

**Funding Opportunity**

**Number BOR-DO-17-F011**

**Belle Fourche Irrigation District**

**Application for Financial Assistance Program for Federal Fiscal Year 2017**

**Opportunity Title: Water SMART Grants: Small-Scale Water**

**Offering Agency: Bureau of Reclamation**

**CFDA Number: 15.507**

**CFDA Description: WaterSMART (Sustaining and Manage America's Resources for  
Tomorrow)**

**Opportunity Number: BOR-DO-17-F011**

**Completion ID:**

**Opportunity Open Date: 12/01/2016**

**Opportunity Close Date: 05/15/2017**

**Agency Contact:**

**Darren Olson Grants Management Specialist**

**E-mail: [dolson@usbr.gov](mailto:dolson@usbr.gov)**

**Phone: 303-445-3697**

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## TECHNICAL PROPOSAL

- **EXECUTIVE SUMMARY:** May 9, 2017 the Belle Fourche Irrigation District located in Butte County, South Dakota with district offices in Newell, South Dakota submits this Funding Opportunity Number BOR-DO-17-FO11.

The planned conservation activities for Funding Opportunity Number BOR-DO-17-FO11 are to install approximately 546 feet of 36 inch PVC pipe on the Beresford Lateral project. This project would remove an open seeping ditch that is 2750 foot on the Beresford Lateral at NC 29.2. Funds for this project will be used to pay for pipe and building a structure to control water flow. There will be a turnout to allow for mitigation to an existing dam. The District intends on reclaiming the open ditch per the Bureau of Reclamations request. The water savings of this project are estimated at approximately 57 acre feet per year. There will be a turnout provided as well to provide mitigation to the dam near the ditch we will reclaim.

The time to construct the Beresford Lateral project is presented in the budget tables assuming 42 days to form and build a structure and install the pipeline along with reclaiming the existing ditch. Mobilization is estimated at 5 days, the placement of the forms and construction of the structures is 24 days, installation of the pipe is an estimated 13 days and while the structure is being built an operator will be reclaiming the existing ditch. The project is scheduled to begin in the fall of 2019 and be completed within approximately 42 days.

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 Beresford lateral is a contributing feature in the District. The Beresford Lateral is 47,097 feet in length of which 3,650 feet have been piped and 2,589 feet have been lined with PVC. Thus, although 6,239 feet of the 47,097 feet, 13.3 percent have been modified the lateral retains its overall historic integrity. The current project

proposes to abandon and schmeer 2,750 feet of the lateral. If this additional 2,750 feet is filled in the total percentage of the Beresford Lateral that is modified would be 19.8 percent (8,989 feet/47,097). Therefore, Beresford Lateral would retain its integrity as a contributing feature to the historic district if this project is constructed. One original headgate (Feature 5.27R) would not be impacted by the project; it would retain its historic integrity. The Bureau of Reclamation consulted with the SHPO on this project in 2017 and the SHPO concurred with a determination of no adverse effect to the historic district if this project is constructed. There is one cultural site, 39BU292, outside the work zone that was determined to be not eligible for listing on the National Register on August 8, 1991 (SHPO File #90082001F). A cultural survey for the project area on March 24, 2017 by Reclamation's archaeologist did not discover any cultural sites in the project work zone.

- **BACKGROUND-** 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.

The Belle Fourche Dam (Orman) serves water to 57,183 irrigable acres on the Belle Fourche Unit. The dam is an off stream storage dam located on Owl Creek. The water supply for the District is the Belle Fourche River with a drainage area of 4,300 square miles above the Belle Fourche Diversion Dam located on the Belle Fourche River near the town of Belle Fourche, South Dakota. The Diversion Dam diverts water into the Inlet Canal which delivers water to the dam along the Inlet Canal which depend on diversions from the river or water from Keyhole Reservoir in Wyoming.

The District is responsible for all operation and maintenance costs involving the dam, 66 miles of main canals, (North and South Canals), 450 miles of laterals, and 232 miles of drains. Since the Belle Fourche Irrigation District (BFID) is responsible for all the operation and maintenance costs for Reclamation facilities funding of project improvements is a budget problem.

1. Water Source-The Belle Fourche River drainage basin above the Belle Fourche Diversion Dam (4300 square miles) and Owl Creek drainage above the dam (170 square miles) is the water source for the Belle Fourche Dam (Orman) with an average inflow of 116,000 acre –feet. The water right is held by the Bureau of Reclamation under the water right laws of the state of South Dakota. The use of the dam is for agricultural purposes. At this time there are 500 landowners that the District provides irrigation water to, with 57,183 irrigable acres. The majority of the crops are alfalfa, corn, soy beans, millet, and grass hay. Should there be a drought and the dam not fill our landowners would not be able to produce a crop. The amount of precipitation each year dictates the amount of water each farmer is entitled to which varies from year to year.
2. Reclamation Project- The Belle Fourche Unit is Reclamation Facility owned by the United States and operated and maintained by the Belle Fourche Irrigation District (BFID).
3. Water Conveyance-As stated in the background, the distribution system has 66 miles of main canals approximately 2 miles of lined, 450 miles of laterals with approximately half of this piped, and 232 miles of open drains. The system is operated and maintained by the BFID. The approximate number of head gates is 2,045 at this time. We have approximately 55 automated sites with all but 5 working; however, these are being repaired this summer. We have a remote monitoring system at the office with capabilities of opening and closing the gates while checking on and monitoring the water flows.
4. Past Water Conservation Activities-The BFID has participated with Reclamation in water conservation for several years. The district presently has a 2016 Water Conservation effort in place.
5. Applicant's Eligibility- The BFID by contract with the Reclamation operates and maintains the dam and distribution system. All operation and maintenance costs for the facilities are the responsibility of the BFID.

Contacts:

Tara Tennis or Tanya Tiff  
605-456-2541 bfid2@sdplains.com  
William Anderson  
605-456-2541 bfid1@sdplains.com

- **Project Description:** This activity will take place on the Beresford Lateral Sta 258+75.22 to Sta 263+75.24 which is a sub-lateral on the North Canal at NC 29.2. There is an existing 2,750 foot seeping ditch that loses approximately 57 acre feet

per year. The proposed project eliminates the open ditch by adding a short pipeline. The open ditch will be reclaimed while retaining the right of way and a turnout will remain available to fill a mitigation area. By eliminating the open ditch and installing a pipeline we will save fuel and labor hours trying to control the seeping. It will benefit all the landowners on our project in the long term by saving water and preserving the land. The outcome of this project is to conserve water while stopping the seeping. Erosion will be minimized and the amount of alkali will benefit everyone in the end. The majority of soil in this area is Midway-Razor silty clay loams, with 3 to 15 percent slopes. Our hope is to help improve the quality by moving the ditch.

- 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 soil will 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 of this area. They are on the Federal Endangered Species list. Therefore according to the Bureau of Reclamation we are to do no work in this until after October 31 or after March 1. 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.

There is a dam in the project area. We will be leaving a mitigation area available to keep the dam filled. We work closely with the Bureau of Reclamation and have agreed to keep the turnout and ditch available to the dam.

- 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. One original headgate (Feature 5.27R) would not be impacted by the project; it would retain its historic integrity. The Bureau of Reclamation consulted with the SHPO on this project in 2017 and the SHPO concurred with a determination of no adverse effect to the historic district if this project is constructed.

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 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 Beresford lateral is a contributing feature in the District. The Beresford Lateral is 47,097 feet in length of which 3,650 feet have been piped and 2,589 feet have been lined with PVC. Thus, although 6,239 feet of the 47,097 feet, 13.3 percent have been modified the lateral retains its overall historic integrity. The current project proposes to abandon and schmeer 2,750 feet of the lateral. If this additional 2,750 feet is filled in the total percentage of the Beresford Lateral that is modified would be 19.8 percent (8,989 feet/47,097). Therefore, Beresford Lateral would retain its integrity as a contributing feature to the historic district if this project is constructed.

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

There is one cultural site, 39BU292, outside the work zone that was determined to be not eligible for listing on the National Register on August 8, 1991 (SHPO File #90082001F). A cultural survey for the project area on March 24, 2017 by Reclamation's archaeologist did not discover any cultural sites 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.

- **REQUIRED PERMITS OR APPROVALS**

At this time we are working with the Bureau of Reclamation on obtaining a Right of Way for the construction of the new pipeline and addition of the structures. We will retain the Right of Way on the abandoned and reclaimed area to maintain mitigation. We are also awaiting approval from NEPA/SHPO at this time. The Bureau of Reclamation came out and already began the work to approve this.

- BUDGET PROPOSAL (SEE ATTACHMENT)
- 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 42 days to complete this project. Five days to mobilize the equipment and haul PVC pipe and supplies to the Beresford Lateral. 24 days are scheduled to dig and build the concrete inlet structure. The forms for this project will be made by BFID crew members. An estimated 13 days are to finishing digging and placing pipe in the 546 foot pipeline. This is a total of 42 days. Each employee is in the proposal at current wages with fringe benefits included. Labor is approximately 41,349.60 and the equipment usage estimate is \$38,995.47. We used the United States Army Corps of Engineers (USACE) ownership and operating schedule to figure the equipment hours and adjusted them to our equipment with the exception of the brand new excavator we purchase in August of 2016 we did not adjust this. Any funds needed for NEPA, SHPO, ESA, etc. will be paid for with District funds. 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 we got quotes for from local companies. The 36" PVC pipe is priced at \$46.00 per foot and 546 feet are needed for a cost of \$25,116.00, the elbows, tees, outlet structure, and other appurtenances were estimated to cost \$20,118.50 this includes the freight charges to our office. The concrete inlet structure is an estimated cost of \$15,025.00, this is the cost of the concrete, forms, and other supplies to make the structure. At this time \$14,740.50 of the rip rap, sand, and course gravel were quotes from a distributor with the intention on most of it being delivered to our office.

DK-4000

Bill Anderson, Manager  
Belle Fourche Irrigation District  
P.O. Box 225  
Newell, South Dakota 57760

Subject: Letter of Support - Belle Fourche Irrigation District 2017 Water SMART Application

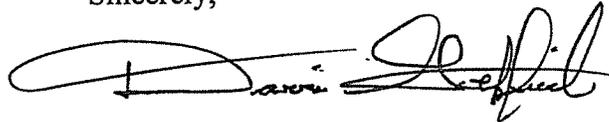
Dear Mr. Anderson:

We understand that your planned work will be to replace 1,500 feet of the Beresford Lateral with 546 feet of 36-inch diameter PVC pipe and a new alignment. Currently, the Beresford consists of open ditch which seeps water. If completed, the Beresford project would save over 30 acre-feet of water each year. This is a substantial water savings.

Reclamation's Dakotas Area Office is happy to provide a letter of support for the Belle Fourche Irrigation District's 2017 WaterSMART Application. Belle Fourche Irrigation District has worked cooperatively with Reclamation on many water conservation projects over the years. This water savings provides a benefit to the general public of western South Dakota by saving water for irrigation, sport, and recreation in the Belle Fourche Reservoir. Reducing excess drainage also improves water quality in the Belle Fourche River.

If you have any questions, please contact George Finnegan at 605-394-9757 extension 3002.

Sincerely,

A handwritten signature in black ink, appearing to read "Darrin Goetzfried", written over a horizontal line.

Darrin Goetzfried, Manager  
Facilities and Engineering

**RESOLUTION FOR WATER AND ENERGY  
EFFICIENCY GRANT PROGRAM:  
WaterSMART  
Small-Scale Water Efficiency Projects FY 2017**

May 12, 2017

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

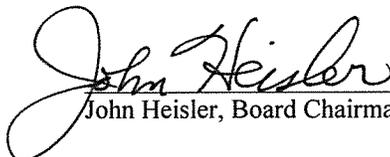
**WHEREAS**, the District promotes, supports and encourages water conservation, and

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

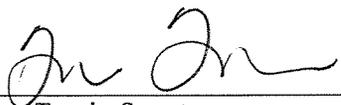
**THEREFORE, BE IT RESOLVED** that the Board of Directors of the Belle Fourche Irrigation District in South Dakota agrees and authorizes that:

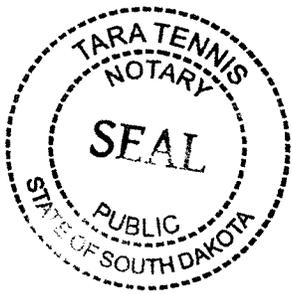
1. The Board has reviewed and supports the application proposal to the WaterSMART: Small-Scale Water Efficiency;
2. The Board authorizes the District Manager, William Anderson, the legal authority to enter into the WaterSMART: Small-Scale Water Efficiency Grants agreement;
3. The Belle Fourche Irrigation 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: 5-12-2017

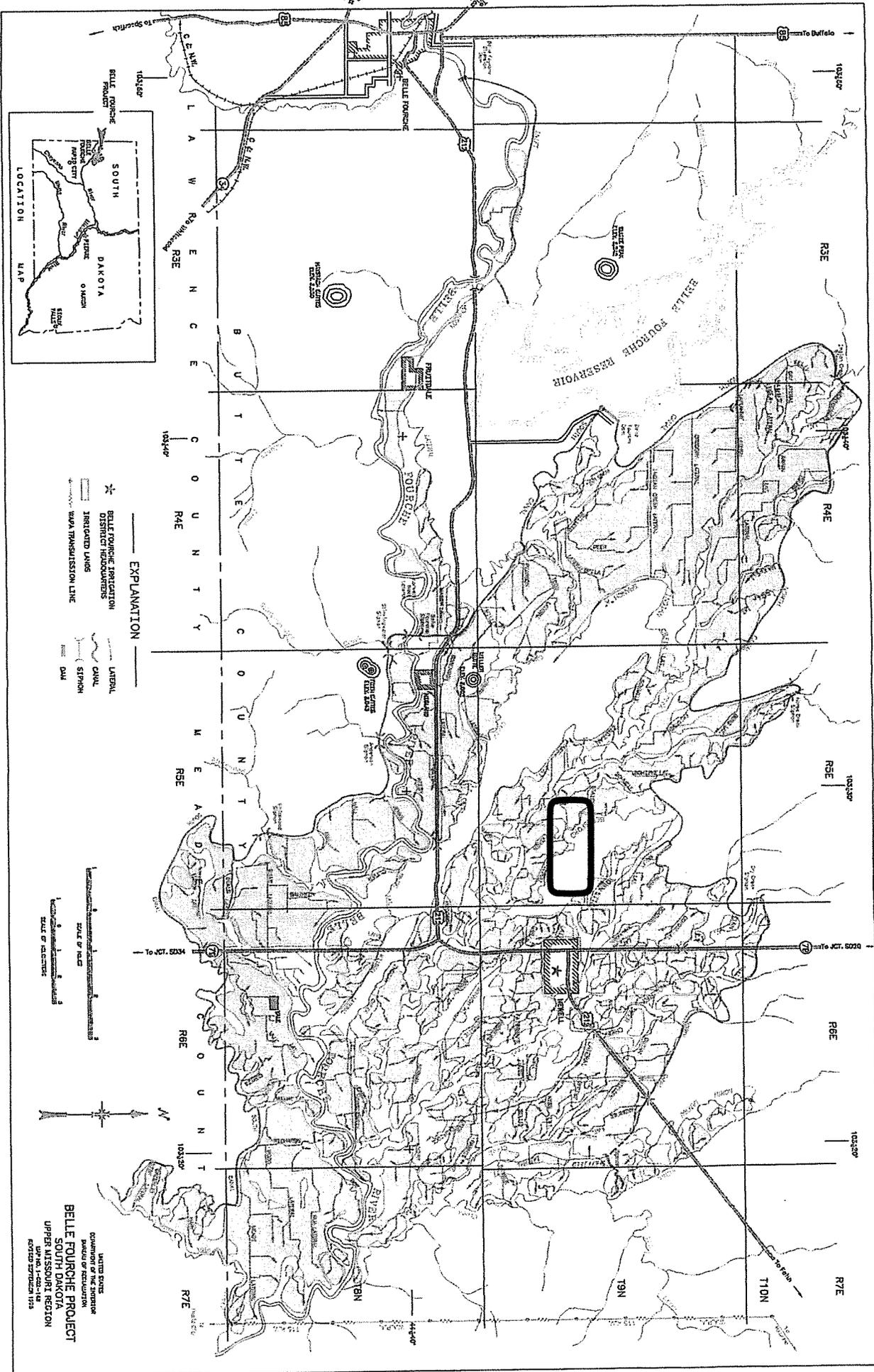
  
 \_\_\_\_\_  
 John Heisler, Board Chairman

ATTEST:

  
 \_\_\_\_\_  
 Tara Tennis, Secretary



*Jan 5, 2022*



Butte County, East of Newell, SD  
 Belle Fourche Irrigation District



Beresford Lateral Work Area

APPENDIX C