Project: HID Bighorn Flume

WaterSMART Grants:
Water and Energy Efficiency Grants for Fiscal Year 2024 and 2025
Funding Opportunity No. R24AS00052
Funding Group II

Applicant:
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Worland, WY 82401

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D.2.2.2.3 Executive Summary

February 21, 2024

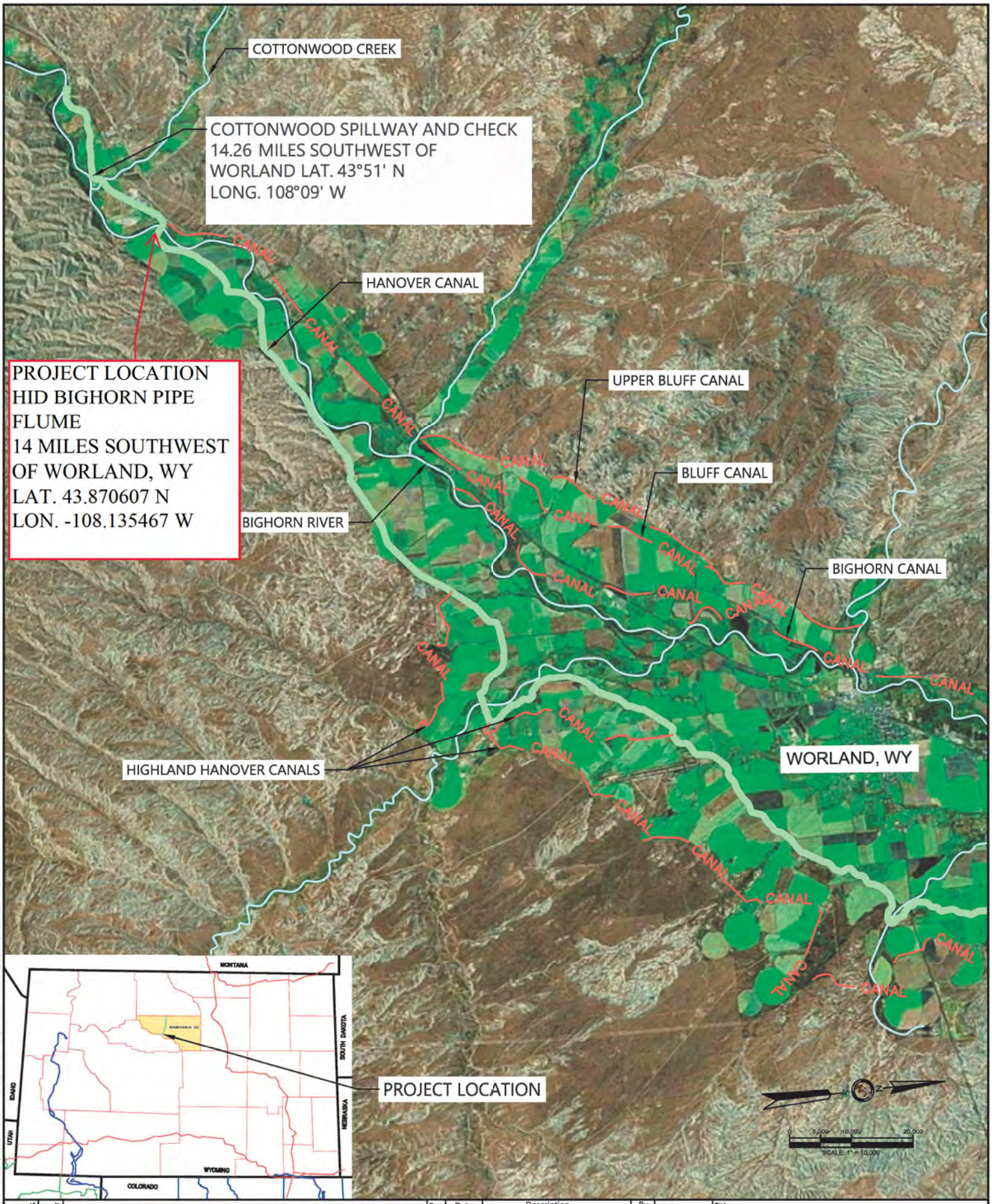
Hanover Irrigation District
Worland, Washakie County, Wyoming

The Hanover Irrigation District (HID), a Category A applicant, owns and operates the main irrigation canal and diversion in the Worland, WY area of the Bighorn River Basin. The District will be installing a new 440-foot-long pipe flume over the Bighorn River to replace the existing flume function. The existing flume carries 635 CFS over the Bighorn River. Additionally, the District will be installing a new diversion and control structure integrating SCADA and automated gates to control the diversion to the Bluff & Upper Bluff Irrigation District canal and automating flows crossing the Bighorn River. The construction will result in automation, ensure greater dependency for water delivery for three major irrigation districts in the area as well as provide accurate and quantifiable water measurement and savings of approximately 1334 acre-feet. The project is anticipated to begin September 2024 and end May 2027.

D.2.2.2.4 Project Location

Hanover Irrigation District is located in Worland, Wyoming, along the beautiful Big Horn River, flowing north to the Yellowstone, downstream of Boysen Reservoir. Significant tributaries within the county are the Nowood River, Nowater Creek, Gooseberry Creek and Fifteenmile Creek. The elevation is approximately 4,000 feet, which allows a longer growing season for agriculture than is common in much of Wyoming. The Bighorn River Flume is located 43.870607, -108.135467, which is approximately 14 miles upriver from Worland Wyoming, and approximately 38 miles downstream from Boysen Dam.

Reference following location map:



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Rev	Date	Description	By

Scale: 1"=10,000'
Designed By: JAJ
Revie we d B y: RLA

Job Number: 18WHC805
Sheet Number: COTTON WS1

Title:
HANOVER IRRIGATION DISTRICT
BIGHORN RIVER FLUME
WASHAKIE COUNTY, WYOMING

D.2.2.2.5 Project Description

The Hanover Irrigation District (HID), owns and operates the main irrigation canal and diversion in the Worland area of the Bighorn River Basin. The Hanover Irrigation District recently completed a Level I Master Plan Study, through they Wyoming Water Development Commission (WWDC), to identify and rank necessary improvements. A subsequent study of the Level II Bighorn Flume (WWDC) was also requested by HID to understand the options and cost with replacing and improving the flume infrastructure. Based on these studies, the Bighorn Flume was identified as the number 1 priority for replacement. This WaterSMART Grant will provide the additional funding needed to replace this aging infrastructure to assist the District in two manners: 1. Reduce the chances of failure due to age, and 2. Conserve water based on the ability to control the level in the canal with a SCADA system, as well as utilize the structures in the manner intended during major events.

This project will begin in the Fall of 2024 with engineering and permitting and will be most likely be constructed the Winter of 2026/2027. If engineering and permitting can be completed in time, construction may begin in Winter of 2025. Fnal completion will be ahead of the December 31, 2027 deadline It is understood that funding from this grant will not likely be available until spring of 2025, and design tasks will be adjusted as needed to comply with funding requirements.

Background Data

As stated earlier, the Hanover Irrigation District owns and operates the main irrigation canal and diversion in the Worland area of the Bighorn River Basin. This canal is critical to the agriculture and economy of the area. It extends from nearly the southern border of Washakie County to the northern border, and it supplies the water needs of three other irrigation districts including Upper Bluff ID, Bluff ID and Highland Hanover ID. These also contribute tailwater, overflow and drainage water to the Bighorn River and Lower Hanover Canal.

The Hanover Canal is almost 35 miles long, stretching the length of Washakie County from North to South, with almost all irrigated lands in Washakie County being serviced by this important canal. It provides water for irrigation of approximately 24,800 acres with 513 water users and providing water to three underlying irrigation districts. These lands are irrigated for crops such as corn, sugar beets, barley, beans, alfalfa and grass hay, and other forage crops. Much of the farm ground and its crop residue are also used for winter forage and feeding grounds for livestock operations.

Originating in the early 1900’s, the canal was operated privately and independently until the 1940’s, when Congress authorized PL 543, which enabled construction for canal expansion following the organization of the Upper Bluff Irrigation District and Highland-Hanover Irrigation District in 1954, as part of the USDI-BOR Hanover-Bluff Unit. The Bluff Canal was already in

existence, expanding the Upper Bluff, and its water was combined with the Hanover Canal. The addition of pumping units to the Bluff Canal allowed water to be pump to the newly formed Upper Bluff canal, and addition of the Highland Hanover Canal. This expansion of area required additional capacity to be added to the main diversion canal operated by the Hanover Irrigation District, and required contract agreements between Reclamation, Hanover Irrigation District, Bluff Irrigation District, Upper Bluff Irrigation District & Highland Hanover Irrigation District. The Upper Hanover Irrigation District and Hanover Canal are names that the district and canal often went by, though it was found the proper registered name of the district is the Hanover Irrigation District, as organized under the statutes of the State of Wyoming.

The Hanover Irrigation District has done multiple studies to analyze and improve the canal. Along with a USDI-Bureau of Reclamation- Missouri River Basin Project, Definite Plan Report Volume-I-General Plan, Bluff Unit-Wyoming, Big Horn Basin Division, 1953, that generalized as the expansion of the Hanover Canal to accommodate the flow for the Bluff, Upper Bluff and Highland Hanover, HID has also done the following studies through the Wyoming Water Development Commission (WWDC):

1. Level III, Hanover Irrigation, 1990, (Moss Catcher- Completed 1992)
2. Level II, Upper Hanover Rehabilitation, 1990, (Plan)
3. Level III, Upper Hanover Water Supply, 1991, (Wasteways/flumes/liner- Completed 1994)
4. Level III, Hanover Flume Rehabilitation, 2003, (Flume Reline- Completed 2005)
5. Level II, Worland Area Irrigated Lands Geographic Information System, 2007, (GIS).
6. Level I, Hanover Irrigation District Master Plan, 2017
7. Level II, Hanover Irrigation District Bighorn River Flume, 2019

As a result of these studies, Hanover Irrigation District has taken action to improve infrastructure on the canal. A list of projects were identified in the 2017 study and are listed as follows:

Replacement Priority	Structure Identifier	Replacement/Improvement Projects
1	HC-LI-003 to HC-LI-004	Bighorn Flume-PH1 (Structural & Lining Repairs)
2	HC-WW-001/ HC-CH-001	Cottonwood Spill/Check
3	HC-HG-001	Structural Repairs- Diversion Structure & Trash Deflector
4	HC-LI-006 to HC-LI-008	Lined Section-Piped
5	HC-CH-009, 005, 007, 008	Check Structures
6	HC-MD-001	Measuring Device
7	HC-PI-004 to UHC-DR-003	End Of Canal Piping (28,000 FT +/-)
8	HC-SI-008	Air Vent- Rehabilitate/Exercise Valves
9	HC-WW-012	Repairs-wall cracks, sediment, heaving of slab in canal
10	HC-WW-003	Repairs-concrete cracks, sediment, heaving of slab in canal

This application is to complete the replacement of #1 Bighorn Flume. The District recently completed replacement of #2 Cottonwood Spill and Check Structure in conjunction with Wyoming Water Development and BOR WaterSMART WEEG funding.

The proposed project of replacing the Bighorn Flume intends to install a new pipe over the Bighorn River to convey the water that currently is conveyed through the leaking and aged flume, while maintaining the existing structure and utilizing it for operation and maintenance activities for the Canal. Additionally, during the new flume construction, it is intended to integrate into the new concrete diversion structures automated gates and measurement, to automate the flows diverted to Bluff & Upper Bluff canal, and automate flows being sent across the river. The results of the new construction include; adding resiliency to ensure the ability to deliver water to the service area, water savings and increased operating efficiency and accurate water measurement.

Past Working Relationships

The Hanover Irrigation District is very involved with the USDI-Bureau of Reclamation, as the Hanover Canal serves as a carrier canal for other irrigation districts after consolidation efforts by USDI-BOR (Reclamation). Those efforts were to consolidate the diversion points and expand the service acreage by addition of pumping units to service elevated service areas. The District and BOR work closely on operations and maintenance, and will be working closely on all upcoming repair and replacement projects. The local BOR employees are familiar with the District and employees.

D.2.2.2.6 Evaluation Criteria

Evaluation Criteria: Scoring Summary	Points
A. Quantifiable Water Savings	25
B. Renewable Energy	20
C. Other Project Benefits	15
D. Disadvantaged Communities and Tribal Benefits	15
E. Complementing On-Farm Irrigation Improvements	8
F. Readiness to Proceed	8
G. Collaboration	5
H: Nexus to Reclamation	4
Total	**100**

Note: Since the NOFO is open to a variety of project types, certain Evaluation Criteria may not be applicable to your project. For example, a water savings project (Criterion A) may not include implementation of a renewable energy component (Criterion B). Please provide as much detail and support as you can for those Evaluation Criteria that are applicable to your project.

E.1.1 Evaluation Criterion A—Quantifiable Water Savings (25 Points)

*Up to **25 points** may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency, supporting the goals of E.O. 14008. 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:

1) ***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.*

   The new 440 foot Pipe flume and concrete structures will directly save 625 AC-FT of water that is currently leaking from the joints of the existing flume (1.5 CFS for 210 day average irrigation season). The spill from the Bluff and Upper Bluff Canal system has been measured by observing spills at the ends of both canals. Based on the Bluff/Upper Bluff Level I Study performed for the Wyoming Water Development Commission, the system spills 3,253 ac-ft, of which it is foreseeable for water management to reduce that amount by 850 AC-FT per year. Total water savings of 1475 AC-FT is anticipated. Additional savings that are not quantifiable will be seen with the ability for better management of the Bluff/Upper Bluff Irrigation Diversion after this flume is installed.

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

2) Describe current losses. *Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:*

- *Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?*

- *If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?*

- *Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?*

The current losses are going directly into the Bighorn river as they fall out of the existing flume, seeping into the ground adjacent to the river, or being spilled at the end of the Bluff Canal and at the Hanover Tie Down spills. The increase in efficiency and ability to measure and manage water will allow for adjustments to the diversion, allowing water to stay in the river at the point of diversion, or be spilled back to the river at the further Hanover Tie Down Spill. Additionally, water that is not lost to the river may save the need for release of "reservoir water" from Boysen Reservoir (BOR), resulting in more water to be stored and managed.

2) Describe the support/documentation of estimated water savings. *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.*

The spills and leaks from the Bighorn Flume were observed by Western Heritage Consulting and Engineering and a flow was quantified for the leaks of the joints, one being much more than others. This was quantified in 2018, additionally the Wyoming Water Development Office project manager for the Level III quantified the leakage. The joints are repacked as part of canal maintenance, but the movement of the flume and age of the materials do not allow for the seal to remain in place. The leaks vary in flow from year to year and get increasingly worse.

The quantification was an average leakage flow of 1.5 CFS. The average seasonal canal usage is 210 days resulting in the following leakage amount:

1.5 CFS*1.983 ((AC-FT/DAY)/CFS)*210 DAYS= 625 AC-FT per season or year.

Using measurements from June 13, 2018 Upper Bluff Pump Station 1 data collection and July 10-11, 2019 Bluff and Upper Bluff GPS survey, assuming a 210-day irrigation season, and using weir equations the following waste discharges are calculated:

a. Upper Bluff 1 Canal: 3.71 cfs for 1,545 ac-ft,
b. Bluff Canal: 4.1 cfs for 1,708 ac-ft.

The savings from Upper Bluff are assumed to stay in Bluff and spill or be managed by a reduction in flow, so are assumed to be zero since the installation of the pumping station. The Bluff Canal spill will be able to be reduced by the automation and management of the diversion to leave the water in the Hanover Canal to be spilled at Cottonwood or have the Hanover Diversion adjusted, realizing a savings of ½ of the spill, resulting in 1708/2=854.

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, note: 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.

4) Please address the following questions according to the type of infrastructure improvement you are proposing for funding. *See Appendix A: Benefit Quantification and Performance Measure Guidance for additional guidance on quantifying water savings.*

(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:*
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.

The quantification was an average leakage flow of 1.5 CFS. The average seasonal canal usage is 210 days resulting in the following leakage amount:

1.5 CFS*1.983 ((AC-FT/DAY)/CFS)*210 DAYS= 625 AC-FT per season or year.

Using measurements from June 13, 2018 Upper Bluff Pump Station 1 data collection and July 10-11, 2019 Bluff and Upper Bluff GPS survey, assuming a 210-day irrigation season, and using weir equations the following waste discharges are calculated:

a. Upper Bluff 1 Canal: 3.71 cfs for 1,545 ac-ft,
b. Bluff Canal: 4.1 cfs for 1,708 ac-ft.

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.*

The quantification was an average leakage flow of 1.5 CFS. The average seasonal canal usage is 210 days resulting in the following leakage amount:

1.5 CFS*1.983 ((AC-FT/DAY)/CFS)*210 DAYS= 625 AC-FT per season or year.

Using measurements from June 13, 2018 Upper Bluff Pump Station 1 data collection and July 10-11, 2019 Bluff and Upper Bluff GPS survey, assuming a 210-day irrigation season, and using weir equations the following waste discharges are calculated:

a. Upper Bluff 1 Canal: 3.71 cfs for 1,545 ac-ft,
b. Bluff Canal: 4.1 cfs for 1,708 ac-ft.

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)?

By installing a new pipe to replace the flume, leakage will be negated/zeroed. The quantification was an average leakage flow of 1.5 CFS. The average seasonal canal usage is 210 days resulting in the following leakage amount:

1.5 CFS*1.983 ((AC-FT/DAY)/CFS)*210 DAYS= 625 AC-FT per season or year.

Using measurements from June 13, 2018 Upper Bluff Pump Station 1 data collection and July 10-11, 2019 Bluff and Upper Bluff GPS survey, assuming a 210-day irrigation season, and using weir equations the following waste discharges are calculated:

a. Upper Bluff 1 Canal: 3.71 cfs for 1,545 ac-ft,
b. Bluff Canal: 4.1 cfs for 1,708 ac-ft.

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 leakage for the piped section will be zero.

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

Observation of the new pipe to see if any leaks appear. It is exposed steel pipe.

f. Include a detailed description of the materials being used.
Design Calculation from the Level II Study identified 144" diameter steel pipe with a 3/8" wall thickness, on piers. Concrete structures will be installed upstream and downstream to connect to the existing canals and bypass the old flume.

(3) ***Irrigation Flow Measurement:*** *Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills and over-deliveries to irrigators. Applicants proposing municipal metering projects should address:*

a. How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

The quantification was an average leakage flow of 1.5 CFS. The average seasonal canal usage is 210 days resulting in the following leakage amount:

1.5 CFS*1.983 ((AC-FT/DAY)/CFS)*210 DAYS= 625 AC-FT per season or year.

Using measurements from June 13, 2018 Upper Bluff Pump Station 1 data collection and July 10-11, 2019 Bluff and Upper Bluff GPS survey, assuming a 210-day irrigation season, and using weir equations the following waste discharges are calculated:

a. Upper Bluff 1 Canal: 3.71 cfs for 1,545 ac-ft,
b. Bluff Canal: 4.1 cfs for 1,708 ac-ft.

b. Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.

The quantification was an average leakage flow of 1.5 CFS. The average seasonal canal usage is 210 days resulting in the following leakage amount:

1.5 CFS*1.983 ((AC-FT/DAY)/CFS)*210 DAYS= 625 AC-FT per season or year.

Using measurements from June 13, 2018 Upper Bluff Pump Station 1 data collection and July 10-11, 2019 Bluff and Upper Bluff GPS survey, assuming a 210-day irrigation season, and using weir equations the following waste discharges are calculated:

a. Upper Bluff 1 Canal: 3.71 cfs for 1,545 ac-ft,
b. Bluff Canal: 4.1 cfs for 1,708 ac-ft.

c. Are flows currently measured at proposed sites and if so, what is the accuracy of existing devices? How has the existing measurement accuracy been established?

Spills were measured by engineers using the weir equation and observing water levels/gauges.

d. Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.

The gates that will be automated to Bluff/Upper Bluff will be an automated orifice style gate or a rubicon style flume gate. The gates downstream to the Pipe Flume will be slide gates (submerged sluice) that have upstream and downstream elevation/depth measurement. Accuracy of according to Rubicon their accuracy is +/-2.5%. The submerged sluice gates according to the ITRC and Kubrak et al (2020) estimates “accuracy of about 10%”.

e. Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?

Reduction is anticipated but not quantified nor claimed.

f. How will actual water savings be verified upon completion of the project?

Canal spills at the end of Bluff Canal will be recorded.

E.1.2 Evaluation Criterion B—Renewable Energy (20 points)

E.1.2.2 Subcriterion B.2—Increasing Energy Efficiency in Water Management

*Up to **6 points** may be awarded for projects that address energy demands and reduce greenhouse gas emissions by retrofitting equipment to increase energy efficiency and/or through water conservation improvements that result in reduced pumping or diversions.*

No renewable energy components are part of the project, though the SCADA components will be solar powered and the project will allow use of the existing bridge structure to be used by the District for operation and maintenance during the water season. By using the existing structure to cross the existing Flume bridge (with no water in it) it reduces the one way mileage driven by 12 miles to the Ditch Riders house. The Ditch Rider drives to this location typically 6-7 days a week during the irrigation season (180-210 days). Utilization of this would reduce travel by approximately 4,368 miles per year for the Ditch Rider alone. The Ditch Rider uses a ½ ton pickup truck, if an estimated 12 MPG is assumed that is over 365 gallons of gas per year.

The SCADA system will be operated by solar powered actuators for the motors, battery chargers, and communication equipment. Using the communication and remote sensing equipment will additionally reduce trips to adjust the headgate by the Hanover Irrigation District as well as the Bluff & Upper Bluff Irrigation District. This could be an additional 750 miles per year.

E.1.3 Evaluation Criterion C—Other Project Benefits (15 points)

*Up to **15 points** may be awarded under this criterion. This criterion prioritizes projects that address a specific water and/or energy concern(s), including enhancing drought resilience and sustainability, addressing the current and future impacts of climate change, and providing ecological benefits.*

***Resilience and Sustainability Benefits.** Will the project address a specific water and/or energy sustainability concern? Please address the following:*

• *Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:*

- *Describe recent, existing, or potential drought or water scarcity conditions in the project area.*

The subject flume being replaced, if it were to fail, would remove irrigation water to over 20,000 acres of currently irrigated lands. The previous studies of the Irrigation District performed by the State of Wyoming identified the flume as *Critical Infrastructure that is a priority to replace/address.*

- *Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?*

According to Drought.gov at the time of this application, Washakie County Agriculture was experiencing a D0 & D1 drought, according to the drought monitor.

- *Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate informed analysis, if available).*

No increases are projected unless the existing flume fails, or climate changes influences more frequent droughts.

- *Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.*

Not Applicable

- *Please describe how the project will directly address the concern(s) stated above.*

- *Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?*

The project will result in more timely adjustment to diversions from the Bighorn River and to the Bluff/Upper Bluff Canal, resulting in water savings, additionally negating leaks in the current infrastructure. Water flows will be better able to be measured and monitored remotely.

- *Please address where any conserved water as a result of the project 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.*

Conserved water will ultimately stay in the Bighorn River or be spilled back to the river at the downstream Cottonwood Spill, recently rehabilitated as a WaterSMART WEEG project.

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

The quantification was an average leakage flow of 1.5 CFS. The average seasonal canal usage is 210 days resulting in the following leakage amount:

1.5 CFS*1.983 ((AC-FT/DAY)/CFS)*210 DAYS= 625 AC-FT per season or year.

Using measurements from June 13, 2018 Upper Bluff Pump Station 1 data collection and July 10-11, 2019 Bluff and Upper Bluff GPS survey, assuming a 210-day irrigation season, and using weir equations the following waste discharges are calculated:

a. Upper Bluff 1 Canal: 3.71 cfs for 1,545 ac-ft,
b. Bluff Canal: 4.1 cfs for 1,708 ac-ft.

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

Conserved water will ultimately stay in the river or be spilled back to the Bighorn River at the downstream Cottonwood Spill, recently rehabilitated as a WaterSMART WEEG project.

• *Will the project assist States and water users in complying with interstate compacts?*

The water measurement will assist the District and State in better monitoring the diverted water from the Bighorn River, including reservoir water in Boysen Reservoir, ultimately supporting the Yellowstone River Compact (1950). The waters diverted by the irrigation ditch are a portion of the 80% of the Bighorn River allocated to Wyoming (20% to Montana).

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

If water is not delivered to the irrigation users and members of the District, there will be conflict to resolve it.

Ecological Benefits. *In addition to the separate WaterSMART Environmental Water Resources Projects NOFO, this NOFO places a priority on projects that that result in ecological benefits, through this section and other sections above, consistent with the SECURE Water Act. Please provide information regarding how the project will provide ecosystem benefits, including the following:*

• *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 or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).*

The Hanover Canal is adjacent to a Sage Grouse Core Management Area. The District does not directly border the area, nor is under restrictions due to this area; the irrigation water contributed by the canal benefits many species in the area, and creates habitat for and food sources for numerous wildlife species. This provides winter feeding grounds for livestock that summer on the Sage Grouse Range. This allows for proper range management and allows for reduction in overgrazing.

- *Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels, recreational benefits, etc.).*

The use period of the canal system will not be altered by the project.

- *Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?*

Not known.

- *Please describe any other ecosystem benefits as a direct result of the project.*

Climate Change*: E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity.*

- *Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?*

The project bolsters the drought resiliency by maintaining and approving the ability for the currently irrigated lands to continue to receive irrigation water and improve its efficiency in conveyance.

- *Does the project seek to improve ecological resiliency to climate change?*

The project bolsters the ecological resiliency by being more efficient at delivering water to the irrigated lands. The members of the irrigation districts have implemented more efficient irrigation systems such as pivot irrigation to reduce water use, as well as selecting crops in a rotation to reduce total water use. The crop rotations also reduce the need for fertilizer applications by utilizing nitrogen fixating crops such as alfalfa and other legumes in the crop rotations.

- *Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?*

n/a

- *Does the proposed project include green or sustainable infrastructure to improve community climate resilience?*

n/a

- *Does the proposed project contribute to climate change resiliency in other ways not described above?*

n/a

E.1.4 Evaluation Criterion D—Disadvantaged Communities, Insular Areas, and Tribal Benefits (15 points)

*Up to **15 points** may be awarded based on the extent that the project demonstrates support for the Biden-Harris Administration's priorities, including E.O. 14008: Tackling the Climate Crisis at Home and Abroad and the President's memorandum, Tribal Consultation and Strengthening Nation-to-Nation Relationships.*

Please address only 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 application.

E.1.4.1 Subcriterion D.1. Disadvantaged Communities

E.O. 14008 affirms the advancement of environmental justice for all through the development and funding of programs to invest in disadvantaged communities. This criterion, which is used to identify projects that advance the Justice 40 Initiative, includes all Federally recognized Tribes and Tribal entities, and any disadvantaged communities in insular areas (American Samoa, Guam, the Northern Mariana Islands, or the Virgin Islands) identified pursuant to the following criteria.

• Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool (CEJST), available online at Explore the map Climate & Economic Justice Screening Tool (screeningtool.geoplatform.gov/ en/#17.59/36.63278/-105.181329) to identify any disadvantaged communities that will benefit from your project. The CEJST developed by the White House Council on Environmental Quality is a geospatial mapping tool that utilizes publicly available, nationally consistent data sets related to climate change, the environment, health, and economic opportunity to identify disadvantaged communities. In addition to identifying specific census tracts that are disadvantaged, the CEJST includes the lands of Federally

recognized Tribes as disadvantaged communities. In addition, regardless of whether a Federally recognized Tribe has land, all Federally recognized Tribal entities are considered disadvantaged communities for the purposes of the Justice40 Initiative.[2]

No actual Tribes are on the Hanover Canal system, but American Indian landowners are. Boysen Reservoir is situated among tribal lands where much of the water is stored. The River below the reservoir is used by the Wind River Tribe for fishing and hunting, as well as revenue generated from fishing guiding on the reservation downstream of the dam. Washakie County is not "Identified as Disadvantaged" according to the Climate and Economic Justice Screening Tool.

• If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?

n/a

E.1.5 Evaluation Criterion E—Complementing On-Farm Irrigation Improvements (8 points)

*Up to **8 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 subcriterion. **Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.

Note: On-farm improvements themselves are not eligible activities for funding under this NOFO. 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.

According to the District Conservation for the USDA-NRCS Washakie County Field Office:

Applications currently on file (not funded yet):

Center Pivot Systems including irrigation reservoirs, buried pipelines, flowmeters, stationary screens, and pumps: 9

Gated Pipe Systems: 2

Buried Irrigation Pipeline: 3
Cover Crop: 4

Current projects that are contracted through NRCS that will be installed in 2024 or 2025:
Cover Crop: 2
Pivot Systems: 4
Structure for Water Control: 1
Irrigation Water Management: 1
Buried Pipeline: 1

Most of these applications will be addressing irrigation efficiency, gully erosion, sheet/rill erosion, sediments going to surface water, and soil organic matter.

Other projects are eminent based on funding availability.

- *Provide a detailed description of the on-farm efficiency improvements.*

Most of the irrigation applications are to convert flood irrigation to pivot irrigation, typically increasing application efficiency from 40-50% to 80-90%

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

Yes, technical and financial assistance.

- *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.*

Eligible based on NRCS provided information

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

We didn't supply letters of intent, as the numbers are based on projects currently applied for and/or funded by NRCS.

- *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, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

OR

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

The WaterSMART project will complement the on-farm projects and bolster the resiliency/reliability of their water supply.

Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.

Water savings based on efficiency improvements, better water management by providing tools to easier manage the irrigation schedule, improved crop and soil health.

- *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.*

Not able to be quantified.

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

Note: On-farm water conservation improvements that complement the water delivery improvement projects selected through this NOFO 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/conservation-basics/conservation-by-state/state-offices.

START HANOVER CANAL
BIGHORN RIVER DIVERSION

COTTONWOOD CREEK

GOOSEBERRY CREEK

FIFTEENMILE CREEK

TENMILE CREEK

SIXMILE CREEK

HANOVER CANAL

HIGHWAY 20

WORLAND

BIGHORN RIVER

NOWATER CREEK

SLICK CREEK

END HANOVER CANAL

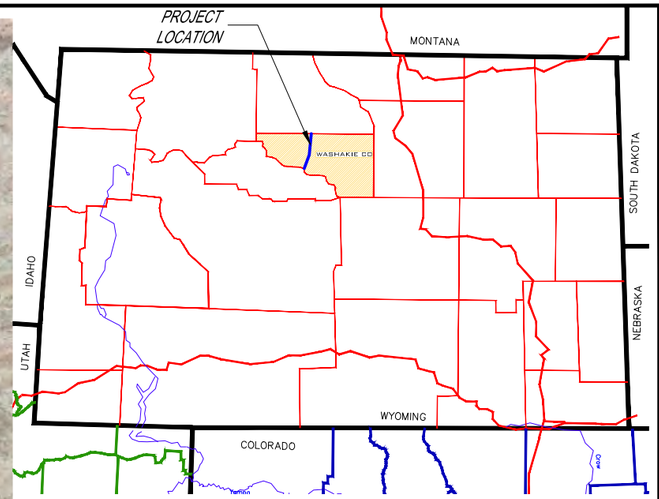
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 32.0 33.0 34.0 34.8

LEGEND

HANOVER CANAL

OTHER CANAL — CANAL — CANAL —

STREAM/RIVER



VICINITY MAP
N.T.S.

0 2500 5000 10000 FEET
0 0.5 1 2 MILES

HANOVER IRRIGATION DISTRICT
WWDC LEVEL I MASTER PLAN

BIGHORN RIVER BASIN MAP

WASHAKIE COUNTY, WYOMING

Rev	Date	Description	By

Drawn By: JAJ
Designed By: RLA
Reviewed By: RLA
Scale: 1"=5000'-0" 1":10000'-8"

Western Heritage
Consulting & Engineering
PO BOX 2117
Mills, WY 82644
307.215.7430
info@westernhce.com

Job Number: 16WHC901

Sheet Number: Figure 1.1

E.1.6 Evaluation Criterion F—Readiness to Proceed (8 points)

*Up to **8 points** may be awarded for this criterion.*

Points may be awarded based upon the extent to which the proposed project is capable of commencing upon entering into a financial assistance agreement. Note: If your project is selected, responses provided in this section will be used to develop the scope of work that will be included in the financial assistance agreement.

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

- *Identify and provide a summary description of the major tasks necessary to complete the project.* ***Note: Do not repeat the more detailed technical project description provided in Section D.2.2.2 Application Content. This section should focus on a summary of the major tasks to be accomplished as part of the project.***

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

The only known permits are the Wyoming DEQ permits for stormwater, dewatering, or turbidity-which are the responsibility of the contractor. US Army Corps compliance has been discussed with the local regulatory branch, and determined the project to be exempt from permitting requirements. Other NEPA & SHPO compliance will be needed, though avoidance of disturbance to existing structures is chosen to limit any impediment from SHPO compliance for construction.

- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*

A Wyoming Water Development Level I and Level II study has been completed to identify solutions for the project, which included preliminary: geotechnical investigation, hydraulics, hydrology, and structural design. Level III (Final Design) design work will commence upon approval of the Wyoming Water Development Level III project funding.

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

None Known

- *Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.*

A Wyoming Water Development Level I and Level II study has been completed to identify solution for the project, which included preliminary: geotechnical investigation,

hydraulics, hydrology, and structural design. Level III (Final Design) design work will commence upon approval of the Wyoming Water Development Level III project funding.

- *Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?*

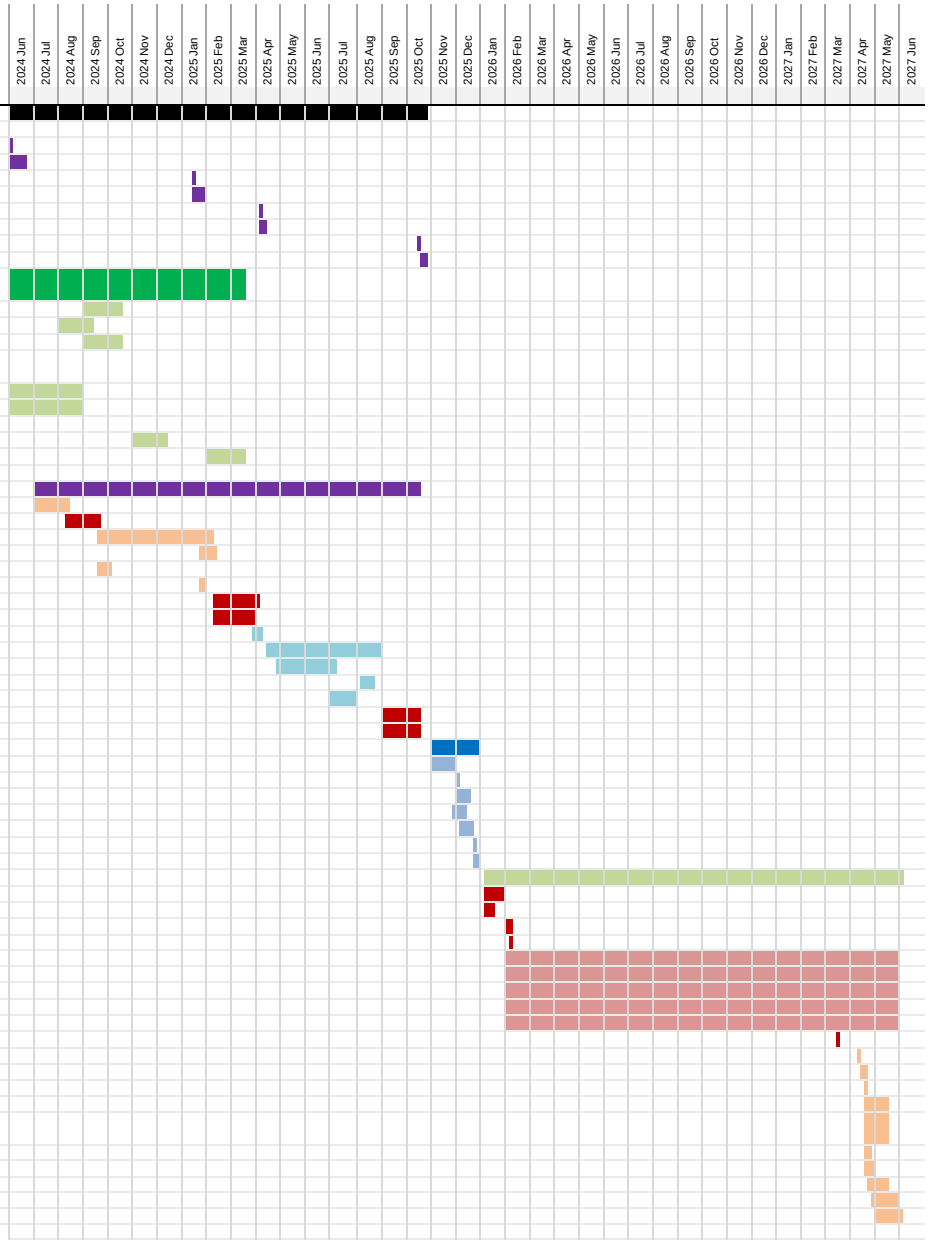
This project will begin in the Fall of 2024 with engineering and permitting and will be most likely be constructed the Winter of 2026/2027. If engineering and permitting can be completed in time, construction may begin in Winter of 2025. Fnal completion will be ahead of the December 31, 2027 deadline It is understood that funding from this grant will not likely be available until spring of 2025, and design tasks will be adjusted as needed to comply with funding requirements.

Hanover Irrigation District Bighorn Flume

Western Heritage Consulting & Engineering

Project Lead: Ryan Altenburg
Project Start Date: 5/1/2024 (Wednesday)
Today's Date: 3/11/2019 (Monday)

WBS	Task	Start	End	Work Days	% Done	Cal Days	Days Done	Days Left	Color
1	**Scoping and Project Meetings**	Wed 5/01/24	Thu 10/23/25	**387**		**541**	**0**	**541**	k
1.1	Contract Award	Wed 5/01/24	Tue 5/21/24	15		21	0	21	p
1.2	Kick-Off Meeting	Mon 6/03/24	Mon 6/03/24	1		1	0	1	p
1.3	Meeting Minutes 10%	Tue 6/04/24	Mon 6/17/24	10		14	0	14	p
1.4	Kick-Off Meeting-2	Wed 1/15/25	Wed 1/15/25	1		1	0	1	p
1.5	Meeting Minutes 10.1%	Thu 1/16/25	Wed 1/29/25	10		14	0	14	p
1.6	Meeting 50%	Sun 4/06/25	Mon 4/07/25	1		2	0	2	p
1.7	Meeting Minutes 50%	Mon 4/07/25	Fri 4/11/25	5		5	0	5	p
1.8	Meeting 90%	Thu 10/16/25	Thu 10/16/25	1		1	0	1	p
1.9	Meeting Minutes 90%	Fri 10/17/25	Thu 10/23/25	5		7	0	7	p
2	**Information Collection and Submittals**	Tue 1/15/19	Fri 3/14/25	**1591**		**2251**	**0**	**2251**	g
2.1	Geotechnical	Tue 9/03/24	Mon 10/14/24	30		42	0	42	3
2.2	Survey	Thu 8/01/24	Wed 9/11/24	30		42	0	42	3
2.3	Title Report	Tue 9/03/24	Mon 10/14/24	30		42	0	42	3
2.4	Reclamation meeting-NEPA/SHPO Scope	Thu 2/01/24	Wed 3/06/24	25		35	0	35	3
2.5	NEPA Compliance	Tue 3/12/24	Mon 8/26/24	120		168	0	168	3
2.6	SHPO Compliance	Tue 3/12/24	Mon 8/26/24	120		168	0	168	3
2.7	NEPA/SHPO kickoff	Tue 3/12/24	Tue 4/02/24	16		22	0	22	r
2.8	US-Army Corp	Fri 11/01/24	Thu 12/12/24	30		42	0	42	3
2.9	WY-DEQ	Sat 2/01/25	Fri 3/14/25	30		42	0	42	3
2.10	Permit Clearance	Tue 1/15/19	Mon 9/16/19	170		245	0	245	3
3	**Design 10-90%**	Mon 7/01/24	Tue 10/14/25	**337**		**471**	**0**	**471**	p
3.1	10% Set Completed	Mon 7/01/24	Fri 8/09/24	30		40	0	40	6
3.2	10% Set-WWDC REVIEW	Fri 8/09/24	Thu 9/19/24	30		42	0	42	r
3.3	50% Set Design Phase	Thu 9/19/24	Wed 2/05/25	100		140	0	140	6
3.4	EOC-50%	Thu 1/23/25	Wed 2/12/25	15		21	0	21	6
3.5	EJCDC Contract-50%	Thu 9/19/24	Wed 10/02/24	10		14	0	14	6
3.6	Bid Details-50%-Blank Form	Thu 1/23/25	Wed 1/29/25	5		7	0	7	6
3.7	50% Set-US-BOR REVIEW	Wed 2/12/25	Fri 4/04/25	38		52	0	52	r
3.8	50% Set-WWDC REVIEW	Wed 2/12/25	Tue 3/25/25	30		42	0	42	r
3.9	Compliance w/Sage Grouse WY E	Tue 3/25/25	Mon 4/07/25	10		14	0	14	5
3.10	90% Set Design Phase	Mon 4/14/25	Fri 8/29/25	100		138	0	138	5
3.11	EJCDC Contract/Spec-90%	Tue 4/29/25	Mon 7/07/25	50		70	0	70	5
3.12	EOC-90%	Thu 8/07/25	Wed 8/20/25	10		14	0	14	5
3.13	Bid Details-90%-DRAFT DOC	Thu 7/03/25	Mon 7/28/25	18		26	0	26	5
3.14	90% Set-WWDC REVIEW	Wed 9/03/25	Tue 10/14/25	30		42	0	42	r
3.15	90% Set-US-BOR REVIEW	Wed 9/03/25	Tue 10/14/25	30		42	0	42	r
4	**Construction Bidding-PREBID**	Mon 11/03/25	Tue 12/30/25	**42**		**58**	**0**	**58**	
4.1	Advertise	Mon 11/03/25	Fri 11/28/25	20		26	0	26	1
4.2	Bid Showing	Mon 12/01/25	Mon 12/01/25	1		1	0	1	1
4.3	Bid Showing Minutes	Tue 12/02/25	Mon 12/15/25	10		14	0	14	1
4.4	Stake for Bid	Fri 11/28/25	Thu 12/11/25	10		14	0	14	1
4.5	Addenda	Sat 12/06/25	Fri 12/19/25	10		14	0	14	1
4.6	Bid Closing	Mon 12/22/25	Mon 12/22/25	1		1	0	1	1
4.7	Bid Tabulation	Tue 12/23/25	Tue 12/30/25	6		8	0	8	1
4	**Post-Bid**	Mon 1/05/26	Wed 6/02/27						3
4.7	Contractor Agreement	Wed 1/07/26	Tue 1/27/26	15		21	0	21	r
4.8	Notice of Award	Mon 1/05/26	Fri 1/16/26	10		12	0	12	r
4.9	Pre-Construction Meeting	Wed 2/04/26	Thu 2/05/26	2		2	0	2	r
4.10	Pre-Con Minutes	Thu 2/05/26	Fri 2/06/26	2		2	0	2	r
4.11	Construction Period	Wed 2/04/26	Tue 5/25/27	340		476	0	476	2
4.12	Progress Payment Approvals	Wed 2/04/26	Tue 5/25/27	340		476	0	476	2
4.13	Field Orders	Wed 2/04/26	Tue 5/25/27	340		476	0	476	2
4.14	Work Change Orders/Change Dire	Wed 2/04/26	Tue 5/25/27	340		476	0	476	2
4.15	Engineers Daily Const. Report	Wed 2/04/26	Tue 5/25/27	340		476	0	476	2
4.16	Punch List	Mon 3/15/27	Tue 3/16/27	2		2	0	2	r
4.17	Contract Final Walk Thru	Fri 4/09/27	Mon 4/12/27	2		4	0	4	6
4.18	Certificate of Substantial	Fri 4/16/27	Mon 4/19/27	2		4	0	4	6
4.19	Certificate of Final Completion	Sun 4/18/27	Tue 4/20/27	2		3	0	3	6
4.20	Advertise 3 Times-Contract Close	Sun 4/18/27	Fri 5/14/27	20		27	0	27	6
4.21	Post at Work Site-Work Acceptance	Sun 4/18/27	Fri 5/14/27	20		27	0	27	6
4.22	Final Project Tabulation	Sun 4/18/27	Fri 4/23/27	5		6	0	6	6
4.23	WS 16-6-117 Compliance Doc	Sun 4/18/27	Fri 4/30/27	10		13	0	13	6
4.24	Warranty Document	Fri 4/23/27	Thu 5/13/27	15		21	0	21	6
4.25	Asbuilt Drawing	Wed 4/28/27	Thu 5/27/27	22		30	0	30	6
4.26	O&M Manual	Tue 5/04/27	Wed 6/02/27	22		30	0	30	6



E.1.7 Evaluation Criterion G—Collaboration (5 points)

*Up to **5 points** may be awarded for projects that promote and encourage collaboration among parties in a way that helps increase the sustainability of the water supply.*

Please describe how the project promotes and encourages collaboration. Consider the following:

- *Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?*

Wyoming Water Development supports the project along with the Irrigation District members. Additionally, please reference the attached support letters from others in the community.

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

The support is substantially in favor of due to the dependence of the community on irrigation water.

- *Will this project increase the possibility/likelihood of future water conservation improvements by other water users?*

Yes, as the resiliency of their supply will be increased. District members are already planning to improve their systems and seeking assistance from the USDA-NRCS.

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

Yes, multiple sectors will benefit. The local ag economy is an anchor to the local economy support many other sectors including municipal, recreational.

- *Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).*

Reference attached.

E.1.8 Evaluation Criterion H—Nexus to Reclamation (4 points)

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

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider:

- *Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?*

  Yes

- *If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?*

  Yes

- *Will the proposed work benefit a Reclamation project area or activity?*

  Yes the Bluff, Upper Bluff, and Highland Hanover Irrigation Districts all take delivery from Hanover Irrigation District. They are all Reclamation Projects.

- Is the applicant a Tribe?
- No

D.2.2.2.7 Performance Measures

The District will, upon completion of the project, utilize the measuring devices to measure flows and automate deliveries to the Bluff & Upper Bluff Canals. Additionally, the District will coordinate with the Bluff Canal to measure discharge flows at the end of its canal and record those measurements. The District will inspect the flume at least annually for leaks into the river of the installed flume pipe.

D.2.2.3 Budget Narrative

The cost budget for the project was developed by a Licensed Wyoming Engineer during the Level II Study to determine cost associated with the flume replacement.

It is assumed that all works for the project will be subcontracted out to Construction Contractors and Design Consultants. Highland Irrigation District's contribution by the Board of Directors for management and oversite, as well as bookkeeping and payment processing is assumed in-kind, though substantial amounts of time will be required.

The budget was developed considering the following thought process and requirements:

The Design development phase of the project assumes that a Wyoming Licensed Professional Engineering firm will develop design documents and construction inspections. The design documents assume three submittals and review by WWDC project manager and Hanover

Irrigation District, 10%,50%, 90%. Then comments will be incorporated into a 100% CD set with full construction specifications and contract documents. As a State of Wyoming publicly funded project, a bid and advertisement process will be followed.

Construction staking and as-constructed documentation and survey will be performed. Construction Quality Control is part of the Contractor's Responsibility with Quality Assurance activities by the design engineer, with near full time observation activities by the design engineer staff. Also, the HID will perform periodic inspections.

The budget for permitting and design phase tasks include confirmation of existing title and easements by performing a title search and obtaining an opinion that the title is clear for the proposed construction activities. Also, compliance with NEPA and SHPO were added as part of the WaterSMART application process assuming a wetlands survey would be needed for potential jurisdictional impacts, including coordination with the US Army Corp of Engineers local regulatory office/branch SHPO compliance will be confirmed by coordination with the State Historical Preservation Office, the age of the existing station and its purpose have high historical value.

The construction materials and construction activities will be provided by a Construction Contractor, and all materials will be new or virgin construction materials. The cost of the components was developed during the Level II Study by using localized unit costs, extrapolated to the estimated quantity for the project, assuming a public works project with local government oversite. A 3% increase per year since the costs were developed in 2019 is assumed.

D.2.2.4 Environmental and Cultural Resources Compliance

Please answer the questions from Section H.1 Environmental and Cultural Resource Considerations.

H.1 Environmental and Cultural Resource Considerations

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

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

The site is adjacent to and across the Bighorn river and results in high ground water elevations. This is anticipated to require the need for construction dewatering during construction of the structure, as well as during construction of the foundation of the proposed structure. Depending on construction means and methods, temporary coffer dams may be required in the Bighorn River. Dewatering activities will discharge flows down canal to contain discharges and any sediment/turbidity. Discharges to surfaces waters is not anticipated, though if required, will include parameters for turbidity, and coordination with Wyoming DEQ. Dust/air quality is not anticipated as surface and subsurface soil conditions are typically saturated or moist. Haul routes can be watered with water produced by dewatering activities if dust emissions become apparent. Construction activities will take place during winter months where seasonal moisture is more frequent.

- *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?*

None known. According to Environmental Conservation Online System (ECOS), no critical habitat is shown for the site on their GIS interactive map.

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

The Bighorn River is a non-navigable water at this location. Indicators of wetlands are present along the riverbanks at the proposed location of the construction. Though limits of disturbance will be kept to a minimum, impact to these areas is anticipated/expected. A survey will need to be performed to determine area of impact and jurisdictional status, as well as classification in accordance to the 1987 USACE manual and applicable regional supplements. It is anticipated that 0.05 Acres of potentially jurisdictional wetlands will/may be temporarily impacted by construction. Consultation with the USACE Regulatory Branch staff indicates the project is exempt from permitting requirements based on the irrigation use and the existing crossing associated with the construction.

- *When was the water delivery system constructed?*

The Bighorn Flume was first constructed in the early 1900's, estimated in 1904-1910, though exact date not definitively known. Some components and planning as early as 1904. The existing flume structure crossing the Big Horn River was built in the 1930's. It is the second structure at this location.

- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

The Bighorn Flume was constructed in the early 1900's, estimated in 1904-1910, though exact date not definitively known. The structure has had numerous rehabilitations. Given the age and historical significance of the existing Flume, the District does not want to remove it, and prefers to rehabilitate the deck using similar materials and construction methods to maintain its use for operation and maintenance, and construct new facilities that do not leak and can be integrated into the water measurement and SCADA systems.

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

The Bighorn Flume is likely eligible for listing given its age and historical significance to the development of the community. Other structures on the system are also of age, but this structure is the most significant structure on the system. The SHPO process will need to determine required documentation and specifically if subject structure is eligible for listing.

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

None known

- *Will the proposed project have a disproportionate and adverse effect on any communities with environmental justice concerns?*

None.

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

None known

- *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?*

None.

D.2.2.5 Required Permits or Approvals

No external permits are foreseen, a dewatering permit, storm permit, turbidity permit may be required for construction activities, and the responsibility of the Contractor. The approval of funding with Wyoming Water Development Commission is approved, pending legislative approval through the 2024 Omnibus Construction Bill for the State of Wyoming SENATE FILE NO. SF0075 99-3-2904.

Note: Improvements to Federal facilities that are implemented through any project awarded funding through this NOFO must comply with additional requirements. 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.

D.2.2.6 Overlap or Duplication of Effort Statement

State of Wyoming funds for $1.5M are pending legislative approval. No other state or local funds have been requested. Federal funds were requested by an application made to USDA-NRCS Watershed Protection and Flood Operations (WFPO) Program funds. No fund amount was requested, as only an application was submitted. Following the March 2024 closing of the application period, funds and details will be further available from the Wyoming State office, and further coordination will be had with the District. The District intends to continue to pursue those funds, knowing that it will not be able to obtain duplicative funds for this project, nor funds in excess of the project cost.

D.2.2.7 Conflict of Interest Disclosure Statement

No foreseen conflicts of interest.

D.2.2.8 Uniform Audit Reporting Statement

Not applicable

D.2.2.9 Certification Regarding Lobbying

See Application SF-424

D.2.2.10 SF-LLL: Disclosure of Lobbying Activities (if applicable)

Not applicable

D.2.2.11 Letters of Support

See following Letters of Project Support

January 29, 2024

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Darren Olson
P.O. box 25007, MS 84-27814
Denver, CO 80225

Re: Hanover Irrigation District, Big Horn Basin, Wyoming

Mr. Darren Olson:

I write this letter in support of the proposed project of Hanover Irrigation District regarding its flume over the Big Horn River – replacing the existing structure for water and rehabilitating the existing structure for maintenance traffic only. I write this letter as the President & CEO of Wyoming Sugar Company and second, as a resident of Washakie County.

It is my understanding that the existing flume was built circa 1930 and serves the farmland that is critical to local and regional economy. Water is one of Wyoming's most precious resources and its beneficial use in agriculture is vital to the economic wellbeing of our communities in the Big Horn Basin. In particular any project that assist our local growers in becoming more efficient, while conserving a natural resource of great importance to the Wyoming Sugar Company and the State of Wyoming. Wyoming Sugar Company has been in existence for over 100 years and provides the opportunity to process sugar beets grown in the area into refined white sugar for human consumption. It provides over 200 manufacturing jobs, plus hundreds more on the individual farms in the area. The Company is owned by its growers and therefore the growers are subject to all market risk. As with all commodities, prices rarely keep pace with costs; therefore, the only remedy is efficiency. This project will definitely assist in achieving such efficiency.

Respectfully,

Michael D. Greear
President & CEO

▪ 300 SOUTH 1ST ST. ▪ P.O. BOX 468-WORLAND, WY 82401 ▪ (307) 347-3261 ▪
Michael D. Greear President & CEO
mgreear@wyosugar.com

February 19, 2024

Bureau of Reclamation
Financial Assistance Support Section
Attn: Darren Olson
PO Box 25007
MS 84-27814
Denver, CO 80225

To Whom It May Concern,

The Washakie County Conservation District (WCCD) supports the Hanover Irrigation District Bighorn River Irrigation Flume project, which will replace a conveyance structure that is beyond its life expectancy; made of concrete, steel, and wood and installed in the 1930's.

In the Hanover Irrigation District Master Plan Level 1 Study Executive Summary which was completed in 2017, the Bighorn River Flume was identified as the number one priority as it is currently impeding canal operation by not allowing for vehicle travel across the river for daily canal operations. The study states that if this structure were to fail, the largest amount of irrigated service acreage would be without water. This would cause profound economic hardship for those that rely on this water for agriculture production.

Agriculture within WCCD provides a consistent economic base for our local economies, with irrigated land valuations totaling over $12 million dollars (2020, Washakie County Natural Resource Management Plan). It is important to WCCD in supporting any effort to improve water efficiency, especially if natural resource conservation projects can be initiated.

Please consider the approval of funding for the Bighorn River Flume project.

Sincerely,

Daniel Greet
Board Supervisor, Chairman

Washakie County Conservation District
208 Shiloh Road
Worland, Wyoming 82401
(307) 347-2456, Ext. 101

February 6, 2024

Bureau of Reclamation
Financial Assistance Support Section
ATTN: Darren Olson
PO Box 25007, MS 84-27814
Denver, CO 80225

Re: Hanover Irrigation District, Washakie County, Wyoming

To Whom it May Concern,

Molson Coors Beverage Co supports the project proposed by Hanover Irrigation District, in the replacement and rehabilitation of the Big Horn River flume. This project is import in assuring adequate and consistent water availability to essential barley production acreage that Molson Coors currently contracts. This project supports water efficiency and conservation efforts as well as assisting growers in becoming more sustainable in preserving Wyoming most precious resource, water. Molson Coors has contracted malt barely in this area for over 50 years with a rich heritage in working with most of the impacted growers over that same period. The acreage served by the Hanover Irrigation District plays an essential role in providing Molson Coors with a consistent supply of some of the highest quality malt barley in the U.S. This project helps to maintain that supply and the continued success of this program.

Respectfully,

David C. Dougherty
WY Region Agronomist
Worland, WY

D.2.2.13 Official Resolution

Reference following resolution:

RESOLUTION NO. 01-24

Entitled: A RESOLUTION AUTHORIZING APPROVAL TO PURSUE THE WATERSMART GRANT THROUGH THE BUREAU OF RECLAMATION FOR THE HANOVER IRRIGATION DISTRICT NEAR WORLAND, WYOMING.

WITNESSETH

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE HANOVER IRRIGATION DISTRICT IN WORLAND WYOMING:

1. The Hanover Irrigation District Board desires greater operational efficiency within the Hanover Canal and authorizes staff to commit efforts and funds to undertake this endeavor. The Hanover Irrigation District Board confirms they have the funds necessary for their portion in the repair and maintenance account.

BE IT FURTHER RESOLVED that Steven Snyder, President is hereby designated as the authorized representative of the Hanover Irrigation District, to act on behalf of the Governing Body on all matters relating to this Level funding request.

PASSED, APPROVED AND ADOPTED THIS ____DAY OF

Steven Snyder (Feb 19, 2024 17:44 MST)

Steven Snyder
District President

Attest:

Robert Hefenieder
Robert Hefenieder (Feb 19, 2024 21:24 MST)

Robert Hefenieder
Secretary

D.2.2.14 Letters of Funding Commitment

The Hanover ID has applied for the following State funding:

STATE OF WYOMING, SENATE FILE NO. SF0075 99-3-2904. Level III construction projects – rehabilitation.

(g) Project – Hanover ID Bighorn River Flume Replacement 2024 , (v) Project grant: The State of Wyoming shall grant to the sponsor from Water Development Account II through the Commission for the design, permit procurement, project land procurement, construction engineering and construction of the project an amount not to exceed one million five hundred thousand dollars ($1,500,000.00) or fifty percent (50%) of these actual development costs, whichever is less;

Additional funding as required is committed to by the Hanover Irrigation District.