Piping Indian Creek 24.3 Lateral

Belle Fourche Irrigation District (BFID)

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TECHNICAL PROPOSAL

- EXECUTIVE SUMMARY-March 18, 2021 the Belle Fourche Irrigation District (BFID) located in Butte County, South Dakota with district offices in Newell, South Dakota submits this Funding Opportunity Number BOR-DO-R21AS00300.
  Belle Fourche Irrigation District is a Category A applicant.

  The Belle Fourche Irrigation District, located in South Dakota, will upgrade the 3000 feet of open ditch of the Indian creek 24.3 Lateral with approximately 3000 feet of 12-inch PVC 100PSI pipe. This project will also upgrade flow meters and farmer turnouts. This upgrade will reduce seepage losses and enable the Belle Fourche Irrigation District to better manage and control the irrigation water. Funds for this project will be used to pay for pipe and appurtenances to control and measure water flow. The water savings of this project are estimated at approximately 200-acre feet per year. This project will help farmers in the future with on-farm improvements.

  The time to construct the Indian Creek 24.3 Lateral aka the Dodson Pipeline project is presented in the budget tables assuming 20 days to install the pipeline and farmer turnouts (FTO), valve wells, and flow meters. Mobilization and demobilization are estimated at 5 days, installation of the pipe is an estimated 15 days. The project is scheduled to begin in the fall of October 2022 and be completed within approximately 20 days. Completion of the project will be done within 2 years in the event of any weather or technical delays.
  The Belle Fourche Unit is a Reclamation Facility owned by the United States and operated and maintained by the Belle Fourche Irrigation District (BFID).

Project Location-

- The Belle Fourche Irrigation District located in Butte County, South Dakota with district offices in Newell, South Dakota. This activity will take place on the Indian Creek 24.3 Sub-Lateral located at 44° 39’ 19.4” N Latitude, -103° 24’ 25.6” W longitude approximately 4 miles from the nearest town of Newell, South Dakota and 5 miles from the town of Vale, South Dakota.

Technical Project Description

- **Describe the work in detail-**The Belle Fourche Irrigation District (BFID) plans to install approximately 3000 feet of underground pipeline in an existing 3000-foot seeping open ditch that begins as a concrete chute that is failing due to erosion. The District plans to mobilizing by hauling pipe, equipment, and appurtenances from the staging area. Once equipment is on location, they will shoot the ditch for grade and begin digging to specifications and installing the pipeline. The district feels confident it will lay 200 feet of pipe per day. Once all the pipe is laid five Resilient Wedge 12” valves will be installed with valve wells and flow meters measuring devices. Demobilization will include loading up equipment and hauling to the

District Headquarters along with cleaning up the work site and reclaiming the site back to its original state.

- **Describe the expected benefits and outcomes of implementing the proposed project**-
    - **What are the benefits to the applicant's water supply delivery system?** Piping the Indian Creek 24.3 Lateral will enclose the system and create water conservation and eliminate the seepage creating an effortless delivery to our landowners. This project will also eliminate the erosion being caused by the failing chute and running water.
    - **If other benefits are expected explain those as well. Consider the following:**
        - **Extent to which the proposed project improves overall water supply/reliability-**By piping the lateral the BFID would conserve water and eliminate erosion. This project will help production of the landowners and lessen the alkali content in the soil. The water savings is estimated by the Bureau of Reclamation Rapid City office to be approximately 200-acre feet per year.
        - **The expected geographic scope benefits from the proposed project (e.g, local, sub-basin, basin)-**the new pipeline will improve water management for the Belle Fourche Reservoir and all the downstream water users as this will no longer be wasting approximately 200-acre feet per season.
        - **Extent to which the proposed project will increase collaboration and information sharing among water managers in the region-** this is not applicable.
        - **Any anticipated positive impacts/benefits to local sectors and economies (e.g, agriculture, environment, recreation, tourism)-** Closing the system will better control the water and provide less waste, allowing more water to be reserved in the dam for recreation. Also, there would be less alkali from the seeping of the open ditch.
        - **Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.** -This project will allow landowners to direct connect to our system avoiding extra costs for pumps and generators becoming more environmentally friendly. Two pivots are in the planning stage of being installed in this area.
- **Describe how your project is supported by an existing planning effort-** Each year the District budgets a set amount of funds to support the grants we apply for. Each year there is a minimum of $75,000.00 set up for the match in which we use to pay our employees and use our equipment. BFID is concerned about conservation and erosion control. We also preserve the quality of our planet in any way possible.

- **Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?** Yes, this project would stop the erosion and help conserve water. Making our area a better place.
- **Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures-** The erosion on this project is detrimental. The cement chute has shifted and the water is running under it the water is finding new ways to travel and it is eroding the ground and causing alkali patches.

Project Implementation

- **Describe the implementation plan for 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-** BFID has appropriated approximately 25 days to complete this project. The District plans to take 2 days mobilizing hauling pipe, equipment, and appurtenances from the staging area. Once equipment is on location, they will shoot the ditch for grade and begin digging to specifications and installing the pipeline. The district feels confident it will lay 200 feet of pipe per day it will take approximately 15 days. Once all the pipe is laid five Resilient Wedge 12" valves will be installed with valve wells and flow meters measuring devices this will take approximately one day per valve. Demobilization will take three days of loading up equipment and hauling to the District Headquarters along with cleaning up the work site and reclaiming the site back to its original state. The District will reseed the ground as part of our reclamation efforts.
- **Describe any permits that will be required, along with the process for obtaining such permits-**At this time, we are awaiting the NEPA compliance approval, in which the District submitted in 2020. We currently have ROW paperwork in order and a design drawing has been done by our staff. The process to obtain these permits began before submitting the project. We work in conjunction with the Rapid City Bureau of Reclamation.
- **Identify and describe any engineering or design work performed specifically in support of the proposed project-**BFID had our in house watermaster do our design as he went to college to be an engineer.
- **Describe any new policies or administrative actions required to implement this project-**there will be no new policy needed at this time for this project.
- **Describe the timeline for the completion of the environmental and cultural resource compliance.-**the BFID has already submitted paperwork to accomplish the compliance with local Reclamation.
- **Was the timeline for the completion of environmental and cultural resource compliance discussed with the local Reclamation office?-**BFID staff has been in contact with the local Rapid City Reclamation office to complete compliance and make sure we have all our paperwork in order for this project.

Nexus to Reclamation

- **Is the proposed project connected to a Reclamation project or activity?-**Yes, this project is in the boundaries of the Belle Fourche Irrigation District. We are managing partners of the Bureau of Reclamation.
    - Does the applicant receive Reclamation project water?-Yes, we are managing partners with the Bureau of Reclamation.
    - Is the project on Reclamation project lands or involving Reclamation facilities?-Yes, this is a Reclamation project.
    - Is the project in the same basin as the Reclamation project or activity?-Yes, it is all inside the BFID boundaries, in which is a Reclamation project.
    - Will the proposed work contribute water to a basin where a Reclamation project is located?-Yes , this is all in the Pick-Sloan basin.
    - Will the project benefit any tribe(s)?-No this will not affect the tribes.
-

Funding Plan and Letters of Commitment-All of these funds will be contributed by assessment income and savings accounts. BFID has full support of the Board of Directors and Bureau of Reclamation.

Budget Proposal **See Appendix B**

Budget Narrative

The in-kind match The Belle Fourche Irrigation District (BFID) will provide will be equipment and man hours. It is assumed to take 25 days to complete this project. Two days to mobilize the equipment and haul PVC pipe and supplies to the Indian Creek 24.3 Lateral. Demobilization will take three days to clean up, reseed the ground and remove all equipment and debris. This is a total of 25 days. Each employee is in the proposal at current wages with fringe benefits included as of March 17, 2021. Labor is approximately $40,357.17 and is spent as follows:

1. **Foreman:** On location the duration of the job to oversee all work is done accurately and safely this is a total of 200 hours at his current rate of pay with fringe benefits to total $6,708.80. Foreman is hands on and assists the crew as well.
2. **Office Manager/ Administration:** Approximately 100 hours estimated for the Administration, $2,378.43 to document all hours, receipts, equipment usage, and to file all quarterly reports in a timely manner.
3. **Operators:** Utilized daily to operate the equipment they will be on location 200-man hours for a combined total of $14,890.04. Operators and Foreman will shoot the ditch for grade and lay approximately 200 feet of pipe per day taking approximately 15 days. An estimated 5 days are to install the valve wells and the flow meters to measure the water.
4. **Truck drivers:** Haul all equipment, pipe, machinery, etc. needed to location, they will also drive the dump trucks to haul the bedding for the pipeline. The truck drivers may also be used to install the pipe in the trench, estimated usage

for two men is 120 hours for a combined total of $5,213.44. Our employees are cross trained and these have CDL's.

5. **Laborers:** Used to lay pipe, keep area clean and safe, assist the foreman and operators as needed, estimated costs for these employees is $8,585.00. These guys are used in the trench to compact the soil with the roller packer also they glue the pipeline together and do any and all tasks the foreman assigns them. They will help the operators with mobilization and demobilization.

BFID used the United States Army Corps of Engineers (USACE) ownership and operating schedule to figure the equipment hours and adjusted them to our equipment. We estimate approximate usage of the following Equipment usage estimate is $36,136.40.

- **Case backhoe-**120 hours @ $36.41 to backfill, move earth, and haul pipe, on location for a total of $4369.20.
- **Case skid steer-**200 hours @ $21.37 used to load pipe backfill, disperse the pipe bedding for a total $4274.00.
- **Caterpillar excavator-**120 hours @ $58.54 used to dig pipeline and valve wells- $7024.80.
- **Allis Chalmers fork-** lift will be used in conjunction with the skid steer to load pipe in the staging area for 40 hours- $788.00.
- **Semi-trucks-** will be used to haul all equipment and pipe to location estimated usage is 40 hours for a total $4,298.4.
- **Dump Trucks-** BFID estimates the time to haul bedding from Centennial Quarry to location 60 hours per truck combined total-$6,080.40.
- **Caterpillar D6 dozer-**140 hours @ $51.44 used to move earth-$7,201.60.
- **Remote trench roller-** will be used to pack the bedding we will be renting it for 2.5 weeks- $1,600.00.
- **BFID will pay $500 needed for NEPA, SHPO, ESA, etc.**
- **BFID will also pay $7,208.00 for 4 flow meters.**

District total in-kind match of $83,701.57. All of these funds will be contributed by assessment income and savings accounts.

The Federal funding portion of this project is to purchase the necessary supplies that will be needed BFID got quotes from Core & Main, Mitchell Culvert Raisanen Seeds, McCrometer, Pacific Steel, Newell Hardware and Hills material. From Core and Main the 12" PVC pipe is priced at $9.02 per foot and 3000 feet are needed for a cost of $27,060.00, the six 12" X 90°elbows totaled $884.52, four 12" X 45° elbows are $219.28. Four 4 X 12" tees cost $304.68, three 12 X 12 tees cost $402.72, four air vents from Fresno cost $460.00, and five 12" alfalfa risers cost $1,103.00 the previous appurtenances were quotes from Belle Valley Irrigation. The high-pressure valves cost $11,719.70 quote provided by Core & Main. All other appurtenances (glue, cleaner, fencing material, accessories, flanges, etc.) were estimated to cost $4,970.90. Federal funds will also pay $2500.00 for NEPA, SHPO, ESA, etc. The total Federal funds requested at this time for the funding opportunity are $74,737.97.

Environmental and Cultural Resources

- **Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.** The ground will be excavated and earth moved from an existing open lateral, pipe will be placed into the lateral it will be bedded and backfilled. BFID intends to reclaim the land and reseed the ground, this will cause the soil to create dust but it should be minimal as we will work in the fall and winter months as to not affect quality of the air in a manner unsuitable to the neighborhood. Most of the animals would be in hibernation so we should not disturb them either. We plan to work in the late fall early winter to prevent any massive impact on the animals, air, soil, or the water.
- **Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?** The Northern Long Eared Bat is suspected to reside in wooded areas Western South Dakota. They are on the Federal Endangered Species list. Therefore, according to the Bureau of Reclamation we are to do no work from March 1 to October 31. We do not intend to remove any trees but just in case our work would begin later when they move on and hibernate.
- **Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.** This is not applicable to our project as there are no wetlands in this location.
- **When was the water delivery system constructed?** The Belle Fourche Project was authorized by the Secretary of the Interior for construction on May 10, 1904. Surveys for the project began in 1903. The Bureau of Reclamation (Reclamation) then Reclamation Service began construction of the facilities in 1905 and by 1908 construction was sufficient enough to begin delivering water to about 12,000 acres. The original project was completed in 1914. In 1949 the operation and maintenance responsibilities were transferred from Reclamation to the Belle Fourche Irrigation District (BFID). In 1985 the most recent rehabilitation and betterment (R&B) of the district facilities was done and through the authorization of the R&B the Belle Fourche Project became the Belle Fourche Unit as it was moved to fall under the Missouri Basin Pick-Sloan Plan.
- **Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.** This work area will not result in any modifications of the system. There are no features that will be affected. BFID has submitted paperwork

to the Bureau of Reclamation and are currently waiting on their approval from NEPA and SHPO.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or State Historic Preservation Office can assist in answering this question. We utilized Renee Boen Director and State Archaeologist in South Dakota and her response is to follow. The Belle Fourche Irrigation District is an historic district eligible for listing on the National Register of Historic Places. The District was determined eligible under Criterion A, at the state and local level, for the National Register on August 25, 2002 (SHPO File #020716005F). The District's period of significance is 1904 to 1949. Individual waterways are either contributing or non-contributing to the historic integrity of the District. In consultation with the South Dakota State Historic Preservation Officer (SHPO) in 2002 it was determined that for a lateral to retain integrity at least fifty percent of the lateral's length continue to exist in its original alignment, and not placed in pipe. In addition, at least fifty percent of the historic structures associated with the lateral must remain, and retain integrity. The Indian Creek Lateral is a contributing feature. The Bureau of Reclamation is consulting with the SHPO on this project to determination any adverse effect to the historic district if this project is constructed.

- **Are there any known archeological sites in the proposed project area?** At this time the BFID sees no archeological items located at this site. Reclamation's archaeologist has not completed the cultural survey in the project work zone.
- **Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?** This project will have a positive effect on the low income and population as more water would be conserved and saved for irrigation and not wasting.
- **Will the proposed project limit access to ceremonial use of Indian sacred sites or result in other impacts on tribal lands?** No ceremonial use of any Indian sacred site is located in this area. There would be no affect.
- **Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?** I feel this may help control the noxious weed as they would no longer have constant water to help them grow and the water would not be available for them to travel in.

Letter of Project Support- will provide at a later date

Official Resolution-**See Appendix D**

RESOLUTION FOR WATER AND ENERGY EFFICIENCY GRANT PROGRAM: WaterSMART

Small-Scale Water Efficiency Projects FY 2021

March 2, 2021

WHEREAS, the Belle Fourche Irrigation District in Newell, South Dakota is a legally organized irrigation district in the State of South Dakota, and

WHEREAS, the District promotes, supports and encourages water conservation, and

WHEREAS, the District urgently needs system improvements to maximize the utilization of a limited water supply and help sustain the viability of the project.

THEREFORE, BE IT RESOLVED that the Board of Directors of the Belle Fourche Irrigation District in South Dakota agrees and authorizes that:

1. The Board has reviewed and supports the application proposal to the WaterSMART: Small-Scale Water Efficiency;
2. The Board authorizes the District Secretary, Tara Tennis or Board Secretary/Treasurer Tanya Tifft, the legal authority to enter into the WaterSMART: Small-Scale Water Efficiency Grants agreement;
3. The Belle Fourche Irrigation District in South Dakota is capable of providing the in-kind services and matching obligations, and
4. If selected for a Small-Scale Water Efficiency Grant, the applicant will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

DATED: 3-4-2021

John Heisler

John Heisler, Board Chairman

ATTEST:

Jill Peterson

My Commission Expires May 20, 2026

JILL PETERSON NOTARY PUBLIC SEAL STATE OF SOUTH DAKOTA

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				**$31,602.50**
Foreman	$ 27.06	200.0	hours	$ 5,412.00
Office Manager	$ 20.09	50.0	hours	$ 1,004.50
Administration	$ 16.26	50.0	hours	$ 813.00
Operator 1	$ 20.99	200.0	hours	$ 4,198.00
Operator 2	$ 18.85	200.0	hours	$ 3,770.00
Operator 3	$ 17.50	200.0	hours	$ 3,500.00
Truck Driver	$ 18.50	120.0	hours	$ 2,220.00
Truck Driver 2	$ 17.50	120.0	hours	$ 2,100.00
Labor (pipe Layer)	$ 16.00	140.0	hours	$ 2,240.00
Labor (pipe Layer)	$ 15.00	140.0	hours	$ 2,100.00
Laborer	$ 15.45	100.0	hours	$ 1,545.00
Laborer	$ 14.00	100.0	hours	$ 1,400.00
Laborer	$ 13.00	100.0	hours	$ 1,300.00
Fringe Benefits				**$8,754.67**
Foreman	$6.48	200.0	hours	$ 1,296.80
Office Manager	$5.80	50	hours	$289.93
Administration	$5.42	50.0	hours	$ 271.00
Operator 1	$5.90	200.0	hours	$ 1,180.44
Operator 2	$5.68	200.0	hours	$ 1,136.00
Operator 3	$5.53	200.0	hours	$ 1,105.60
Truck Driver	$5.63	120.0	hours	$ 675.60
Truck Driver 2	$1.82	120.0	hours	$ 217.84
Labor (pipe Layer)	$5.37	140.0	hours	$ 752.20
Labor (pipe Layer)	$5.27	140.0	hours	$ 738.41
Laborer	$0.69	100.0	hours	$ 68.65
Laborer	$5.16	100.0	hours	$ 516.00
Laborer	$5.06	100.0	hours	$ 506.21
Use of District-owned Equipment				**$36,136.40**
Case Backhoe	$ 36.41	120	hours	$ 4,369.20
Skid Steer case	$ 21.37	200	hours	$ 4,274.00
Cat Excavator	$ 58.54	120	hours	$ 7,024.80
Allis Chalmers Fork Lift	$ 19.70	40	hours	$ 788.00
PeterBuilt/Trailer	$ 53.73	40	hours	$ 2,149.20
GMC Semi/Trailer	$ 53.73	40	hours	$ 2,149.20
GMC Dump Truck	$ 50.67	60	hours	$ 3,040.20
GMC Dump Truck	$ 50.67	60	hours	$ 3,040.20
Cat Dozer D6	$ 51.44	140	hours	$ 7,201.60
Rental of remote trench roller	$ 640.00	2.5	weeks	$ 1,600.00

NEPA	$ 500.00	1		$ 500.00
Supplies and Materials				**$79,445.97**
12" PVC PIP 100PSI	$ 9.02	3000		$ 27,060.00
12X12 Tee	$ 134.24	3		$ 402.72
12"X90° Elbow 100 PSI	$ 147.42	6		$ 884.52
4"X12" Tee 100 PSI	$ 76.17	4		$ 304.68
12" 45° elbows 100PSI	$ 54.82	4		$ 219.28
15" X 12" Reducer 100PSI	$ 92.07	1		$ 92.07
4" Air Vent	$ 115.00	4		$ 460.00
12" Alfalfa Riser	$ 220.60	5		$ 1,103.00
Gallon of Gray Pipe Glue	$ 81.27	6		$ 487.62
Gallon Purple pipe Cleaner	$ 65.10	6		$ 390.60
High Pressure Valves Resiliant Wedge	$ 2,343.94	5		$ 11,719.70
Operating nut	$ 55.70	5		$ 278.50
Flanges	$ 165.87	10		$ 1,658.70
Accessories for flanges	$ 48.46	10		$ 484.60
CRP Mix grassland	$ 250.00	4.2	Per Bag	$ 1,050.00
Pipe Bedding	$ 23.75	800		$ 19,000.00
Valve Wells	$ 683.80	5		$ 3,419.00
Valve Well Lids	$ 148.20	5		$ 741.00
Flow Meter	$ 1,802.00	4		$ 7,208.00
Flow Meter	$ 1,802.00	1		$ 1,802.00
Steel Posts	$ 18.50	20		$ 370.00
Red Brand Barb Wire	$ 99.99	2		$ 199.98
Gate closures, hinges, etc	$ 55.00	2		$ 110.00
Other				**$2,500.00**
Environmental compliance/review	$2,500.00	1		$ 2,500.00
TOTAL DIRECT COSTS				**$158,439.54**
Indirect Costs				
None				$0.00
TOTAL ESTIMATED PROJECT COSTS				**$158,439.54**

Funding Sources	Percent of Total Project	Total Cost by Source
Recipient Funding	53%	$83,701.57
Reclamation Funding	47%	$74,737.97
TOTALS	**100%**	**$158,439.54**