services the entire system expect one lateral that services approximately 200 shares. The remaining 2450 shares are service through this section of canal. This section is located approximately 8,000 feet (1.5 miles) downstream of the canal head works on the Blacksmith Fork River to the east of Nibley, Utah. This section of canal spans between UT HWY 165 and 250 West Nibley, Utah and is approximately 2,200 feet (.42 miles) long.

Water shortfalls throughout the system do occur because of the difficulty of ensuring enough water reaches the end uses in a timely manner. The majority of the main section of the canal was built in loams with high amounts of sands and gravels. These soils allow for large amounts of seepage and can become unstable due to the water leaking through the canal banks. Additionally, these soils restrict flow through high friction factors. To overcome these factors, more water is diverted to compensate for the water lost and to help "push" the water through the canal system to reach the shareholders in a timely manner. By diverting more water to provide for the shareholders, the seepage loss becomes greater and further hinders the proper conveyance of the water. To compound the issue, the main section leading from the diversion point primarily runs through residential areas which has restricted proper canal maintenance and has resulted in heavy vegetation overgrowth. The heavy vegetation consumes additional water and further slows the slow down.

Figure 1: Nibley Blacksmith Fork Canal – Terminus of Project Looking Up-Stream

In the beginning of the season, the Nibley Blacksmith Fork Irrigation Company diverts approximately 60 cfs from the Blacksmith Fork River. This rate of diversion is typically maintained between April 1st and June 1st. this increased diversion rate is to help mitigate spring runoff to help prevent flooding and to overcome the water losses and slow delivery system previously mentioned. Once the spring runoff diminishes and initial large demand for irrigation water subsides, the Company then diverts approximately 40 cfs for the remining irrigation season, which typically ends on September 30th.

The purpose of this project is to enclose the canal section known as the Quarter Circle Drive section to prevent seepage loss, to reduce irrigation water delivery time, and to improve the safety of the canal. Additionally, this project will update the existing diversion structure to provide accurate metering data. Currently the diversion structure has no means for accurately measuring flows. This project will provide for the implementation for proper metering measurements to be recorded.

Table 1: Water Right Information

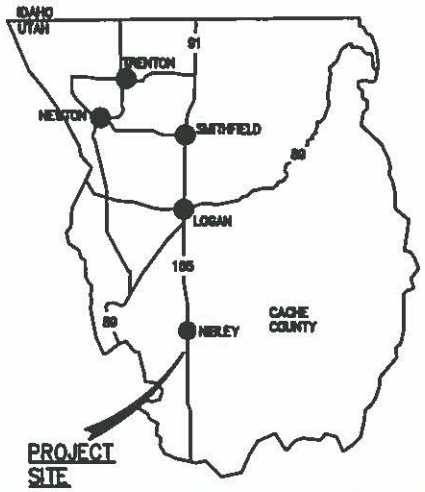
Utah Water Right	Water Source	Priority Date	Flow	Volume
25-4526	Blacksmith Fork River	05/01/1861	39.9 CFS	7,941 AC-FT
25-4527	Blacksmith Fork River	05/01/1861	10.0 CFS	3,610 AC-FT
25-3493	Underground Water Well	1/14/1963	7.0 CFS	2,957 AC-FT
25-4726	Underground Water Well	2/2/1967	1.1 CFS	465 AC-FT
TOTAL			58.0 CFS	14,973 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 Quarter Circle Drive Piping Project is in Cache County, Utah southeast of Nibley, Utah. The Quarter Circle Drive portion is a section of the Nibley Blacksmith Fork Canal whose headworks are located at 41°38'37.26"N and 111°49'2.94"W. The Quarter Circle Drive section starts at the intersection of the canal and UT HWY 136 (41°39'39.46" N and 111°50'2.31"W) and 250 W in Nibley, Utah (41°39'53.74"N and 111°50'20.16"W). Figure 2 illustrates the location of the project in relation to its surroundings and the Nibley Blacksmith Fork Canal.

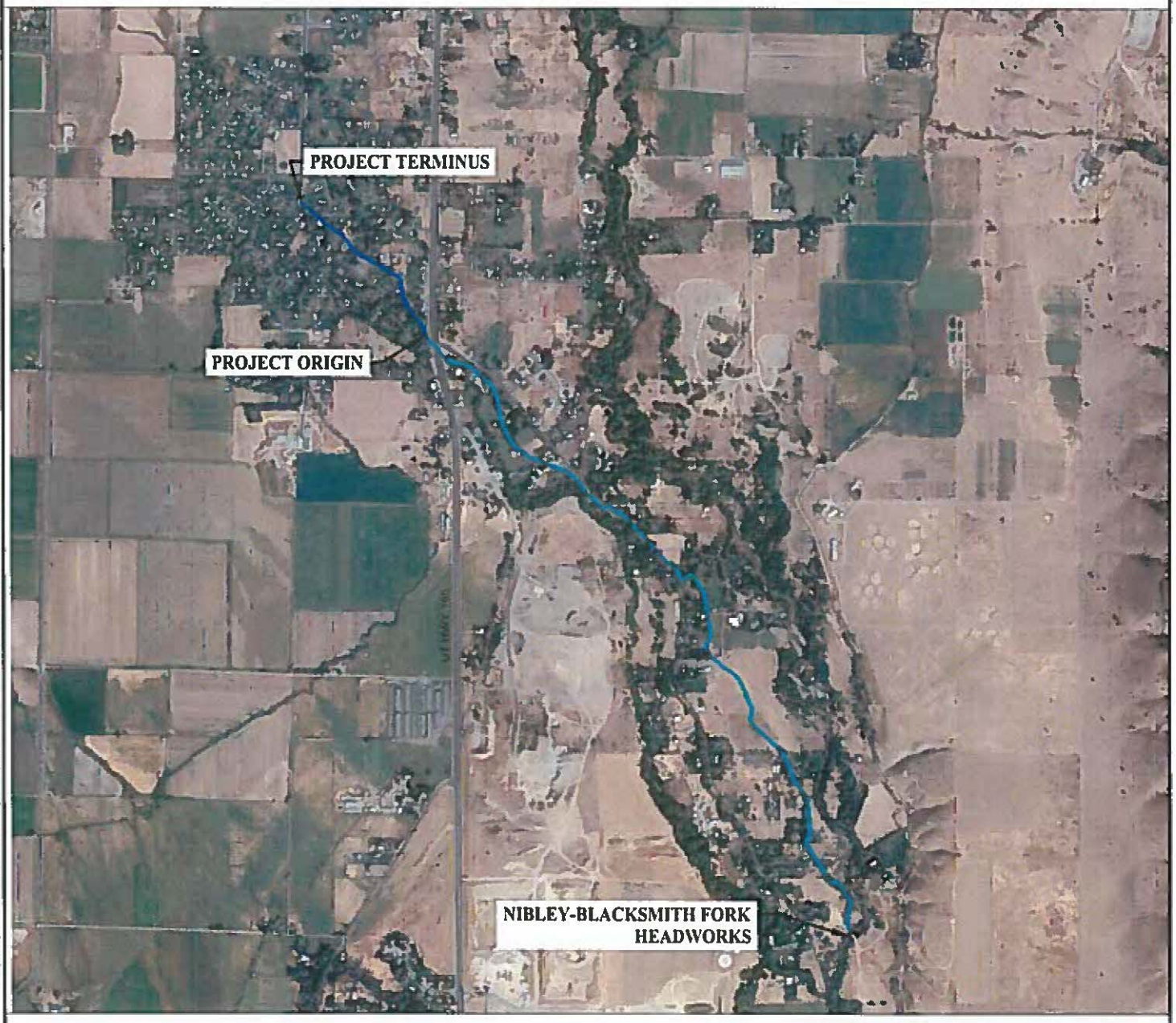
Figure 2.



CACHE COUNTY, UTAH

LEGEND

- EXISTING NIBLEY–BLACKSMITH FORK CANAL (QUARTER CIRCLE DRIVE PIPING PROJECT)
- EXISTING NIBLEY–BLACKSMITH FORK CANAL (FUTURE CANAL ENCLOSURE PROJECT)



P:\Nibley - Blacksmith Fork Irrigation\Admin\Documents\WaterSmart Grant 2019\Project Area Map.dwg Sep 30, 2019 6:48pm tpetersen

PROJECT AREA MAP

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Technical Project Description

The technical project description should describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal. Please note, if the work for which you are requesting funding is a phase of a larger project, please only describe the work that is reflected in the budget and exclude description of other activities or components of the overall project.

Nibley Blacksmith Fork Irrigation Company currently owns and operates 20 miles of open irrigation ditches and irrigation pipelines. Several earthen laterals extend from the main canal to service farms, pastures, and residential areas. The Quarter Circle Drive section of canal is located between UT HWY 165 and 250 West in Nibley, Utah and about 8,000 feet downstream of the Blacksmith Fork River diversion point. The Quarter Circle Drive section is about 2,200 feet long and is an unlined earthen canal. Approximately 2,450 shares receive their water after this section of canal, which equates to about 92.5% (2450/2650) of the Nibley Blacksmith Fork Irrigation Company.

The purpose of the project is to enclose the Quarter Circle Drive section with large diameter irrigation pipe. The enclosing of this section of the canal will increase water efficiency by eliminating water losses, which have been estimated at 814.5 acre ft/year and will help in improving the delivery time of the irrigation water to the shareholders. Additionally, the enclosing of the canal will improve the safety of the canal and remove/reduce risks for potentially drowning and flooding in the residential area the canal runs through.

Another major component of this project is to upgrade the existing head works of the canal at the diversion point on the Blacksmith Fork River. The upgrade will provide for easier and safer operation and maintenance practices and the accurate measurement of flow through the Nibley Blacksmith Fork Canal. Currently the head works at the river does not have any method for measuring water diversion. The only measuring device is a weir plate operated and maintained by the Utah Division of Water Rights. The Company has no means of their own to monitor flows through the canal. This project will implement an accurate method of measurement at the diversion on the river to aid in the operation of the canal system.

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 and various solutions for the diversion/ metering structure on the Blacksmith Fork River.

The Nibley Blacksmith Fork Irrigation Company does plan on enclosing the canal completely from the diversion point to the start of this project. This section was selected to be enclosed first for the following reasons:

- This section has the greatest risk of failure.
- In the case of failure, this section as the greatest potential for causing major property damage and/or loss of life.
- This section was built in loam soils high in sands and gravels resulting in the highest per mile water loss within the canal system.
- This section slows the main canal flow due to the high sandy and gravel soils.
- This section is immediately before the main intersection that divides the canal flow to the various major irrigation areas, therefore this section will benefit the majority of the system.

The Quarter Circle Drive section runs through a residential area in which the canal cuts through 22 residential back lots. The canal was built along a natural ridge placing the canal higher than the homes to the north of the canal. If the canal were to fail along this section, the 11 plus homes to the north would be at risk for severe flood damage that could result in the loss of life. The realization of this risk comes from a tragedy that occurred in 2009 on July 11th when a section of a canal in Logan City (a city about 6 miles north of Nibley) failed and resulted in the death of 3 individuals. Although canal failures are relatively uncommon, the Nibley Blacksmith Fork Irrigation Company considers the Quarter Circle Drive section to be a high-risk section due to its elevation above the homes to the north and due to the soil's stability, that make up the canal. For the residents bordering the canal, the canal presents a constant water hazard. One reason the Company desires to enclose the canal is to help protect the residents in the area and to reduce liability to the Company.

The canal enclosure will be accomplished using of a single back bone that is made of PVC Plastic Irrigation Pipe (PIP) or HDPE rigid pipe (or similar material) with a minimum pressure rating of 40 psi and a minimum diameter of 36 in. A minimum of one connection 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.

By enclosing the Quarter Circle Drive section, approximately 814.5 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. The primary loss of water is due to seepage and undesired vegetation growth. The soils composing the canal are high in sands and gravels which allow for high seepage. Additionally, the high sand and gravels introduce friction that hinders the flow of the canal. The canal itself has become overgrown due to the difficulty of canal maintenance along because of the residential lots. The combination of the soils and the dense vegetation make it difficult to operate the canal in a manner to provide timely irrigation water. The enclosing of this section will decrease the friction acting on the water and allow for faster delivery to shareholders downstream.

With funding secured from both the WaterSMART Grant and the DWRe, a full engineering design of the canal enclosure and the diversion structure on the Blacksmith Fork River will be completed. The design will be done 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).

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 Nibley Blacksmith Fork Irrigation Company's canal records, approximately 60 cfs is diverted on average to the Nibley Blacksmith Fork Canal and through the Quarter Circle Drive area between April 1st and June 1st. After June 1st, approximately 40 cfs is diverted through the canal until September 30th at which time the canal is de-watered. The change in water diversion is due to a power plant upstream that regulates water release down the Blacksmith Fork River. Higher flows are discharged down the river and the irrigation canals in the springtime to help mitigate flooding.

In total, 60 cfs is diverted through the canal and through the Quarter Circle Drive section for 61 days and 40 cfs is diverted for a 121 day duration. This equates to a combined 16,800 ac-ft/irrigation season or 16,800 ac-ft/year. Using the canal loss estimation method documented in the United States Department of Agriculture's National Engineering Handbook, a total estimated loss of 814.5 ac-ft/ year was found. Each time period was evaluated individually to determine the total water loss. Table 2 illustrates both time periods and their respective water losses due to seepage loss, evaporation loss, and vegetation loss.

Table 2: Water Loss Data

Evaluation Time Period	Wetted Area (ft^2)	Seepage Loss (acre ft/year)	Evaporation Loss (acre ft/year)	Vegetation Loss (acre ft/year)	Total Loss (acre ft/year)
Apr 1 to Jun 1 (60 cfs)	72,583	224.0	22.5	60.5	307.0
Jun 1 to Sep 30 (40 cfs)	63,512	388.5	39.0	80.0	507.5
Total	**N/A**	**612.5**	**61.5**	**140.5**	**814.5**

With a total demand of 16,800 ac-ft/year and a loss of 814.5 ac-ft/ year, the percent loss can be calculated as follows:

$$\frac{814.5_{ac*ft/year}}{16{,}800_{ac*ft/year}} = 0.0485 = 4.85\%\ Loss$$

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 814.5 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. This particular section of canal is completely overgrown with shrubs and established trees. This heavy vegetation warranted the use of a higher percentage loss than what typical canals experience from vegetation growth. Figure 3 illustrates the amount of vegetation along this section of canal. The amounts lost to each of mechanism of loss are as follows:

- Seepage Loss = 612.5 ac-ft/year
- Evaporation Loss = 61.5 ac-ft/year
- Vegetation Loss = 140.5 ac-ft/year

Figure 3: Nibley Blacksmith Fork Canal – Project Origin - Illustrating Vegetation Overgrowth

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

Describe the support/documentation of estimated water savings: *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal.*

In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are not sufficient to receive credit under this section.

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

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

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

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

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

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

    Water loss due to vegetation is based on a percentage of the total flow within the earthen canal, typically ranging from 0.5% to 1.0%. The canal banks for Quarter Circle Drive section are extremely overgrown with shrubs and adult trees. To properly represent the amount of vegetation and the size of the vegetation, a 2.0% was 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 Paul Leishman, who has been the Nibley Blacksmith Fork Irrigation Company President for the past 12 years. According to the observational data, the canal experiences approximately a 5 cfs to 10 cfs total loss throughout the duration of the irrigation season depending on the flow demand. The calculations provide a total loss of 2.5 cfs. The calculations supported by the NRCS have been used regarding water loss for this application.

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

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

Table 3: Data for Wetted Perimeter Calculations

Pipe Diameter (in)	Pipe Circumference (ft)	Pipe Length (ft)	Total Wetted Perimeter (ft^2)
36	9.4	2200	20,700
		Total	**20,700**

$$20{,}700\ ft^2 * 0.01 \frac{\frac{ft^3}{ft^2}}{yr} = 207 \frac{ft^3}{yr} = 0.0048\ \frac{acre\ ft}{yr}$$

This is less than a 0.000000285% 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 2200 feet of open irrigation ditch. Currently the canal experiences a total loss of 1954 ac-ft/ year per mile of earthen ditch (814.5 ac-ft/year / (2200 ft/5280 ft/mile)). After the proposed projects completion, the canal will experience approximately a total loss of 0.01152 ac-ft/year per mile of pipe (0.0048 ac-ft/

year / (2200 ft/5280 ft/mile)), which is negligible due to the shear difference of more than 4 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 1954 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 canal 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 Nibley Blacksmith Fork Canal. This measuring device will provide accurate readings of how much water is being placed in the canal system. These measuring devices will provide accurate data to determine future seepage losses.

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

The existing earthen canal will be replaced with PVC Plastic Irrigation Pipe (PIP) or HDPE rigid pipe (or similar material) with a minimum pressure rating of 40 psi. The flow will be diverted from the earthen canal upstream of the project through a concrete head works that will then direct the water through the new undergrounds pipe. The new underground pipe will be 36" diameter PVC or HDPE pipe. The pipe will be operating mostly in open channel flow conditions, therefore the pressure rating on the pipeline can be minimal. The new 36" pipe will then discharge into an existing concrete headworks that takes the water through an existing underground network.

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 downstream of the Quarter Circle Drive section. Currently Nibley Blacksmith Fork Irrigation Company desires to keep the water in their canal as low as possible. This reduces the amount of water lost to seepage. However, operating the canal in this manner reduces the efficiency of the canal in delivering the water to the shareholders. This is due to the material composing the canal. The soils in the area have high sand and gravel amounts which cause flow hindering resistance. Additionally, the dense vegetation is also hindering the flow with low hanging branches, large root networks, and fallen dead wood.

      These factors reduce the time in which the water can be pushed through the system and arrive at the shareholder's turn outs. One solution to increase the delivery rate is to divert more water from the river. This increases water loss along the canal as well as takes water from other users along the Blacksmith Fork River.

      The proposed project will help reduce flow resistance along the Quarter Circle Drive section and help increase delivery rates to the shareholders. This will also reduce the amount of water diverted from the river making it available to other users down river.

    - *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 814.5 ac-ft of 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 Blacksmith Fork River. Water left in the Blacksmith Fork River will be used by various others downstream.

One benefactor of the conserved water left in the Blacksmith Fork River is the Bear River Migratory Bird Refuge. The Blacksmith Fork River is a tributary to the Bear River which is the primary water source for 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.

The conserved water left in the Additional water savings will be seen as farmers alter their watering practices in response to the increased efficiency of the canal system.

Another beneficial use of the conserved water that remains in the Blacksmith Fork River, is the production of energy at Cutler Dam. Cutler Reservoir is fed by various streams and rivers, one of which is the Blacksmith Fork River. will aid in the production of energy of that Cutler Dam operated by Rocky Mountain Power.

- *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 Nibley Blacksmith Fork 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 Nibley Blacksmith Fork Canal 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 Blacksmith Fork River.

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 Blacksmith Fork 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 Nibley Blacksmith Fork Canal water users live in Nibley City, Utah or in the unincorporated Cache County, Utah. Nibley has a population of 2,048 and Cache County has a population of 112,656. The median household income of Nibley and Cache County are $52,273 and $47,013 respectively. Both communities fall below the State median household income level of $56,330 and they are considered economically disadvantaged. Population data and income level data acquired from the most recent Census as recorded by the United States Census Bureau.

- *Describe how the project will help to achieve these multiple benefits. In your response, please address where the conserved 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. This will allow others (Bear River Migratory Bird Refuge, Rocky Mountain Power/ Cutler Dam, other irrigators, etc.) downstream to put the conserved water towards beneficial uses.

  Historically, the Nibley Blacksmith Fork 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 Nibley Blacksmith Fork Irrigation Company can reduce the total amount of water diverted from the Blacksmith Fork River. This reduction can result in the reduction of maintenance, allow Nibley Blacksmith Fork Irrigation Company to transfer the excess water to additional farmers in need, or use it to farm currently unfarmable land.

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 within the Nibley Blacksmith Fork Irrigation Company are very supportive of the project.

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

     Several meetings have been held with the Nibley Blacksmith Fork Irrigation Company Board Members to discuss the project and how to make the project feasible. Additionally, input from the shareholders was gathered by the Board Members to gage their interest in the project. The general consensus was that this project will provide a desired and warranted benefit to the majority of the Nibley Blacksmith Fork Canal users. All users along the canal will also benefit by the reduction in open canal ditches that require constant maintenance. The Nibley Blacksmith Fork 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, a successful project will greatly encourage other sections along the Nibley Blacksmith Fork Canal to follow and apply for WaterSMART funding for canal piping projects. Additionally, the Company is currently looking at the possibility of providing pressurized irrigation water to their shareholders. Each section will be piped with this end goal in mind. In total there is approximately 16,871 ac-ft of water in the Nibley Blacksmith Fork Canal network, realistically 25% of this water could be saved.

   - *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 and the Nibley Blacksmith Fork Irrigation Company with being able to reliably provide the allocated water in a timely manner. This project will aid in the reduction of this tension by enabling Nibley Blacksmith Fork Irrigation Company to supply the proper amount of water and deliver it quickly. This will be accomplished in two ways:

     (a) The amount that Nibley Blacksmith Fork 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 along the project section, Nibley Blacksmith Fork Irrigation can now divert less water while still maintaining the proper water availability to all the shareholders along the Nibley Blacksmith Fork Canals.

     (b) Currently the flow of water is hindered and slowed along the canal. This is occurring due to two reasons. One, the soil the canal is made of has high percentages of sands and gravels which provide a high flow resistance. And two, the heavy vegetation

hinders it with large root structures in the canal banks, branches hanging and dragging in the flow, and dead wood that falls in the canal. This project will eliminate the soil and vegetation inference by piping the canal along this problematic section. This will allow the water to flow faster through this section.

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

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

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

   N/A

Evaluation Criterion C—Implementing Hydropower

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

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

***Describe the amount of energy capacity.** For projects that implement hydropower systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.*

Describe the amount of energy generated. For projects that implement hydropower systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.

***Describe any other benefits of the hydropower project.** Please describe and provide sufficient detail on any additional benefits expected to result from the hydropower project, including:*

- *Any expected reduction in the use of energy currently supplied through a Reclamation project.*
- *Anticipated benefits to other sectors/entities.*
- *Expected water needs, if any, of the system.*

The enclosing of the Quarter Circle Drive section of the Nibley Blacksmith Fork Canal does not include the installation of a hydropower system. The conserved water that is not diverted to the Nibley Blacksmith Fork Canal will flow to Cutler Reservoir where it will aid in the generation of power at Cutler Dam. This benefit cannot be quantified.

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.*

      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 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 shareholders have worked with the NRCS to improve their individual farms. These improvements will further benefit from this project. Additional farmers plan to work with the NRCS in the future once the project has been completed and the impact of the project can be measured.

- *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 the completion of the Quarter Circle Drive Piping Project. These letters also state the intent to implement additional water efficiency measures.

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

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

    With the piping of the Quarter Circle Drive section 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 canal can update their watering practices to conserve water. One such improvement to watering practice would be to reprogram existing pivots to decrease the application rate on the farm. This would decrease the amount lost on the farm due to evaporation and increase the efficiency of water use on the farms. This same improvement could be implemented for wheel lines, flood irrigation, or drip irrigators.

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

    With 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 increase the water use efficiency for the area.

- *Describe the on-farm water conservation or water use efficiency benefit 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 relaxed watering schedule will aid in the conservation of water within individual irrigation systems. Short, large flows allow 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 improvement to the watering schedule, water can be applied in a manner that aids in the elimination of water loss due to seepage and evaporation.

      However, data concerning potential on-farm water savings is not currently available. With the completion of the project and the implementation of the relaxed watering schedule, water data will be recorded and compared to past water data to evaluate the increase in water efficiency and the amount of water savings. This data will be made available to the Reclamation upon request.

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

Evaluation Criterion E—Department of the Interior Priorities

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

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

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

    N/A

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

    N/A

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

    N/A

    d. *Review 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;*

    Downstream from the Company's diversion point on the Blacksmith Fork 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 Nibley Blacksmith Fork Canal 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 exists between the shareholders that use canal and the Nibley Blacksmith Fork Irrigation Company. This will be accomplished by reducing the amount of water that Nibley Blacksmith Fork Irrigation Company is required to deliver to the shareholders and increase the rate of the water delivery.

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

    N/A

4. *Striking a regulatory balance*

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

    N/A

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

N/A

5. *Modernizing our infrastructure*

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

This project will help modernize the irrigation practices along the Nibley Blacksmith Fork Canal. The change from open earth canals to enclosed pipes aids in the entire modernization of canal system as it improves water conveyance capacities, delivery rates, and conserves water.

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

The Nibley Blacksmith Fork Irrigation Company is a privately owned and operated company that serves the irrigation needs for rural communities in and around Nibley, Utah and Cache County, Utah. The canal extends for over 20 miles providing irrigation for farmers all along its length. In many of these rural communities, the towns, cities, and county do not provide secondary irrigation water to their residents nor surrounding communities. Canal and irrigation companies are vital private entities for these communities. The 2,200 feet section that will be piped by this project will serve approximately 3,100 acres of farmland in and around Nibley, Utah.

b. *Prioritize Department infrastructure needs to highlight:*

1. *Construction of infrastructure;*

N/A

2. *Cyclical maintenance;*

N/A

3. *Deferred maintenance.*

N/A

Evaluation Criterion F—Implementation and Results

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

Subcriterion F.1— Project Planning

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

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

Provide the following information regarding project planning:

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

   Produced in January of 2004, DWRe published the "Bear River Basin Planning for the Future" a water plan specific to the Bear River Basin. The water in the Nibley Blacksmith Fork Canal and comes directly from the Blacksmith Fork River which is a tributary to the Bear River. The water from the Bear River Basin supplies large and small communities throughout northern Utah, south eastern Idaho, and south western Wyoming. The water conservation plan can be viewed in Appendix C.

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

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

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 two areas:

1) reduction of water loss during water conveyance.
2) increase in water use efficiency due to improvements made on individual irrigation systems encouraged with the completion of the proposed project.
3) Increased delivery rate of water.

The reduction of water loss during water conveyance will be measured by comparing historic demands of the Nibley Blacksmith Fork Canal 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 Quarter Circle Drive section.

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. 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.

Although the project will increase the rate of delivery, it is difficult to measure. One method or measurement that is simple and effective for the time rate of delivery is to use dye to track the flow. Dye can be placed at the head works and traced through the system. As it moves through the system the time rate can be recorded. This process can do performed again after the project completion for comparison.

Another method of measurement will be to monitor the current time it takes the water to travel from the head works to the users along the end of the canal. This would be accomplished by diverting more water than necessary in a single quick increase. This will create a surge through the system. This surge can then be tracked as it moves through the system. The time of this effect can then be recorded. After the project is completed, this same method will be sued to monitor the time rate of delivery. Other methods of monitoring delivery rate will be evaluated as the project moves through final engineering.

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 describe a detailed 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.

- *Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.*

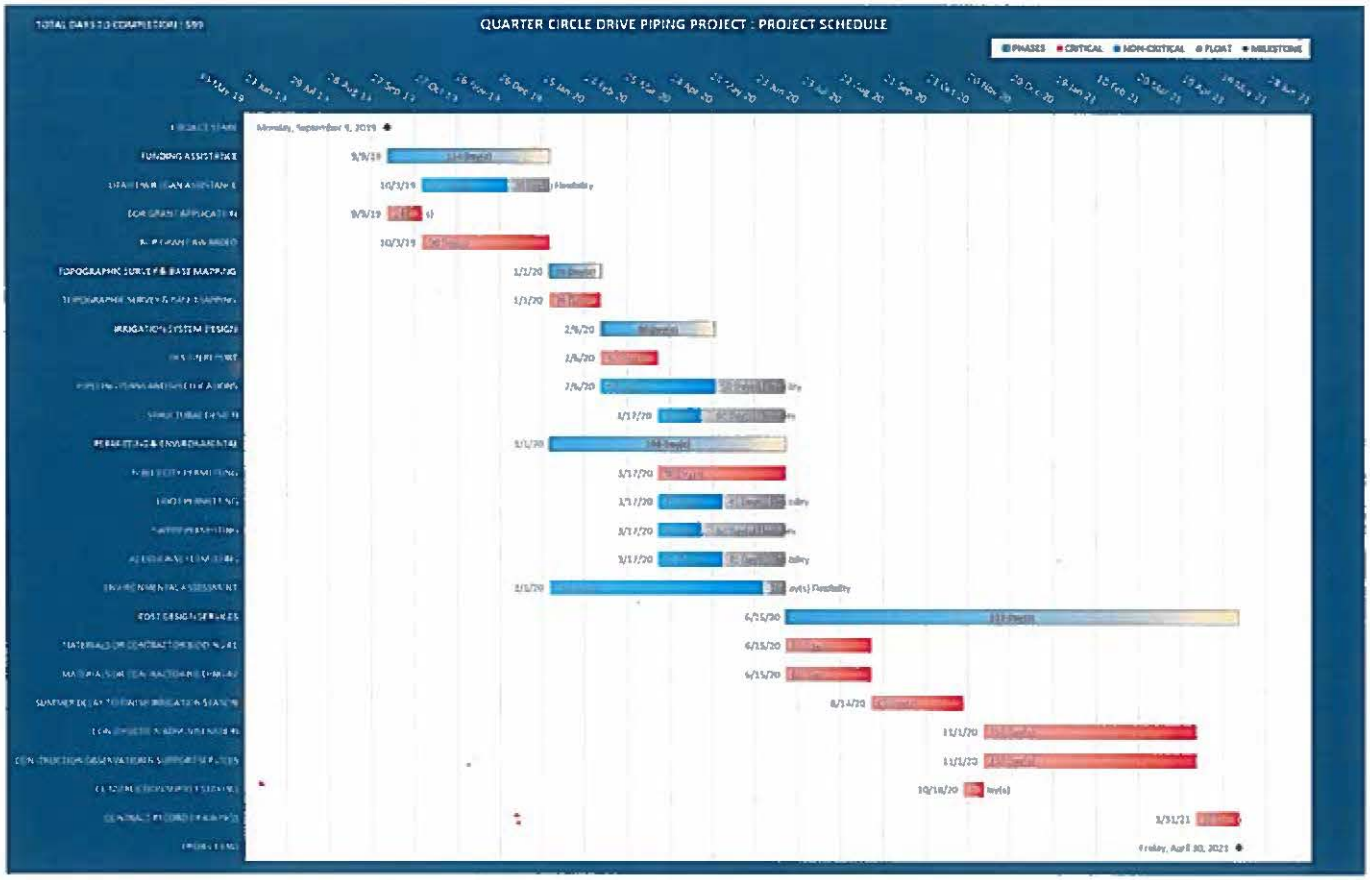

Figure 4: Project Timeline (see Appendix H for a large print of the schedule)

- *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:

  - Nibley City Conditional Use – this permit requires an application and a meeting in which plans, easements, and documentation for use are needed.
  - Nibley City Zoning Clearance – this permit requires an application and a meeting in which plans, easements, and location requirements are needed.
  - Nibley City Encroachment – this permit requires an application in which the plans are needed. This permit is obtained by the Contractor at the time of construction.
  - Utah Department of Transportation Encroachment – this permit requires an application in which the plans are needed. This permit is obtained by the Contractor at the time of construction.
  - 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 evaluated sizing of the pipe network, performed seepage calculations with regards to the soil types, and conducted preliminary environmental reviews.

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

  Currently this project will not require any special policies or administrative actions. Once the funding has been awarded, financial policies may need to be altered or added to conform to the Bureau of Reclamations requirements

- *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 Laterals Piping Project (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 Blacksmith Fork River will decrease. With the decrease in demand from the Blacksmith Fork River, more water will be allowed to continue to flow down the river. The Blacksmith Fork River is a tributary to the Bear River which takes water from Bear River Basin which encompasses the majority of Cache Valley. 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:*

$$\frac{\textbf{\textit{Non - Federal Funding}}}{\textbf{\textit{Total Project Cost}}} = \frac{\$460,000}{\$760,000} = 60.5\%$$

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:

- 60.5% Nibley Blacksmith Fork Irrigation Company through the Utah Division of Water Resources Loan: $460,000
- 39.5% Reclamation Water SMART Grant: $300,000
- A support letter 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 Nibley Blacksmith Fork Irrigation Company can be viewed in Appendix G
- The funding plan is to borrow $460,000 at 1% 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 2020 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)*

  The Nibley Blacksmith Fork Irrigation Company is currently planning on not placing any monetary contributions directly to the project. The Nibley Blacksmith Fork Irrigation Company will be securing a loan from the Utah Division of Water Resources to provide for their cost-sharing requirements.

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

  Nibley Blacksmith Fork Irrigation Company will be securing a loan from the Utah Division of Water Resources to provide for their cost-sharing requirements.

- *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 explained further in the application.

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

  The cost-share requirements will be meet by the Nibley Blacksmith Fork 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 Nibley Blacksmith Fork Irrigation Company signed an engineering agreement with Sunrise Engineering for preliminary engineering and Reclamation application preparation.

  - Preliminary Design & Funding Assistance – Sunrise Engineering: $6,500
  - Expenses Occurred prior to September 2019

- Without these expenditures the Nibley Blacksmith Fork Irrigation Company would not have had the resources to make the application with Reclamation.
- Nibley Blacksmith Fork 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 4: Summary of Non-Federal and Federal Funding Sources

Funding Source	Amount	Percentage
Non-Federal Entities		
*Nibley Blacksmith Fork Irrigation Company – Division of Water Resources Water Loan	$ 460,000	60.5%
Other Federal Entities		
None	$ 0	0%
Reclamation Federal Entity		
REQUESTED RECLAMATION FUNDING	$ 300,000	39.5%
Total Project Funding	$ 760,000	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 5: Total Project Cost

Source	Amount
Costs to be reimbursed with the requester Federal funding	$ 300,000
Costs to be paid by the applicant (through a Utah DWR Loan)	$ 460,000
Value of third party contributions	$ 0
Total Project Cost	$ 760,000

*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 6: 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			$ 150,000
Construction	Refer to Appendix E			$ 580,000
Environmental	Refer to Appendix F			$ 20,000
Legal Professional Services	$ 10,000	1	Lump Sum	$ 10,000
Other				
Not Applicable for Current Budget	N/A	N/A	N/A	$ 0
TOTAL DIRECT COSTS				**$ 760,000**
Indirect Costs				
Not Applicable for Current Budget	N/A	N/A	N/A	$ 0
TOTAL ESTIMATED PROJECT COSTS				**$ 760,000**

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 ww.publications.usace.army.mil/USACE-Publications/Engineer-Pamphlets/u43545q/31313102D312D38. 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, Nibley Blacksmith Fork 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 costs associated with activities undertaken by Reclamation and the recipient.

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 $20,000 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. 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

Non-Federal Funding Amount	Reclamation Funding Amount	Total Project Cost
$ 460,000	$ 300,000	$ 760,000

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 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. Environmental and cultural resources compliance costs are considered project costs. These costs will be considered in the ranking of applications.

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.

Nibley Blacksmith Fork 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. Nibley Blacksmith Fork Irrigation Company further understands that this pertains to all components of this project including those funded by the non-Federal cost-sharing entities, namely Nibley Blacksmith Fork Irrigation Company and the State of Utah's Department of Natural Resources. Lastly, Nibley Blacksmith Fork 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, and City of Nibley 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
- Nibley Blacksmith Fork Irrigation Company Shareholders in support of this piping project

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.

An official resolution meeting the criteria set forth above has been signed. The signed 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.

The Company is currently obtaining registration within SAM, under DUNNS number 0803087570000. The Nibley Blacksmith Fork Irrigation Company will obtain and report their SAMs registration to the Bureau of Reclamation once the SAM registration is complete. The Nibley Blacksmith Fork Irrigation will also 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
ERIC L. MILLIS
Division Director

September 19, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, UT 84321

RE: Letter of Support for Nibley Blacksmith Fork Irrigation Company Canal Enclosure Project

Mr. Leishman:

The Utah Division of Water Resources understands that Nibley Blacksmith Fork Irrigation Company is seeking federal funds to pipe a particularly vulnerable and leaky portion of the company's water delivery system, known as the Quarter Circle Drive Section. Piping open, earthen canals typically saves up to one-third of the water delivered through such facilities and in this case, would also reduce safety concerns that the open canal presently poses to nearby residents.

We also understand that if the irrigation company receives federal funds, the company will pursue additional funding needed for the project from the Utah Division of Water Resources. As an agency, our mission is to plan, conserve, develop and protect Utah's water resources. Through revolving loan funds overseen by the Utah Board of Water Resources, the division is able to provide financial assistance to help construct projects that further this mission. The board has provided funding for numerous projects like this in the past and has adequate funds currently to fund additional projects.

Therefore, the Utah Division of Water Resources wishes to express its strong support for your project and hopes that you are successful in obtaining the desired federal funding.

Sincerely,

Todd Stonely

Todd Stonely, P.E.
Project Funding Manager

TES:db

cc: Steven D. Wood, Sunrise Engineering (via email)

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

September 18, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, Utah 84321

RE: Letter of Support for Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Section Piping

Dear Mr. Leishman:

The Natural Resources Conservation Service (NRCS) would like to state their support of your plans to pipe a portion of Nibley Blacksmith Fork Company's earth canals known as the Quarter Circle Drive Section. NRCS supports the WaterSMART Grant Program and the piping of the Quarter Circle Drive Section which provides a wonderful opportunity for the NRCS to potentially help the local farmers that depend on the Nibley Blacksmith Fork Canal for irrigation.

With the WaterSMART Grant awarded to the Nibley Blacksmith Fork Irrigation Company to pipe the Quarter Circle Drive Section, the NRCS may provide additional aid to the local farmers. This aid will be offered in the form of potential funding opportunities and technical advice/expertise to help the local farmers improve their individual on-farm irrigation systems to further conserve natural resources.

Regards,

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

CC Scott Archibald, PE Sunrise Engineering (via email)

September 18th, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, Utah 84321

RE: Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Section Piping Project

Dear Mr. Leishman:

I am writing this letter in support of the Nibley Blacksmith Fork Co. piping the canal section known as the Quarter Circle Drive Section (Between 250 West and UT HWY 165) 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 this project providing my on-farm operations with more water allowing me to increase my efficiency and/or product output.

Sincerely,

Signature

Sept 19 2019

Date

Jacob SHAUN DUSTIN for Nibley City (Mayor)

Print Name

358

Shares within the Nibley Blacksmith Fork Irrigation Co.

September 18th, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, Utah 84321

RE: Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Section Piping Project

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Sincerely,

Signature

9/30/2019
Date

Paul Leishman
Print Name

88
Shares within the Nibley Blacksmith Fork Irrigation Co.

September 18th, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, Utah 84321

RE: Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Section Piping Project

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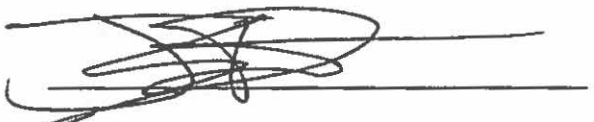
Sincerely,



Signature

9/30/19

Date

JACOB SHAUN DUSTIN

Print Name

5

Shares within the Nibley Blacksmith Fork Irrigation Co.

September 18th, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, Utah 84321

RE: Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Section Piping Project

Dear Mr. Leishman:

I am writing this letter in support of the Nibley Blacksmith Fork Co. piping the canal section known as the Quarter Circle Drive Section (Between 250 West and UT HWY 165) 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 this project providing my on-farm operations with more water allowing me to increase my efficiency and/or product output.

Sincerely,

Signature

9/18/19
Date

Pete Riggs
Print Name

111
Shares within the Nibley Blacksmith Fork Irrigation Co.

September 18th, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, Utah 84321

RE: Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Section Piping Project

Dear Mr. Leishman:

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Sincerely,

Signature

9-30-19
Date

Tony Zollinger (Zollinger Farms)
Print Name

88.5
Shares within the Nibley Blacksmith Fork Irrigation Co.

September 18th, 2019

Paul Leishman, President
Nibley Blacksmith Fork Irrigation Co.
4785 Hollow Rd.
Nibley, Utah 84321

RE: Nibley Blacksmith Fork Irrigation Co. – Quarter Circle Drive Section Piping Project

Dear Mr. Leishman:

I am writing this letter in support of the Nibley Blacksmith Fork Co. piping the canal section known as the Quarter Circle Drive Section (Between 250 West and UT HWY 165) 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 this project providing my on-farm operations with more water allowing me to increase my efficiency and/or product output.

Sincerely,

Signature

9-30-19
Date

Tony Zollinger (LDS Church)
Print Name

127
Shares within the Nibley Blacksmith Fork Irrigation Co.

Appendix B

Water Loss Calculations

LOSS CALCULATIONS

Client: **NIBLEY BLACKSMITH FORK IRRIGATION COMPANY**
Project: Quarter Circle Drive Piping Project
Analysis Performed By: Steven Wood

Date: 9/27/2019

Current Water Demand Flow	60	cfs
Yearly Volume in Irrigation Duration	7264.5	acre ft / year

Canal / System Characteristics

Turn Water In	4/1	month / day
Turn Water Out	6/1	month / day
Irrigation Duration (t)	61	irrigation days/ year
	5270400	irrigation seconds/ year
Canal Cross Section Type	Trapezoid	Select
Side Slope (m)	4	1 Vertical to (m) Horizontal
Bed Width (B)	16.5	ft
Flow Depth (h)	2	ft
Wetted Perimeter (P)	32.99	ft
Length (L)	2200	ft
	0.4	miles
Wetted Area (P_A)	72583.32951	ft^2

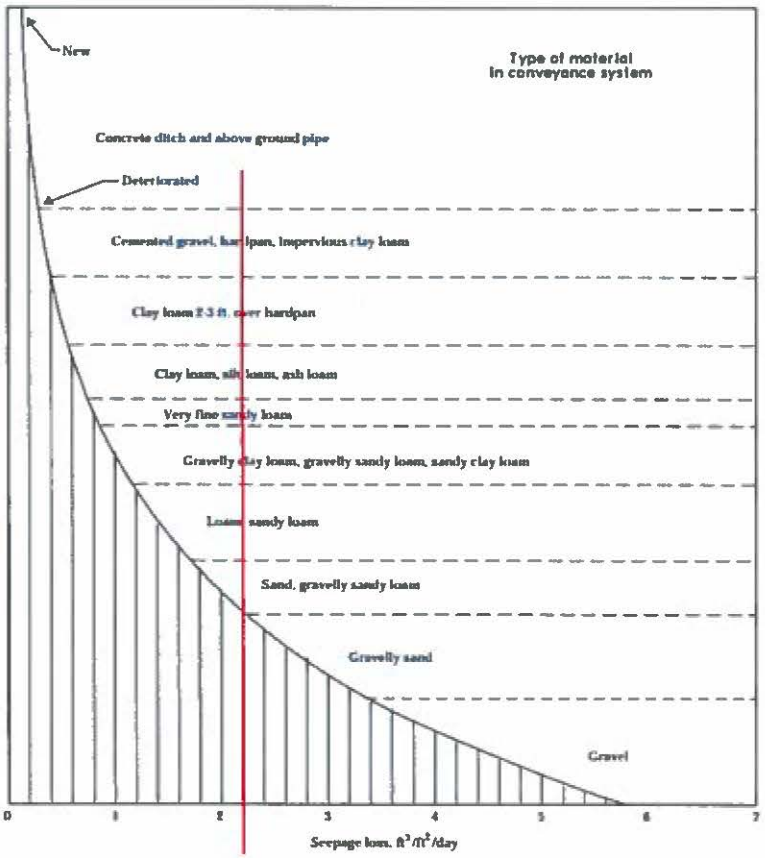
Data Output

Seepage Loss Factor	2.2	ft^3/ft^2/Day - From Figure 2-50
Seepage Loss Rate	159683	ft^3/Day
Seepage Loss Rate	224.0	acre ft / year (61 days in irrigation season)
Evaporation Loss Percentage	10%	Percentage of Seepage Loss
Evaporation Loss Rate	15968	ft^3/Day
Evaporation Loss Rate	22.5	acre ft / year (61 days in irrigation season)
Vegetation Loss Percentage	2.00%	Percentage of Total Flow per Mile
Vegetation Loss Rate	43200	ft^3/Day
Vegetation Loss Rate	60.5	acre ft / year (61 days in irrigation season)

Total Seepage and Evaporation Loss Rate

Total Loss Rate	218852	ft^3/Day
	2.53	cfs
	306.5	acre ft / year (61 days in irrigation season)
Current Percent Loss	4%	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: **NIBLEY BLACKSMITH FORK IRRIGATION COMPANY**
Project: Quarter Circle Drive Piping Project
Analysis Performed By: Steven Wood
Date: 9/27/2019

Current Water Demand Flow:	40	cfs
Yearly Volume in Irrigation Duration:	9606.5	acre ft / year

Canal / System Characteristics

Turn Water In:	6/1	month / day
Turn Water Out:	9/30	month / day
Irrigation Duration (t):	121	irrigation days/ year
	10454400	irrigation seconds/ year
Canal Cross Section Type:	Trapezoid	Select
Side Slope (m):	4	1 Vertical to (m) Horizontal
Bed Width (B):	16.5	ft
Flow Depth (h):	1.5	ft
Wetted Perimeter (P):	28.87	ft
Length (L):	2200	ft
	0.4	miles
Wetted Area (P_A):	63512.49713	ft^2

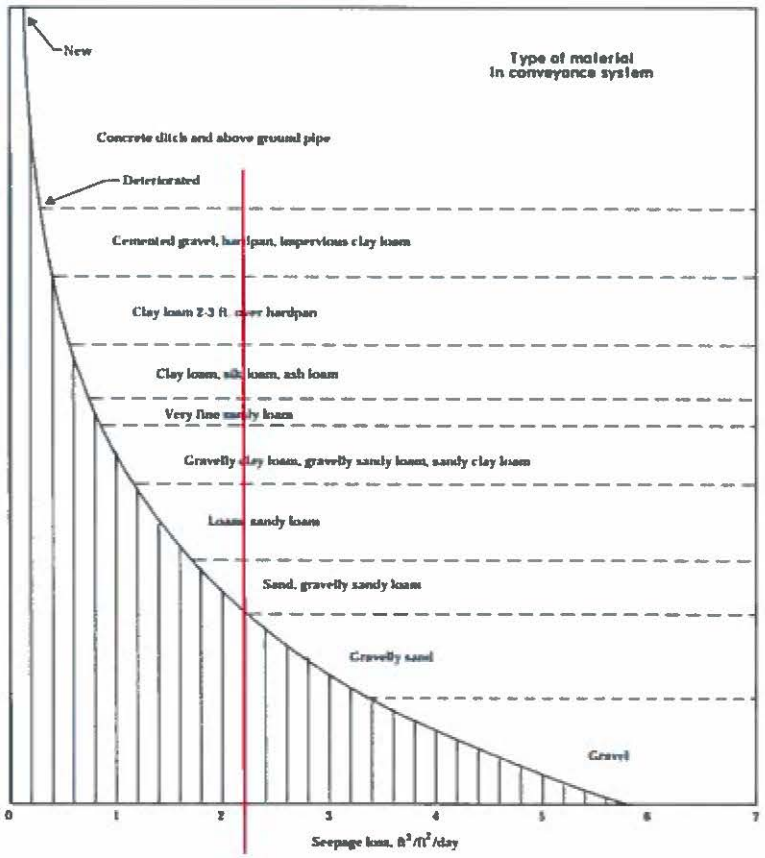
Data Output

Seepage Loss Factor:	2.2	$ft^3/ft^2/Day$ - From Figure 2-50
Seepage Loss Rate:	139727	ft^3/Day
Seepage Loss Rate:	388.5	acre ft / year (121 days in irrigation season)
Evaporation Loss Percentage	10%	Percentage of Seepage Loss
Evaporation Loss Rate:	13973	ft^3/Day
Evaporation Loss Rate:	39.0	acre ft / year (121 days in irrigation season)
Vegetation Loss Percentage	2.00%	Percentage of Total Flow per Mile
Vegetation Loss Rate:	28800	ft^3/Day
Vegetation Loss Rate:	80.0	acre ft / year (121 days in irrigation season)

Total Seepage and Evaporation Loss Rate

	182500	ft^3/Day
Total Loss Rate:	2.11	cfs
	507.5	acre ft / year (121 days in irrigation season)
Current Percent Loss:	5%	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

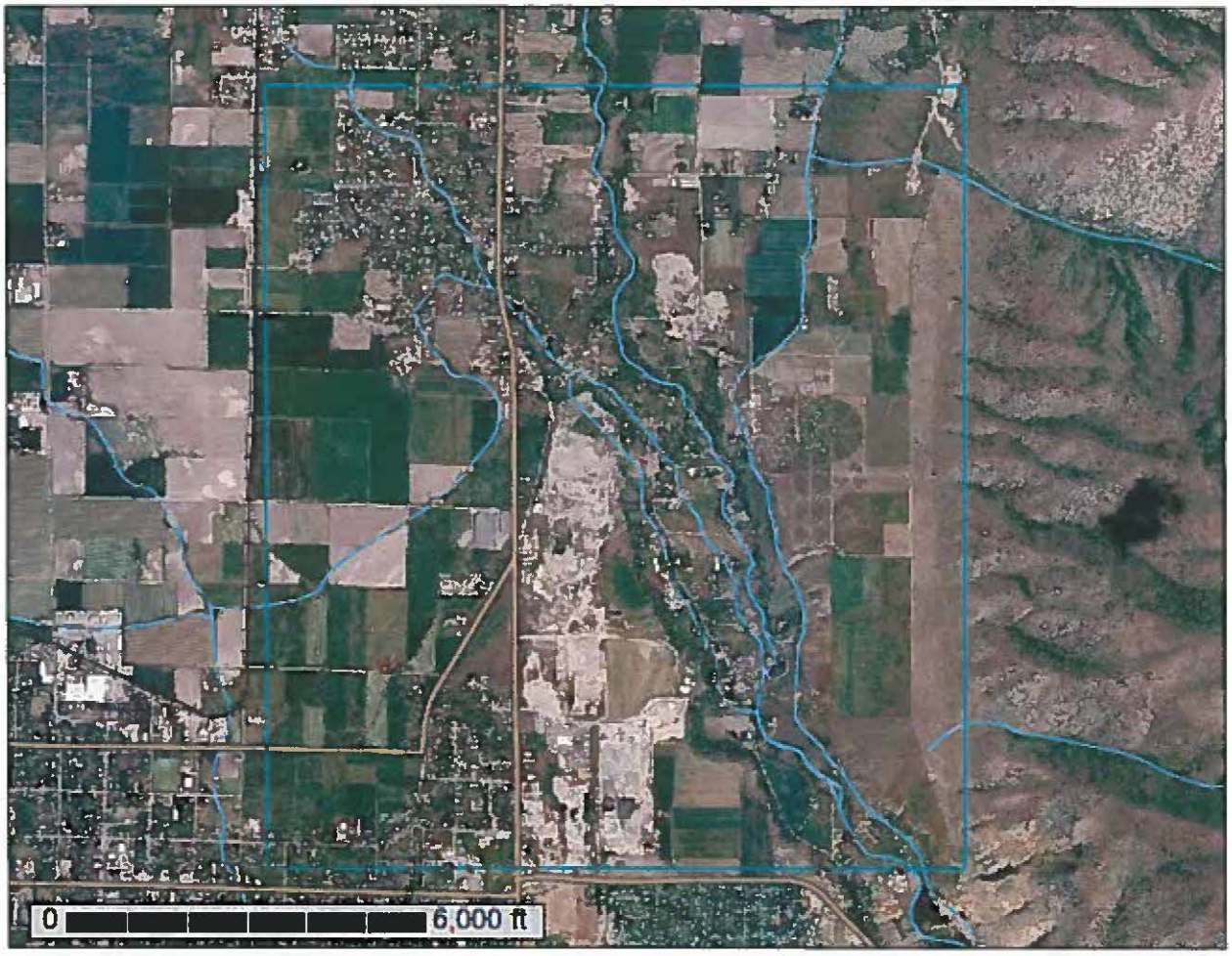
United States Department of Agriculture

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; and Wasatch-Cache National Forest, Utah and Wyoming



October 1, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

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 (Nibley Blacksmith Fork Irrigation Company - Quarter Circle Drive Section)

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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 12, Sep 16, 2019

Soil Survey Area: Wasatch-Cache National Forest, Utah and Wyoming
Survey Area Data: Version 2, Sep 16, 2019

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: May 6, 2012—Oct 27, 2017

MAP LEGEND

MAP INFORMATION

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 (Nibley Blacksmith Fork Irrigation Company - Quarter Circle Drive Section)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ck	COLLETT SILTY CLAY LOAM	93.4	2.7%
Gp	GRAVEL PIT	19.3	0.6%
GsA	GREENSON LOAM, 0 TO 3 PERCENT SLOPES	293.1	8.5%
GsB	GREENSON LOAM, 3 TO 6 PERCENT SLOPES	23.4	0.7%
Lr	LOGAN SILTY CLAY LOAM	8.9	0.3%
NcA	NIBLEY SILTY CLAY LOAM, 0 TO 3 PERCENT SLOPES	230.4	6.7%
NcB	NIBLEY SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES	60.5	1.8%
PaA	PARLEYS SILT LOAM, 0 TO 3 PERCENT SLOPES	18.8	0.5%
PlA	PARLO SILT LOAM, 0 TO 3 PERCENT SLOPES	213.1	6.2%
PlB	PARLO SILT LOAM, 3 TO 6 PERCENT SLOPES	44.3	1.3%
Pu	PROVO LOAM	2.5	0.1%
Pv	PROVO GRAVELLY LOAM	44.0	1.3%
RhA	RICKS GRAVELLY LOAM, 0 TO 3 PERCENT SLOPES	760.7	22.0%
RhB	RICKS GRAVELLY LOAM, 3 TO 6 PERCENT SLOPES	122.4	3.5%
RhC	RICKS GRAVELLY LOAM, 6 TO 10 PERCENT SLOPES	113.0	3.3%
Rk	RIVERWASH	122.6	3.6%
Rs	ROSHE SPRINGS SILT LOAM	114.3	3.3%
Rt	ROUGH BROKEN LAND	150.6	4.4%
SvA	STEED GRAVELLY LOAM, 0 TO 3 PERCENT SLOPES	417.9	12.1%
SvB	STEED GRAVELLY LOAM, 3 TO 6 PERCENT SLOPES	35.3	1.0%
SvC	STEED GRAVELLY LOAM, 6 TO 10 PERCENT SLOPES	12.9	0.4%
SwC	STERLING GRAVELLY LOAM, 6 TO 10 PERCENT SLOPES	35.1	1.0%
SwD	STERLING GRAVELLY LOAM, 10 TO 20 PERCENT SLOPES	238.6	6.9%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SwF2	STERLING GRAVELLY LOAM, 20 TO 50 PERCENT SLOPES,ERODED	47.7	1.4%
Sy	STONY ALLUVIAL LAND	3.3	0.1%
TmD2	TIMPANOGOS SILT LOAM, 10 TO 20 PERCENT SLOPES, ERODED	40.4	1.2%
W	WATER	30.3	0.9%
Wn	WINN SILT LOAM	29.0	0.8%
Subtotals for Soil Survey Area		**3,326.2**	**96.4%**
Totals for Area of Interest		**3,450.4**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	124.2	3.6%
Subtotals for Soil Survey Area		**124.2**	**3.6%**
Totals for Area of Interest		**3,450.4**	**100.0%**

Appendix C

Conservation Plan

(Cover Page)

BEAR RIVER BASIN
PLANNING FOR THE FUTURE

January 2004

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

By:
The Division of Water Resources

With valuable input from the
State Water Plan Coordinating Committee:

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

UTAH STATE WATER PLAN

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

Appendix D

Opinion of Engineering Costs

QUARTER CIRCLE DRIVE PIPING PROJECT

NIBLEY BLACKSMITH FORK IRRIGAITON COMPANY

ENGINEER'S PROPOSAL OF COST

Description	Cost	Fee Type
TOPOGRAPHIC SURVEY & BASE MAPPING	*$16,000*	
TOPOGRAPHIC SURVEY & BASE MAPPING	*$16,000*	Lump Sum
IRRIGATION SYSTEM DESIGN	*$30,000*	
DESIGN REPORT	*$5,000*	Lump Sum
PIPELING PLANS AND SPECIFICATIONS	*$20,000*	Lump Sum
STRUCTURAL DESIGN	*$5,000*	Lump Sum
PERMITTING & ENVIRONMENTAL	*$22,000*	
NIBLEY CITY PERMITTING	*$5,000*	Lump Sum
UDOT PERMITTING	*$5,000*	Lump Sum
SWPPP PERMITTING	*$5,000*	Lump Sum
ADDITIONAL PERMITTING	*$7,000*	Lump Sum
POST DESIGN SERVICES	*$82,000*	
MATERIALS OR CONTRACTOR BIDDING #1	*$7,000*	Lump Sum
MATERIALS OR CONTRACTOR BIDDING #2	*$7,000*	Lump Sum
CONSTRUCTION ADMINISTRATION	*$28,000*	T & M
CONSTRUCTION OBSERVATION & SUPPORT SERVICES	*$30,000*	T & M
CONSTRUCTION SURVEY STAKING	*$6,000*	Lump Sum
CONTRACT RECORD DRAWINGS	*$4,000*	Lump Sum
Estimated Total	**$150,000**	

ACCOUNTING BREAKDOWN STRUCTURE

PROJECT NAME: [illegible]
[illegible]
[illegible] Engineering Inc.

Hide Non-used Columns | Unhide All Rows | Unhide All Columns

Project No.	[illegible]
Project Engineer	SCOTT L. ARCHIBALD
Project Manager	STEVEN D. WOOD
Completion Date	March 16, 2021
Contract Amount	$150,000
Fee Schedule	SEPT. 01, 2019

DESCRIPTION	RATE / MARKUP	BUDGET	TOPOGRAPHIC SURVEY & BASE MAPPING	DESIGN REPORT	PIPELINE PLANS AND SPECIFICATIONS	STRUCTURAL DESIGN	[illegible] PERMITTING	[illegible] PERMITTING	[illegible] PERMITTING	ADDITIONAL PERMITTING	MATERIALS OR CONTRACTOR BIDDING [illegible]	MATERIALS OR CONTRACTOR BIDDING [illegible]	CONSTRUCTION [illegible]	CONSTRUCTION OBSERVATION & SUPPORT SERVICES	CONSTRUCTION SURVEY STAKING	CONTRACT RECORD DRAWINGS	HOURS PER CLASS	COST PER CLASS
Administrative III	$74.00	Hours / Cost																
Engineer level (P.E.) I	[illegible]	Cost			$3,960		$1,683	$1,683	$1,683	$3,465	$2,376	$2,376	$3,960			$2,673	241	$23,859
Engineer level (P.E.) II	[illegible]	Cost		$2,160	$3,780	$1,512	$3,240	$3,240	$3,240	$3,456	$1,404	$1,404	$16,200	$5,400		$864	425	$45,900
Engineer V	$174.00	Cost				$3,480											20	$3,480
Principal Engineer	$196.00	Cost		$1,568	$7,840						$1,176	$1,176	[illegible]	$3,920		$392	142	$27,832
Engineering Tech I	$77.00	Cost		$1,232	$3,850												66	$5,082
Construction Observer I	[illegible]	Cost												$20,100			300	$20,100
2-Man Survey Crew	$150.00	Cost	[illegible]												$2,700		53	$7,950
Survey Manager	[illegible]	Cost	$5,600												$2,400		54	$8,000
Registered Surveyor	$170.00	Cost	$4,250												$850		30	$5,100
Mileage	[illegible]	Miles / Cost																
All Vehicles (per day)	[illegible]	Days / Cost																
Per Diem Meals	$60.00	Days / Cost																
Nuclear Density Gauge	[illegible]	Days / Cost																
[illegible] Survey Stations	[illegible]	Hours / Cost																
[illegible] Testing Lab Work	[illegible]	Cost / With Markup																
[illegible] Consultants, Aerial Photography, etc.	15%	Cost / With Markup																
[illegible]	15%	Cost / With Markup																
Other Expenses Incurred	10%	Cost / With Markup																
TOTAL		ALL LABOR HOURS	95	44	165	34	47	47	47	67	53	53	210	370	38	37		
		ALL LABOR COSTS	$15,100	$4,960	$19,430	$4,992	$4,923	$4,923	$4,923	$6,921	$6,916	$6,916	$18,000	$29,420	$5,950	$3,929		ACCURACY CHECK
		ALL REIMBURSABLE COSTS																OKAY
		SUBCONSULTANT COSTS																$147,383
		TOTAL COSTS	$15,100	$4,960	$19,430	$4,992	$4,923	$4,923	$4,923	$6,921	$6,916	$6,916	$18,000	$29,420	$5,950	$3,929		$147,383
		ROUNDED CONTRACT AMOUNTS	$16,000	$5,000	$20,000	$5,000	$5,000	$5,000	$5,000	$7,000	$7,000	$7,000	$20,000	$30,000	$6,000	$4,000		$150,000

Appendix E

Opinion of Construction Costs

Nibley Blacksmith Fork Irrigation Company

Quarter Circle Drive Piping Project

Opinion of Probable Construction Costs

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization	1	LS	$ 51,300	$ 51,300
2	Traffic Control	1	LS	$ 11,400	$ 11,400
3	Subsurface Investigation	20	HR	$ 225	$ 4,500
4	Inlet Structure	1	Each	$ 34,200	$ 34,200
5	36" PVC Pipe	2,200	LF	$ 103	$ 225,600
6	Imported Bedding Material	2,200	LF	$ 11	$ 25,000
7	Imported Backfill Material	1,000	LF	$ 23	$ 22,800
8	Imported Topsoil	1,000	LF	$ 6	$ 5,700
9	Connect to Diversion Structure @ 250 East	1	Each	$ 28,500	$ 28,500
10	Concrete Work @ 250 East	50	CY	$ 340	$ 17,000
11	Main Diversion Concrete/ Metering Work	1	LS	$ 114,000	$ 114,000
12	Landscaping	1	LS	$ 5,700	$ 5,700
13	Replace 3" Bituminous Surface	50	SY	$ 114	$ 5,700
14	Remove Bituminous Surface	50	SY	$ 58	$ 2,900
15	Untreated Base Course	50	CY	$ 58	$ 2,900
16	Tree Removal	1	LS	$ 22,800	$ 22,800
Construction Subtotal					**$ 580,000**

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 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 10% of the construction costs.

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

Item 4 – Inlet Structure was based on the Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County.

Item 5 – 36" PVC was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 6 – Imported Bedding Material was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 7 – Imported Backfill Material was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 8 – Imported Topsoil was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 9 – Connect to Diversion Structure @ 250 East was based on material estimates from suppliers along with Sunrise's professional experience and judgement.

Item 10 – Concrete Work @ 250 East was based on material estimates from suppliers along with Sunrise's professional experience and judgement.

Item 11 – Main Diversion Concrete/ Metering Work was based on material estimates from suppliers along with Sunrise's professional experience and judgement.

Item 12 – Landscaping was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 13 – Replacing 3" Bituminous Surface was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 14 – Remove Bituminous Surface was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 15 – Untreated Base Course was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Item 16 – Tree Removal was based on Newton Water Users, Big Birch, North Fork Spring Redevelopment projects, Benson Canal Enclosure, & And additional miscellaneous piping projects throughout Cache County. Material costs were updated from local suppliers.

Appendix F

Opinion of Environmental Costs

Nibley Blacksmith Fork Irrigation Company

Quarter Circle Drive Piping Project

Opinion of Probable Environmental Costs

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Archeologist Investigation					
1	Filed Work/Site Investigation	20	Hrs	$ 100.00	$ 2,000.00
2	Archelogy 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
Socioeconomic Investigation					
4	Filed Work/Site Investigation	15	Hrs	$ 100.00	$ 1,500.00
5	Public Input	10	Hrs	$ 100.00	$ 1,000.00
6	Reporting and Deliverables	15	Hrs	$ 100.00	$ 1,500.00
				Socioeconomic Subtotal	$ 3,500.00
Additional Required Items					
7	BOR Environmental Fees	1	LS	$ 7,000.00	$ 7,000.00
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
				Additional Required Items Subtotal	$ 11,300.00
				Total	**$ 20,000.00**

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)
- 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: Baxter, Jared <jbaxter@usbr.gov>
Sent: Saturday, September 28, 2019 4:53 PM
To: Steven D. Wood
Cc: Carley Smith; Crookston, Peter L; Scott Blake; David Snyder
Subject: Re: [EXTERNAL] Request for BOR Input Concerning Environmental Requirements and Costs for the Quarter Circle Drive section.

Steven,

Thanks for the email. I appreciate you reaching out to Reclamation to get a better idea of what Reclamation's environmental costs might be for your proposed Quarter Circle Drive Piping Project for the Nibley Blacksmith Fork Irrigation Company. Before I go any further, **I want to make sure it's clear that I'm giving only a range that is an ESTIMATE based on our phone conversation and the information you provided in this email, and that the actual amount needed to cover Reclamation's environmental compliance costs could be higher or lower. Giving this estimate does not bind Reclamation to any particular amount or guarantee your application for a WaterSMART grant will be awarded.**

With that out of the way, I just wanted to slightly correct some of the bullet points we talked about that you put in the email.

- The historical significance of the canal. This would be evaluated with a pedestrian archaeological survey and review in consultation with the ~~state preservation office~~ Utah State Historic Preservation Officer to determine the ~~historical significance,~~ 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.
- There is not a great concern for the impact of this project to ~~endangered flora and fauna of the area~~ Ute ladies'-tresses because ~~the endangered species in the area do~~ it does not compete well ~~with humans in close proximity or~~ against heavy vegetation. Although, further research, including a data review and/or field surveys by a qualified biologist following USFWS protocols will need to be conducted to correctly evaluate this.
- The main ~~concern~~ unknown is the Socioeconomic, or potentially just social, impact of this project. The canal has created an atmosphere that could be considered peaceful and pleasing to the residents that boarder the canal. The canal and associated mature vegetation may also contribute to property values of the residences near the canal. With the piping of the canal, this atmosphere and property values could be impacted negatively. This does warrant further investigation and potentially public involvement through completion of an Environmental Assessment.

As for costs, I'll break it into 2 pieces: National Historic Preservation Act (NHPA, cultural resources) and everything else (NEPA, ESA, CWA, etc.).

For NHPA compliance: if the canal is eligible and it is an adverse effect then we request $20,000 for reviewing survey reports, consultation with the SHPO, and for mitigation (negotiating an MOA and completing the terms of it). This amount could be greatly reduced if 1) the canal is not eligible, 2) the proposed project would not have an adverse effect on the canal even if it is eligible, or 3) we have a Programmatic Agreement set up that would reduce workload and costs for mitigating adverse effects to eligible canals. The first of the meetings for negotiating the PA occurred last week. If the PA is negotiated and signed prior to environmental compliance for your project, then your project ***may*** fit under that PA, which would substantially reduce costs and time.

For everything else, if an EA is required, it may cost around $20,000. If no consultation is required with the USFWS or the USACE, and controversy as to the effects of the proposed project are minimal or non-existent, then the cost would again

be substantially reduced. If more work is required on Reclamation's part to consult with other federal agencies or tribes, or with public involvement, then the full amount may need to be used. If a categorical exclusion would be possible, then that would also reduce costs for the NEPA side of things.

As you can see, there are a lot of "ifs" in those paragraphs. But to summarize, at worst the proposed project may cost $40,000. If things went really haywire, it could be more, but with the information you provided that seems pretty unlikely. If things end up pretty straightforward with minimal or no impacts or controversy, then environmental costs could be more in the vicinity of $10,000.

I obviously will not and cannot tell you what to put in your application. I also want to reiterate that **THESE ARE ESTIMATES AND ACTUAL COSTS COULD BE MORE OR LESS THAN WHAT I MENTIONED HERE.**

Best of luck with your application.

Sincerely,

Jared

On Fri, Sep 27, 2019 at 1:37 PM Steven D. Wood <sdwood@sunrise-eng.com> wrote:

> Afternoon Jared,
>
> Thank you for talking with me the other day concerning the Quarter Circle Drive section of the Nibley Blacksmith Fork Irrigation Company. To provide a brief summary of our discussion, the Nibley Blacksmith Fork Irrigation Company is currently pursuing a WaterSMART Grant with the Bureau of Reclamation for the Piping of the a section of canal known as the Quarter Circle Drive section.
>
> It is approximately 2200 feet long. Currently the section is an earthen ditch that runs through a residential area crossing approximately 22 back yards. This section is also located in sandy gravely loam soils which causes large water losses along this stretch. The goal for the Irrigation Company is to enclose the canal by piping the system. This would reduce the water loss significantly and remove the safety risks presented by the open canal (primarily drowning and flooding). I have included a KMZ file of the stretch of canal we are enclosing.
>
> During our discussion, we had talked about various elements that would be a concern with the environmental clearances for this project. The items discussed are general 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.
> - The main concern is the Socioeconomic impact of this project. The canal has created an atmosphere that could be considered peaceful and pleasing to the residents that boarder the canal. With the piping of the canal, this atmosphere could be impacted negatively. This does warrant further investigation.

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

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Archeologist Investigation					
1	Filed Work/Site Investigation	20	Hrs	$ 100.00	$ 2,000.00
2	Archelogy 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
Socioeconomic Investigation					
4	Filed Work/Site Investigation	15	Hrs	$ 100.00	$ 1,500.00
5	Public Input	10	Hrs	$ 100.00	$ 1,000.00
6	Reporting and Deliverables	15	Hrs	$ 100.00	$ 1,500.00
				Socioeconomic Subtotal	$ 3,500.00
Additional Required Items					
7	BOR Environmental Fees	1	LS	$ 7,000.00	$ 7,000.00
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
				Additional Required Items Subtotal	$ 11,300.00
				Total	**$ 20,000.00**

Sunrise would like to request your input on the environmental portion for the Quarter Circle Drive Piping Project for the Nibley Blacksmith Fork Irrigation Company. Thank you for your input and support for this project.

Regards,

Steven D. Wood

STEVEN D WOOD
Assistant Project Manager

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Provo Area Office
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Appendix G

Resolution

OFFICIAL RESOLUTION

OF THE

Nibley Blacksmith Fork Irrigation Company

Resolution No. 2019 -1

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

AUTHORIZING THE PRESIDENT OF THE NIBLEY BLACKSMITH FORK 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 NIBLEY BLACKSMITH FORK CANEL SYSTEM KNOWN AS QUARTER CIRCLE DRIVE SECTION (BETWEEN 250 WEST AND UT HWY 165).

WHEREAS, The Nibley Blacksmith Fork Irrigation Company, (the "Company") of Nibley, 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 ($ 760,000 Total Project, $ 300,000 Water SMART Grant) for design & construction to pipe the Quarter Circle Drive Section. 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 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: 09/24/2019

Paul Leishman

Paul Leishman, President

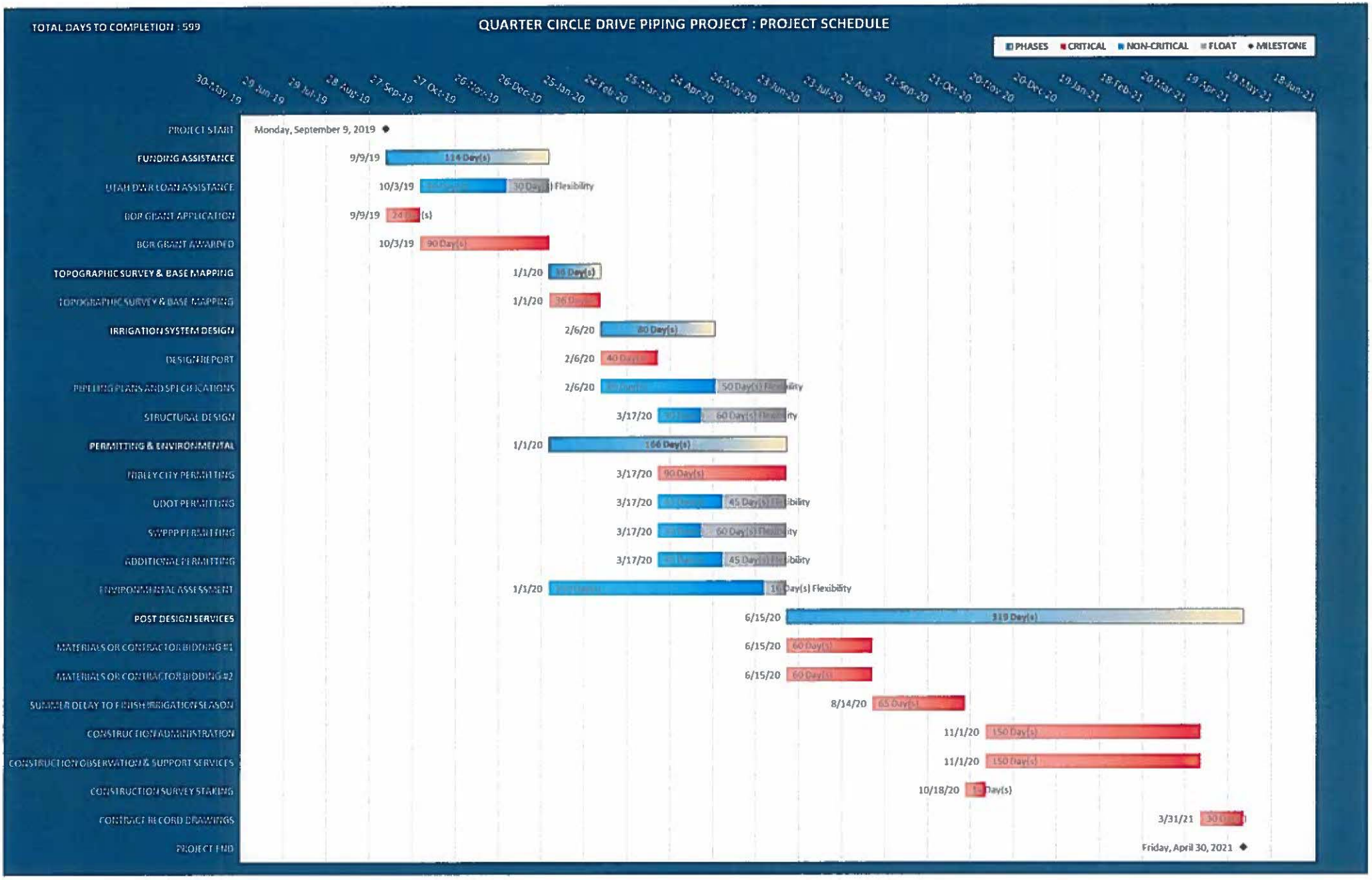
ATTEST:

Scott Archibald, Project Manager

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

Appendix H

Proposed Schedule


TOTAL DAYS TO COMPLETION : 599
QUARTER CIRCLE DRIVE PIPING PROJECT : PROJECT SCHEDULE
PHASES
CRITICAL
NON-CRITICAL
FLOAT
MILESTONE
30-May-19
29-Jun-19
29-Jul-19
28-Aug-19
27-Sep-19
27-Oct-19
26-Nov-19
26-Dec-19
25-Jan-20
24-Feb-20
25-Mar-20
24-Apr-20
24-May-20
23-Jun-20
23-Jul-20
22-Aug-20
21-Sep-20
21-Oct-20
20-Nov-20
20-Dec-20
19-Jan-21
18-Feb-21
20-Mar-21
19-Apr-21
19-May-21
18-Jun-21
PROJECT START
Monday, September 9, 2019
FUNDING ASSISTANCE
9/9/19
114 Day(s)
UTAH DWR LOAN ASSISTANCE
10/3/19
30 Day(s) Flexibility
BOR GRANT APPLICATION
9/9/19
(s)
BOR GRANT AWARDED
10/3/19
90 Day(s)
TOPOGRAPHIC SURVEY & BASE MAPPING
1/1/20
30 Day(s)
TOPOGRAPHIC SURVEY & BASE MAPPING
1/1/20
IRRIGATION SYSTEM DESIGN
2/6/20
80 Day(s)
DESIGN REPORT
2/6/20
40 Day(s)
PIPELINE PLANS AND SPECIFICATIONS
2/6/20
50 Day(s)
STRUCTURAL DESIGN
3/17/20
60 Day(s)
PERMITTING & ENVIRONMENTAL
1/1/20
166 Day(s)
RILEY CITY PERMITTING
3/17/20
90 Day(s)
UDOT PERMITTING
3/17/20
45 Day(s)
SWPPP PERMITTING
3/17/20
60 Day(s)
ADDITIONAL PERMITTING
3/17/20
45 Day(s)
ENVIRONMENTAL ASSESSMENT
1/1/20
15 Day(s) Flexibility
POST DESIGN SERVICES
6/15/20
319 Day(s)
MATERIALS OR CONTRACTOR BIDDING #1
6/15/20
60 Day(s)
MATERIALS OR CONTRACTOR BIDDING #2
6/15/20
60 Day(s)
SUMMER DELAY TO FINISH IRRIGATION SEASON
8/14/20
65 Day(s)
CONSTRUCTION ADMINISTRATION
11/1/20
150 Day(s)
CONSTRUCTION OBSERVATION & SUPPORT SERVICES
11/1/20
150 Day(s)
CONSTRUCTION SURVEY STAKING
10/18/20
Day(s)
FORTHNIGHT RECORD DRAWINGS
3/31/21
PROJECT END
Friday, April 30, 2021