APPLICATION FOR

WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2018

FUNDING OPPORTUNITY ANNOUNCEMENT

NO. BOR-DO-18-F006

CONVERTING THE 31.1 LATERAL AND THE RIDGE 2.6 RIGHT LATERAL TO BURIED PIPE SYSTEMS

KANSAS BOSTWICK IRRIGATION DISTRICT

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Executive Summary

Date: May 1st, 2018 **Applicant Name**: Kansas Bostwick Irrigation District

City: Courtland **County:** Republic **State:** Kansas

Through the activities detailed within this application, Kansas Bostwick Irrigation District (KBID) plans to convert the 31.1 Lateral and the Ridge 2.6 Right Lateral into buried pipe systems. These two specific laterals are upstream of Lovewell Reservoir, and therefore, reliant on flows of the Republican River and subsequently, the supply available in KBID's upstream holding reservoir, Harlan County Lake. As a result of the most recent U.S. Supreme Court ruling pertaining to conflicts between the States of Kansas and Nebraska over flows of the Republican River, in 2015 Kansas was awarded $5.5 Million by the Court. KBID subsequently secured $2.5 million of these awarded funds to be used to purchase materials for conservation projects, including buried pipeline systems within the KBID. Therefore, with this state-awarded funding at KBID's disposal for these projects, the WaterSMART grant funding would be applied to the materials, and construction costs of the pipelines on a matching 50% cost-shared basis. This project accomplishes one of the specific goals outlined in the WaterSMART FOA through the piping of canals and installation of measuring devices to conserve and improve the management of water.

If successful through this application, the project(s) would be completed within two years of the award date and the estimated completion date would be May 31, 2020, and prior to the 2020 irrigation season.

The proposed project takes place within and as part of KBID, which is a Bureau of Reclamation (Reclamation) Irrigation District located within the boundaries of the Nebraska-Kansas Area Office of Reclamation. Since inception, KBID has had perpetual easements and rights-of-way for its canal system which passes through private landowner property.

Background Data

Kansas Bostwick Irrigation District (KBID) is a Pick-Sloan Project headquartered in Courtland, Kansas. KBID is served by flows of the Republican River and White Rock Creek. KBID holds Water Rights #385 and #4673 with the State of Kansas. KBID supplies agricultural irrigation water to approximately 350 landholders and serves a total of 42,500 acres throughout Republic and Jewell Counties in North Central Kansas. The primary agricultural crops raise in the KBID are corn, soybeans and alfalfa. From 1990 to 2017, the annual water supply has averaged 58,797 AF per year. The projected demand of KBID and its irrigators is expected to decrease over time as conservation projects like the ones outlined in this application are completed.

For many years, the Republican River Basin remained embroiled in controversy over groundwater depletion of surface river flows. These depletions, caused by groundwater well development and use along the river basin in Nebraska, forced KBID's irrigators to experience shortfalls in supply and streamflow annually for many years. The potential for

shortfalls in water supply revolving around the groundwater depletion of river flows still exists today. In a lawsuit over the Republican River, the United States Supreme Court ruled that Nebraska and Colorado had not delivered the prescribed amount of water to Kansas as required by the Republican River Compact. In its most recent ruling, the Supreme Court in 2015 awarded Kansas $5.5 million from the State of Nebraska for its overuse of river flows.

Recent years have shown the Compact States cooperating more and attempting to negotiate issues pertaining to the Republican River Compact out of court, which is encouraging. However, concerns remain by Kansas irrigators who experienced the depletion of surface flows due to excessive groundwater pumping in upstream states for many years prior to the 2015 decision.

At the present time, under the most recent ruling from the Supreme Court, when the State of Nebraska owes more Republican River water to the State of Kansas than the river can provide naturally, Nebraska makes up the shortfall by pumping groundwater from their N-CORPE pumping wellfield, and discharging that water into the surface flows of the Republican via the Medicine Creek tributary. Therefore, while the current situation is enabling Nebraska to remain in compliance with the compact, there is a risk to KBID irrigators receiving adequate supplies if anything ever impeded Nebraska's ability to operate the N-CORPE pumping wellfield.

When constructed, KBID consisted of 100 miles of open unlined main canals and 150 miles of open unlined lateral canals to serve the 42,500 acres within its boundaries. Conservation improvements to the KBID's delivery system over the years now show 107 miles of buried pipeline laterals with 43 miles of open unlined laterals and 100 miles of open unlined main canals remaining. On farm improvements and investments made by landowners over the last several decades currently show that approximately 70% of KBID is irrigated through the use of more efficient center pivots, with the remaining 30% being irrigated through gated pipe and flood irrigation.

KBID has previously worked, in conjunction with Reclamation, on numerous Water Conservation Field Services Program opportunities, of which KBID has been awarded several successful grants. Under a Water2025 challenge grant program, KBID applied for grants in 2006, which were awarded in 2007, for the piping of nine miles of large laterals, which were buried prior to the fall of 2010. An additional 26 miles of laterals have been buried under Water Conservation Field Service Agreements in the last 19 years. In addition to the aforementioned projects utilizing grant funding, KBID has buried an additional 70.7 miles of laterals without the financial assistance of Reclamation. Currently KBID is completing a project for the piping of 1.3 miles of lateral canals with assistance from a WaterSMART Small-Scale Water Efficiency Project Grant awarded in 2017.

With the approval of the 31.1 and Ridge 2.6 Right Lateral projects outlined in this WaterSMART application, continuity will be maintained in KBID's goal of converting open canals to buried pipe systems and therefore delivering annual water supplies more efficiently, conserving water in the process.

Project Location

The overall project outlined in this application encompasses the piping of two laterals; the 31.1 Lateral and the Ridge 2.6 Right Lateral. As can be viewed on the attached Project Location Map within Appendix A, both laterals are in the same general geographic vicinity

near the town of Webber, KS. The 31.1 Lateral is fed directly by the Courtland Canal Main. The Ridge 2.6 Right Lateral is a sub-lateral of the Ridge Canal which is fed directly by the Courtland Canal Main.

The 31.1 Lateral is located in Jewell County, KS and its headgate is 3.6 miles southeast of the city of Webber, KS. The 31.1 Lateral head-gate latitude is 39°55'04.20"N and longitude is 97°58'18.32"W.

The Ridge 2.6 Right Lateral is located in Republic County, KS and its headgate is 6.3 miles directly east of the city of Webber, KS. The Ridge 2.6 Right Lateral head-gate latitude is 39°56'09.51"N and longitude is 97°55'02.10"W.

Technical Project Description

In simple terms, this project allows for the elimination of 4.1miles of open canal and laterals and replaces it with 3.38 miles of buried PVC pipe ranging in size from 27" diameter all the way down to 10" diameter. The project will aid in providing piped and screened water to 18 field turnouts and 1,656 acres. Along with the most recognizable objective of water savings, due to diminished seepage, mitigated operational spills, and evaporative losses, this project would also mitigate operations and maintenance costs incurred by KBID. The project also provides ancillary benefits to the other water users and the environment.

The specific activities and work involved in completing the proposed project and the piping of each lateral will include three major tasks as follows:

Task 1 - Site Preparation
Task 2 - Laying the pipeline and installing turnouts
Task 3 - Concluding tasks of the project after the pipe is laid

As a general rule, Task 1 represents 30% of the project, Task 2, 60%, and Task 3,10% of the project. KBID owns and operates a full line of construction equipment needed to complete this project, using an experienced and knowledgeable staff skilled in these types of pipeline burial projects. As stated earlier in this application, KBID has completed many similar projects where funding was provided through Reclamation grant programs. None of the project tasks will require any labor or machinery support outside of the KBID's own work force and owned equipment.

Task 1 preparation includes bulldozer and patrol work to prepare the alignment of the proposed buried line. Previously existing open canals associated with the project and within the pipeline route will be eliminated during this phase. In most cases, except those outlined later in this section, the pipeline will be installed within the existing right-of-way. Excavators will also be used during this stage of work to remove existing concrete canal structures. Once the concrete structures are removed they will be destroyed with the KBID crane and wrecking ball if they are too large to load and haul initially. This material will then be loaded with the KBID loaders into dump trucks and taken to an established scrap yard.

Task 2 is when the pipeline itself will be installed. This will include the use of the KBID trencher and excavators to trench the line for the pipe. An excavator with a sling will be used to swing the single sticks of pipe into the trench and align it to be pushed together by the hydraulic ram cylinder that is housed within the protective trench box attached to and pulled behind the trencher. Proper grade will be established using KBID's laser transit

instrument connected to the trencher. A bull dozer or patrol will then be used to backfill the trench.

Task 3 is the final phase of the project that includes picking up any and all scrap or excess material left on the site. This phase of the project will also consist of minor earth moving activities with bulldozers and the patrol to ensure each project site is left in a manner that the landowner can make even further earth moving improvements with their farm equipment if they so choose. Any remaining and now unneeded portions of the open laterals associated with the project that hadn't been eliminated previously during the project and up to this point will be eliminated during this final phase.

At the point where the proposed projects initiate, aeration screens will be installed in front of and connected to the lateral headgates and initial sections of buried pipe. The aeration screens will allow fish, crayfish and other aquatic organisms to stay in the main canal and not be abandoned in the pipeline or subsequently the agricultural fields where the water will be applied. The aeration screens will also filter the water sufficiently enough to prevent organic matter and other foreign materials from plugging pivot nozzles or gated pipe gates, thereby allowing for a more thorough and constant application of irrigation water on-farm.

The pipelines will be buried on existing rights-of-way except for small portions of each where new easements and right of way will have to be procured. The new easements and right-of-way will need to be procured in order to allow for the planned routing of the pipelines to leave existing right-of-way and thus reduce overall pipe costs. As on past projects, KBID will coordinate the securing of the new right-of-way and easements by using an outside engineering and surveying company with support from the Bureau of Reclamation's Realty Specialist within the Nebraska-Kansas Area Office.

On the 31.1 Lateral there will be two separate stretches of pipeline that will leave the existing right-of-way and current canal path to save distance and therefore decrease the cost of pipe needed. Please reference the 31.1 Lateral Pipeline Project Map within Appendix A.

The first stretch leaving the existing right-of-way will be in the SE¼ of Section 34-1-6 and continue southeasterly through the SW¼ of Section 35-1-6, and rejoin the existing right-of-way in the NW¼ of Section 2-2-6. This initial stretch of pipeline will be 2,680' long and consist of 27" diameter PVC pipe before rejoining the existing right-of-way. This 27" diameter pipeline will proceed for an additional 1,970 feet within existing right-of-way. At this point, the pipeline will reduce to 24" diameter pipe and leave existing right-of-way once again for the next 1,930' in a southeasterly direction within the NE¼ of Section 2-2-6 until it once again joins existing right-of-way. After rejoining the existing right-of-way at this location the 24" diameter line will continue for the remaining 2,310' where it will join the existing 21" pipeline previously buried during a past project.

All of the acres currently served by the existing Ridge 2.6 Right Lateral can be more efficiently served through this project via the installation of two separate and exclusive sections of pipeline. By splitting the acres served by the Ridge 2.6 Right Lateral into two separate pipelines, pipe of smaller diameters can be installed for shorter overall distances, greatly decreasing the cost of the materials needed for this project. Please reference the Ridge 2.6 Right Lateral Project Map within Appendix A.

The initial 6,220' of the Ridge 2.6 Right Lateral pipeline will remain in the existing right-of-way and will consist of 4,805' of 18" diameter PVC pipe and the final 1,415' will consist of 15" diameter PVC pipeline to the location that will become the terminal end of this first section of pipeline for the project.

Rather than continuing the pipeline on from this location for an additional 5,240' consisting of 15" diameter pipe to serve the two remaining turnouts, those final two turnout will be served by the second pipeline consisting of 15" diameter pipeline 2,750' in length.

This second section of pipeline for the Ridge 2.6 Right Lateral project will consist of 15" pipe and be 2,750' in length. This pipeline section will initiate approximately 1.8 miles downstream of the Ridge 2.6 Right Lateral headgate and just upstream of a check at Station 206+28.5 on the Ridge Canal. At this initiation location, the 15" line will be buried in a southerly direction in the SW¼ of Section 28-1-5 and paralleling the border between the SW¼ and SE¼ of the said section. Once again, this section of pipeline will be leaving existing right-of-way and therefore new easements for construction and future O&M will be procured. KBID has a good deal of past experience procuring right-of-way and easements by coordinating with Reclamation and landowners involved in these types of projects which helps to ensure this part of the process goes smoothly.

All pipe shall be installed following the manufacturer's design criteria. Compaction around the line and proper depth of coverage will be accomplished. All pipe used will be 80 psi PVC with gasket bells. Elbows and fittings will be either solvent weld or gasket as needed at each application. Thrust blocking will be applied where necessary. Lines will lead from the underground valves to become joined to flowmeter tubes with McCrometer propeller meters. All flowmeter installations shall meet State of Kansas specifications for meter installations.

Turnouts will be installed off the pipelines where current ones exist or in strategic locations for improved service and they will consist of underground valves with wheel operators to prevent fast on or offs creating possible water hammer. Vent-vacuum devices will be installed where necessary to prevent air pockets in the buried lines.

Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (30points)

*Up to **30 points** may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings.*

Describe the amount of estimated water savings. For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.

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

As a direct result of this project, 724 acre-feet (AF) of water will be saved and conserved each year. By removing operational spills experienced at the two laterals through the elimination of their waste ways, the project will save 258 AF of water per year that is currently being spilled at the end of each lateral. An additional 466 AF of water will

be saved through the elimination of seepage losses to the ground and evaporative losses to the environment. The water conserved and saved through this project is more thoroughly examined below.

Describe current losses: Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

Describe the support/documentation of estimated water savings: Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. *In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

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

Through this project, both the 31.1 Lateral waste way and the Ridge 2.6 Right Lateral waste way will be eliminated along with their respective operational spills. In a normal 90 day irrigation season, each of these lateral canals are loaded for deliveries and are therefore making operation spills for an estimated 75 days. When operating, each waste way spills between 0.5 and 1.25 cfs, creating an average daily spill rate of 0.86 cfs. By multiplying the 0.86 cfs operational spill rate by 75 days, you arrive at a total of 129 acre-feet (AF) spilled per lateral per year. Therefore by eliminating the operational spills alone this project will save an estimated 258 AF of water per year (129 AF multiplied by 2 laterals.) The water saved here will reduce needed releases from Harlan County Reservoir and will

subsequently reduce diversions from the Republican River streamflow.

To document actual canal seepage and evaporative losses, inflow/outflow tests were conducted on both laterals throughout the 2017 irrigation season. A total of nine tests were conducted on each canal. The first tests occurred on June 23, 2017 and the finals tests occurred on September 11, 2017.

Measurements were taken by using weir sticks and measuring flows over check structures behind each lateral's head gate. Measurements were taken using the same method at the waste-ways for each lateral. All measurements were taken in the morning between the hours of 7am and 9am and prior to any changes in total flow and overall deliveries being made on the laterals. This being the case, when the inflow/outflow measurements were taken on each of these mornings, the canals had been running at stabilized levels for previous 22 to 24 hours ensuring the accuracy of the data recorded in relation to seepage and evaporative losses.

The data collected during the inflow/outflow testing can be viewed within Figure 1 and Figure 2 below detailing the tests on the 31.1 Lateral and the Ridge 2.6 Right Lateral respectively.

Figure 1 – 31.1 Lateral Inflow/Outflow Tests

INFLOW/OUTFLOW TESTS						
***31.1 LATERAL CANAL* - 1.91 MILES BETWEEN MEASUREMENT LOCATIONS**						
MEASUREMENT DATA BELOW SHOWN IN CUBIC-FEET PER SECOND (CFS)						
DATE	TIME	HEAD-GATE CHECK MEASUREMENT	DELIVERIES EN ROUTE	WASTE WAY MEASUREMENT	EXPERIENCED LOSS	LOSS PER MILE
6/23/2017	8:00 AM	6	0	4.3	1.7	0.890052356
7/23/2017	7:00 AM	1.5	0	0.8	0.7	0.366492147
7/31/2017	7:00 AM	2	0	0.3	1.7	0.890052356
8/7/2017	7:00 AM	2	0	0.2	1.8	0.942408377
8/13/2017	7:00 AM	5.5	3.6	0.7	1.2	0.628272251
8/20/2017	7:00 AM	2	0	0.8	1.2	0.628272251
8/28/2017	7:00 AM	2	0	0.3	1.7	0.890052356
9/4/2017	7:00 AM	4	1.5	0.6	1.9	0.994764398
9/11/2017	7:00 AM	2	0	0.3	1.7	0.890052356
				AVG LOSS PER MILE (CFS)		**0.79115765**

Figure 2 – Ridge 2.6 Right Lateral Inflow/Outflow Tests

INFLOW/OUTFLOW TESTS						
RIDGE 2.6 RIGHT LATERAL CANAL - 2.19 MILES BETWEEN MEASUREMENT LOCATIONS						
MEASUREMENT DATA BELOW SHOWN IN CUBIC-FEET PER SECOND (CFS)						
DATE	TIME	HEAD-GATE CHECK MEASUREMENT	DELIVERIES EN ROUTE	WASTE WAY MEASUREMENT	EXPERIENCED LOSS	LOSS PER MILE
6/23/2017	9:00 AM	3.26	0	1	2.26	1.03196347
7/23/2017	7:00 AM	6.4	1.8	0.46	4.14	1.890410959
7/31/2017	7:00 AM	2.91	0	1.06	1.85	0.844748858
8/7/2017	7:00 AM	2.25	0	1.06	1.19	0.543378995
8/14/2017	7:00 AM	2.25	0	1.06	1.19	0.543378995
8/21/2017	7:00 AM	2.5	1	1	0.5	0.228310502
8/28/2017	7:00 AM	6.04	3.6	1.6	0.84	0.383561644
9/4/2017	7:00 AM	2.5	0	0.88	1.62	0.739726027
9/11/2017	7:00 AM	4	1.8	1.5	0.7	0.319634703
				AVG LOSS PER MILE (CFS)		**0.725012684**

From the collected data, actual figures were then used to determine an "average loss per mile" due to seepage and evaporation.

The inflow/outlfow tests determined an average loss per mile of 0.79 cfs and 0.73 cfs for the 31.1 Lateral and the Ridge 2.6 Right Lateral respectively. These figures would equate to losses of 1.58 AF per day for the 31.1 Lateral and 1.46 AF per day for the Ridge 2.6 Right Lateral. As stated earlier, in a normal 90 day irrigation season, these two laterals are loaded and delivering water for an estimated 75 days in which seepage/evaporative losses would be experienced.

Therefore, the estimated savings for the 31.1 Lateral would found by multiplying the 1.58 AF daily loss per mile, by the 1.91 mile length of the lateral by 75 days. By doing so, one arrives at an annual loss due to seepage and evaporation of 226 AF on the 31.1 Lateral.

Likewise, the estimated savings for the Ridge 2.6 Right Lateral would found by multiplying the 1.46 AF daily loss per mile, by the 2.19 mile length of the lateral by 75 days. By doing so, one arrives at an annual loss due to seepage and evaporation of 240 AF for the Ridge 2.6 Right Lateral.

By totaling these losses for each canal one arrives at an annual loss of 466 AF due to seepage/evaporation.

Following the completion of these projects KBID will be able to verify these loss reductions by comparing season-long historical diversions to delivery ratios using the previously open canal system, to those of a buried pipeline system which will obviously be impervious to any losses due to these factors previously seen in the open laterals.

E.1.2. Evaluation Criterion B—Water Supply Reliability (18points)

*Up to **18 points** may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.*

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

- Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?
    - Is there widespread support for the project?
    - What is the significance of the collaboration/support?
    - Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?
- Will the project make water available to address a specific water reliability concern? Please address:
    - Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.
    - Describe where the conserved water will go/how it will be used.
    - Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)? Will it be left in the river system?
    - Describe how the project will address the water reliability concern?
    - Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?
    - Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.
    - Describe the roles of any partners in the process. Please attach any relevant supporting documents.
    - Indicate the quantity of conserved water that will be used for the intended purpose.
- Will the project benefit Indian tribes?
- Will the project benefit rural or economically disadvantaged communities?
- 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.
- Will the project address water supply reliability in other ways not described above?

Simply put, through water conservation projects like this one, KBID will be able to more efficiently provide irrigation to the same number of acres as in the past, all while using less water from the Republican River. This project and other conservation measures allow for less water to be diverted from the natural flows of the Republican River which subsequently means the potential for more beneficial uses of water to multiple users across multiple sectors in a water short and historically contentious river basin. Projects like the one outlined within

this application will significantly increase KBID's (along with the three states' in the Republican River Basin) resiliency to drought conditions in the future.

As stated earlier in this application, for many years the Republican River Basin remained embroiled in controversy over groundwater depletion of river flows; so much so that the matter ended up in litigation at the United States Supreme Court. As a result of the 2015 United States Supreme Court Settlement concerning the Republican River, in the case of The State of Kansas, Plaintiff v. The State of Nebraska and The State of Colorado, the Court ordered that the State of Kansas be awarded a settlement amount of $5.5 million from the State of Nebraska.

This led to significant collaboration between many users on the Republican River. Through the action of several individuals representing multiple agencies within the State of Kansas and key state legislators, $3.5 million of the award was secured to be used for water conservation projects in the Republican River Basin in Kansas.

Of the $3.5 million, KBID subsequently signed Contract No. 16-115 with the Kansas Water Office (KWO) for $2.5 million of these non-Federal funds which can be reference in Appendix D. The KWO is the agency charged with holding these funds for dispersal to the KBID. Therefore, the KWO will be an integral partner with KBID on projects like the one described within this application. This contract outlines that the $2.5 million earmarked for KBID be used to fund materials purchases for various projects outlined within the contract; all of which are projects to convert open irrigation canals to buried pipe systems. The 31.1 Lateral and the Ridge 2.6 Right Lateral are two of the many projects identified specifically within the contract with the KWO.

With several irrigation districts and other water users in the upstream states of Colorado and Nebraska also relying on the flows of the Republican River, any conservation measures that can be taken in the basin, such as the piping of canals within KBID, has the potential to positively impact the overall hydrologic circumstances. By reducing the overall demand for the precious resource of water from the Republican River Basin, conservation projects like this one have the potential to help resolve future water related conflicts in the region and prevent further water-related conflicts and litigation.

KBID is but one part of the Bostwick Division within Reclamation's Nebraska-Kansas Project Area; the Nebraska Bostwick Irrigation District (NBID) headquartered in Red Cloud, NE makes up the second part. Reclamation is tasked with apportioning the available water to each district within the Bostwick Division in an equitable manner through a formula within a Memorandum of Agreement (MOA) between the two districts. Therefore, conservation projects that occur in either district of the Bostwick Division also stand to benefit the other district. As a result, the projects described in this application will not only benefit KBID but will also benefit and continue to encourage collaboration with NBID.

In order to highlight other positive impacts a project like this one would have on the overall Republican River Basin, one can look to users downstream of KBID. Not only are there other agricultural users of water downstream of KBID on the Republican, but also municipal users. The City of Clay Center, KS relies on flows of the Republican River which ultimately impact the city's ability to provide water to their citizens.

Additionally, The Kansas Water Office (KWO) has coordinated with other agricultural users downstream of KBID to form the Lower Republican Access District (LRAD). As projects

like this one create the potential for more water to remain in the stream, it increases the chances of viability for further beneficial uses of water like that of the LRAD.

A project like this one most certainly will benefit the rural communities in and around KBID. KBID has portions of its district that are located in both Republic County, Kansas and Jewell County, Kansas. To understand just how rural these areas are one can look at the total populations of each county. The total population of Jewell County is 2,970 and that of Republic County is 4,725. The majority of the economy in each county is driven by agriculture, and this economic driver is strengthened through the irrigation water that is provided by KBID. Pipeline projects like this one ensure the continued viability of KBID and enable it to continue to provide irrigation to local farmers, even during times of limited supply, who then in turn, help drive the local economy.

As stated above, with this open unlined canal to buried pipe conversion project, there will be a definite and quantifiable amount of water saved each year following its completion. This will in turn increase stream flows in the Republican River by reducing the overall amount of diversions needed by KBID. This will help to benefit all facets and species of the environment reliant on steady flows on the Republican River and downstream locations.

With less diversion volumes from the Republican River by KBID, increased flows will be available to downstream tributaries on the Republican River including areas along the Kaw River where certain State Threatened and Federally Endangered species such as the Topeka Shiner minnow exists.

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 the Environmental Quality Incentives Program (EQIP) is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information described in the bullet points below. **Applicants are *not* required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion.** Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.

Please note: on-farm improvements themselves are *not* eligible activities for funding under this FOA. This criterion is intended to focus on how the WaterSMART Grant project will complement ongoing or future on-farm improvements. NRCS will have a separate application process for the on-farm components of selected projects that may be undertaken in the future, separate of the WaterSMART Grant project.

If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:

• Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.

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

- 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?
- Describe the on-farm water conservation or water use efficiency benefits that would result from the on-farm component of this project.
  - 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.

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

Pipeline projects like the ones described in this application certainly compliment and incentivize on-farm irrigation improvements. As stated earlier within this application, on farm improvements and investments made by landowners over the last several decades currently show that approximately 70% of the District is irrigated through the use of center pivots with the remaining 30% being irrigated through gated pipe. The majority of these improvements made by landowners were incentivized by the installation of previous pipeline burial projects.

The pressure of the water through a pipeline will increase and the quality of water reaching the field turnouts through a pipeline will be much improved over the present scenario, primarily because of the installation and use of the aeration screens to filter debris from the irrigation water. The aeration screens allow fish, crayfish and other aquatic organisms to stay in the main canals and not be abandoned in the agriculture fields. For these reasons projects like this one greatly incentivize landowners to install and implement center pivot and/or drip-irrigation technology which require filtered water to operate efficiently. The aeration screens filter the water sufficiently enough to prevent other organic matter debris from plugging pivot nozzles or gated pipe orifices allowing for a more consistent application of irrigation water.

One landowner currently served by the Ridge 2.6 Right Lateral has shown interest in installing a center pivot on his acres that are currently gravity irrigated, which is considered inefficient irrigation methodology. With the installation of this pipeline, the likelihood that he carries through with the installation of the pivot greatly increases. His letter of support can be referenced in Appendix F.

This project proposal will also result in eliminating erosion and drainage problems that often accompany open canal systems with waste ways that spill into open drainage on or near actively farmed acres. In addition, the soil adjacent to the currently open canal will no longer be as saturated from seepage from the open canal allowing for more precipitation to be absorbed into the soil profile and resulting in less runoff.

E.1.5. Evaluation Criterion E—Department of the Interior Priorities (10 points)

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

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

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

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

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

d. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;

e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;

f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing;

g. Shift the balance towards providing greater public access to public lands over restrictions to access.

Utilizing our natural resources

a. Ensure American Energy is available to meet our security and economic needs;

b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;

c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle;

d. Manage competition for grazing resources.

3. *Restoring trust with local communities*

a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;

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

4. *Striking a regulatory balance*

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

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

5. *Modernizing our infrastructure*

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

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

c. Prioritize DOI infrastructure needs to highlight:

—. Construction of infrastructure;

—. Cyclical maintenance;

—. Deferred maintenance.

As it pertains to Department of the Interior (DOI) Priorities, this water management and conservation project is an opportunity to update and improve a Reclamation project, KBID's distribution system and infrastructure. Federal assistance through this funding opportunity is essential and necessary to aid KBID in its' plan to maintain continuity in the District's overall conservation efforts and to reach contracted goals for improved efficiency. Contract No. 009D6B0120 between the United States of America and the Kansas Bostwick Irrigation District contains the "District Operating Plan" or Attachment B, which highlights these contracted goals. The District Operating Plan can be found in Appendix B and those specific goals with the KBID has been fulfilling can be located under the heading WATER CONSERVATION MEASURES. Failure to receive this funding potentially puts this contract commitment at risk.

In the past, controversy has surrounded the Republican River Basin. Forward thinking conservation projects like this project will help restore trust between the various states that are part of the Republican River Compact and all of their respective users. For other users to see the KBID continuing to implement major water conservation measures, such as our pipeline burial projects, it can only aid in strengthening the bonds of trust between all water users in the basin and encourage them to follow suit.

The modernization of KBID's water delivery and management infrastructure though the elimination of open and inefficient laterals and subsequently the move towards buried pipelines for the District's delivery system aligns with DOI priorities that concentrate on the general modernization and construction of improved and new infrastructure on Reclamation projects.

E.1.6. Evaluation Criterion F—Implementation and Results (6 points)

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

E.1.6.1. Subcriterion F.1— Project Planning

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

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

Provide the following information regarding project planning:

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

(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).

KBID is the "first in time" water right holder on the Republican River in the State of Kansas. The District is obligated to conserve its supply and make valuable use of its share of the Republican River flows. At the present time, the most immediate way for KBID to conserve water is through the burial and piping of currently open canals. It is essential for KBID to be efficient with the water delivered from other states to comply with the Republican River Compact.

Along with this, KBID has a contractual commitment to the Bureau of Reclamation to improve efficiencies. Within Attachment B of Contract No. 009D6B0120, found in Appendix B of this application, otherwise referred to as the "District Operating Plan", under the heading WATER CONSERVATION MEASURES, KBID is required to fund and actively pursue measures to improve efficiencies and conserve water. Within the KBID, the process of converting open canals to buried pipe systems is of the highest priority within our conservation plan. As KBID works to conserve its' supply, water users, recreational users and the environment in the Republican River Basin will realize auxiliary benefits of a longer lasting water supply, not only at the storage reservoirs but also at downstream locations in the basin.

Considerable improvements in efficiency have been previously realized through the burial of smaller laterals. However, the tasks remaining, such as the ones outlined in this application, are the larger and more expensive projects beyond the District's ability to achieve without additional funding assistance.

E.1.6.2. Subcriterion F.2— Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure, see *Appendix A: Benefit Quantification and Performance Measure Guidance.*

Note: All Water and Energy Efficiency Grant applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grant recipients describing the performance measure, and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.

As noted earlier in this application, through the completion of this project, 724 acre-feet (AF) of water will be saved and conserved each year.

Through this project, both the 31.1 Lateral waste way and the Ridge 2.6 Right Lateral waste way will be eliminated along with their respective operational spills. In a normal 90 day irrigation season, each of these lateral canals are loaded for deliveries and are therefore making operation spills for an estimated 75 days. When operating, each waste way spills between 0.5 and 1.25 cfs, creating an average daily spill rate of 0.86 cfs. By multiplying the 0.86 cfs operational spill rate by 75 days, you arrive at a total of 129 acre-feet (AF) spilled per lateral per year. Therefore by eliminating the operational spills alone this project will save an estimated 258 AF of water per year (129 AF multiplied by 2 laterals). The water saved here will reduce needed releases from Harlan County Reservoir and will subsequently reduce diversions from the Republican River streamflow.

To document actual canal seepage and evaporative losses, inflow/outflow tests were conducted on both laterals throughout the 2017 irrigation season. A total of nine tests were conducted on each canal. The first tests occurred on June 23, 2017 and the finals tests occurred on September 11, 2017.

Measurements were taken by using weir sticks and measuring flows over check structures behind each lateral's head gate. Measurements were taken using the same method at the waste-ways for each lateral. All measurements were taken in the morning between the hours of 7am and 9am and prior to any changes in total flow and overall deliveries being made on the laterals. This being the case, when the inflow/outflow measurements were taken on each of these mornings, the canals had been running at stabilized levels for previous 22 to 24 hours ensuring the accuracy of the data recorded in relation to seepage and evaporative losses.

The data collected during the inflow/outflow testing can be viewed within Figure 1 and Figure 2 below detailing the tests on the 31.1 Lateral and the Ridge 2.6 Right Lateral respectively.

Figure 1 – 31.1 Lateral Inflow/Outflow Tests

INFLOW/OUTFLOW TESTS						
***31.1 LATERAL CANAL* - 1.91 MILES BETWEEN MEASUREMENT LOCATIONS**						
MEASUREMENT DATA BELOW SHOWN IN CUBIC-FEET PER SECOND (CFS)						
DATE	TIME	HEAD-GATE CHECK MEASUREMENT	DELIVERIES EN ROUTE	WASTE WAY MEASUREMENT	EXPERIENCED LOSS	LOSS PER MILE
6/23/2017	8:00 AM	6	0	4.3	1.7	0.890052356
7/23/2017	7:00 AM	1.5	0	0.8	0.7	0.366492147
7/31/2017	7:00 AM	2	0	0.3	1.7	0.890052356
8/7/2017	7:00 AM	2	0	0.2	1.8	0.942408377
8/13/2017	7:00 AM	5.5	3.6	0.7	1.2	0.628272251
8/20/2017	7:00 AM	2	0	0.8	1.2	0.628272251
8/28/2017	7:00 AM	2	0	0.3	1.7	0.890052356
9/4/2017	7:00 AM	4	1.5	0.6	1.9	0.994764398
9/11/2017	7:00 AM	2	0	0.3	1.7	0.890052356
				AVG LOSS PER MILE (CFS)		**0.79115765**

Figure 2 – Ridge 2.6 Right Lateral Inflow/Outflow Tests

INFLOW/OUTFLOW TESTS						
RIDGE 2.6 RIGHT LATERAL CANAL - 2.19 MILES BETWEEN MEASUREMENT LOCATIONS						
MEASUREMENT DATA BELOW SHOWN IN CUBIC-FEET PER SECOND (CFS)						
DATE	TIME	HEAD-GATE CHECK MEASUREMENT	DELIVERIES EN ROUTE	WASTE WAY MEASUREMENT	EXPERIENCED LOSS	LOSS PER MILE
6/23/2017	9:00 AM	3.26	0	1	2.26	1.03196347
7/23/2017	7:00 AM	6.4	1.8	0.46	4.14	1.890410959
7/31/2017	7:00 AM	2.91	0	1.06	1.85	0.844748858
8/7/2017	7:00 AM	2.25	0	1.06	1.19	0.543378995
8/14/2017	7:00 AM	2.25	0	1.06	1.19	0.543378995
8/21/2017	7:00 AM	2.5	1	1	0.5	0.228310502
8/28/2017	7:00 AM	6.04	3.6	1.6	0.84	0.383561644
9/4/2017	7:00 AM	2.5	0	0.88	1.62	0.739726027
9/11/2017	7:00 AM	4	1.8	1.5	0.7	0.319634703
				AVG LOSS PER MILE (CFS)		**0.725012684**

From the collected data, actual figures were then used to determine an "average loss per mile" due to seepage and evaporation.

The inflow/outlfow tests determined an average loss per mile of 0.79 cfs and 0.73 cfs for the 31.1 Lateral and the Ridge 2.6 Right Lateral respectively. These figures would equate to losses of 1.58 AF per day for the 31.1 Lateral and 1.46 AF per day for the Ridge 2.6 Right Lateral. As stated earlier, in a normal 90 day irrigation season, these two laterals are loaded and delivering water for an estimated 75 days in which seepage/evaporative losses would be experienced.

Therefore, the estimated savings for the 31.1 Lateral would found by multiplying the 1.58 AF daily loss per mile, by the 1.91 mile length of the lateral by 75 days. By doing so, one arrives at an annual loss due to seepage and evaporation of 226 AF on the 31.1 Lateral.

Likewise, the estimated savings for the Ridge 2.6 Right Lateral would found by multiplying the 1.46 AF daily loss per mile, by the 2.19 mile length of the lateral by 75 days. By doing so, one arrives at an annual loss due to seepage and evaporation of 240 AF for the Ridge 2.6 Right Lateral.

By totaling these losses for each canal one arrives at an annual loss of 466 AF due to seepage/evaporation.

Following the completion of these projects KBID will be able to verify these loss reductions by comparing season-long historical diversions to delivery ratios using the previously open canal system, to those of a buried pipeline system.

E.1.7. Evaluation Criterion G— Nexus to Reclamation Project Activities (4 Points)

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

- Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:
  - o Does the applicant receive Reclamation project water?

- o Is the project on Reclamation project lands or involving Reclamation facilities?
- o Is the project in the same basin as a Reclamation project or activity?
- o Will the proposed work contribute water to a basin where a Reclamation project is located?
- Will the project benefit any tribe(s)?

Kansas Bostwick Irrigation District is part of the Bostwick Division, a Bureau of Reclamation project. KBID is served by and lies within the Bureau of Reclamation's Nebraska–Kansas Project Area headquartered in McCook, Nebraska. The District receives Reclamation project water through the flows of the Republican River. The annual stored water supply for the District is within Harlan County Reservoir in Nebraska as well as Lovewell Reservoir in Kansas. The District's water supply is delivered through Reclamation infrastructure to the 42,500 acres of Reclamation project land within the District. This project will take place in the heart of the Republican River Basin and these conservation activities will leave more water available in the basin due to decreased diversions. This aspect has the potential to aid other users including several other Reclamation districts throughout the basin upstream of KBID such as Nebraska Bostwick Irrigation District and Frenchman-Cambridge Irrigation District.

E.1.8. Evaluation Criterion H— 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:*

Non-Federal Funding /Total Project Cost

$350,151.37 / $650,151.37 = 53.8%

As shown in the calculation above, the non-federal funding percentage for this project will be 53.8%.

Project Budget

Funding Plan and Letters of Commitment

As stated earlier in this application, for many years the Republican River Basin remained embroiled in controversy over groundwater depletion of river flows; so much so that the matter ended up in litigation at the United States Supreme Court. As a result of the 2015 United States Supreme Court Settlement concerning the Republican River, in the case of The State of Kansas, Plaintiff v. The State of Nebraska and The State of Colorado, the Court ordered that the State of Kansas be awarded a settlement amount of $5.5 million from the State of Nebraska.

This led to significant collaboration between many users on the Republican River. Through the action of several individuals representing multiple agencies within the State of Kansas and key state legislators, $3.5 million of the award was secured to be used for water conservation projects in the Republican River Basin in Kansas.

Of the $3.5 million, KBID subsequently signed a contract with the Kansas Water Office (KWO) for $2.5 million of these non-Federal funds. This can be referenced by consulting

Contract No. 16-115 within Appendix D. The KWO is the agency who is charged with holding these funds for dispersal to the District. Therefore, the KWO will be an integral partner with KBID on projects like the one described within this application. This contract outlines that the $2.5 million earmarked for KBID be used to fund materials purchases for various projects outlined within the contract; all of which are projects to convert open irrigation canals to buried pipe systems. The 31.1 Lateral and the Ridge 2.6 Right Lateral are two of the many projects identified specifically within the contract with the KWO.

Since the execution of the contract in 2016, KBID has utilized a total of $787,729.10 of the $2.5 million in non-Federal funds in the burial of two other laterals in this same area upstream of Lovewell Reservoir. As of the writing of this application, there remains a total of over $1,712,270.90 committed to KBID and already secured for this project by way of the contract with the Kansas Water Office.

The 33.0 Lateral project completed in 2017 utilized $449,496.48 of these funds for materials purchases. During the 33.0 Lateral project, KBID also utilized $100,000 for the installation costs from a successful Field Service Grant through the Bureau of Reclamation. In 2018, the 32.1 Lateral burial project was completed utilizing $338,232.62 of the Supreme Court settlement funding for materials costs, and the installation cost was borne by the District.

It is Board of Directors policy that each irrigator receiving a benefit from these types of projects also contribute financially for those benefits they will be receiving. This will not be considered in the application and will be included as a portion of the District's share. Under no circumstance will financial contributions from KBID and "Other Funding", including the Supreme Court Settlement Funds, dispersed by the Kansas Water Office, constitute less than 50% of the total cost of this project.

The total material costs for the 31.1 Lateral and the Ridge 2.6 Right Lateral projects is estimated to be $342,426.97. To stretch the available Settlement Funds further over time within KBID, if successful, $300,000 of the WaterSMART funds will be used for materials while, $42,426.97 will come directly from the Settlement Funds for the remainder of the materials costs.

As the 31.1 Lateral project will begin as soon as possible following the 2018 irrigation season, the costs of all of the materials needed will be incurred well before the anticipated start date of October 2018. Pipe of the size needed for this project isn't usually readily available and in stock through suppliers so orders must be placed a few months in advance to ensure availability by the project start date. Therefore most, if not all of the materials cost for the 31.1 Lateral portion of the overall project are expected to be incurred prior to the October 2018 start date.

To review, if successful in this application, the Supreme Court Settlement Funds in the amount of $42,426.97 will be applied towards the purchase of materials needed. If successful the remaining $300,000 in materials cost will come from WaterSMART grant funding. KBID will contribute the remaining $307,724.40 to the project. KBID's in kind contributions will cover employee salaries, fringe benefits, equipment costs, environmental compliance costs and the cost associated with surveying and obtaining easements. It should be understood that any costs above and beyond the estimated numbers would be incurred by and paid for by KBID alone.

Easements will be obtained prior to the commencement of the projects and therefore the estimated $5,000 in surveying costs for obtaining easements will also have to be incurred beforehand as well. KBID will coordinate with the Bureau's Nebraska-Kansas Area Office personnel to obtain the easements. Finally, based on similar previous projects an estimated $2,500 has been included to cover the costs of Environmental and Cultural Compliance needs also to be borne by the District.

The District's contributions for the funding for the project will have originated from annual assessments and out of specific accounts earmarked for conservation efforts.

FUNDING SOURCES	AMOUNT
Non Federal Entities	
1. Kansas Water Office - Supreme Court Settlement Funds for Materials	$42,426.97
2. Kansas Bostwick Irrigation District*	$307,724.40
Non-Federal Subtotal	**$350,151.37**
Other Federal Entities	
None	$0.00
Other Federal Subtotal	$0.00
REQUESTED RECLAMATION FUNDING	**$300,000.00**

Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	$/UNIT	QUANTITY		
Salaries and Wages				
Foreman (BM)	$19.33	380	HOURS	**$7,345.40**
Foreman (DR)	$19.23	380	HOURS	**$7,307.40**
Excav. Optr (DA)	$16.75	380	HOURS	**$6,365.00**
Laborer (PE)	$16.24	380	HOURS	**$6,171.20**
Dozer Optr. (AN)	$13.77	380	HOURS	**$5,232.60**
Trencher Optr. (DD)	$17.65	380	HOURS	**$6,707.00**
Laborer (FH)	$14.36	380	HOURS	**$5,456.80**
Loader Optr (RE)	$15.16	380	HOURS	**$5,760.80**
Patrol Optr. (TA)	$15.27	380	HOURS	**$5,802.60**
Laborer (CL)	$13.23	380	HOURS	**$5,027.40**
Laborer (LS)	$15.32	380	HOURS	**$5,821.60**
Excav Optr. (WF)	$14.36	380	HOURS	**$5,456.80**
Laborer (CL)	$13.23	380	HOURS	**$5,027.40**
Laborer (GK)	$14.87	380	HOURS	**$5,650.60**
Fringe Benefits				
Foreman (BM)	$10.85	380	HOURS	**$4,123.97**
Foreman (DR)	$10.07	380	HOURS	**$3,825.91**
Excav. Optr (DA)	$6.33	380	HOURS	**$2,404.90**
Laborer (PE)	$6.22	380	HOURS	**$2,363.04**
Dozer Optr. (AN)	$5.82	380	HOURS	**$2,209.81**
Trencher Optr. (DD)	$10.40	380	HOURS	**$3,951.57**
Laborer (FH)	$10.13	380	HOURS	**$3,848.73**
Loader Optr (RE)	$5.82	380	HOURS	**$2,210.95**
Patrol Optr. (TA)	$14.04	380	HOURS	**$5,335.74**
Laborer (CL)	$9.57	380	HOURS	**$3,635.69**
Laborer (LS)	$10.10	380	HOURS	**$3,837.65**
Excav Optr. (WF)	$5.92	380	HOURS	**$2,248.33**
Laborer (CL)	$5.60	380	HOURS	**$2,129.55**
Laborer (GK)	$4.58	380	HOURS	**$1,740.23**

Budget Proposal Continued

District-Owned Equipment Use				
JCB Excavator	$46.42	282	HOURS	**$13,097.25**
CAT 320C Excavator	$46.42	264	HOURS	**$12,246.51**
John Deere 690 Excavator	$56.34	93	HOURS	**$5,242.26**
CAT D7 Dozer	$85.88	267	HOURS	**$22,924.35**
IHC TD-15 Dozer	$67.12	214	HOURS	**$14,345.48**
Fiat-Allis 14C Dozer	$63.91	48	HOURS	**$3,078.63**
Linkbelt ls-78 Crane	$73.87	20	HOURS	**$1,444.77**
Skid Steer	$17.32	22	HOURS	**$385.17**
Motorgrader	$59.31	54	HOURS	**$3,220.08**
H-International 540 Loader #1	$82.93	106	HOURS	**$8,758.64**
Komatsu 540 Loader #2	$82.93	58	HOURS	**$4,775.80**
Forklift	$20.82	29	HOURS	**$608.54**
2700 Hydramaxx Port Industries Trencher	$130.58	113	HOURS	**$14,803.30**
T-35 Peterbilt Regular Bed Dump Truck #1	$37.32	466	HOURS	**$17,381.46**
T-37 Peterbilt Rock Bed Dump Truck #2	$49.49	392	HOURS	**$19,400.04**
T-36 Red Chevy C-70 Dump Truck #4	$37.32	160	HOURS	**$5,986.66**
T-32 IHC Little Blue Dump Truck #3	$30.47	10	HOURS	**$309.01**
T-40 American General Dump Truck	$37.32	20	HOURS	**$763.71**
T-39 Peterbilt Semi Truck	$45.43	444	HOURS	**$20,182.88**
Load King Lowboy Trailer	$12.12	130	HOURS	**$1,571.53**
JLG 1255 Telehandler	$47.78	57	HOURS	**$2,699.65**

Budget Proposal Continued

Supplies and Materials (Supreme Court Settlement Funds - dispersed by the Kansas Water Office)				
27" PVC Pipe	$29.07	4743	FEET	**$137,879.01**
24" PVC Pipe	$22.18	4325	FEET	**$95,928.50**
18" PVC Pipe	$12.38	4901	FEET	**$60,674.38**
15" PVC Pipe	$7.42	4248	FEET	**$31,520.16**
27 X 10 T	$389.12	2	FITTING	**$778.24**
27 X 24 REDUCER	$223.04	1	FITTING	**$223.04**
27 - 45° ELBOW	$503.68	2	FITTING	**$1,007.36**
27 - 30° ELBOW	$503.68	1	FITTING	**$503.68**
24 - 60° ELBOW	$503.68	1	FITTING	**$503.68**
24 - 11.25° ELBOW	$183.04	2	FITTING	**$366.08**
24 X 10 T	$360.88	3	FITTING	**$1,082.64**
24 - 90° ELBOW	$731.84	2	FITTING	**$1,463.68**
24 X 21 REDUCER	$148.80	1	FITTING	**$148.80**
24 - GASKETTED COUPLER	$388.15	1	FITTING	**$388.15**
18 - 90° ELBOW	$206.40	4	FITTING	**$825.60**
18 - 45° ELBOW	$108.16	2	FITTING	**$216.32**
15 - 90° ELBOW	$138.56	4	FITTING	**$554.24**
15 - 45° ELBOW	$64.32	4	FITTING	**$257.28**
15 - 11.25° ELBOW	$52.48	2	FITTING	**$104.96**
18 X 10 T	$137.92	3	FITTING	**$413.76**
15 X 10 T	$104.00	4	FITTING	**$416.00**
18 X 15 REDUCER	$73.28	1	FITTING	**$73.28**
Underground Valves w/flanges and (2) 4' ext. stems	$498.38	13	VALVE	**$6,478.94**
2" aluminum airvent vaccuum relief valves (1 per turnout)	$17.93	13	AIRVENT	**$233.09**
2" airvent pipe (15' X # of turnouts)	$1.98	195	FEET	**$386.10**
Other				
Reclamation Environmental & Cultural Compliance	$2,500.00	1	N/A	**$2,500.00**
Surveys and Obtaining Easement (one for each latera	$2,500.00	2	N/A	**$5,000.00**
TOTAL DIRECT COSTS				**$650,151.37**
TOTAL ESTIMATED PROJECT COSTS				**$650,151.37**

Budget Narrative

Labor and Equipment hours were estimated for this project based on reviewing and extrapolating from known labor and equipment hours on past projects of similar size/scope. The materials costs were derived from quoted estimates provided by multiple product suppliers for the exact number, type, and footage needed of specific fittings and plastic pipe. Finally, the costs under the "Other" heading, of Reclamation Environmental & Cultural Compliance and Surveying / Obtaining Easement were estimated from past projects of similar size/scope.

Salaries and Wages

District Superintendent, Jared "Pete" Gile, will be the project manager. The duties of the field crew will be directed and overseen by Foremen, Bill Mahin and Dan Reynolds. KBID has buried laterals with its own equipment and crew for many years. The type of employees needed to accomplish the three tasks identified within the Technical Project Description

section of this application include, but are not limited to, operators for dozers, patrols, trencher, excavators, loaders, dump trucks, and laborers. All equipment operators have no less than 5 years of experience in this type work.

All Salary and Benefit information for each employee as well as "hours per task" for each can be seen in the various tables included below.

2018 KBID PERSONNEL WAGES & BENEFITS						
EMPLOYEE	Hourly Rate	Medicare & FICA		KPERS & Health		Total Hr. Rate
		Monthly	Hourly	Monthly	Hourly	
Foreman (BM)	$19.33	$241.86	$1.37	$1,668.19	$9.48	**$30.18**
Foreman (DR)	$19.23	$182.74	$1.04	$1,589.26	$9.03	**$29.30**
Excav. Optr (DA)	$16.75	$222.93	$1.27	$890.92	$5.06	**$23.08**
Laborer (PE)	$16.24	$211.07	$1.20	$883.39	$5.02	**$22.46**
Dozer Optr. (AN)	$13.77	$176.58	$1.00	$846.91	$4.81	**$19.59**
Trencher Optr. (DD)	$17.65	$228.41	$1.30	$1,601.79	$9.10	**$28.05**
Laborer (FH)	$14.36	$187.77	$1.07	$1,594.80	$9.06	**$24.49**
Loader Optr (RE)	$15.16	$164.85	$0.94	$859.17	$4.88	**$20.98**
Patrol Optr. (TA)	$15.27	$169.99	$0.97	$2,301.30	$13.08	**$29.31**
Laborer (CL)	$13.23	$162.11	$0.92	$1,521.79	$8.65	**$22.80**
Laborer (LS)	$15.32	$182.98	$1.04	$1,594.46	$9.06	**$25.42**
Excav Optr. (WF)	$14.36	$185.70	$1.06	$855.63	$4.86	**$20.28**
Laborer (CL)	$13.23	$162.11	$0.92	$824.21	$4.68	**$18.83**
Laborer (GK)	$14.87	$215.48	$1.22	$590.52	$3.36	**$19.45**

ESTIMATED LABORS HOURS PER TASK - 31.1 & 2.6 R			
EMPLOYEE	TASK 1	TASK 2	TASK 3
Foreman (BM)	114	228	38
Foreman (DR)	114	228	38
Excav. Optr (DA)	152	228	0
Laborer (PE)	38	304	38
Dozer Optr. (AN)	152	152	76
Trencher Optr. (DD)	38	304	38
Laborer (FH)	38	304	38
Loader Optr (RE)	114	228	38
Patrol Optr. (TA)	114	228	38
Laborer (CL)	38	304	38
Laborer (LS)	38	304	38
Excav Optr. (WF)	152	228	0
Laborer (CL)	38	304	38
Laborer (GK)	38	304	38
TOTALS	1178	3648	494

ESTIMATED LABORS HOURS PER TASK - 31.1 & 2.6 R						
EMPLOYEE	TASK 1	TASK 2	TASK 3	TOTAL HOURS	TOTAL HOURLY WAGE	TOTAL COST
Foreman (BM)	114	228	38	380	$30.18	**$11,469.37**
Foreman (DR)	114	228	38	380	$29.30	**$11,133.31**
Excav. Optr (DA)	152	228	0	380	$23.08	**$8,769.90**
Laborer (PE)	38	304	38	380	$22.46	**$8,534.24**
Dozer Optr. (AN)	152	152	76	380	$19.59	**$7,442.41**
Trencher Optr. (DD)	38	304	38	380	$28.05	**$10,658.57**
Laborer (FH)	38	304	38	380	$24.49	**$9,305.53**
Loader Optr (RE)	114	228	38	380	$20.98	**$7,971.75**
Patrol Optr. (TA)	114	228	38	380	$29.31	**$11,138.34**
Laborer (CL)	38	304	38	380	$22.80	**$8,663.09**
Laborer (LS)	38	304	38	380	$25.42	**$9,659.25**
Excav Optr. (WF)	152	228	0	380	$20.28	**$7,705.13**
Laborer (CL)	38	304	38	380	$18.83	**$7,156.95**
Laborer (GK)	38	304	38	380	$19.45	**$7,390.83**
TOTALS	1178	3648	494	5320	$334.21	$126,998.68

Fringe Benefits

The "Fringe Benefits" portion of overall hourly costs have been broken down to hourly rates as extrapolated from monthly benefits. Benefits include Medicare and FICA deductions. The District also provides and pays a portion of medical insurance (Blue Cross – Blue Shield) and employees participate in Kansas Public Employees Retirement System (KPERS).

2018 MONTHLY MEDICARE & FICA DEDUCTIONS			
EMPLOYEE	Medicare	FICA	Total
Foreman (BM)	$45.84	$196.02	**$241.86**
Foreman (DR)	$34.64	$148.10	**$182.74**
Excav. Optr (DA)	$42.25	$180.68	**$222.93**
Laborer (PE)	$40.01	$171.06	**$211.07**
Dozer Optr. (AN)	$33.47	$143.11	**$176.58**
Trencher Optr. (DD)	$43.29	$185.12	**$228.41**
Laborer (FH)	$35.59	$152.18	**$187.77**
Loader Optr (RE)	$31.25	$133.60	**$164.85**
Patrol Optr. (TA)	$32.22	$137.77	**$169.99**
Laborer (CL)	$30.73	$131.38	**$162.11**
Laborer (LS)	$34.68	$148.30	**$182.98**
Excav Optr. (WF)	$35.20	$150.50	**$185.70**
Laborer (CL)	$30.73	$131.38	**$162.11**
Laborer (GK)	$40.84	$174.64	**$215.48**

2018 KPERS & HEALTH MONTHLY BENEFIT			
EMPLOYEE	KPERS	Health	Total
Foreman (BM)	$285.44	$1,382.75	**$1,668.19**
Foreman (DR)	$206.51	$1,382.75	**$1,589.26**
Excav. Optr (DA)	$247.34	$643.58	**$890.92**
Laborer (PE)	$239.81	$643.58	**$883.39**
Dozer Optr. (AN)	$203.33	$643.58	**$846.91**
Trencher Optr. (DD)	$260.63	$1,341.16	**$1,601.79**
Laborer (FH)	$212.05	$1,382.75	**$1,594.80**
Loader Optr (RE)	$215.59	$643.58	**$859.17**
Patrol Optr. (TA)	$221.05	$2,080.25	**$2,301.30**
Laborer (CL)	$180.63	$1,341.16	**$1,521.79**
Laborer (LS)	$211.71	$1,382.75	**$1,594.46**
Excav Optr. (WF)	$212.05	$643.58	**$855.63**
Laborer (CL)	$180.63	$643.58	**$824.21**
Laborer (GK)	$240.52	$350.00	**$590.52**

2018 FRINGE BENEFITS TOTALS - 31.1 & 2.6 R			
EMPLOYEE	COMPUTATION RATE/HOUR	HOURS	TOTAL COST
Foreman (BM)	$10.85	380	$4,123.97
Foreman (DR)	$10.07	380	$3,825.91
Excav. Optr (DA)	$6.33	380	$2,404.90
Laborer (PE)	$6.22	380	$2,363.04
Dozer Optr. (AN)	$5.82	380	$2,209.81
Trencher Optr. (DD)	$10.40	380	$3,951.57
Laborer (FH)	$10.13	380	$3,848.73
Loader Optr (RE)	$5.82	380	$2,210.95
Patrol Optr. (TA)	$14.04	380	$5,335.74
Laborer (CL)	$9.57	380	$3,635.69
Laborer (LS)	$10.10	380	$3,837.65
Excav Optr. (WF)	$5.92	380	$2,248.33
Laborer (CL)	$5.60	380	$2,129.55
Laborer (GK)	$4.58	380	$1,740.23
Fringe Benefits Total	$115.44	5320	$43,866.08

Salary/Wages Total	$83,132.60
Fringe Benefits Total	$43,866.08
Employee Cost Total	$126,998.68

Equipment

The District currently owns all of the equipment needed to complete this project. The District's bulldozers and patrols (D7, Dozer#3 and Galion) will be needed for task 1 to prepare the pathway for the pipeline. They are used less in task 2 and their use increases during task 3 to finish the area when completed. The District's excavators (Cat, JD 690, and JCB) will be needed to remove structures in task 1. Structures will be loaded with the District's loaders and will be hauled in District dump trucks. Structures too big to be hauled will be pushed in an excavated hole and crushed with the crane and wrecking ball. District excavators will also be used to excavate areas to install turnouts etc. where trenching is not practical. Trenching during task 2 will be completed with the District's new Hydramaxx 2700 trencher, which was purchased in 2017. The total itemized equipment costs are shown in the first table below. The District established hourly rates using the Corps of Engineers 2016 Region V Manual. The figures used were derived from corresponding Corps of Engineers I.D. Numbers and page numbers within the manual. The corresponding manual information is included in the second table below.

HOURLY EQUIPMENT RATES PER 2016 COE REGION V MANUAL			
MACHINE	HOURLY RATE ($/hr)	HOURS THIS PROJECT (31.1 & 2.6R)*	TOTAL
JCB Excavator	$46.42	282	$13,097.25
CAT 320C Excavator	$46.42	264	$12,246.51
John Deere 690 ELC Long-reach Excavator	$56.34	93	$5,242.26
CAT D7 Dozer	$85.88	267	$22,924.35
IHC Dozer	$67.12	214	$14,345.48
Fiat-Allis 14C Dozer	$63.91	48	$3,078.63
Crane	$73.87	20	$1,444.77
Skid Steer	$17.32	22	$385.17
Motorgrader	$59.31	54	$3,220.08
Hough International 540 Loader #1	$82.93	106	$8,758.64
Komatsu 540 Loader #2	$82.93	58	$4,775.80
Forklift	$20.82	29	$608.54
Hydramaxx 2700 Trencher	$130.58	113	$14,803.30
T-35 Peterbilt Regular Bed Dump Truck #1	$37.32	466	$17,381.46
T-37 Peterbilt Rock Bed Dump Truck #2	$49.49	392	$19,400.04
T-32 IHC Little Blue Dump Truck #3	$30.47	10	$309.01
T-36 Red Chevy C-70 Dump Truck #4	$37.32	160	$5,986.66
T-40 Green Army American General Dump Truck	$37.32	20	$763.71
T-39 Peterbilt Semi Truck	$45.43	444	$20,182.88
Load King Lowboy Trailer	$12.12	130	$1,571.53
JLG 1255 Telehandler	$47.78	57	$2,699.65
* Estimated equipment hours for this project based on a spreadsheet containing known equipment hours on past projects of similar size/scope to extrapolate estimated equipment hour values for this project		TOTAL	$173,225.72

HOURLY EQUIPMENT RATES PER 2016 COE REGION V MANUAL			
MACHINE	I.D. NO.	COE PAGE NUMBER	HOURLY RATE ($/hr)
JCB Excavator (Equivalent - 47,400#, 153 HP)	H25CA022	2-121	$46.42
CAT 320C Excavator (Equivalent - 47,400#, 153 HP)	H25CA022	2-121	$46.42
John Deere 690 ELC Long-reach Excavator (Equivalent - 128 HP, Long-reach)	H25CA023	2-121	$56.34
CAT D7 Dozer (Not exact D7, but CAT D7 nonetheless)	T15CA012	2-221	$85.88
IHC Dozer (Equivalent - 145 HP)	T15CA008	2-219	$67.12
Fiat-Allis 14C Dozer (Equivalent 155 HP)	T15JD008	2-220	$63.91
Crane (Equivalent - crawler-30 ton - 33'-80' boom)	C75TD001	2-81	$73.87
Skid Steer (Equivalent 60" bucket, 67 HP)	L40CA004	2-148	$17.32
Motorgrader (Equivalent - 179 HP)	G15CA003	2-106	$59.31
Hough International 540 Loader #1 (Equivalent - 208 HP)	L40CS014	2-147	$82.93
Komatsu 540 Loader #2 (Equivalent - 208 HP)	L40CS014	2-147	$82.93
Forklift (Equivalent - 8,000#, 74HP)	F10JC002	2-103	$20.82
2700 Trencher (Exact Model No)	T35PZ002	2-227	$130.58
Peterbilt Regular Bed Dump Truck #1(Equivalent - 6X4, 310HP)	T50XX029	2-240	$37.32
Peterbilt Rock Bed Dump Truck #2 (Equivalent - 6X4, Dump body)	T50XX033	2-240	$49.49
IHC Blue Dump Truck #3 (Equivalent - 230 HP)	T50XX028	2-240	$30.47
Peterbilt Semi Truck (Equivalent - 400 HP, 75,000# GVW)	T50XX031	2-240	$45.43
Load King Lowboy Trailer (Equivalent - 40 Ton)	T45XX015	2-235	$12.12
JLG 1255 Telehandler (Exact Model No)	T50XX032	2-240	$47.78

Materials and Supplies

As outlined earlier, non-Federal funding, highlighted as U.S. Supreme Court Settlement Funding and dispersed by the KWO, in the amount of $42,426.97 will be used along with $300,000 in WaterSMART funding to purchase materials needed for this project.

The pipe materials will consist of 80 psi PIP pipe using quoted prices from early 2018. The fittings will be 100 psi fittings and were also derived using quotes from suppliers in February of 2018. The materials needs for turnouts were derived from using current inventory pricing as those particular items, such as the valves with flanges, extension stems and air venting materials are used on a regular basis on general Operation and Maintenance work within the District.

The materials needs are broken down for each lateral in the tables below.

31.1 Lateral			
FITTINGS	QUANTITY NEEDED	2018 FITTINGS PRICES	TOTAL FITTINGS COST
27 X 10 T	2	$389.12	$778.24
27 X 24 REDUCER	1	$223.04	$223.04
27 - 45° ELBOW	2	$503.68	$1,007.36
27 - 30° ELBOW	1	$503.68	$503.68
24 - 60° ELBOW	1	$503.68	$503.68
24 - 11.25° ELBOW	2	$183.04	$366.08
24 X 10 T	3	$360.88	$1,082.64
24 - 90° ELBOW	2	$731.84	$1,463.68
24 X 21 REDUCER	1	$148.80	$148.80
24 - GASKETTED COUPLER	1	$388.15	$388.15
		TOTAL FITTINGS COST	$6,465.35
PIPE	AMOUNT NEEDED (FT) + 2%	2018 PRICES	TOTAL PIPE COST
27"	4,743	$137,879.01	$233,803.07
24"	4,325	$95,924.06	
TURNOUT NEEDS	QUANTITY NEEDED	2018 PRICES	TOTAL TURNOUT NEEDS COST
Underground Valves w/flanges and (2) 4' ext. stems	5	$498.38	$2,491.90
2" aluminum airvent vaccuum relief valves (1 per turnout)	5	$17.93	$89.65
2" airvent pipe (15' X # of turnouts)	75	$1.98	$148.50

RIDGE 2.6 RIGHT CANAL			
FITTINGS	QUANTITY NEEDED	2018 FITTINGS PRICES	TOTAL FITTINGS COST
18 - 90° ELBOW	4	$206.40	$825.60
18 - 45° ELBOW	2	$108.16	$216.32
15 - 90° ELBOW	4	$138.56	$554.24
15 - 45° ELBOW	4	$64.32	$257.28
15 - 11.25° ELBOW	2	$52.48	$104.96
18 X 10 T	3	$137.92	$413.76
15 X 10 T	4	$104.00	$416.00
18 X 15 REDUCER	1	$73.28	$73.28
		TOTAL FITTINGS COST	$2,861.44
PIPE	AMOUNT NEEDED (FT) +2%	2018 PRICES	TOTAL PIPE COST
18"	4,901	$60,675.62	$92,198.00
15"	4,248	$31,522.39	
TURNOUT NEEDS	QUANTITY NEEDED	2018 PRICES	TOTAL TURNOUT NEEDS COST
Underground Valves w/flanges and (2) 4' ext. stems	8	$498.38	$3,987.04
2" aluminum airvent vaccuum relief valves (1 per turnout)	8	$17.93	$143.44
2" airvent pipe (15' X # of turnouts)	120	$1.98	$237.60

31.1 & 2.6 R Project Materials Total		
TOTAL PIPE COST	$326,001.08	$342,426.00
TOTAL FITTINGS COST	$9,326.79	
TOTAL TURNOUT NEEDS COST	$7,098.13	

Environmental and Regulatory Compliance Costs

Based on similar previous projects, $2,500 has been estimated and included to cover the costs of Environmental and Cultural Compliance tasks completed by Reclamation.

Total Costs

Total project costs, including the Federal and non-Federal funding shares are outlined within the table below.

TOTAL ITEMIZED PROJECT COST				
31.1 Lateral and Ridge 2.6 R Lateral				
FUNDING OPPORTUNITY NO. BOR-DO-18-F006				
PROJECT ITEM	RECIPIENT FUNDING	KWO - SETTLEMENT FUNDS	RECLAMATION FUNDING	TOTALS
EMPLOYEE WAGES - SALARIES	$83,132.60			$83,132.60
EMPLOYEE FRINGE BENEFITS	$43,866.08			$43,866.08
EQUIPMENT COSTS	$173,225.72			$173,225.72
MATERIALS - SUPPLY COSTS		$42,426.97	$300,000.00	$342,426.97
ENVIRONMENTAL COMPLIANCE	$2,500.00			$2,500.00
SURVEYING AND OBTAINING EASEMENT	$5,000.00			$5,000.00
TOTAL PROJECT COST	$307,724.40	$42,426.97	$300,000.00	$650,151.37

Environment and Cultural Resources Compliance

- 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.

KBID has been installing pipelines like the ones outlined in this application for over 20 years and KBID is very familiar in minimizing any impacts to the surrounding environment. KBID has never impacted any wildlife habitat in any of the previous projects completed as most of the work performed is within existing rights-of-way areas.

In this project in which the route of the pipeline will leave an existing right-of-way for brief distances, KBID will coordinate with Reclamation personnel to obtain new construction and O&M easements, and throughout this process, all environmental and cultural resource compliance will be addressed to ensure the pathway of the new pipeline will not adversely impact any animal habitat.

As pipeline construction involves the use of many pieces of heavy machinery and dirt moving equipment, any dust control will be mitigated when necessary by using a water truck to control it. However, much of the construction will take place during winter months when snowfall often helps with controlling dust.

- 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?

  No

- 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.

There are no wetlands or other surface waters inside the project boundaries that fall under CWA jurisdiction.

- When was the water delivery system constructed?

KBID was incorporated in 1948 and construction began soon thereafter. The first deliveries were made to Block I of the District in 1955. Construction continued throughout the lower reaches of the delivery system until 1969 when the final block of KBID, Block V, was considered complete.

- 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.

As this project will be converting open laterals to buried pipe systems, the modification of the headgates, while not extensive, will still be required. As earlier noted, aeration screens will be installed directly in front of the headgates for each lateral. This will require plumbing from the aeration screens in through the existing headgates to allow for only screened and high quality water to enter the pipelines. The KBID field crew has the needed experience for this task, having completed many similar projects in the past 20 plus years.

- 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.

  No

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

  No

- Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

  No

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

  No

- 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?

  No

Required Permits or Approvals

Other than the Environment and Cultural Resources compliance activities that will be done by Reclamation, including those done within the securing of new easements and rights-of-way, no further required permits or approvals are known of.

Letters of Support

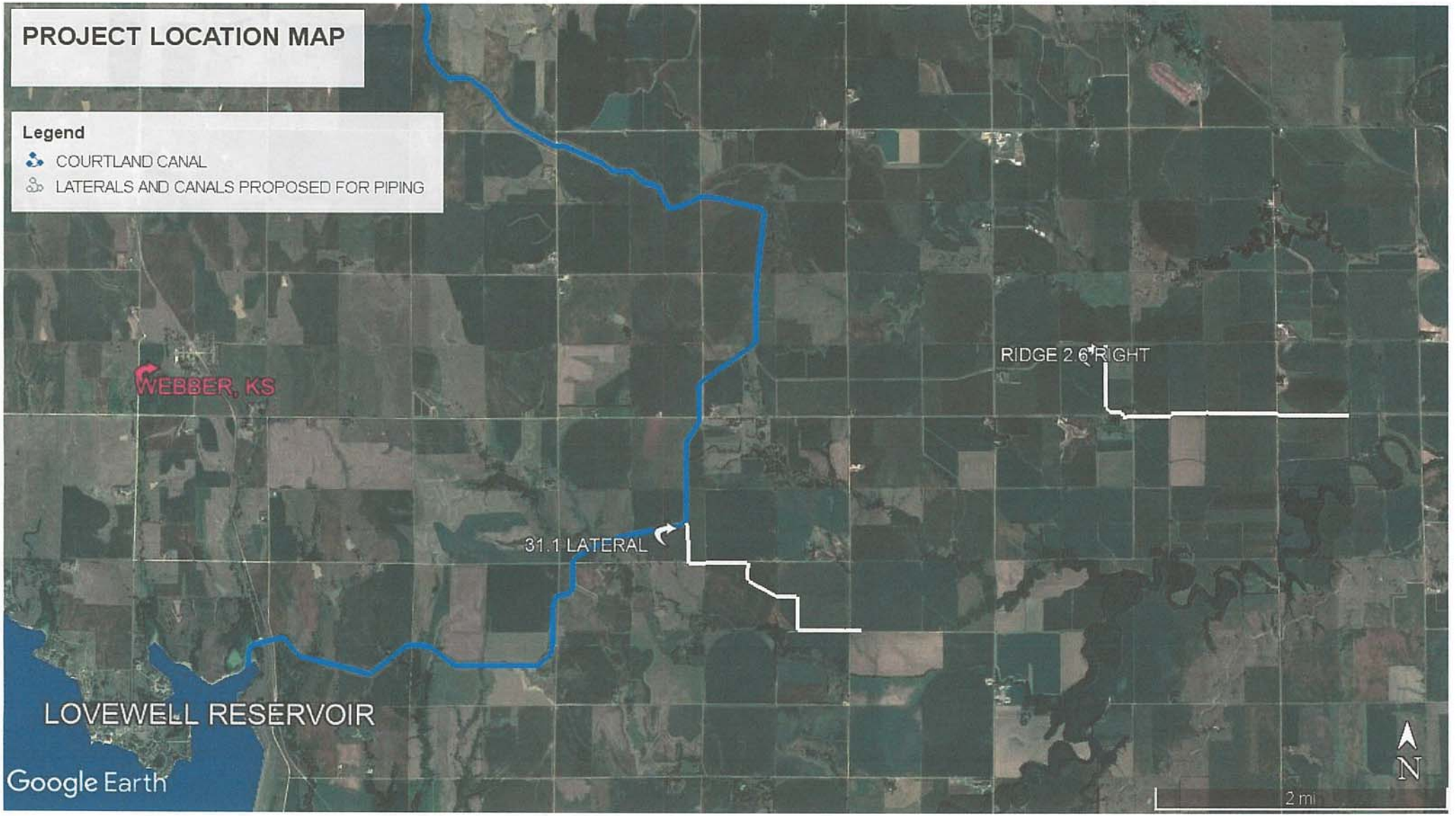
Various letters of support from interested stakeholders supporting this project can be found within Appendix F.

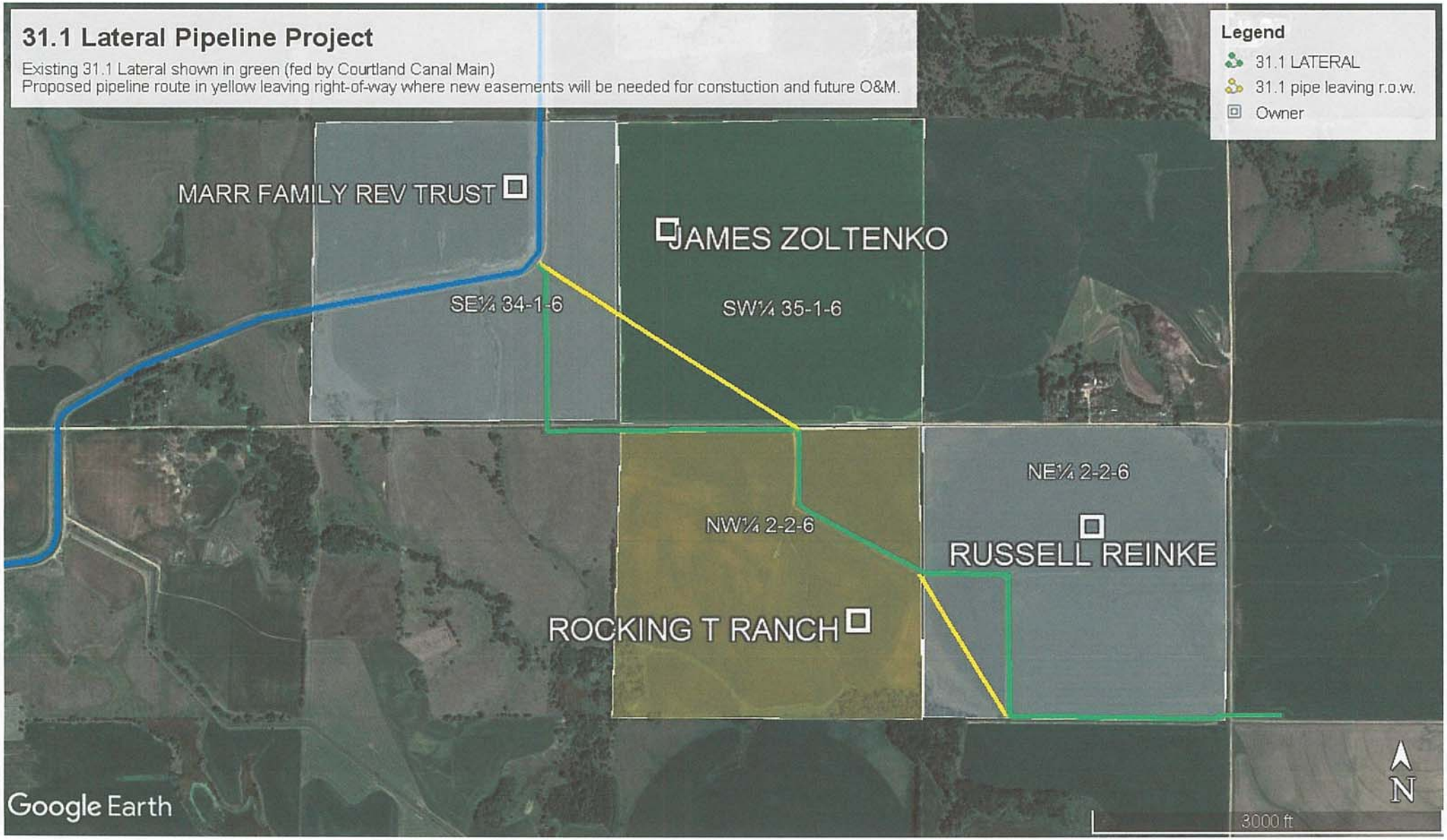
Official Resolution

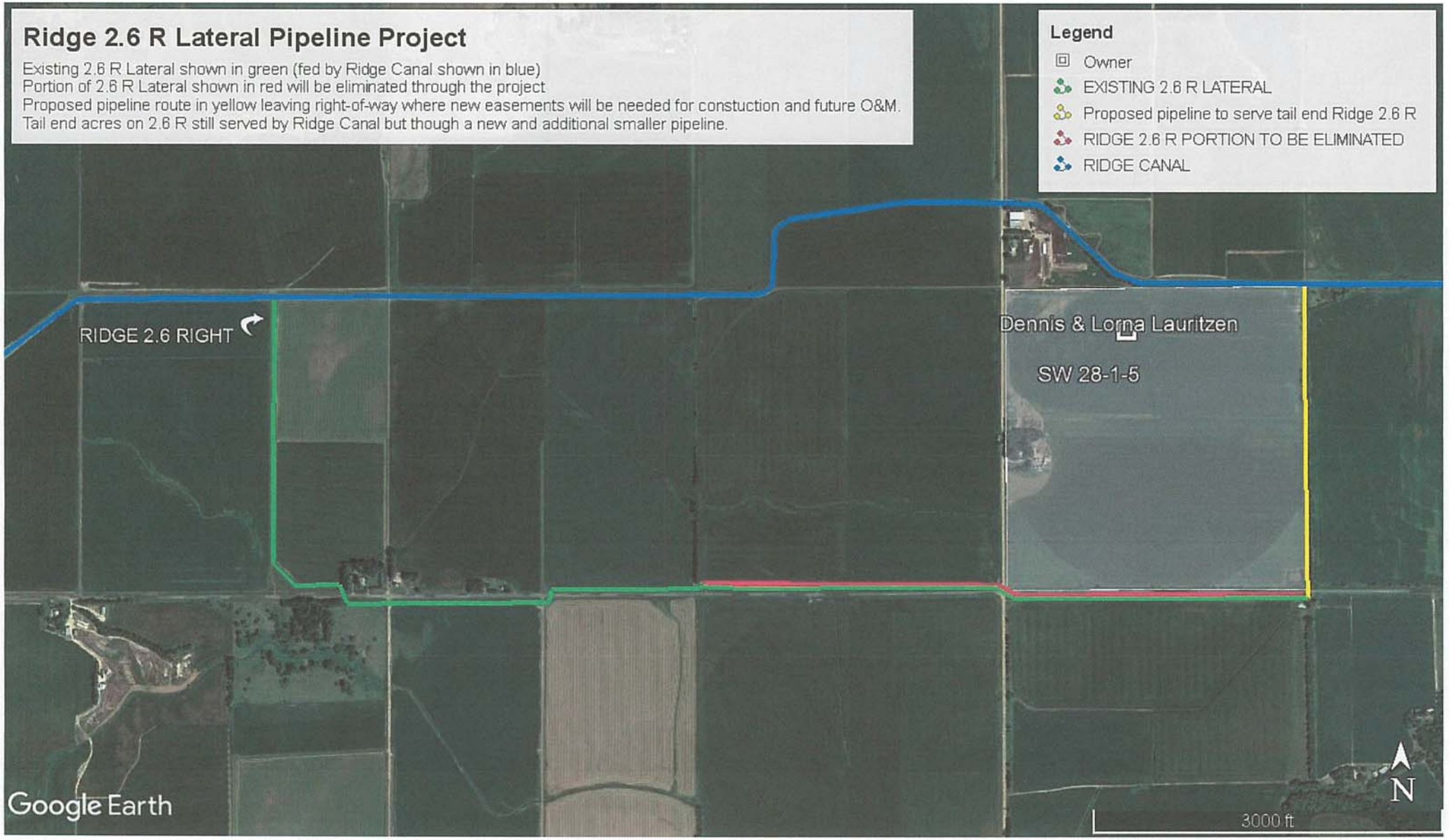
An official resolution adopted by the KBID Board of Directors can be within Appendix C.

APPENDIX A

Project Location Maps


PROJECT LOCATION MAP
Legend
COURTLAND CANAL
LATERALS AND CANALS PROPOSED FOR PIPING
WEBBER, KS
RIDGE 2.6 RIGHT
31.1 LATERAL
LOVEWELL RESERVOIR
Google Earth
N
2 mi


31.1 Lateral Pipeline Project
Existing 31.1 Lateral shown in green (fed by Courtland Canal Main)
Proposed pipeline route in yellow leaving right-of-way where new easements will be needed for constuction and future O&M.
Legend
31.1 LATERAL
31.1 pipe leaving r.o.w.
Owner
MARR FAMILY REV TRUST
JAMES ZOLTENKO
SE¼ 34-1-6
SW¼ 35-1-6
NE¼ 2-2-6
NW¼ 2-2-6
RUSSELL REINKE
ROCKING T RANCH
Google Earth
N
3000 ft


Ridge 2.6 R Lateral Pipeline Project
Existing 2.6 R Lateral shown in green (fed by Ridge Canal shown in blue)
Portion of 2.6 R Lateral shown in red will be eliminated through the project
Proposed pipeline route in yellow leaving right-of-way where new easements will be needed for constuction and future O&M.
Tail end acres on 2.6 R still served by Ridge Canal but though a new and additional smaller pipeline.
Legend
Owner
EXISTING 2.6 R LATERAL
Proposed pipeline to serve tail end Ridge 2.6 R
RIDGE 2.6 R PORTION TO BE ELIMINATED
RIDGE CANAL
RIDGE 2.6 RIGHT
Dennis & Lorna Lauritzen
SW 28-1-5
Google Earth
N
3000 ft

APPENDIX B

District Operating Plan

(Water Conservation Plan)

ATTACHMENT B

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Kansas-Bostwick Irrigation District No. 2
Franklin, Superior-Courtland and Courtland Units
Bostwick Division
Pick-Sloan Missouri Basin Program, Kansas

"DISTRICT OPERATING PLAN"

This "District Operating Plan" hereinafter referred to as "Plan" is made for the purpose of providing a means to implement the contractual commitment made by the District to the United States concerning the operation of the District and the performance of certain water conservation and environmental activities which are part of the consideration for a 40 year repayment term. The District hereby agrees to honor the commitments in this Plan. The parties shall annually, or as otherwise agreed, review the Plan and may, by mutual agreement of the parties, modify and amend the operating criteria of the initial Plan necessary to achieve the District's commitments, Provided, That the District's commitments shall not be diminished or eliminated.

BACKGROUND:

The Bostwick Division is located in south-central Nebraska and north-central Kansas along the Republican River and the White Rock Creek. The Bostwick Division consists of the Franklin, Superior-Courtland, and Courtland Units. The Franklin and Superior-Courtland Units consists of Harlan County Dam and Lake, Superior-Courtland Diversion Dam, and a system of canals, laterals, and drains that currently serves 36,313 acres of project lands. The Courtland Unit consists of Lovewell Dam and Reservoir, and a system of canals, laterals, and drains that currently serves 29,122 acres of project lands. In addition to storing water for irrigation, the three units protect the downstream areas from floods and offer opportunities for recreation and for conservation and development of fish and wildlife.

Due to a depleting water supply, the District, in cooperation with the Bostwick Irrigation District in Nebraska, is willing to limit its irrigation deliveries in order to maintain higher reservoir levels and undertake water conservation measures to improve the efficiency of

the project delivery system and encourage on-farm efficiency improvement.

IRRIGATION DELIVERIES:

It is understood that from time to time the United States shall accomplish sediment re-surveys of the reservoirs which shall change the area-capacity data and the elevation-capacity relationship. It is further understood that when the data is officially revised and placed into use it shall be used in the calculation for the shutoff elevations. In the event the re-survey necessitates changes in reservoir elevations for flood control and irrigation this Plan shall be revised to incorporate those changes.

The available water supply to the District shall be flows of the Republican River, White Rock Creek, storage waters in Lovewell Reservoir above the established shutoff elevation, and the District's apportionment of storage waters available for release above the annually established reservoir shutoff elevation for Harlan County Lake as computed by the Contracting Officer.

The amount of irrigation water released during any one irrigation season from Harlan County Lake and Lovewell Reservoir shall be determined by the Contracting Officer in consultation with the District, based on the following:

1. By January 15 of each year, the United States shall provide the District and the Bostwick Irrigation District in Nebraska an estimate of the reservoir shutoff elevation, and the water supply available for the irrigation season. By June 15 of each year, the actual reservoir shutoff elevations shall be established. The following process will be used:

    A. The space available for irrigation use in Harlan County Lake has been established as 150,000 acre-feet between elevations 1945.7 and 1931.75. The current contents are 311,104 acre-feet (El. 1945.7) and 159,674 acre-feet (El. 1931.75) which establishes the current irrigation space as 150,000 acre-feet after a sediment adjustment of 1,430 acre-feet in this pool. In addition irrigation is allowed to use up to 20,000 acre-feet from the sediment pool to adjust for annual evaporation loss that is allocated to sediment storage provided irrigation releases are less than 119,000 acre-feet. The space available for irrigation use in Lovewell Reservoir is established as the space available between elevations 1582.6 and 1571.7.

The current contents are 35,666 acre-feet (El. 1582.6) and 11,644 acre-feet (El. 1571.7) which establishes the current irrigation space as 24,022 acre-feet.

B. The annual shutoff elevation for Harlan County Lake shall be estimated by January 15 of each year. By June 15 of each year the actual shutoff elevation shall be established using May 31 data as follows:

For January estimate:

1. Estimate the May 31 content by taking the December 31 total reservoir storage plus the January-May inflow estimate (57,600 acre-feet or the running average inflow for the last 5-year period, whichever is less) minus the January-May evaporation estimate (8,800 acre-feet). The value determined is the estimated reservoir content projected for May 31.

2. Establish the percentage of estimated water yield available in the irrigation pool using the 20,000 acre-feet adjustment for evaporation and this equation:

$$\frac{(\text{Total Estimated Content(End of May) minus Inactive Pool} + 20{,}000) \times 100}{\text{Total Irrigation Space Yield}}$$

(This result is used in steps 5 or 6 below)

3. Compute first shutoff line slope constant (equal to or greater than 60% irrigation space yield):

Use 130,000 release rate at 100% Irrigation Space Yield
Use 90,000 release rate at 60% Irrigation Space Yield

$$\frac{(\text{Irrigation Space Yield}) \times .40 - (130{,}000 - 90{,}000)}{40}$$

Current Constant:

$$\frac{((311{,}104 - 159{,}674 + 20{,}000) \times .40) - (40{,}000)}{40} = 714.3$$

4. Compute second shutoff line slope constant (less than 60%

irrigation space yield):

$$\frac{((\text{Irrigation Space Yield}) \times .60) - 90{,}000}{60}$$

Current Constant:

$$\frac{((311{,}104 - 159{,}674 + 20{,}000) \times .60) - (90{,}000)}{60} = 214.3$$

5. If Step 2 result is equal to or greater than 60.0:

   Shutoff Content equals ((Step 2 result - 60.0) x Step 3 constant) + inactive pool content - 20,000 + (Step 4 constant X 60).

6. If Step 2 result is less than 60.0:

   Shutoff Content = ((Step 2 result -0.0) x Step 4 constant) + inactive pool content - 20,000.

7. Convert computed shutoff content to shutoff elevation. This Plan does not provide for any shutoff elevation lower than El. 1927.0.

For Adjustment using actual May 31 data:

1. Compare the estimated May 31 content with the actual May 31 content.

2. If the actual end of May content is less than the estimated end of May content lower the shutoff content by using this equation:

   Shutoff content = Estimated shutoff content - (Estimated May 31 content - Actual May 31 content).

3. If the actual end of May content is equal to or greater than the estimated end of May content, the estimated shutoff content is established as the annual shutoff content.

4. Convert computed shutoff content to shutoff elevation. This Plan does not provide for any shutoff elevation lower than El. 1927.0.

5. If the shutoff content is below the bottom of the irrigation pool, releases shall be discontinued at the shutoff elevation or whenever 119,000 acre-feet has been released and the reservoir is below the bottom of the irrigation pool, whichever occurs first.

C. The annual shutoff elevation for Lovewell Reservoir is established as El. 1571.7 which is a current content of 24,022 acre-feet.

D. The water supply shall be apportioned between the beneficiaries according to a separate agreement between the District and the Bostwick Irrigation District in Nebraska, subject to approval of the Contracting Officer.

2. The United States reserves the right to make any releases necessary to protect the project facilities and the public in accordance with appropriate safety procedures.

WATER CONSERVATION MEASURES:

The District agrees to:

1. Establish a revolving water conservation fund to be utilized for annual costs associated with the water conservation program activities. The funding shall be provided by an annual assessment on all project lands collected by the District as part of their annual operation and maintenance charge. It is provided that these funds may be fully utilized on an annual basis or accumulated to allow the District to perform water conservation projects that would not otherwise be within the District's financial capability should such projects have to be funded through collections or charges during any one year period. It is specifically provided that these funds may be utilized for Reclamation or other cost-share assistance that may be available to the District for water conservation activities.

2. Continue, when permitted, the practice of seasoning canals with stream flows or flood waters to reduce canal losses and control the growth of vegetation. Diversion of natural flows or flood waters to season canals shall not be initiated without concurrence of the Contracting Officer, and may not be permitted during those times that the resulting flow reduction would impact the storage of water in downstream reservoirs.

3. Continue the established practice of providing assistance to irrigators who upgrade on-farm irrigation facilities by improving turnout locations, installing meters, assisting with buried pipe projects to allow the use of gated pipe or center pivots, and implementation of other new technology.

4. Continue to work with Reclamation on evaluating computer software and other new technology that shall improve water scheduling and accounting.

The District also agrees to: continue and/or improve its existing policies and practices that further the goals of water conservation; provide educational opportunities for District employees, such as canal operations training, water scheduling, water use seminars, etc.; and work with irrigators through educational type demonstrations or projects that measure on-farm efficiencies and crop water requirements in terms of the type of irrigation methods employed by individual irrigators.

The District further agrees to provide for proper accounting for all water deliveries and operational waste within five years of the date of this Plan. Water delivery and operational waste accounting records shall be provided to the United States on or before November 1 of each year. Prior to March 1 of each year, the District and the Contracting Officer's representative shall meet to assess the past year's water supply and delivery records and accounting, and to evaluate the upcoming irrigation season. Through the use of these records and other available data, the Contracting Officer shall assess the delivery efficiency and on-farm efficiency improvements resulting from the District's implementation of water conservation commitments. The improvements shall be measured against pre-Plan water use data. On that basis, it is the general goal of the District to increase the delivery efficiency of the District by 6 percent and on-farm efficiencies by 5 percent. If the "improvements" are not expected to result in the individual or cumulative increase in efficiencies during the first ten year period of this Plan as determined by the Contracting Officer, additional water conservation measures

shall be identified, by mutual agreement of the parties, to be undertaken to ensure the increased efficiency is realized during the succeeding five year period.

Prior to July 1 of each year, the District shall provide the Contracting Officer an annual report of water conservation activities/accomplishments for the prior year, and a statement of water conservation funds collected, expended, and water conservation fund balance as of the end of the prior calendar year.

ENVIRONMENTAL MEASURES:

The District agrees to:

1. Install or create better screening devices to prevent the passage of fish, crayfish, etc., into turnouts and lateral systems.
2. Establish policies to preserve lake levels.

In addition to accepting the changes in operation the District is willing to cooperate with Reclamation, the Bostwick Irrigation District in Nebraska and others in improving fish and wildlife habitat and recreation on Reclamation lands. If requested, the District shall annually furnish 20 man-days of labor at project related fish and wildlife and recreational areas provided the work is coordinated through Reclamation and scheduled during the non-irrigation season at least one month in advance. In lieu of the man-days of labor, the District shall furnish a district-owned machine and operator for 4 days. It is further provided that the District, if requested, may agree to perform more man-days and/or more machine and operator days during one calendar year than the annual commitment, and that any man-days and/or machine and operator days furnished in excess of the annual commitment shall apply as a credit to the succeeding years' commitment(s).

Reclamation is committed to determine the significance of selenium concentration levels for fish and wildlife resources in the Republican River Basin. This commitment by Reclamation shall be implemented through an adaptive management process as outlined in the Record of Decision for the Final Environmental Impact Statement, Long-Term Water Supply Contract Renewals, Republican River Basin, Kansas and Nebraska dated July 22, 2000. The adaptive management process includes, but is not limited to: identification and selection of objectives, implementation and monitoring of response, and assessment of accomplishment that can conclude or refine management actions.

APPENDIX C

Official Board Resolution

KANASAS BOSTWICK IRRIGATION DISTRICT NO. 2

RESOLUTION NO. 2018-002

Whereas the Republican River Basin is frequented by drought,

Whereas water is the lifeblood of the agricultural community,

Whereas WaterSMART grants provide a source of funding for capital improvements of the District,

Whereas the converting of open ditch lateral to buried pipelines will conserve large volumes of water and improve efficiencies,

Whereas funding is needed to maintain continuity in the District's efforts to improve efficiency,

Now therefore be it resolved that the Kansas Bostwick Irrigation District No. 2 Board of Directors agrees and authorizes that this application be submitted to the Bureau of Reclamation for the consideration under the **WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2018 Funding Opportunity Number BOR-DO-18-F006** grant program. If selected, the Board of Directors agree to provide in-kind funding to the project and will work closely with Reclamation to meet all established deadlines.

The foregoing Resolution was considered by the Board of Directors of the Kansas Bostwick Irrigation District No. 2 at a meeting held on 5th April 2018, and unanimously adopted.

BOARD OF DIRECTORS

Gary L. Housholder – President

Brad D. Peterson - Secretary

Monty D. Dahl - Treasurer

APPENDIX D

KWO Contract No. 16-115

Conversion of Open Irrigation Canals to Buried Pipe Systems
Within the Kansas Bostwick Irrigation District
Kansas Water Office Contract Number 16-115

OPENING CLAUSE:

This Contract between the Kansas Water Office, 900 SW Jackson Ave, Suite 404,Topeka, Kansas, 66612 and the Kansas Bostwick Irrigation District, P.O. Box 165, Courtland, KS 66939. The parties enter into this Contract for the purposes of completing a conversion of open irrigation canals to that of buried pipe systems.

I. PROJECT TITLE

The project has been entitled: Conversion of open irrigation canals to buried pipe systems within the Kansas Bostwick Irrigation District. All references to this Contract shall include this title and the Kansas Water Office Contract Number: 16-115.

II. SCOPE OF WORK

A. The Scope of Work, Deliverables and the Payment Schedule, Attachment B, is hereby incorporated in this contract and made a part hereof by reference.

B. The Kansas Water Office will have 30 business days from the date of receipt to review the deliverable, ask for changes or approve the deliverable.

III. COMPENSATION

A. The Kansas Water Office agrees to pay, Kansas Bostwick Irrigation District (KBID), an approximate cost of Two Million and Five Hundred Thousand Dollars and No/100 ($2,500,000.00) for the work to be completed or performed under the attachments incorporated into this agreement by reference as Attachments B and C. Payments will be made based upon actual costs incurred for the purchase of materials to complete tasks included in the Scope of Work from KBID, under the schedule in Attachment B, upon receipt, review and acceptance by the Kansas Water Office of the indicated deliverables listed in Attachment B. Additional projects may be added as approved by the Kansas Water Office, if the entire 2,500,000.00 is not expended on these projects. See the Payments clause, *infra*.

B. The Conversion of Open Irrigation Canals to Buried Pipe Cost Estimate, Attachment C, is hereby incorporated in this contract and made a part hereof by reference. The Kansas Water Office and the Kansas Bostwick Irrigation District agree that Attachment C is the best estimate, as of the date of this contract, for prices of the materials needed to complete the project and agree that the price may fluctuate depending on outside variables.

C. The Kansas Bostwick Irrigation District agrees to contribute in kind services by providing machinery and cost of labor as shown in Attachment C in an amount of approximately $1,157,000.00.

ORIGINAL COPY JAN 26 2016

JAN 21 2016

III. PAYMENTS

Invoices for payments for work completed under the terms of this Contract, as outlined in the attachments to this Contract should be sent to:

Kansas Water Office
Attention: Accounts Payable
900 SW Jackson St., Suite 404
Topeka, Kansas 66612

Payments will be due and payable 30 calendar days following the receipt of the invoice from, Kansas Bostwick Irrigation District (KBID). No payment will be remitted unless and until the appropriate work or work to be delivered has been received and approved by the Kansas Water Office in the manner specified in the attachments hereto.

IV. EFFECTIVE DATES

This Contract shall be effective for the period of January 11, 2016, through June 30, 2024, inclusive.

V. MODIFICATION AND EXTENSION/RENEWAL OF CONTRACT

This Contract may be modified, extended or renewed by written agreement of all parties to this Contract. The parties agree that any request by Kansas Bostwick Irrigation District (KBID) for an extension of time of the completion of the Contract should be communicated to the Kansas Water Office no later than 60 days prior to the stated completion date.

VI. CONTACT PERSONS

Each party has designated a contact person to facilitate communication between the parties for purposes of this Contract. The designated contact person may be changed by either party at any time by sending notice of such change, via first class mail, to the appropriate party at the address first given above.

A. The Kansas Water Office contact person for purposes of this Contract will be:
   Name: Katie Goff
   Address: 900 SW Jackson St., Suite 404, Topeka, KS 66612
   Phone: (785) 296-0863
   E-mail: Katie.Goff@kwo.ks.gov

B. The Kansas Water Office contact person for purposes of contract administration will be:
   Name: Earl Lewis
   Address: 900 SW Jackson St., Suite 404, Topeka, KS 66612
   Phone: (785) 296-3185
   E-mail: Earl.Lewis@kwo.ks.gov

C. The Kansas Bostwick Irrigation District (KBID) contact person for purposes of this Contract will be:
   Name: Jared "Pete" Gile
   Address: P.O. Box 165, Courtland, KS 66939-7941
   Phone: (785) 374-4514
   E-mail: kbid@courtland.com

VII. OWNERSHIP OF INFORMATION, DOCUMENTS, ETC.

All reports, information, data, photos, documents, procedures, and descriptions accumulated, developed or acquired by Kansas Bostwick Irrigation District (KBID), under this Contract shall be jointly owned by the Kansas Water Office and KBID. Either party may use, release or otherwise use any such materials without the written approval of the other party.

VIII. ADDITIONAL PROVISIONS

A. KANSAS CONTRACT PROVISIONS ATTACHMENT. The provisions found in contractual provisions attachment (Form DA-146a – Attachment A), which is attached hereto, are hereby incorporated in this contract and made a part thereof.

B. HEADINGS. Headings used in this Agreement are informational and not to be considered persuasive or determinative of any clause or matter in dispute.

C. FUNDING. The Kansas Bostwick Irrigation District agrees to explore other opportunities for funding in order to meet the estimated total cost to complete projects listed in Attachment C.

IX. SIGNATURES

In agreement to the terms of this Contract, we set our hand this 22nd day of January 2016, under the authority and power granted to us by virtue of our position or office.

For the Kansas Water Office

Tracy Streeter
Director
Kansas Water Office

Kansas Bostwick Irrigation District

Kenneth Nelson
Superintendent
Kansas Bostwick Irrigation District

State of Kansas
Department of Administration
DA-146a (Rev. 06-12)

CONTRACTUAL PROVISIONS ATTACHMENT A

Important: This form contains mandatory contract provisions and must be attached to or incorporated in all copies of any contractual agreement. If it is attached to the vendor/contractor's standard contract form, then that form must be altered to contain the following provision:

"The Provisions found in Contractual Provisions Attachment (Form DA-146a, Rev. 06-12), which is attached hereto, are hereby incorporated in this contract and made a part thereof."

The parties agree that the following provisions are hereby incorporated into the contract to which it is attached and made a part thereof, said contract being the 22nd day of January, 2016.

1. **Terms Herein Controlling Provisions**: It is expressly agreed that the terms of each and every provision in this attachment shall prevail and control over the terms of any other conflicting provision in any other document relating to and a part of the contract in which this attachment is incorporated. Any terms that conflict or could be interpreted to conflict with this attachment are nullified.

2. **Kansas Law and Venue**: This contract shall be subject to, governed by, and construed according to the laws of the State of Kansas, and jurisdiction and venue of any suit in connection with this contract shall reside only in courts located in the State of Kansas.

3. **Termination Due To Lack Of Funding Appropriation**: If, in the judgment of the Director of Accounts and Reports, Department of Administration, sufficient funds are not appropriated to continue the function performed in this agreement and for the payment of the charges hereunder, State may terminate this agreement at the end of its current fiscal year. State agrees to give written notice of termination to contractor at least 30 days prior to the end of its current fiscal year, and shall give such notice for a greater period prior to the end of such fiscal year as may be provided in this contract, except that such notice shall not be required prior to 90 days before the end of such fiscal year. Contractor shall have the right, at the end of such fiscal year, to take possession of any equipment provided State under the contract. State will pay to the contractor all regular contractual payments incurred through the end of such fiscal year, plus contractual charges incidental to the return of any such equipment. Upon termination of the agreement by State, title to any such equipment shall revert to contractor at the end of the State's current fiscal year. The termination of the contract pursuant to this paragraph shall not cause any penalty to be charged to the agency or the contractor.

4. **Disclaimer Of Liability**: No provision of this contract will be given effect that attempts to require the State of Kansas or its agencies to defend, hold harmless, or indemnify any contractor or third party for any acts or omissions. The liability of the State of Kansas is defined under the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.).

5. **Anti-Discrimination Clause**: The contractor agrees: (a) to comply with the Kansas Act Against Discrimination (K.S.A. 44-1001 et seq.) and the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 et seq.) and the applicable provisions of the Americans With Disabilities Act (42 U.S.C. 12101 et seq.) (ADA) and to not discriminate against any person because of race, religion, color, sex, disability, national origin or ancestry, or age in the admission or access to, or treatment or employment in, its programs or activities; (b) to include in all solicitations or advertisements for employees, the phrase "equal opportunity employer"; (c) to comply with the reporting requirements set out at K.S.A. 44-1031 and K.S.A. 44-1116; (d) to include those provisions in every subcontract or purchase order so that they are binding upon such subcontractor or vendor; (e) that a failure to comply with the reporting requirements of (c) above or if the contractor is found guilty of any violation of such acts by the Kansas Human Rights Commission, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration; (f) if it is determined that the contractor has violated applicable provisions of ADA, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration.

   Contractor agrees to comply with all applicable state and federal anti-discrimination laws.

   The provisions of this paragraph number 5 (with the exception of those provisions relating to the ADA) are not applicable to a contractor who employs fewer than four employees during the term of such contract or whose contracts with the contracting State agency cumulatively total $5,000 or less during the fiscal year of such agency.

6. **Acceptance Of Contract**: This contract shall not be considered accepted, approved or otherwise effective until the statutorily required approvals and certifications have been given.

7. **Arbitration, Damages, Warranties**: Notwithstanding any language to the contrary, no interpretation of this contract shall find that the State or its agencies have agreed to binding arbitration, or the payment of damages or penalties. Further, the State of Kansas and its agencies do not agree to pay attorney fees, costs, or late payment charges beyond those available under the Kansas Prompt Payment Act (K.S.A. 75-6403), and no provision will be given effect that attempts to exclude, modify, disclaim or otherwise attempt to limit any damages available to the State of Kansas or its agencies at law, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

8. **Representative's Authority To Contract**: By signing this contract, the representative of the contractor thereby represents that such person is duly authorized by the contractor to execute this contract on behalf of the contractor and that the contractor agrees to be bound by the provisions thereof.

9. **Responsibility For Taxes**: The State of Kansas and its agencies shall not be responsible for, nor indemnify a contractor for, any federal, state or local taxes which may be imposed or levied upon the subject matter of this contract.

10. **Insurance**: The State of Kansas and its agencies shall not be required to purchase any insurance against loss or damage to property or any other subject matter relating to this contract, nor shall this contract require them to establish a "self-insurance" fund to protect against any such loss or damage. Subject to the provisions of the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.), the contractor shall bear the risk of any loss or damage to any property in which the contractor holds title.

11. **Information**: **No provision of this contract shall be construed as limiting the Legislative Division of Post Audit from having access to information pursuant to K.S.A. 46-1101 et seq.**

12. **The Eleventh Amendment**: "The Eleventh Amendment is an inherent and incumbent protection with the State of Kansas and need not be reserved, but prudence requires the State to reiterate that nothing related to this contract shall be deemed a waiver of the Eleventh Amendment."

13. **Campaign Contributions / Lobbying:** Funds provided through a grant award or contract shall not be given or received in exchange for the making of a campaign contribution. No part of the funds provided through this contract shall be used to influence or attempt to influence an officer or employee of any State of Kansas agency or a member of the Legislature regarding any pending legislation or the awarding, extension, continuation, renewal, amendment or modification of any government contract, grant, loan, or cooperative agreement.

ATTACHMENT B

Scope of Work, Deliverables and the Payment Schedule

SCOPE OF WORK

Item No.	Work Item Description
1.	All materials needed for the project will be ordered by KBID to allow for delivery to site location before work begins. Materials can include PVC pipe, (as small as 10", or as large as 36"), lateral turnouts and fittings.
2.	Bull dozer and patrol work will be done to prepare the alignment of the proposed buried line and excavator work to remove existing structures. Removed structures will be broken with the KBID crane and wrecking ball if they are too large to load and haul. Structures will be loaded with the KBID loaders into dump trucks and taken to an established scrap yard.
3.	The KBID Hydramaxx Wheel Trencher will be used to trench the line for the pipe. An excavator with a sling will be used to swing the pipe into the trench and align the pipe to be pushed together. A bull dozer will be used to back fill the trench.
4.	KBID will pick up any and all scrap or excess material left on the site and leave the site in a manner that the landowner can work it with his farm equipment.
5.	Any open lateral, which is not in the alignment of the pipeline, will be destroyed and left in a manner that the landowner can work the area with his farm equipment and returned to the farmer's operations.

Open Irrigation Canals to be Converted to Buried Pipe System	
Canal Project in Order of Priority	Miles of Open Canal to be Eliminated
31.1 – 3rd Section	1.91
32.1 – 3rd Section	2.99
33.0 – 3rd Section	3.84
1.3R – Ridge Canal	3.05
2.6 – Ridge Canal	2.19
PUMP #1 North Canal	5.33
48.8 – Courtland 5th Canal	0.93
50.7 – Courtland 5th Canal	2.90
Total	23.14

DELIVERABLES

The KBID shall submit project deliverables to the KWO, 900 SW Jackson St, Ste. 404, Topeka, KS 66612.

1. Prior to purchase of materials, for which reimbursement will be sought, for the canal conversion projects listed in the Scope of Work above, KBID will provide to the KWO a listing of all expected materials to be purchased. The Kansas Water Office will review and respond to the proposed purchase within 7 calendar days.
2. By October 31 of each calendar year, KBID will provide to KWO verify purchase of equipment and supplies with Financial Estimate and Invoice Receipt. The Kansas Water Office will use this deliverable as basis for payment under the terms of this contract.
3. By June 30 of each calendar year, for the preceding 12 month period, KBID will provide to the KWO a report of:
    a. the open irrigation canal section or sections converted to buried pipe systems,
    b. the amount of in kind contribution provided by KBID,
    c. other sources and amounts of funding obtained and used (if applicable),
    d. the estimated amount of water loss saved as a result of the conversion,
    e. significant issues encountered during implementation,
    f. any significant changes to plans to canal conversion previously submitted, and
    g. general plans of work for conversion of open irrigation canal to buried pipe systems to be accomplished in the subsequent July to June, 12 month period.

COMPENSATION AND PAYMENT SCHEDULE

The Kansas Water Office agrees to pay the KBID an approximate amount of $2,500,000.00 for the deliverables identified in Attachment B, above. If the described projects are constructed for less than $2,500,000.00 the remaining amount and any additional funds that may be available may be used for additional projects as approved by the Kansas Water Office.

Payments will be made within 30 days, upon receipt of a financial estimate and an invoice as described in deliverable 2 by October 31 each year from the KBID, and subject to all deliverables above for the preceding 12 months being considered final as provided in Section III of this Contract.

ATTACHMENT C

Conversion of Open Irrigation Canals to Buried Pipe
Cost Estimate

Canal Project in Order of Priority	Miles of Open Canal to be Eliminated	Material Cost Est.	KBID In Kind Labor/Machinery Cost Est.
31.1 – 3rd Section	1.91	$237,590.02	$95,500.00
32.1 – 3rd Section	2.99	$432,053.00	$149,500.00
33.0 – 3rd Section	3.84	$625,392.76	$192,000.00
1.3R – Ridge Canal	3.05	$383,467.02	$152,500.00
2.6 – Ridge Canal	2.19	$176,772.97	$109,500.00
PUMP #1 North Canal	5.33	$653,560.18	$266,500.00
48.8 – Courtland 5th Canal	0.93	$112,526.69	$46,500.00
50.7 – Courtland 5th Canal	2.90	$503,394.86	$145,000.00
Totals	23.14	$3,124,757.50	$1,157,000.00
	Total Cost	**$4,281,757.50**	
	10% Contingency Added	**$4,709,933.25**	

APPENDIX E

Letter of Commitment from the KWO

STATE OF KANSAS

KANSAS WATER OFFICE
900 SW JACKSON. SUITE 404
TOPEKA, KS 66612

PHONE: 785-296-3185
FAX: 785-296-0878
www.kwo.ks.gov

GOVERNOR JEFF COLYER, M.D.
TRACY STREETER, DIRECTOR

April 26, 2018

To Whom It May Concern,

On February 24, 2015, in the case of Kansas v. Nebraska No. 126 Original, the Supreme Court of the United States ruled in favor of Kansas in the dispute over the states' rights to the waters of the Republican River Basin. The Court ruled Nebraska had "knowingly failed" to comply with the Republican River Compact and awarded Kansas $5.5 million for its losses. The 2015 Legislature then introduced Senate Bill 112 Section 178, which designates where all moneys recovered by the state of Kansas shall be deposited. Of the $5.5 million, $2.5 million was credited to the Republican River Water Conservation Projects-Nebraska Moneys Fund for water improvement projects in the Republican River Basin and allocated to be used for projects within the Kansas Bostwick Irrigation District (KBID).

A contract was signed on January 22, 2016 between the Kansas Water Office (KWO) and KBID for the actual costs incurred for the purchase of materials to complete the project of burying pipe to replace open laterals within the KBID district. With the signing of this contract, it enabled KWO to secure and encumber the $2.5 million for the specific use of this contract.

I am writing to express the commitment of the KWO to continue to keep those funds allocated to KBID for the specific use as mentioned above. As of April 16, 2018, KBID has spent $787,729.10 of the original $2.5 million balance, with $1,712,270.90 remaining in the fund. By October 31 of each calendar year, KBID will provide to KWO Invoice Receipts, in which KWO has 30 days following the receipt to submit payment. By June 30 of each calendar year, for the preceding 12 month period, KBID will provide to the KWO a final report that includes, among other items, the estimated amount of water loss saved as a result of the conversion and the general plans of work for the subsequent July to June 12 month period.

The contract is effective until June 30, 2024, but may be modified, extended, or renewed by written agreement of both KBID and KWO. We are pleased to continue to commit to this project, its funding, and the benefits this project will provide for water resources in Kansas.

Sincerely,

Tracy Streeter

Tracy Streeter, Director
Kansas Water Office

APPENDIX F

Letters of Support

STATE OF KANSAS

KANSAS WATER OFFICE
900 SW JACKSON. SUITE 404
TOPEKA, KS 66612

PHONE: 785-296-3185
FAX: 785-296-0878
www.kwo.ks.gov

GOVERNOR JEFF COLYER, M.D.
TRACY STREETER, DIRECTOR

April 26, 2018

To Whom It May Concern,

The Kansas Water Office (KWO) supports the initiative led by the Kansas Bostwick Irrigation District (KBID) to complete the project of burying pipe to replace open laterals within the KBID district.

In October 2013, Governor Brownback issued a call to action to his Administration to develop a 50-Year Vision for the Future of Water in Kansas stating, "Water and the Kansas economy are directly linked. Water is a finite resource and without further planning and action we will no longer be able to meet our state's current needs, let alone growth". The Long-Term Vision for the Future of Water Supply in Kansas (the Vision) includes the development of tools for water management at the local level, as well as voluntary, incentive based water conservation and land management activities to ensure a reliable water supply. This KBID project fits wells with these aspects of the Vision, helping to ensure a reliable future water supply.

KBID has estimated that the first section of this project, the 33.0 Conversion Project that was completed in March of 2017, eliminated a total of 4.18 miles of open canal, including 3 waste-ways, and replaced it with 3.52 miles of buried PVC pipe. This project is estimated to save 894.6 acre-feet of water annually.

We are pleased to recommend this project and the continued benefits it will provide for water resources, and citizens, in Kansas.

Sincerely,

Tracy Streeter

Tracy Streeter, Director
Kansas Water Office

STATE OF KANSAS

LOWER REPUBLICAN ACCESS DISTRICT
900 S.W. JACKSON, SUITE 404
TOPEKA, KS 66612

PHONE: (785) 296-3185
FAX: (785) 296-0878

April 26, 2018

To Whom It May Concern,

In March of 2018, the Lower Republican Access District was formed with the intention of providing the opportunity for Junior groundwater and surface water right holders along the Republican River to obtain access to the potential increase in water above natural flows to supplement their needs. This group of ground water and surface water irrigators voluntarily joined together to form this access district, with members representing multiple counties within the Lower Republican River area.

The Lower Republican Access District (LRAD) supports the projects led by the Kansas Bostwick Irrigation District (KBID) to complete the process of burying pipe to replace open laterals within the KBID district. It is the hope of the Access District that the increased delivery efficiency through replacement of open laterals will improve streamflow to the Republican River and thus reducing the impacts of MDS to Junior water right holders.

We are pleased to recommend this project and the benefits it will provide for water resources in Kansas.

Sincerely,

Tim Martin
Clay County

Luke Wohler
Clay County

Ed Simms
Republic County

Tony Strnad
Republic County

Chase Larson
Cloud County

Jim Koch
Cloud County

Richard Cott
At Large

Bostwick Irrigation District in Nebraska

P.O. Box 446, Red Cloud, Nebraska 68970
Phone/Fax (402) 746-3424

April 30, 2014

To whom it may concern,

On behalf of the Board of Directors and the management of Bostwick Irrigation District in Nebraska, I would like to voice our support for Kansas Bostwick (KBID) in their application for a grant to convert open laterals to buried pipe.

As we all know, water is a precious resource that all people have a responsibility to preserve. Here in the lower end of the Republican River Basin and the front lines of the Kansas-Nebraska water disputes, our two districts are forced to conserve water in any way possible. I commend KBID for their efforts and look forward to collaborating on many more projects and sharing our water supplies in the coming years.

NBID supports this and any other water conservation projects that KBID promotes in the future.

Sincerely,
Tracy Smith – General Manager
Ross Montgomery – Operations Manager
Bostwick Irrigation District in Nebraska

"Water is Life"

April 23, 2018

To whom it may concern,

My name is Lance Ayers and I'm a producer and irrigator within the Kansas Bostwick Irrigation District. The main crop in my operation is alfalfa

Over the past couple of decades my family's farming operation has made numerous investments in center pivots to our farms within the district. One of the properties I own in which I have yet to invest in installing a center pivot is in the E½NW¼ of Section 32-1-5.

This particular piece of ground is provided district water by way of the 2.6 Right canal. We considered installing a pivot on this farm a couple years ago. With the plans for Kansas Bostwick to bury this canal in to pipe, we'd most certainly consider making this investment again. This particular piece of ground has a sloping draw in the southern half of it which prevents the even application of gravity irrigation. Installing a pivot on this farm would ensure that all acres would be irrigated more efficiently and more evenly.

I'm in support of Kansas Bostwick's plan to bury this lateral and their application for grant funding to do so.

Sincerely,

Lance Ayers

Lance Ayers