WaterSMART Grants:
Water and Energy Efficiency Grants for Fiscal Year 2023
Funding Opportunity No. R23AS00008
Funding Group II

Project: Pump Station Replacement Project

Applicant:
Highland Hanover Irrigation District
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Table of Contents

D.2.2.2 Technical Proposal Content

Executive Summary

July 28, 2022

Highland Hanover Irrigation District
Worland, Washakie County, Wyoming

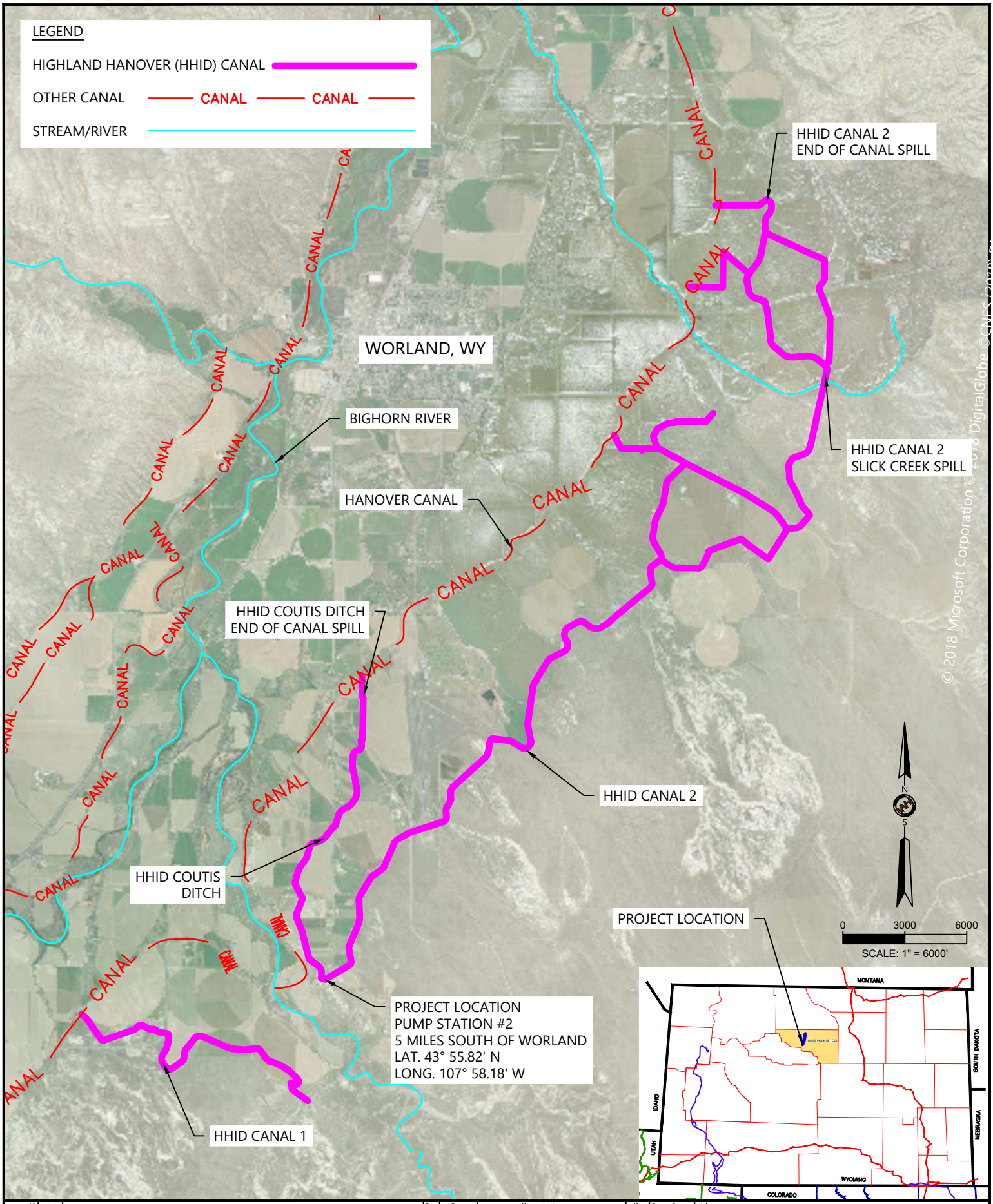
Category A Applicant

The Highland Hanover Irrigation District (HHID) owns and operates a series of irrigation canals in the Worland, WY area of the Bighorn River Basin. The *Highland Hanover Irrigation District Pump Station Replacement* is a replacement of the 1957 Bureau of Reclamation pump station, conveying storage water from the Bureau of Reclamation Boysen Reservoir to the District's canals. The District will replace the original BOR pumping units in the Pump Station #2 that serve both Canal 2 and the Coutis Ditch with modern pumps and electrical systems including Variable Frequency Drives (VFD's) and associated controls, focusing on water supply delivery, as the pumps have all exceeded their useful life, have decreased capacity and efficiency, and there is great concern pump failure is imminent and near. Not only will replacement allow water delivery to users, it will also provide substantial environmental benefits by upgrading sixty-five year old pumping equipment, resulting in energy and water savings. It is anticipated to reduce water spills by approximately 4633.1 Acre-feet per year with energy savings of 758,726 kilowatt hours per year through the addition of level sensors, flow meters, and VFD's to better match pump flows to system demands. The total proposed project length including design is estimated at 24 months from design to construction completion. Design is estimated to begin in August of 2022 with construction commencing June of 2023. This project is utilizing State funding in conjunction with WaterSMART funding, to supplement the Irrigation District funds.

This project is not located on a Federal facility, though is part of the Highland Hanover and Upper Bluff Unit project originally designed, constructed, and funded by Reclamation, circa 1956.

Project Location

The Highland Hanover Irrigation District Pump Station Replacement is located in Worland, Washakie County, Wyoming, approximately 5 miles south of Worland, Wyoming. The project Latitude is 43° 55.82' N and Longitude is 107° 58.18' W.



Sheet Number: HHID PS 2.1

Job Number: 21WHC902

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Rev	Date	Description	By

Drawn By: MSP
Designed By: MSP
Reviewed By: RLA
Scale: 1" = 6000'

Title:
HIGHLAND HANOVER IRRIGATION DISTRICT
PUMP STATION #2
IMPROVEMENTS
WASHAKIE COUNTY, WYOMING

Technical Project Description

Following a 2018 Highland Hanover Irrigation District Master Plan, improvements to the Pump Station #2 were identified as a top priority as operation is impaired and its remaining life is limited. A Feasibility Study was completed in the summer of 2021 to develop a rehabilitation plan to address the water supply issues with the aging infrastructure. If the pump station equipment were to fail, nearly all of the districts' irrigated service acreage would be without water. Pump Station #2 is the largest pump station of five total operated by the district, and it supplies water to two canals, Canal 2 and Lateral 2-05 (Coutis Ditch). These two canals service approximately 5,663 acres of the district's total service area of 6,992 acres. Pumps Station #2 currently requires us of backup pump station #5 to deliver design flows.

The project consists of replacing the four pumping units in the pump station comprising of a pair of units supplying water to each of the two canals. In both cases, the pumps will be replaced with new vertical turbine pumps, operated by Variable Frequency Drive (VFD) motor controls and Programmable Logic Controls (PLC). In addition to the pump replacements, it is proposed to install flow meters at each discharge pipe and a water level sensor to provide feedback to the PLC to modulate and adjust flows based on demand of the Coutis Ditch.

The existing pumps servicing Canal 2 consist of two large horizontal centrifugal pumps made by Worthington and are the original pumps from the mid 1950's. The pumps are each powered by a 600 HP, 600 RPM, synchronous 2300 V, 3ø, 60 Hz motor by the Electric Machinery Manufacturing Company. These centrifugal pumping units are primed with a vacuum pump. The Coutis Ditch is served by a pair of vertical turbine pumping units with motors rated at 60 HP, 1770 RPM, 208 V, 3ø, 60 Hz by U.S. Electrical Motors. Currently there are no means of measuring the water discharge volume or regulating flows of the pumps throughout the pump station, water measurements are based on in canal weir measurements.

The existing motors and pumps will be replaced with modern motors that meet or exceed the current national efficiency requirements, and vertical turbine pumps. The motors would be operated by a VFD to allow soft starts, avoiding across the line starts generating high instantaneous inrush current demands. The pumps would be modulated and programmable by flow so the district can set the required flow and the system will adjust its output according to an installed flow meter in the discharge pipe. The VFD would allow a broad range of adjustment for the pumps. A PLC that is connected to a user interface screen which show readings and adjustable set points for the sensors would be integrated into the system to address system parameters as well as allow alteration and balance of starts between pumps, to reduce wear on a single pump or motor. With the addition of discharge flow measurement and the integration of water level sensors and radios, reduced canal spills would be achieved.

To accommodate the new pump motors and VFD's, the existing electrical service to the pump station will be upgraded to account for the increased tabulated power demand.

The system voltage is also currently operating at 2300V which requires electricians with high voltage experience and certifications to work on as well as specialized parts, that are not readily available in the local area; replacement will include converting to more common, industry standard, electrical components. This includes replacing the existing transformer along with installing a new transformer for the modern equipment. By modernizing the equipment, not only are we securing water for delivery, realizing quantifiable water & electrical savings, the environmental impact will be substantially reduced.

Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (28 points)

*Up to **28 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 address the following:

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.

An estimated water savings of 4633.1 Acre-Feet/Year is to be conserved as a direct result of this project.

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:

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

There are two sources where current losses are being discharged along Canal 2 and Coutis Ditch. The end of Canal 2 and Coutis Ditch both discharge to the Hanover Canal. The spill at Slick Creek along Canal 2 discharges into Slick Creek which winds down to the Bighorn River.

    b. *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?*

Current losses that discharge into the Hanover Canal may be used by its associated water users but are not accounted for in Hanover operation therefore leading to additional spills along its Canal. Losses that discharge into Slick Creek are not captured by others and ultimately end up in the Bighorn River.

c. *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?*

No known benefits are associated with the water losses along Canal 2 or the Coutis Ditch.

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

It is estimated that annual water spills for the Highland Hanover Canal 2 and the Coutis Ditch is a total of 7,710.5 Acre-Feet/Year. This is based on measurements, observations of watermarks and reading of gauges, and discussion of operations with members and ditch rider. Western Heritage Consulting and Engineering (WHCE) performed both the Master Plan and Feasibility Study for the Highland Hanover Irrigation District. Based on survey data collected through these studies and from collected data provided by the canal company, and conversations with the ditch rider, water losses were calculated. An average season of 190 days was used to determine annual water losses and savings.

There are a total of three spills between the Canal 2 and the Coutis Ditch which account for the losses which the project directly impacts. Estimated water loss and savings for the three spills were calculated as follows:

Coutis Ditch – Survey measurements of spill levels were taken during the Master Planning at the end of canal spill on August 16, 2018. A spill board at the end of the canal was observed measuring 48" in hydraulic length. Based on survey data, there was 0.56' of water over the spill board. Additional flow was going around the ends of the board checks as well as between boards. This additional flow was not included in the calculation. Using the Weir Flow Equation, $Q = CLH^{\frac{3}{2}}$, with C = 3.1, L = 4 ft, and H = 0.56 ft, a total spill of 5.2 CFS was calculated. In addition to the surveyed data in 2018, the ditchrider installed a staff gauge and measured spills between June 6, 2022 and June 27, 2022. These measurements were averaged for the 22 days and a daily spill was calculated based on the corresponding staff gauge calibrated spill quantities in CFS. The average losses came out to 5.03 CFS/day which corresponds with the calculated spill of the surveyed data in 2018. The measured spill data for the 22-day sample in June of 2022 is provided following this section. The measured spill data coincide with historic watermarks on ditch and spill structures.

It is anticipated that a 70% water savings will be achieved with the addition of a water level sensor at the end of the canal to provide feedback to the PLC to modulate and adjust flows based on demand. The annual water savings calculates to 1,326.9 Acre-

Feet/Year based on a 190-day irrigation season. Similar pump and measurement improvements installed on an adjacent system in the area, Upper Bluff Pumpstation #1 in the Upper Bluff Irrigation District, have achieved water savings closer to 80-90% savings following installation.

Canal 2 – There are two spill locations along Canal 2 that were measured. There is a check structure located at Slick Creek used to spill water and an overflow drain at the end of the Canal (Tail End). Similarly, to the Coutis Ditch, spills were measured between June 6, 2022 and June 27, 2022 to calculate losses at the Slick Creek Spill and at the Tail End. These measurements were averaged for the 22 days and a daily spill was calculated based on the corresponding staff gauge calibrated spill quantities in CFS. This average came out to 5.29 CFS/day at the Slick Creek spill. The measured spill data coincide with historic watermarks on ditch and spill structures. In addition to the calculated spills for this period, historical spills (in CFS/day) for Slick Creek were provided by the ditchrider for 2019 through 2021. The Slick Creek spill location is used to reduce flow through the canals so that the Tail End is not overwhelmed. With improved water management of Canal 2 pumps by utilizing VFD's to adjust pump output based on demand to manage canal flow from the Pumpstation to the end of the canal, it is estimated that a 70% water savings will be achieved at the Slick Creek Spill. The annual water savings calculates to 1,395.5 Acre-Feet/Year based on a 190-day irrigation season.

At the end of Canal 2, there is an overflow drain where the measured spill was calculated. Spill information was calculated to provide a daily average of 10.14 CFS at the Tail End similarly to both the Coutis Ditch and the Slick Creek spill. The measured spill data coincide with historic watermarks on ditch and spill structures. With the ability for the ditch rider to better optimize pump flow output to demand with the new VFD's, we anticipate a 50% water savings will be achieved at the end of the canal. The annual water savings calculates to 1910.7 Acre-Feet/Year based on a 190-day irrigation season.

From the water savings of the 3 spill locations, a total annual water savings is estimated to be 4,633.1 Acre-Feet/Year due to the improvements to the Pump Station #2.

2022 Recorded Spills from 6/6/22 to 6/27/22				
	Coutis	Tail End	Slick Creek	
Date	Staff Gauge Measurement (in)	Staff Gauge Measurement (in)	Staff Gauge Measurement (in)	
6-Jun	0.23	0.32	0.28	
7-Jun	0.3	0.32	0.22	
8-Jun	0.9	0.27	0.4	
9-Jun	0.95	0.35	0.15	
10-Jun	1	0.15	0	
11-Jun	0.9	0.1	0	
12-Jun	1.1	0.23	0.15	
13-Jun	1.2	0.25	0.32	
14-Jun	1	0.23	0.29	
15-Jun	0.92	0.38	0.75	
16-Jun	0.66	0.14	0.78	
17-Jun	0.64	0.28	0.3	
18-Jun	0.68	0.38	0.6	
19-Jun	0.6	0.42	0.7	
20-Jun	0.2	0.36	1.06	
21-Jun	0.34	0.16	0.94	
22-Jun	0.3	0.26	0.8	
23-Jun	0.38	0.1	0.8	
24-Jun	0.42	0.22	0.6	
25-Jun	0.5	0.18	0.6	
26-Jun	0.55	0.08	0.34	
27-Jun	0.45	0.05	0.3	
Average	0.65	0.24	0.47	
Interpolated Average Spill/day (CFS)	5.03	10.14	5.29	
Annual Spill (190 day season) (acre-ft/year)	1895.6	3821.4	1993.6	
		Total =	7710.5	acre-ft/year
Estimated water savings	70%	50%	70%	
Estimated Annual Water Savings (acre-ft/year)	1326.9	1910.7	1395.5	
		Total =	4633.1	acre-ft/year

*In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are **not** sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

Actuals

DATE	36" counts	97.5 D.a. 306" circum TE	60½" SC
6-02	0	0	0
6-03	0	0	0
6-04	0	0	0
6-05	0	0	0
6-06	.23	.32	.28
6-7	.3	.32	.22
6-8	.9	.27	.4
6-9	.95	.35	.15
6-10	1.0	.15	.0
6-11	.9	.1	.0
6-12	1.1	.23	.15
6-13	1.2	.25	.32
6-14	1.0	.23	.29
6-15	.92	.28	.75
6-16	.66	.14	.78
6-17	.64	.28	.3
6-18	.68	.38	.6
6-19	.6	.42	.7
6-20	.2	.36	1.06
6-21	.34	.16	.94
6-22	.3	.26	.8

DATE	Counts	TE	SC
6-23	.38	.1	.8
6-24	.42	.22	.6
6-25	.5	.18	.6
6-26	.55	.08	.34
6-27	.45	.05	.3
6-28			
6-29			
6-30			
7-1			
7-2			
7-3			
7-4			
7-5			
7-6			
7-7			
7-8			
7-9			
7-10			
7-11			
7-12			
7-13			
7-14			

2022

Slick Creek spillway 60½"		Tail End Overflow 306" around	
.1	.54	.1	2.74
.2	1.5	.2	7.63
.3	2.72	.3	13.90
.4	4.16	.4	21.27
.5	5.78	.5	29.58
.6	7.56	.6	38.73
.7	9.49	.7	48.64
.8	11.55	.8	59.26
.9	13.74	.9	70.52
1	16.05	1	82.41
1.1	18.46	Coutis	Lateral 36"
1.2	20.98	.1	.32
1.3	23.60	.2	.89
1.4	26.32	.3	1.61
1.5	29.13	.4	2.46
		.5	3.41
		.6	4.46
		.7	5.60
		.8	6.81
		.9	8.09
		1	9.45
		1.1	10.86
		1.2	12.34
		1.3	13.88
		1.4	15.47
		1.5	17.11

Slick Creek Spillway 2019 57" stop log

DAY	MONTH						
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
1		6	6	5	2	3	4
2		3	5	5	1	4	2
3		2	5	3	3	4	3
4		3	2	1	1	2	0
5		1	0	0	5	0	1
6		6	1	5	0	3	4
7		4	1	0	1	1	1
8		1		1	2	6	1
9		0	0	4	1	4	8
10		5	7	5	5	1	8
11		6	5	5	0	2	2
12	16	6	5	0	5	4	
13	12	1	2	0	2	4	
14	12	1	5	0	1	6	
15	12	2	5	1	1	1	
16	10	4	1	6	3	3	
17	1	3	1	6	3	4	
18	2	5	1	2	0	4	
19	4	6	1	2	6	6	
20	6	6	4	6	4	1	
21	10	5	5	5	4	5	
22	1	4	1	6	1	6	
23	4	4	6	1	2	2	
24	3	6	4	6	4	3	
25	0	8	2	3	1	6	
26	1	1	2	1	6	5	
27	4	1	1	2	3	4	
28	1	4	5	8	1	8	
29	5	2	3	1	1	8	
30	4	2	4	1	0	2	
31	5	4		3	1	5	
TOTALS				2			

Slick Creek Spillway 2020 5"Stop log

DAY	MONTH						
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
1		3	8	1	6	1	1
2		2	1	0	7	0	1
3		1	2	1	5	1	1
4		1	4	4	3	3	1
5		0	4	4	1	4	6
6		1	2	2	1	7	5
7		4	1	0	3	5	5
8		1	5	1	3	1	4
9		1	3	3	6	2	4
10		4	0	4	0	1	4
11		5	1	6	1	3	0
12		2	4	5	3	5	
13		0	6	0	3	5	
14		3	6	1	1	4	
15	18	3	3	3	7	1	
16	18	1	2	2	6	0	
17	10	9	0	3	5	4	
18	10	5	3	4	1	4	
19	10	1	1	5	2	6	
20	9	4	6	3	8	7	
21	8	6	5	1	2	5	
22	4	1	6	0	1	1	
23	1	1	2	1	3	0	
24	1	6	1	3	3	2	
25	1	3	1	4	4	1	
26	4	5	3	1	4	1	
27	4	1	1	6	3	6	
28	0	4	7	3	1	5	
29	2	0	6	3	2	3	
30	5	6	4	4	6	2	
31		7	4	4			
TOTALS							

Slick Creek Spillway 2021 5"Stop log

DAY	MONTH						
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
1		8	6	0	7	5	6
2		9	4	4	5	6	7
3		5	3	6	4	7	8
4		3	4	10	2	7	8
5		1	8	2	3	8	7
6		1	9	0	5	5	6
7		2	2	0	5	1	6
8		6	0	2	6	2	7
9		8	0	4	7	0	8
10		5	3	7	2	2	8
11		0	1	8	4	4	0
12		3	4	8	3	7	
13		4	7	4	2	5	
14		6	5	1	8	1	
15		7	2	1	8	2	
16		4	0	2	6	4	
17		0	2	7	4	7	
18		2	6	8	0	9	
19		1	7	6	0	7	
20	16	3	7	9	4	7	
21	16	3	3	4	4	4	
22	12	4	1	2	7	0	
23	10	1	0	6	3	4	
24	10	5	2	7	3	6	
25	10	2	4	7	5	6	
26	9	0	8	8	5	4	
27	8	1	5	3	6	5	
28	8	3	7	1	7	5	
29	5	3	6	0	7	4	
30	7	8	4	2	4		
31		7		5	3		
TOTALS							

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 the following:

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

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.

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)?

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?

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

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

(2) **Municipal Metering:** Municipal metering projects can provide water savings when individual user meters are installed where none exist to allow for unit or tiered pricing, when existing individual user meters are replaced with advanced metering infrastructure (AMI) meters, and when new meters are installed within a distribution system to assist with leakage reduction. To receive credit for water savings for a municipal metering project, an applicant must provide a detailed description of the method used to estimate savings, including references to documented savings from similar previously implemented projects. Applicants proposing municipal metering projects should address the following:

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

b. How have current distribution system losses and/or the potential for reductions in water use by individual users been determined?

c. For installing end-user water service meters, e.g., for a residential or commercial building unit., refer to studies in the region or in the applicant's

service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.

d. Installation of distribution system meters will not receive points under this criterion. Accordingly, these projects must be paired with a complementary project component that will result in water savings in order for the proposal to receive credit for water savings, e.g., pipe installation using upgraded materials, or individual water service meters.

e. What types (manufacturer and model) of devices will be installed and what quantity of each?

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

(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 the following:

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

As detailed in E.1.1.3, water savings estimates were determined based on the ability for the ditch rider to better optimize pump flow output to demand using new VFD's, along with new measuring devices at the pump discharge pipes and at spill locations. The existing pumps servicing both the Canal 2 and Coutis Ditch do not have a VFD and are either on or off without intermittent adjustment, unless valves are throttled, resulting in higher back pressure to the pumps, and decreased electrical efficiency. This is rarely done, as the extra back pressure on the pumps creates more work for the motors and pumps, resulting in extra wear on the equipment. Currently both pumps serving the Coutis Ditch are run simultaneously when water is needed. A single pump does not have the capacity required to meet minimum water demands. To regulate the required flows for Canal 2, the ditch rider manages delivery capacity using a combination of the two pumps in the pump station along with a supplementary pump station, Pump Station #5. The project's intended goal is to eliminate the need for Pump Station #5 and returning it to its original design intent as a backup system.

At the end of the canal of the Coutis Ditch, it is proposed to install a water level sensor which will provide feedback through a radio connection to the PLC at the pump station to modulate and adjust flows based on demand. A 70% water savings is anticipated with the proposed water delivery system. Additionally, a gauge will be installed at the spill at the end of Canal 2 to monitor and record spills.

With added measuring devices including a flow meter at the pumps discharge pipe, Canal 2 will have the ability for the ditch rider to better optimize pump flow output to demand with the new VFD's. Currently the ditch rider spills approximately 5.3 CFS at

the Slick Creek spill so that the end of the canal drain is not inundated with excess water. With the new VFD's and improved water management, excess delivery to the end of the canal will be minimized requiring minimal spills at the Slick Creek Spill. The check structure will be managed to direct the water down the canal instead of spilling over the check structure. It is conservatively estimated that a 70% water savings will be achieved at the Slick Creek Spill. We anticipate a 50% water savings will be achieved at the end of the canal through operational efficiencies with the improved water delivery system.

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.

Current operational losses are described in detail in Section E.1.1.3. Losses are based on measurements, measurement of watermarks, and discussion of operations and measurements taken by members and the ditch rider.

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?

The existing pumps and piping at Pump Station #2 do not have measurement devices to quantify water delivery from the pump station. Currently water supply to the project is being managed through a Wyoming State Engineer's Office (SEO) hydrology station upstream of the pump station. The measuring station uses qualitative water levels to determine the canal flow capacity for all water distributed through Canal 2 and the Coutis Ditch. Since the current pumps are not variable, the total water delivery flow for the two canals can be accurately determined. Additionally Canal 2 has a measuring gauge downstream of the discharge from the pumps, though its geometry has been affected by erosion and a shift has been calculated, though its accuracy has been deemed unreliable.

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

The project consists of installing several flow measurement systems. At the discharge pipes to the two canals, an Insertion Electromagnetic or Ultrasonic Flow Sensor will be installed. Flow sensor data will be relayed back to the pump station via an indicator and communicate with the PLC for pump operation. Accuracy with these flow meters for the pump discharge volume will be within 1-2% or better.

At the end of the Coutis Ditch, a water level sensor is proposed to be installed which would communicate to the pumps at the pump station through a radio connection. We anticipate a 70% water savings with the pumps capability to regulate flows to meet demands with reduced spills during lag times. Greater savings could be considered academically, though in practice the delay required for controls to modulate and not

overcorrect will require that some spill take place to allow irrigation operations to be effective.

Additional staff gauges will be installed at both the Slick Creek Spill and the end of the Canal 2, so that instantaneous visual measurements can be made. Water savings through operational efficiencies with the improved water delivery system will be calculated and routinely monitored.

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

Annual canal downstream deliveries will be more regular and less than current deliveries.

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

Water savings will be verified through a combination of data readouts from the PLC's and routine measurements at the spills.

(4) **Turf Removal:** Applicants proposing turf removal projects should address the following:

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

b. What is the total surface area of turf to be removed and what is the estimated average annual turf consumptive use rate per unit area?

c. Was historical water consumption data evaluated to estimate average annual turf consumptive use per unit area? If so, did the evaluation include a weather adjustment component?

d. Will site audits be performed before applicants are accepted into the program?

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

(5) **Smart Irrigation Controllers, Controllers with Rain Sensor Shutoff, Drip Irrigation, and High-Efficiency Nozzles:** Applicants proposing smart irrigation controllers, controllers with rain sensor shutoff, drip irrigation, or high-efficiency nozzle projects should address the following:

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

b. Was historical water consumption data evaluated to estimate the percent reduction in water demand per unit area of irrigated landscape? If so, did the evaluation include a weather adjustment component?

c. What types (manufacturer and model) of devices will be installed and what quantity of each?

d. Will the devices be installed through a rebate or direct-install program?

e. Will site audits be performed before and after installation?

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

(6) **High-Efficiency Indoor Appliances and Fixtures:** Installing high- efficiency indoor appliances and fixtures can provide water savings for municipal water entities where there is significant potential for replacing existing non-efficient indoor appliances and fixtures. Applicants proposing high-efficiency indoor appliance and fixtures projects should address the following:

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

b. What types (clothes washers, shower heads, etc.) of appliances and fixtures will be installed and what quantity of each?

c. Have studies been conducted to verify the existence of non-efficient appliances and fixtures? Provide published water savings rates for each of these devices and reference the source for each of the device savings rates.

d. Will the devices be installed through rebate or direct-install programs?

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

(7) **Commercial Cooling Systems:** Cooling towers are components of many refrigeration systems with many applications. They dissipate heat to the atmosphere through the evaporative process and are common in manufacturing processes where cooling is required. They are also used for cooling large commercial buildings. Cooling tower structures vary in size, design, and efficiency. Regardless, all cooling towers consume large volumes of water and energy.

Open-circuit or direct contact are the most common types of cooling towers. Water is supplied to the tower after gathering heat and then released in the upper tower levels. A fan near the base of the tower creates upward airflow. Closed-circuit towers are more efficient and closed-circuit towers with adiabatic cooling are more efficient yet.

Water and energy savings can be achieved by replacing or retrofitting older low efficiency cooling towers. Applicants proposing cooling system projects should address the following:

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

b. Was historical water consumption data evaluated to estimate the percent reduction in water demand?

c. Specify type (manufacturer and model) of cooling tower system to be installed and/or provide a detailed description of the system retrofit plan.

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

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

*Up to **20 points** may be awarded based on the extent to which the project increases the use of renewable energy or otherwise results in increased energy efficiency and reduced greenhouse gas emissions.*

For projects that include constructing or installing renewable energy components, please respond to Subcriterion No. B.1: *Implementing Renewable Energy Projects Related to Water Management and Delivery*. If the project does not implement a renewable energy project but will increase energy efficiency, please respond to Subcriterion No. B.2. *Increasing Energy Efficiency in Water Management*. If the project has separate components that will result in both implementing a renewable energy project and increasing energy efficiency, an applicant may respond to both.

Note: an applicant may receive points under both Subcriteria No.B.1 and B.2 if the project consists of an energy efficiency component separate from the renewable energy component of the project. However, an applicant may receive no more than 20 points total under both Subcriteria No. B.1 and B.2.

E.1.2.1. Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

*Up to **20 points** may be awarded for projects that include construction or installation of renewable energy components (e.g., hydroelectric units, solar- electric facilities, wind energy systems, or facilities that otherwise enable the use of renewable energy). Projects such as small-scale solar resulting in minimal energy savings or production will be considered under Subcriterion No. B.2.*

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

Describe the amount of energy generated. For projects that implement renewable energy systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate. Please explain how the power generated as a result of this project will be used, including any existing or planned agreements and infrastructure.

Describe the status of a mothballed hydro plant. For projects that are brining mothballed hydropower capacity back online, please describe the following:

- Clearly describe the work that will be accomplished through the WaterSMART Grant. Note: normal OM&R activities are not eligible for funding. The work being proposed must be an investment.
- Provide information about the capacity (in kilowatts) of the existing hydro system and the expected capacity once it is brough back on-line.

- Provide information about the duration that the hydro system has been offline and the reasons why it has been mothballed. Please include any regulatory reporting or filings (e.g., FERC filings) or other documentation regarding the system.

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

- How the system will combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions
- Expected environmental benefits of the renewable energy system
- Any expected reduction in the use of energy currently supplied through a Reclamation project.
- Anticipated benefits to other sectors/entities.
- Expected water needs, if any, of the system.

AND/OR

E.1.2.2. Subcriterion No. B.2: Increasing Energy Efficiency in Water Management *Up to* ***10 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.*

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).

- If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.

The estimated energy savings is 758,726 kilowatt hours per year. Energy savings were calculated comparing current pumping units and run time and optimized run times based on new pumps and optimal flow requirements. Current energy usage was calculated to be 4,448,249 kilowatt hours per year. Current energy usage was calculated using run times for the existing pumps to convert to kilowatt hours. From the pump run times, the seasonal water usage was estimated from pump flow rates. From the current seasonal flows, an optimized seasonal flow was calculated based on water savings expected following the completion of the project. The new pumps proposed for the project are higher horsepower units, however, the use of Pump Station #5 is expected to be eliminated. Pump Station #5 will be a backup unit which will be used in emergency situations and not be required under normal operations. To calculate proposed energy usage, an optimal seasonal run time in days was calculated. Since there are two pumps with the same proposed flow rate and horsepower for both the Canal 2 and the Coutis Ditch, the optimal seasonal run time in days was divided equally

between the two pumps. We note that the optimal run times in days per season that energy savings is calculated from is less than the average irrigation season of 190 days. Total energy savings were calculated using the simplified formula with the pumps running at 100% based on the optimal seasonal run time. Actual operational conditions will occur over the typical 190-day season and the pumps will be regulated through the new VFD's at a reduced percentage of flow rates and horsepower. Estimated energy savings based on 100% pump usage with a shorter run time is comparable to the estimated energy savings based on increased run times with an equivalent reduced pump usage (<100%). The optimal energy usage calculated with the proposed pumping units is 3,689,523 kilowatt hours per year. From the current and proposed energy usage, the estimated energy savings is 758,726 kilowatt hours per year. Refer to chart below for detailed calculations for existing and proposed power usage.

Canal	Pump Station	Existing Pumps							Canal Flows		
		Pump ID	Motor HP	Estimated Pump Flow Rate CFS	Estimated Daily Flow Rate Ac-Ft/Day	Run Time / Season Days	Seasonal Flow Ac-Ft/Season	Power Consumption kW hr/yr	Canal Total Seasonal Flow Ac-Ft/Season	Estimated Water Savings Ac-Ft/Season	Optimal Seasonal Flow Ac-Ft/Season
Canal 2	2	1	600	35	69.41	190	13,187.0	2,040,234.9	25,759.2	4,629.7	21,129.5
		2	600	35	69.41	145	10,063.7	1,557,021.4			
	5	1	150	7	13.88	55	763.5	147,648.6			
		2	300	16	31.73	55	1,745.0	295,297.2			
Coutis Ditch	2	1	60	6	11.90	190	2,260.6	204,023.5	4,521.2	1,371.8	3,149.4
		2	60	6	11.90	190	2,260.6	204,023.5			
							Total =	4,448,249.0			

Canal	Pump Station	New Pumps						
		Pump ID	Motor HP	Pump Design Flow Rate CFS	Proposed Flow Rate Ac-Ft/Day	Optimal Seasonal Flow Ac-Ft/Season	Optimal Run Time Days per Season	Power Consumption kW hr/yr
Canal 2	2	1	750	42	83.29	21,129.5	126.8	1,702,641.4
		2	750	42	83.29		126.8	1,702,641.4
	5*	1	0	0	0.00		0.0	0.0
		2	0	0	0.00		0.0	0.0
Coutis Ditch	2	1	60	6	11.90	3,149.4	132.4	142,120.2
		2	60	6	11.90		132.4	142,120.2
Pump Station #5 will not be used following completion of project.							Total =	3,689,523.3

- How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.

Anytime we can improve 65-year-old equipment, we will have a direct reduction to the impacts of climate change and reduction in greenhouse gas emissions. An indirect benefit from the proposed improvements to the pumping plants through the water savings and could be better stored in Boysen for power generation during short water periods. The reduced electrical demand will reduce demand on the greater power grid, thus reducing the required generation and greenhouse gas emissions. Additionally, agriculture is one of the largest carbon banking tools in the world, reliable irrigation allows for storing of large amounts of carbon in the soil, well irrigated crops are vigorous in growth and convert large amounts of carbon dioxide into oxygen. This project will maintain and enhance irrigation to over 6000 acres of farmland.

- If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?

Refer to the above energy savings calculations for the current pumping requirements and equipment and its associated impact to the current pumping requirements. Electrical energy use will be decreased as noted in the demand calculations. The existing Canal 2 pumps are each powered by a 600 HP, 600 RPM, synchronous 2300 V, 3ø, 60 Hz motor by the Electric Machinery Manufacturing Company. These centrifugal pumping units are primed with a vacuum pump. The Coutis Ditch is served by a pair of vertical turbine pumping units with motors rated at 60 HP, 1770 RPM, 208 V, 3ø, 60 Hz by U.S. Electrical Motors. Pumpstation #5 which will be returned to a reserve pumpstation has 2 pumps powered by a 150 HP and 300 HP motor. Both of these motors are the synchronous 2300V motors. The proposed project replaces these aging pumping units with modern vertical turbine units. The Canal 2 pumps are proposed to be 750 HP vertical turbines and the Coutis Ditch pumps will be replaced with proposed 60HP pumps. All the new pumps will have new electrical components with 460 V services in place of the high 2300 V services currently installed. The modern equipment and lower voltage pumps and VFD's will reduce energy usage based on on-demand needs in place of the pumps currently delivering full capacity of the pumps regardless of downstream water needs.

- Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.

Energy savings estimates are based on upgrades to the existing pumping units at the project site/point of diversion from the Hanover Canal.

- Does the calculation include any energy required to treat the water, if applicable?

There is no water treatment associated with this project.

- Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.

With update of pump controls cloud communication is anticipated with the new controls, thus reducing the frequency of visits to the pumping facility to confirm flows and health of the pumping system.

- Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).

The proposed water level sensor and radio communication equipment installed at the end of Coutis Ditch will be powered by a small-scale solar system to provide power.

E.1.3. Evaluation Criterion C—Sustainability Benefits (20 points)

*Up to **20 points** may be awarded under this criterion. This criterion prioritizes projects that address a specific water and/or energy sustainability concern(s), including enhancing drought resilience, addressing the current and future impacts of climate change, and resolving water related conflicts in the region. In addition, this criterion is focused on the benefits associated with the project, including benefits to tribes, ecosystem benefits, and other benefits to water and/or energy supply sustainability.*

Enhancing drought resiliency. In addition to the separate WaterSMART Environmental Water Resources Projects NOFO, this NOFO places a priority on projects that enhance drought resiliency, through this section and other sections above, consistent with the SECURE Water Act. Please provide information regarding how the project will enhance drought resilience by benefitting the water supply and ecosystem, including the following:

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

Replacing inefficient infrastructure has a direct impact on water and energy, in turn improving ecological resiliency. The effect of not replacing the aged pumps will be catastrophic to the eco-system, by water not being delivered to the canal, then on to farm properties, as well as water not being downstream. The more land is farmed the more carbon is stored in the soil, and soil health is improved with increased amounts of microbiology. As soil improves nutrients and water storage increase in the soil and become more plan available, thus becoming more resistant to climate change.

- 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).

Increase efficiency of this system has a direct effect on releases from Boysen, water saved allows for water that can be used in priority by others downstream and to support natural flows. Additionally, the conserved water during natural flows would be allowed to stay in the river and convey to downstream systems and reservoirs. Identifying specific timing and quantifying effects on temperature would require further in-depth study.

- 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).

Bald Eagles and other raptors are frequently seen along the canal as well as the irrigated fields. By ensuring we can continue to pump water, we can continue to contribute to the Bald Eagle habitat.

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

The entire eco-system in that area depends on these canals, and water flowing through it. Without replacement of the pumps, we do not know how long we can continue to

pump water. The vegetation that grows along the banks and the crops create a unique ecosystem in an environment that was formerly a high desert landscape.

- 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?

Water that is not diverted by the pumps, will reduce diversion from the Bighorn River, resulting in reduced releases for irrigation from Boysen Reservoir. This will result in more water stored and available for hydroelectric generation at Boysen, as well as release downstream. Additionally reduced pumping demand may result in increased generation capacity available to the grid of hydroelectric power not consumed by the pumping plant.

Projects that are intended to improve streamflows or aquatic habit, and that are requesting $500,000 or more in Federal funding, must include information about plans to monitor the benefits of the project. Please describe the plan to monitor improved streamflows or aquatic habit benefits over a five-year period once the project has been completed. Provide detail on the steps to be taken to carry out the plan.

Addressing a specific water and/or energy sustainability concern(s). Will the project address a specific sustainability concern? Please address the following:

- Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.

Without pump replacement there is not an incentive for landowners to convert to a more efficient way of irrigating, as it's a major capital investment. Knowing they have a dependable water source is key for irrigation efficiency conversion.

- 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.

Inefficient power use due to such aged equipment, as well as the unsurety of water delivery in the event of pump failure and key impacts to sustainability.

- Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?

This project will ensure delivery of water to users, allowing fields to continue to be irrigated through terrible drought years like this year. As stated in this application, the agriculture and food sustainability for this community is largely dependent on this canal and reliable pumping system.

- 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.

- Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.
- Indicate the quantity of conserved water that will be used for the intended purpose(s).

Other project benefits. Please provide a detailed explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

(1) **Combating the Climate Crisis:** E.O. 14008: *Tackling the Climate Crisis at Home and Abroad*, focuses on increasing resilience to climate change and supporting climate-resilient development. For additional information on the impacts of climate change throughout the western United States, see: https://www.usbr.gov/climate/secure/docs/2021secure/2021SECUREReport.pdf. Please describe how the project will address climate change, including the following:

- Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.
- Does this proposed project strengthen water supply sustainability to increase resilience to climate change?
- Will the proposed project establish and utilize a renewable energy source?
- Will the project result in lower greenhouse gas emissions?

(2) Disadvantaged or Underserved Communities: E.O. 14008 and E.O. 13985 support environmental and economic justice by investing in underserved and disadvantaged communities and addressing the climate-related impacts to these communities, including impacts to public health, safety, and economic opportunities. Please describe how the project supports these Executive Orders, including:

a. Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.

Yes, the project benefits the economic growth opportunities to the Worland area. If the project is not completed, disruptions to the sugar beet industry will be seen. Sugar beets are a primary crop grown in the region and Worland is home to Wyoming Sugar Company which is a Wyoming Processing Cooperative owned by growers from Washakie, Big Horn, and Fremont Counties. Additionally, many forage and feed crops are raised in the valley to support surrounding ranching and rangeland use.

b. If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is

defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.

The 2019 annual median household income for the Worland area is $52,598.00. The 2019 median household income for the State of Wyoming is $64,049.00.

c. If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.

Worland, Wyoming has a population of 4,773 people and is considered to a rural community.

(3) **Tribal Benefits:** The Department of the Interior is committed to strengthening tribal sovereignty and the fulfillment of Federal Tribal trust responsibilities. The President's memorandum "Tribal Consultation and Strengthening Nation-to-Nation Relationships" asserts the importance of honoring the Federal government's commitments to Tribal Nations. Please address the following, if applicable:

a. Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?

A benefit to the Tribe is primarily indirect. Boysen Reservoir is Reclamation project located on the Wind River Reservation. The releases from Boysen Reservoir generate hydroelectric power serving tribal and non-tribal uses. Water stored in the reservoir provided recreation fishing opportunities to tribal members as well as the public. Storage of water in the reservoir benefit revenues to the tribe for recreational revenues, as well as regulation of the downstream river flows benefit the tribe from revenues for fishing associated with special tribal permits.

b. Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities?

(4) Other Benefits: Will the project address water and/or energy sustainability in other ways not described above? For example:

a. Will the project assist States and water users in complying with interstate compacts?

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

c. Will the project benefit a larger initiative to address sustainability?

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

E.1.4. Evaluation Criterion D—Complementing On-Farm Irrigation Improvements (10 points)

*Up to **10 points** may be awarded for projects that describe in detail how they will **complement on-farm irrigation improvements** eligible for NRCS financial or technical assistance.*

Note: Scoring under this criterion is based on an overall assessment of the extent to which the WaterSMART Grant project will complement ongoing or future on-farm improvements.

Applicants should describe any proposal made to NRCS, or any plans to seek assistance from NRCS in the future, and how an NRCS-assisted activity would complement the WaterSMART Grant project. Financial assistance through EQIP is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information described in the bullet points below. **Applicants are *not* required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion.** Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.

Please note: On-farm improvements themselves are *not* eligible activities for funding under this 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.
    - Provide a detailed description of the on-farm efficiency improvements.
    - Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?
    - 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.
    - Applicants should provide letters of intent from farmers/ranchers in the affected project areas.

Landowners are continually implementing conversion of flood to pivot and converting conveyance ditches to piped transmission with NRCS-EQIP and other program funding. Projects are at various stages of application for funding, design, and implementation. With the completion of the project and increased water reliability and efficiencies, many landowners have indicated their intent to convert their fields to be irrigated under pivot. Letters of intent from 8 water users to convert a total of 712 acres to pivot are attached.

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

OR

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

Improvements to the pump station will provide dependable pumps so water can be dependably delivered. Without these improvements to the pump station, there is a high expectancy that water delivery will be reduced and/or lost all together. By providing efficient dependable water, risks to on-farm and canal improvements will be limited. As on-farm efficiency is improved, spills and management of diversion and pump stations will become more important and potentially flows will become more sporadic and inconsistent.

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

There is not an estimate of on-farm water conservation, but as more irrigators switch to pivots, water conserved with more consistent water delivery requirements. Conversions from flood irrigation in the area to pivots have achieved water saving and utilization efficiency gains from less than 50% efficient to greater than 85% efficient. 712 acres are proposed to be improved as a compliment to this project. Letters from the landowners are attached with their intent to transition to pivots to complement this project.

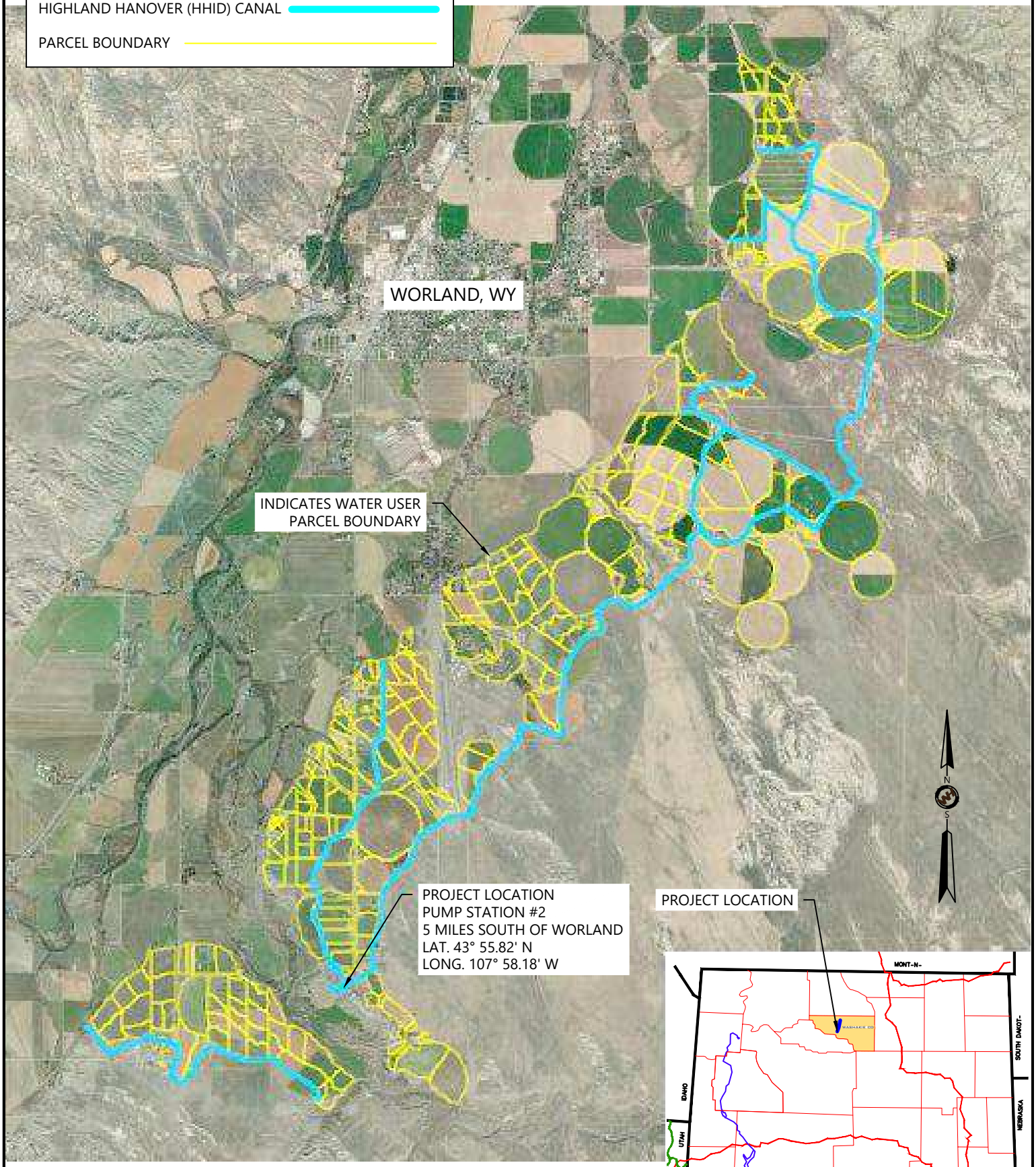
- Please provide a map of your water service area boundaries. If your project is selected for funding under this NOFO, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.

Refer to the following map of the water service area boundaries.

LEGEND

HIGHLAND HANOVER (HHID) CANAL

PARCEL BOUNDARY



Sheet Number: HHID PS 2.2

Job Number: 21WHC902

WESTERN HERITAGE
CONSULTING ENGINEERING
307.215.7430
info@westernhce.com
PO BOX 2117
Mills, WY 82644

Rev	Date	Description	By

Drawn By: MSP

Designed By: MSP

Reviewed By: RLA

Scale: N.T.S.

Title:

HIGHLAND HANOVER IRRIGATION DISTRICT

WATER SERVICE AREA

WASHAKIE COUNTY, WYOMING

In the interest of conservation, Seth + Sidney Crawford is intending to place 200 acres under pivot on the "Highland Hanover canal".

Signature: Seth Crawford / Sidney Crawford

Date: 6/21/18

In the interest of conservation, Michael Warner is intending to place 22 acres under pivot on the "Highland Hanover canal".

Signature: Michael Warner

Date: 6/22/2022

In the interest of conservation, Sage Creek is intending to place 150 acres under pivot on the "Highland Hanover canal".

Signature: [signature]

Date: 6/23/22

In the interest of conservation, Matt Richards is intending to place 20 acres under pivot on the "Highland Hanover canal".

Signature: [signature]

Date: 6-21-2022

In the interest of conservation, Luke Longien is intending to place 25 acres under pivot on the "Highland Hanover canal".

Signature: Luke Longien

Date: 6-21-22

In the interest of conservation, _____ is intending to place 25 acres under pivot on the "Highland Hanover canal".

Signature: Joe Nord

Date: 6-21-22

In the interest of conservation, MATT THIEL is intending to place 40 acres under pivot on the "Highland Hanover canal".

Signature: [signature]

Date: 6-22-2022

In the interest of conservation, Jim Bower is intending to place 50 acres under pivot on the "Highland Hanover canal".

Signature: Jim Bower

Date:

TW Farms Inc

In the interest of conservation, Haun Farms Inc is intending to place 180 acres under pivot on the "Highland Hanover canal".

Signature: Tan W Be

Date: 6/24/22

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/wps/portal/nrcs/main/national/contact/states/.

E.1.5. Evaluation Criterion E—Planning and Implementation (8 points)

*Up to **8 points** may be awarded for these subcriteria.*

E.1.5.1. Subcriterion E.1— Project Planning

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

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate.

Provide the following information regarding project planning:

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

The Highland Hanover Irrigation District has developed a Water Conservation Plan (WCP) for 2021-2026 in collaboration with Reclamation. Through the WCP, the Board of Directors passed a resolution creating a District Water Conservation Coordinator. A primary objective of the WCP is to begin to collect accurate delivery and spill data to develop a comprehensive water budget to help identify opportunities to improve the efficiency of the district.

In addition to the WCP, Highland Hanover Irrigation District has completed a Master Plan Study in 2018. Through the Master Plan Study, the rehabilitation of Pump Station #2 was identified as a top priority for the district. A Feasibility Study was completed in 2021 to address the water supply issues with the aging infrastructure.

You may access these reports at:

http://library.wrds.uwyo.edu/wwdcrept/Highland_Hanover/Highland_Hanover_Irrigation_District-Master_Plan_Level_I_Study-Final_Report-2018.html

http://library.wrds.uwyo.edu/wwdcrept/Highland_Hanover/Highland_Hanover_Irrigation_District-Pump_Station_Level_II_Study-Final_Report-2021.html

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

This project is identified in the Water Conservation Plan by the District with the expected projected results including water conservation, energy conservation and water delivery efficiency improvements.

(3) If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes)

This project is not identified in any completed Basin Study or Water Management Options Pilot.

For more information on Basin Studies, including a list of completed basin studies and reports, please visit: www.usbr.gov/WaterSMART/bsp.

E.1.5.2. Subcriterion E.2— Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement. Please 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: please do not repeat the more detailed technical project description provided in Section D.2.2.4.; this section should focus on a summary of the major tasks to be accomplished as part of the project.

Planning for the project has been developed with consideration of funding, project design, construction contracting and construction being the three major tasks necessary to complete the project. The Feasibility Study completed in the summer of 2021 was a comprehensive study to develop concept design planning with cost estimates. Based on those recommendations, the district has applied for funding with the Wyoming Water Development Commission for Level III Construction Funding. This project has been approved in the 2022 Construction Bill for the State of Wyoming. Additional funding is being pursued to complete the project and is required prior to moving to the project design and construction. After funding has been obtained, the district would be tasked

with contracting with an Engineer of Record (EOR) to provide the necessary construction documentation. The district has initiated negotiations with an EOR in concurrence with the funding procurement and contracting should be completed shortly after funding is available.

Project design for construction drawings is anticipated to start in the summer of 2022 and be completed in the spring of 2023 allowing design to be developed through a full irrigation season and the following off-season. Construction contracting would begin in the spring of 2023 for the bid process to select a contractor with a contract agreement with a contract completed by mid-summer 2023. To minimize the impacts of construction on the irrigation season, the improvements to the pump station will need to be completed in the off-season. The off-season typically runs between October and April. It is anticipated that the construction would be complete for the 2024 irrigation season. It is imperative that the contractor be able to procure materials during the irrigation season to achieve timely construction, especially given recent supply chain disruptions. The following table is a summary of the proposed timeline.

Task	Start Date	Completion Date
WWDC Funding	August 2021	May 2022
Project Design Phase	August 2022	April 2023
Construction Bid Phase	April 2023	June 2023
Construction	July 2023	July 2024

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

It is not anticipated that any permits will be required for this project other than an electrical permit, which the construction contractor will obtain. It is possible a construction dewatering permit may be required.

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

The 2021 Feasibility Study is a comprehensive review of the existing pump station which includes rehabilitation options for the pumping equipment. Along with required pump equipment, the existing electrical service has been reviewed with replacement options to provide recommendations to upgrades in the system. The study also contains detailed cost estimates for the project completion. Final design documents will be developed from the engineering groundwork laid out in this study.

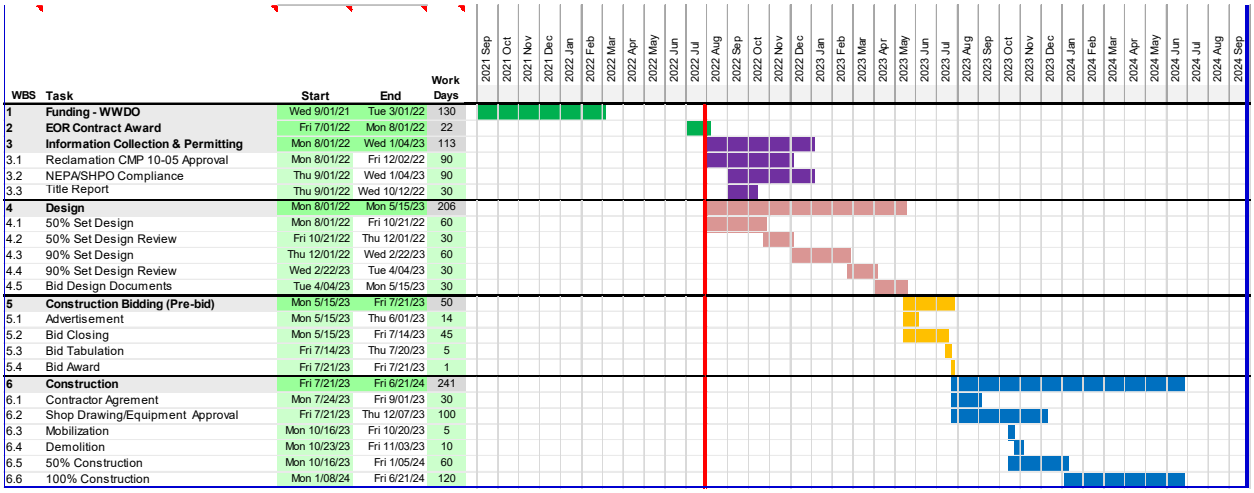
- Describe any new policies or administrative actions required to implement the project.

No new policies have been identified, though collaboration with the remote sensors and standard operational procedures for startup and shut down will be required.

- 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)

Refer to the following estimated project schedule:



WBS	Task	Start	End	Work Days
1	**Funding - WWDO**	Wed 9/01/21	Tue 3/01/22	130
2	**EOR Contract Award**	Fri 7/01/22	Mon 8/01/22	22
3	**Information Collection & Permitting**	Mon 8/01/22	Wed 1/04/23	113
3.1	Reclamation CMP 10-05 Approval	Mon 8/01/22	Fri 12/02/22	90
3.2	NEPA/SHPO Compliance	Thu 9/01/22	Wed 1/04/23	90
3.3	Title Report	Thu 9/01/22	Wed 10/12/22	30
4	**Design**	Mon 8/01/22	Mon 5/15/23	206
4.1	50% Set Design	Mon 8/01/22	Fri 10/21/22	60
4.2	50% Set Design Review	Fri 10/21/22	Thu 12/01/22	30
4.3	90% Set Design	Thu 12/01/22	Wed 2/22/23	60
4.4	90% Set Design Review	Wed 2/22/23	Tue 4/04/23	30
4.5	Bid Design Documents	Tue 4/04/23	Mon 5/15/23	30
5	**Construction Bidding (Pre-bid)**	Mon 5/15/23	Fri 7/21/23	50
5.1	Advertisement	Mon 5/15/23	Thu 6/01/23	14
5.2	Bid Closing	Mon 5/15/23	Fri 7/14/23	45
5.3	Bid Tabulation	Fri 7/14/23	Thu 7/20/23	5
5.4	Bid Award	Fri 7/21/23	Fri 7/21/23	1
6	**Construction**	Fri 7/21/23	Fri 6/21/24	241
6.1	Contractor Agrement	Mon 7/24/23	Fri 9/01/23	30
6.2	Shop Drawing/Equipment Approval	Fri 7/21/23	Thu 12/07/23	100
6.3	Mobilization	Mon 10/16/23	Fri 10/20/23	5
6.4	Demolition	Mon 10/23/23	Fri 11/03/23	10
6.5	50% Construction	Mon 10/16/23	Fri 1/05/24	60
6.6	100% Construction	Mon 1/08/24	Fri 6/21/24	120

E.1.6. Evaluation Criterion F—Collaboration (6 points)

*Up to **6 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?

There is widespread support for this project. The Worland area relies heavily on irrigation water for sustainability. Most residents make their living off the land, which in turn relies on irrigation water, due to a small amount of rainfall each year. Please reference the attached letters of support.

- What is the significance of the collaboration/support?

As members of the Four Canal Agreement, the Highland Hanover Irrigation District is integral in the irrigation community. If this project is not complete and the district is unable to pump water to its canals, there would be an economic impact to the three additional members of the Four Canal Agreement. In addition to benefitting the water users, the local economy is also benefitted by the sugar beet industry in the area. Sugar

beets are a primary crop grown in the region and Worland is home to Wyoming Sugar Company which is a Wyoming Processing Cooperative owned by growers from Washakie, Big Horn, and Fremont Counties.

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

Water users under the system are applying for and implementing on farm and off-farm improvements through private and USDA-NRCS funds. If this project is not completed, there is a high likelihood of equipment failure cutting off all irrigation water to the users who depend on the district. This project will provide a source of reliable water delivery to those projects. With increased water delivery reliability, future water conservation improvements by water users will most likely be implemented.

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

Supporting documents are provided in the Letters of Support Section of this application.

E.1.7. Evaluation Criterion G— Additional Non-Federal Funding (4 points)

*Up to **4 points** may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:*

$$\frac{\text{Non-Federal Funding}}{\text{Total Project Cost}}$$

Non-federal funding in the form of a State of Wyoming Grant and District funding of any ineligible amounts combine for a total of $3,095,825.00 with a total project cost of $5,095,825.00 or 61% of the total project cost.

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 the following:

- Does the applicant have a water service, repayment, or O&M contract with Reclamation?

Yes, Highland Hanover Irrigation District currently has a water service contract (Contract No. 089E6A0011) and a repayment contract (Contract No. 0-07-60-W0564) with Reclamation. In addition to the contracts, Pump Station #2 was a Reclamation

project and completed in 1957 and the district assumed full responsibility for operation and maintenance of their irrigation works in January of 1958.

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

N/A

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

Yes, Highland Hanover Pump Station #2 is a Reclamation constructed facility through the Hanover-Bluff Unit of the Pick-Sloan Missouri Basin Program and receives water from the Boysen Reservoir through the Bighorn River. Boysen Reservoir is a Reclamation facility, and the district receives power for pump operation from power generated at Boysen and delivered through a WAPA agreement. With more efficient pumping and less spills and ultimately less diversion, conserved water will stay in Boysen Reservoir or the Bighorn River system.

- Is the applicant a Tribe?

No, the applicant is not a tribe.

Performance Measures

To determine the relative effectiveness of the proposed water management efforts, the Highland Hanover Irrigation District will provide a performance measure to quantify the seen benefits of the project upon completion. This performance measure will be developed for both the water and energy savings for the district. Water savings will be based on both flow measurements of the pumps and wasteway spill measurements taken at the three affected spill locations. This data will be compared with pre-project estimations to quantify the water savings. Measurements for the pump flow data will be taken from the installed flow meter at the discharge pipes and the measurements at the spills will be calculated with the Weir Formula based on the discharge structure geometry and routine water level measurements. Energy savings will be determined using run times and flow data from the pumps in comparison with optimal flow conditions. The energy savings will be converted to kilowatt hours per year to compare with pre-project conditions. Project benefits will be compared over the course of a season to provide a more accurate benefit analysis for comparison.

D.2.2.3 Project Budget:

Budget Proposal

The proposed total project cost is as follows:

Total Project Cost Table	
SOURCE	**AMOUNT**
BOR WaterSMART Federal Funding	$ 2,000,000.00
HHID Funding	$ 6,455.00
WWDC(State of WY) Funding*	$ 3,089,370.00
Total	$ 5,095,825.00

Please reference the following Cost Estimate, as prepared in the Level I and Level II WWDC Studies.

Project Name: 2020 WWDC Highland Hanover ID Pump Station, Level II Study
Project Number: 20WHC902
Concept Design: Pump Station #2 Improvements - Option 1

WWDC ELIGIBLE PROJECT COSTS

Construction Costs

Description	Unit	Quantity	Unit Price		
Mobilization	LS	1	$ 300,000.00	$ 300,000.00	
Bonds & Insurance	LS	1	$ 83,000.00	$ 83,000.00	
Demolition & Dispose of Equipment	LS	1	$ 150,000.00	$ 150,000.00	
F&I Canal 2 Pumps/Motors	EA	2	$ 360,000.00	$ 720,000.00	
F&I Canal 2 VFD's, Controls & Equipment	EA	2	$ 320,000.00	$ 640,000.00	
F&I Electrical Service Entrance Upgrades	LS	1	$ 1,100,000.00	$ 1,100,000.00	
Fabricated Piping & Valves	EA	1	$ 175,000.00	$ 175,000.00	
Building Modifications for Equip/Piping	LS	1	$ 75,000.00	$ 75,000.00	
F&I Coutis Pump VFD's, Controls & Equipment	EA	2	$ 125,000.00	$ 250,000.00	
F&I Flow Meter and Associated Equipment	LS	1	$ 10,000.00	$ 10,000.00	
Building Foundation Repairs	LS	1	$ 4,000.00	$ 4,000.00	
Building HVAC Upgrades	LS	1	$ 12,000.00	$ 12,000.00	
System Programming & Testing	LS	1	$ 20,000.00	$ 20,000.00	
Site Grading Improvements	LS	1	$ 58,000.00	$ 58,000.00	
SC & FC Walkthrough	LS	1	$ 5,000.00	$ 5,000.00	
Contract Closeout	LS	1	$ 3,000.00	$ 3,000.00	

Total Component Cost (Subtotal #1)	$ 3,605,000.00	
Construction Engineering Cost (Subtotal #1 x 10%)	$ 360,500.00	
Components and Construction Engineering Costs (Subtotal #2)	$ 3,965,500.00	
Contingency (Subtotal #2 x 15%)	$ 594,825.00	
Total Construction Cost (Subtotal #3)		$ 4,560,325.00

Pre-Construction Costs

Preparation of Final Designs and Specifications (Subtotal 1 x 10%)	$ 360,500.00	
Permitting and Mitigation	$ 10,000.00	
Legal Fees (Title of Opinion Only)	$ 5,000.00	
Acquisition of Access and Rights of Way	$ -	
Pre-Construction Costs (Subtotal #4)		$ 375,500.00

Total WWDC Eligible Project Cost

Total WWDC Eligible Project Cost (Subtotal #5 = Subtotal #3 + Subtotal #4)	**$ 4,935,825.00**

WWDC INELIGIBLE PROJECT COSTS

Ineligble Construction Costs

Description	Unit	Quantity	Unit Price		
1 NEPA/SHPO Review	LS	1	$ 10,000.00	$ 10,000.00	
2 Coutis Ditch Measuring Device/Comm	LS	1	$ 150,000.00	$ 150,000.00	

Additional Cost for Construction Engineering	$ -	
Additional Cost for Preparation of Final Designs & Specifications	$ -	

Total WWDC Ineligible Project Cost

Total WWDC Ineligible Project Cost (Subtotal #6)	**$ 160,000.00**

TOTAL PROJECT COSTS

Total Project Cost Estimate:

Total Project Cost (Subtotal #5 + Subtotal #6)	**$ 5,095,825.00**

MATERIAL ONLY TOTAL

Materials Only Cost Estimate:

Materials Only Total Project Cost (Subtotal #1 + (Subtotal #1 x 10%))	**$ 3,965,500.00**

Note: Inflation costs, as determined by the Consultant and WWDO project manager, will be applied to the Total Project Cost.

Budget Narrative

The cost budget for the project was developed by Western Heritage Consulting & Engineering during the Level II Study to determine cost associated with the pump replacement.

It is assumed that all works for the project will be subcontracted out to Construction Contractors and Design Consultants. Highland Hanover 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. The Design development phase is projected to start in August of 2022 which will incur project costs prior to the award of the grant. It is anticipated that approximately $250,000.00 of the total design engineering budget of $360,500.00 would be incurred prior to award and would be incurred between August 1, 2022, and January 31, 2023. The Pre-Award Costs for the design engineering benefit the project to complete the design phase earlier and bid the project out in the spring of 2023 and start construction in the summer of 2023.

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 HHID 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, though the modifications to the station itself are not intended to substantially alter the structure of the building and station, resulting in minimal if any impact to be documented for preservation. Additionally, discovery of high level of detail construction documents have been obtained discovered during previous phases of planning.

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.

Funding Plan and Letters of Commitment

As noted earlier, this project has been studied extensively in Wyoming Water Development Commission (WWDC) studies beginning in 2017, with a total of studies of $195,000. The previous studies were important to identify and prioritize deficiencies in the canal system. We believe the studies gave the District a solid map for upgrading our system with a phased approach, ensuring we weren't wasting money by just selecting a random project each year to address. We hold ourselves accountable by being fiscally responsible with spending, knowing our water users want fair rates and dependable water delivery.

Throughout these studies, the District has implemented rate increases to build a reserve fund for this proposed construction. User rates will continue to increase each year, with the largest increase being implemented in 2022, after Federal and State funding is secured. A WWDC Grant of $3,089,370 through the State of Wyoming, was awarded for the actual design and construction of the project. The cost of radios and measuring devices are not eligible for the WWDC grant, and therefore relies solely on the WaterSMART grant.

D2.2.5 Environmental and Cultural Resources Compliance

We will comply with NEPA, SHPO, CWA, ESA and NHPA as required. We understand there can be no ground-disturbing activity before this is complete. There are no known archeological, cultural or tribal sites in the proposed project area. According to Environmental Conservation Online System (ECOS), no critical habitat is shown for the site on their GIS interactive map. No wetlands appear to be in the proposed disturbed area.

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, though the modifications to the station itself are not intended to substantially alter the structure of the building and station, resulting in minimal if any impact to be documented for preservation. Additionally, discovery of high level of detail construction documents have been obtained discovered during previous phases of planning.

D.2.2.6 Required Permits or Approvals

No external permits are foreseen, a dewatering permit may be required for construction activities, and the responsibility of the Contractor. The approval of funding with Wyoming Water Development Commission will be approved through the 2023 Construction Bill for the State of Wyoming (March 2022).

D.2.2.7 Overlap or Duplication of Effort Statement

There is not any overlap or duplication of effort between this project and any other active or anticipated projects. This proposal submitted for consideration does not duplicate any other proposal or project submitted for consideration to any other potential funding sources that would be duplicative of the funding request from Reclamation.

D.2.2.8 Conflict of Interest Disclosure Statement

There is not a conflict of interest or potential conflict of interest existing at the time of the submission of this proposal.

D.2.2.9 Uniform Audit Reporting Statement

This section does not apply to the applicant.

D.2.2.10 Letters of Project Support

Please see attached letter of project support and pledge to convert flood irrigated lands to sprinkler irrigated as well as other USDA-NRCS improvements

October 28, 2021

Bureau of Reclamation
Financial Assistance Support Section
PO Box 25007, MS 84-27814
Denver. CP 80225

RE: WATERSmart Grant

To Whom it may concern,

We the undersigned landholder, who owns land on the Highland Hanover Irrigation District, are in support of the project consisting of replacing the existing motors and pumps at Pump Station #2.

The project will help conserve and use water more efficiently and accomplish other benefits that contribute to water supply reliability. This will also help farmers make on-farm improvements in the future.

Sincerely,

October 28, 2021

Bureau of Reclamation
Financial Assistance Support Section
PO Box 25007, MS 84-27814
Denver. CP 80225

RE: WATERSmart Grant

To Whom it may concern,

We the undersigned landholder, who owns land on the Highland Hanover Irrigation District, are in support of the project consisting of replacing the existing motors and pumps at Pump Station #2.

The project will help conserve and use water more efficiently and accomplish other benefits that contribute to water supply reliability. This will also help farmers make on-farm improvements in the future.

Sincerely,

Fred W Frandson

October 28, 2021

Bureau of Reclamation
Financial Assistance Support Section
PO Box 25007, MS 84-27814
Denver. CP 80225

RE: WATERSmart Grant

To Whom it may concern,

We the undersigned landholder, who owns land on the Highland Hanover Irrigation District, are in support of the project consisting of replacing the existing motors and pumps at Pump Station #2.

The project will help conserve and use water more efficiently and accomplish other benefits that contribute to water supply reliability. This will also help farmers make on-farm improvements in the future.

Sincerely,

Hamiltow Properties.

October 28, 2021

Bureau of Reclamation
Financial Assistance Support Section
PO Box 25007, MS 84-27814
Denver. CP 80225

RE: WATERSmart Grant

To Whom it may concern,

We the undersigned landholder, who owns land on the Highland Hanover Irrigation District, are in support of the project consisting of replacing the existing motors and pumps at Pump Station #2.

The project will help conserve and use water more efficiently and accomplish other benefits that contribute to water supply reliability. This will also help farmers make on-farm improvements in the future.

Sincerely,

D.2.2.12 Official Resolution

The official resolution will be sent after our board meeting on August 10, 2022. We are in the middle of sugar beet harvest, which has delayed all board meetings.