

**TECHNICAL PROPOSAL  
CONVERTING OPEN DITCH KIRWIN LATERAL 6.8 TO  
BURIED PIPE PROJECT**

**FOA No. BOR-DO-18-009**

**Small-Scale Water Efficiency Grants for Fiscal Year 2018**

**APPLICANT:**

Kirwin Irrigation District No. 1  
304 1<sup>st</sup> Street  
Gaylord, KS 67638

**PROJECT MANAGER:**

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Kirwin Irrigation District No. 1  
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July 20, 2018

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**I. EXECUTIVE SUMMARY**

Date: July 20, 2018	Applicant: Kirwin Irrigation District No. 1
City: Gaylord, Kansas	County: Smith
State: Kansas	Congressional District: Kansas District 1

Through the activities outlined in this application, Kirwin Irrigation District No. 1 (District) plans to convert Kirwin open ditch lateral 6.8 into a buried pipe system. The District has placed a number of open ditch laterals into pipe. This project will convert the entire lateral 6.8 into buried pipe (approximately 0.7 miles). The project will provide water conservation benefits with water savings from the elimination of evaporation and seepage losses and the elimination of operational losses. Estimated water savings are 168 acre-feet per year and on-farm savings of 45 acre-feet per year. The project will provide improved water management with the installation of flowmeters (which will improve water measurement and accounting. The project will also improve on-farm efficiency with the relocation turnouts, increased delivery water service, and will provide opportunities to install center pivots. With increase delivery water service each landowner will save energy by reducing pumping requirements. Each conservation project completed by the District will result in less water being diverted from Kirwin Reservoir (under full supplies). Higher reservoir levels present opportunities for increased fish, wildlife, and recreation benefits, which may provide benefits for endangered species, specifically whooping cranes which are known to use the reservoir area. The U.S. Fish and Wildlife Service is interested in increasing storage levels in Kirwin Reservoir. The District committed to minimum irrigation pool elevations during the District's contract renewal process in 2003. Conservation projects such as these buried pipe projects will result in less water being diverted from the reservoir.

If successful through this application, the funding awarded will be utilized to purchase materials needed to complete the project and for installation costs for the pipe and turnouts. This project accomplishes one of the specific goals outlined in the FOA through the piping of canals to conserve water.

Timeline - If successful through this application, the project will begin immediately following the completion of an agreement with Reclamation (likely fall of 2018) and will be completed by the end of May, 2019.

The proposed project takes place within and as part of the Kirwin Unit of the Solomon Division, Pick-Sloan Missouri Basin Program of the Bureau of Reclamation in North-central Kansas (See

Appendix A). The project will be constructed entirely within existing easements of the open ditch system.

## II. BACKGROUND

The Kirwin Irrigation District No. 1 is part of Reclamation's Kirwin Unit, Solomon Division, Pick-Sloan Missouri Basin Program located along the valley of the North Fork of the Solomon River in Phillips, Smith, and Osborne Counties in north-central Kansas (See Appendix A). The Kirwin Unit consists of Kirwin Dam and Reservoir, Kirwin Canal, 1 pumping plant, and a system of laterals and drains. The Unit provides supplemental irrigation to 11,465 acres of project lands in Smith, Phillips, and Osborne Counties. There are 110 project landowners served by the District, with the majority of crops being corn, soybeans, and milo. The District water supply is 12 inches per acre, when available.

Kirwin Dam and Reservoir are located on the North Fork of the Solomon River about eight miles southeast of the town of Phillipsburg, Kansas. The primary purpose of the Kirwin Dam and Reservoir is to store water for irrigation of the Kirwin Unit and for flood control, along with the secondary benefits of recreation, and fish and wildlife. Kirwin Reservoir capacity includes 4,969 acre-feet of dead storage, 3,546 acre-feet of inactive storage, 89,639 acre-feet for irrigation, 215,136 acre-feet for exclusive flood control, and 198,467 acre-feet for surcharge flood control.

Irrigation water is released from Kirwin Reservoir directly into Kirwin Canal. Kirwin Canal extends eastward on the north side of the North Fork of the Solomon River for 13 miles to a point where the main canal splits into the Kirwin North Canal and the Kirwin South Canal. The North Canal continues east along the north side of the river for 16.5 miles and ends near Portis, Kansas. The Kirwin South Canal crosses the river and extends 15.2 miles and ends just south of Portis, Kansas. The Kirwin Canal and Lateral system service 11,465 acres. Kirwin Canal (including the Main, North, and South) is 44 miles long and has an initial capacity of 175 cfs. The lateral system includes 1 pumping plant and 36.9 miles of gravity laterals, ranging in capacity of 6 to 36 cfs.

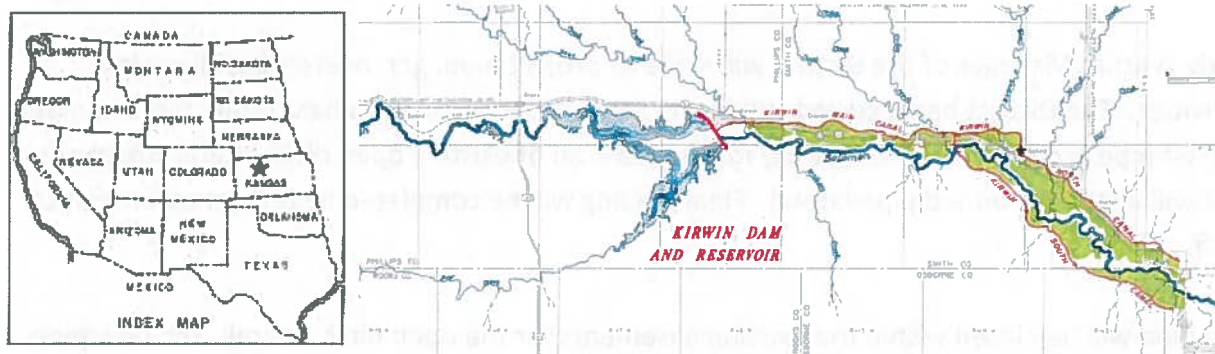
The District has an irrigation water right with the Kansas Department of Agriculture, Division of Water Resources. Kansas Water Right #343, with a priority date of April 22, 1948, permits the District to make use of surface water in the North Fork of the Solomon River at a maximum diversion rate not in excess of 192 cubic feet per second and in a quantity not to exceed 27,679 acre-feet for direct use and 80,000 acre-feet for storage in Kirwin Reservoir per calendar year for irrigation use of lands service by the District in Phillips, Smith, and Osborne Counties in Kansas.

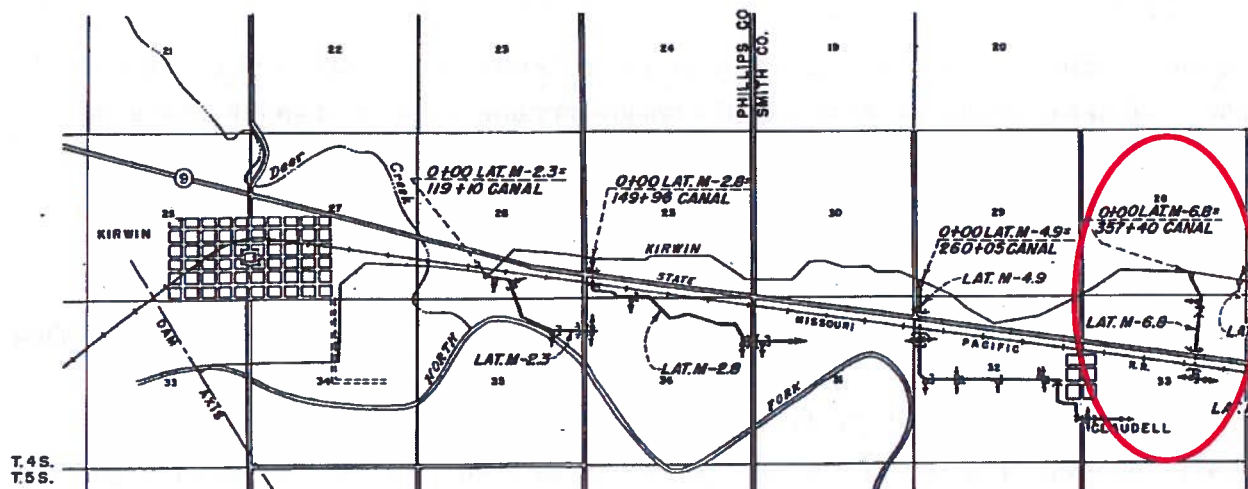
The Kirwin National Wildlife Refuge surrounds Kirwin Reservoir and consists of 10,778 acres of rolling hills in a transition zone between the tall grass prairies of the east and the short grass plains of the west. The Refuge supports diverse wildlife habitat including grasslands, wooded riparian zones, shorelines, open water, wetlands, and croplands. The Refuge is open to both hunting and fishing.

The District continues to seek opportunities to improve the project water delivery system. One of the most cost-effective measures is to replace portions of open ditch lateral with buried pipe. These buried pipe projects eliminate seepage losses, evaporation losses, eliminate the need for operational wasteways, improve water measurement, and provide project irrigators with on-farm improvement opportunities through increased delivery water surface, relocation of service points, and improved field access. The District has worked with Reclamation on a number of past water conservation projects through the Water Conservation Field Services Program and the WaterSMART Program. Through a number of similar pipe projects, the District has eliminated approximately 20 miles of open ditch laterals.

### III. PROJECT LOCATION

Kirwin Lateral 6.8 is located approximately 6 miles east of the city of Kirwin, in Phillips County, in North-central Kansas. The lateral turnout is located in the Southwest Quarter of the Southeast Quarter of Section 28, Township 4 South, Range 15 West of the 6<sup>th</sup> Principal Meridian. The lateral serves lands located in sections 28 and 33 of T 4 S, R 15 W.





#### IV. TECHNICAL PROJECT DESCRIPTION

Kirwin Lateral 6.8 is a 0.7 mile open ditch lateral that serves 160 acres through three landowners. By placing this lateral in pipe, the new pipe lateral will be designed so that all lands served by this lateral will be able to take water at the same time. This lateral can be replaced with 840 feet of 18 inch PVC pipe, 1300 feet of 15 inch PVC pipe, 1,600 feet of 12" PVC pipe, 120 feet of 10 inch PVC pipe, PVC pipe fittings and accessories, and three metered turnouts and will continue to serve 160 acres. Upon completion of piping this lateral, each turnout will benefit with an increased delivery water surface. By increasing the delivery water surface, this project will also provide opportunities for these landowners to improve on-farm irrigation system efficiencies by utilizing gated pipe or installing center pivots. With metered turnouts, water measurement and accounting will be improved.

Andy Wilson, Manager of the District will serve as project manager, overseeing all project activities. The District has received a bid from a local contractor (who has completed a number of past pipe projects with the District) for the removal of existing open ditch lateral structures and will install the buried pipe lateral. Final grading will be completed by District maintenance staff.

The pipe will be placed within the existing easements for the open ditch lateral. The new pipe lateral will begin at the existing lateral turnout at Kirwin Main Canal station 357+40. The first portion of the pipe lateral will begin using 18" PVC pipe with a design flow of 4 cfs. The pipe lateral will follow the alignment of the existing open ditch lateral for approximately 800 feet to the first turnout at station 8+30 where it will have a turnout to serve 82 acres. From this point the lateral will continue approximately 1300 feet south using 15" PVC pipe with a design flow of 4 cfs. At this point (Station 20+70) there will be a site for a future pivot turnout. The pipe

lateral will proceed south approximately 1600 feet using 12" pipe with a design flow of 2 cfs where it will end with two turnouts serving 23.0 acres and 55.0 acres (See Appendix A).

All pipes will be 80 psi PVC with gasket bells, except for access crossings where 100 psi PVC will be used. Elbows and fittings will be either solvent weld or gasket as needed at each application. Turnouts will include valves, air relief valves, meter tubes, meters, and meter guards. All meter installations shall meet State of Kansas specifications for meter installations.

See Appendix A for existing lateral drawings, pipe diagrams, and aerial photo.

#### IV. EVALUATION CRITERIA

##### EVALUATION CRITERION A – Project Benefits (35 Points)

Historic operations of lateral 6.8 reveal an estimate seepage/evaporation loss of 1.0 cfs. By placing this lateral in pipe, the water savings would be 1.0 cfs, or 2 acre-feet per day. Assuming the District has a full water supply of 12 inches per acre, delivered over 12 weeks, this pipe project will result in an estimated water savings of **168 acre-feet of water per year** (2 AF/day X 7 days/week X 12 weeks).

Current on farm irrigation practices of pulling a furrow result in an on-farm irrigation efficiency of 40%. By increasing the delivery water surface at each turnout, landowners will be able to utilize gated pipe, which will increase the on-farm irrigation efficiency to 50%. This would result in an additional 16 acre-feet of water available to the crop (160 acres X 12 inches/acre X 10% improvement = 16 acre-feet). With the installation of a center pivot (efficiency 85%), this on-farm savings will increase to **45 acre-feet per year** (82 acres X 12 inches/acre X 45% = 37 acre-feet plus 78 acres X 12 inches/acre X 10% = 8 acre-feet). The end two landowners have agreed to install a center pivot (See Appendix C for landowner commitment letter).

The District has experienced periods of water supply shortages over the last 30 years. The District continues to seek opportunities to improve the project water delivery system. One of the most cost effective measures is to replace portions of open ditch lateral with buried pipe. These buried pipe projects eliminate seepage losses, evaporation losses, eliminate the need for operational wasteways, improve water measurement, and provide project irrigators with on-farm improvement opportunities through increased delivery water surface, relocation of service points, and improved field access. Piping these laterals eliminates the need to apply chemicals for weed control and require less staff time by eliminating the need to monitor open ditch turnouts. The efficiency improvements from this later will result in higher end of

irrigation season reservoir levels in Kirwin Reservoir, which provides fish, wildlife, and recreation benefits.

### **EVALUATION CRITERION B – Planning Efforts Supporting the Project (35 points)**

The conversion of open ditch lateral 6.8 to buried pipe fits well into the District's Water Conservation Plan and the District Operating Plan. This project will improve the overall delivery efficiency of the canal system and will allow landowners to improve on-farm efficiency by allowing opportunities to improve irrigation systems with the use of gated pipe and center pivots.

From the Kirwin Irrigation District No. 1's Water Conservation Plan, Section C. Adopted Plan Elements, A. Selected Measures

*The District will continue to replace open ditch laterals with buried pipe. Although these projects are expensive, they provide immediate water savings. These types of projects will be funded through agreements with other agencies, cost share funds provided through project irrigators, and through a water conservation fund that will be initiated through the contract renewal process.*

*The District will continue to investigate and install improved water measurement devices on the canal systems including farm turnouts, wasteways, and strategic points throughout the system. Improved water measurement accuracy will allow the District to better manage the system.*

The District signed a new repayment contract with the United States effective January 1, 2003. The contract included a District Operating Plan between the United States and the Kirwin Irrigation District No. 1. The District Operating Plan was developed 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 to secure a 40-year repayment term. Through this District Operating Plan, the District agreed to initiate water conservation measures to improve the efficiency of the project delivery system and encourage on-farm efficiency improvements. The Plan listed a goal to increase the delivery efficiency of the District by a total of 6 percent and on-farm efficiencies by a total of 5 percent.

From the District's Operating Plan;



*Continue aggressive conservation efforts and explore new technologies which will convert as much of the District's delivery system as possible to improved delivery methods including, but not limited to, buried pipelines, metered turnouts, lined canals, etc.*

*Continue to seek grants and agreements with outside agencies to provide funding assistance for the above mentioned improvements.*

*Continue to work with Reclamation on cost share opportunities for water conservation measures such as installation of improved water measurement structures, replacement of open ditch with buried pipe, and potential canal lining projects.*

*Continue to encourage irrigators to convert to gated pipe, surge, and pivot irrigation.*

### **EVALUATION CRITERION C – Project Implementation (10 points)**

The District is prepared to begin construction on this pipe project immediately following the 2018 irrigation season. The likely starting date will be late fall of 2018, following selection of application and development of a cooperative agreement. With applications due by July 30, 2018, it is anticipated that selection will take two months, and drafting and completion of a cooperative agreement may take one month, which means the project could begin in November, 2018.

The District Manager had discussed this project with all landowners served by Lateral 6.8 and all three landowners are supportive on the project and will provide some of the funds needed to complete project. The pipe will be placed within the existing easement of the open ditch lateral, so there will be no additional easements needed for this project. The District has also received a bid from a local contractor for the removal of the open ditch lateral structures and installation of the buried pipe. The contractor's bid included a commitment to complete this project by the end of May, 2019. The District's maintenance staff is available to work on the project as needed.

Cultural clearance for this lateral has been completed as listed in Environmental and Cultural Resource Compliance section of this proposal (See Appendix B). The District will work with Reclamation's NKAO to complete any NEPA compliance issues. The District has worked with NKAO on a number of pipe lateral projects and does not expect any delays in project construction. NKAO staff has briefly reviewed this Lateral 6.8 pipe project and anticipates it will be cleared with a Categorical Exclusion Checklist (CEC) similar to past pipe projects.

**EVALUATION CRITERION D – Nexus to Reclamation (10 points)**

The Kirwin Irrigation District No. 1 (District) is part of Reclamation's Kirwin Unit, Solomon Division, Pick-Sloan Missouri Basin program located along the valley of the North Fork of the Solomon River in Phillips, Smith, and Osborne Counties in northcentral Kansas (See Appendix A). The District signed a new repayment contract with the United States effective January 1, 2003. The contract includes Appendix B, District Operating Plan between the United States and the District, which lists goals to increase delivery efficiency and on-farm efficiencies.

**EVALUATION CRITERION E – Department of the Interior Priorities (10 points)**

This project meets the Department of the Interior Priorities such as creating a conservation stewardship by implementing best practices to manage land and water resources with the elimination of open ditch seepage losses, evaporation losses, and operational losses. The increased water delivery service provided through this project will present opportunities for the landowners to implement on-farm irrigation efficiency improvements through other state and federal agencies and programs.

DOI water storage, transportation, and distribution systems to resolve conflicts and expand capacity – water saved by piping this open ditch lateral will result in higher end of irrigation season reservoir levels in Kirwin Reservoir each year, which will provide improved recreation and fish and wildlife benefits at Kirwin National Wildlife Refuge.

This project will also improve trust with local communities. By continuing to make delivery system improvements like this Kirwin Lateral 6.8 pipe project, the District will continue to build trust with the people of Kansas, the U.S. Fish and Wildlife Service, Kansas State agencies, and the local communities and rural population by showing the District's commitment to manage this limited water resource. By extending the District's water supply, others will benefit in the form of increased carryover storage in Kirwin Reservoir.

This project supports the White House Public/Private Partnership Initiative to modernize U.S. infrastructure by utilizing landowner, District, and Federal funds to pay for this project. The project also meets the DOI priority of construction of infrastructure by replacing the open ditch lateral with buried pipe.

**V. PROJECT BUDGET**

**FUNDING PLAN AND LETTERS OF COMMITMENT**

The District will fund its portion of this project through in-kind services, cash from the District’s water conservation fund, and cash contributions from project landowners served by Lateral 8.6. The District works with each landowner receiving a benefit from these projects and asks these landowners to contribute for the construction charge. The District Manager has discussed the project with the landowners served by Lateral 6.8 and the landowners have committed to fund a portion of the pipe installation costs (See letter of commitment in Appendix C). The two end landowners have committed to install a center pivot if this lateral is placed in pipe (See commitment letter in Appendix C). These landowner contributions will be combined with District funding commitment of a minimum of 50% non-federal cost share. The District has funded and completed similar projects in the past through cooperative agreements with Reclamation’s Water Conservation Field Services Program and WaterSMART Program. The District is committed to provide a minimum of 50 percent of the cost share for this project.

The overall cost estimate for this project is \$68,000. Project funding will include \$34,000 of Reclamation WaterSMART funding, \$16,400 of landowner contributions, \$5,000 of District contributions, and \$12,600 of District in-kind contributions.

NON-FEDERAL FUNDING SOURCES		\$34,000.00
Project Landowners	\$16,400.00	
Kirwin Irrigation District No. 1		
Funds	\$5,000.00	
In-kind Services	\$12,600.00	
FEDERAL FUNDING		\$34,000.00
Bureau of Reclamation	\$34,000.00	
		=====
TOTAL PROJECT COSTS		\$68,000.00

**BUDGET PROPOSAL**

Total Project Costs		\$68,000.00
PVC Pipe		\$30,550.60
18” PVC (80 psi)	780 ft	\$12.42      \$9,687.60
18” PVC (100 psi)	60 ft	\$15.28      \$916.80

15" PVC (80 psi)	1240 ft	\$8.32	\$10,316.80
15" PVC (100 psi)	60 ft	\$10.11	\$606.60
12" PVC (80 psi)	1440 ft	\$5.26	\$7,574.40
12" PVC (100 psi)	160 ft	\$6.42	\$1027.20
10" PVC (80 psi)	120 ft	\$3.51	\$421.20
<b>Fittings</b>			<b>\$2,371.69</b>
Pipe vent T – 18x15x4	\$295.37	Pipe T 18x18x10	\$204.06
Reducer 15x12 (3)	\$169.92	Reducer 18 x 15	\$167.81
12" 45 elbow (4)	\$233.48	Pipe T 12x10x4	\$111.13
15" 22.5 elbow	\$74.02	12" 45 elbow (6)	\$235.56
15" 45 elbow	\$90.71	PVC Cement (4gal)	\$240.80
12" 30 elbow	\$58.38	PVC Primer (4 gal)	\$210.00
12" 22.5 elbow	\$44.14	PVC Cement (4 Qt)	\$72.80
15" 30 elbow	\$90.71	PVC Primer (4 Qt)	\$72.20
<b>Turnouts – 3 at \$1,750 each</b>			<b>\$3,750</b>
Meter	\$1,183.50	2" alum nipple	\$11.20
4" Air relief valve	\$79.20	Meter Vanes	\$33.60
2" Air relief valve	\$19.20	Labor weld 10"	\$20.00
4" female adapter	\$10.50	Labor weld 2"	\$6.00
2" male adapter	\$2.60	Rolled end labor	%5.00
Line Valve	\$140.00	Cut meter hole	\$8.00
Alum Tube	\$14.55	Meter Guard	\$150.00
Misc Parts	\$66.65		
<b>Pipe Installation</b>			<b>\$16,400</b>
<b>Contractor Bid</b>			
Demolition, Removal of structures	\$1,000		
Trench and Place PVC pipe	\$11,900		
Encase pipe through Siphons	\$3,500		
<b>District Costs</b>			<b>\$7,365</b>
Project coordination – Andy Wilson, District Manager	\$4,128		
(6 hr/day x 25 days X \$27.52/hr)			
Removal of turnouts – District Equipment & Staff	\$1,394		
Backhoe – 4 hours x 3 turnouts x \$50.00/hr			
Backhoe Operator – 4 hours x 3 turnouts x \$22.05/hr			

Laborers – 2 staff x 4 hours x 3 turnouts x \$22.05/hr	
Final Grading – District Equipment & Staff	\$1,153
Maintainer/Grader – 16 hours x \$50/hr	
Operator – 16 hours x \$22.05/hr	
Install Turnout Guards – District Staff	\$265
2 laborers x 2 hr/turnout x 3 turnouts x \$22.05/hr	
Administrative Costs - District Staff	\$425
Office Manager – 1 hr/day x 25 days x \$16.99/hr	
NEPA Compliance	\$276.00
Environmental Clearance by NKAO Staff (4 hr x \$69/hr)	\$276
Cultural Clearance Complete	
Contingencies (10%)	\$7,286.71

**BUDGET NARRATIVE**

The District purchases pipe from Kroy Industries for similar pipe lateral projects. The District Manager contacted Kroy Industries and received a price quote for the pipe delivered to the construction site. All PVC pipe will be 80 psi except road crossings or field access roads where the District will install 100 psi pipe. Pipe lengths and costs are listed in the budget.

The District does not have the equipment needed to bury the pipe lateral. The District manager has obtained price quotes for the installation of this pipe lateral from a local contractor that has completed similar pipe projects for the District. The contractor’s bids for the Lateral 6.8 project are shown below. The District has completed a number of similar pipe projects with this contractor, who has always honored bids submitted at early stages of projects and has completed the projects within the bid submitted. The District does not anticipate any changes in the project scope so the bid submitted by the contractor should not change. The local contractor has reviewed the pipe project and has submitted the listed in the budget for completing the installation.

District operations and maintenance staff will remove existing turnout structures from the open ditch lateral, complete final grading once pipe lateral has been installed, construct and install the meter guards, and account all work and project expenses. District will utilize existing District equipment and staff to complete these tasks. District labor rates included in the budget represent actual labor rates of District personnel. District equipment rates listed were

estimated and are below the rates listed on the Corps of Engineers Construction Equipment Ownership and Operating Expense Schedule.

### **Environmental and Cultural Resource Compliance Costs**

The District will work with Reclamation's Nebraska-Kansas Area office to obtain the necessary Environmental Clearances. Jeanette Timm, Natural Resource Specialist of the NKAO estimated that this project will be completed with a Categorical Exclusion Checklist, and with the cultural clearances already complete, the clearance will take approximately 4 hours at \$69 per hour for a total cost of \$276.00. Work on the CEC will begin immediately following the selection process.

### **Project Construction Schedule**

As listed in FOA No. BOR-DO-18-009, successful award recipients will be notified in the fall of 2018 or slightly later, and financial assistance agreements will be awarded within 1-3 months following selection. If selected, Initial work on this project would begin as soon as the financial assistance agreement is finalized, likely in October or November. Removal of existing structures will begin once a cooperative agreement is in place. Pending the late fall weather, pipe installation may begin in the fall of 2018. Any remaining work items will be completed in the spring of 2019. The project should be completed in April of 2019.

### **ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE**

The District has completed a number of similar conservation projects of replacing open ditch laterals with buried pipe. As with past projects, the District will work with Reclamation's Nebraska-Kansas Area Office (NKAO) for the completion of all required environmental compliance activities associated with this project. The District will work with NKAO to ensure this project complies with the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and Native American Graves Protection and Repatriation Act (NAGPRA).

From similar past projects, the District does not expect to have any problems with environmental compliance issues. NEPA compliance activities for these types of buried pipe projects generally are completed with a Categorical Exclusion Checklist prepared by NKAO staff. Jeanette Timm, Natural Resource Specialist of the NKAO estimated that environmental compliance for this project will be completed with a Categorical Exclusion Checklist.

Cultural Resources Compliance has been completed for the Kirwin Lateral 6.8 pipe lateral project (See Appendix B). The District worked with Reclamation's Nebraska Kansas Area Office (NKAO) to complete cultural reviews of all remaining open ditch laterals (including Kirwin Lateral 6.8) in 2011 through a contract with Cultural Resources Inc. This work concluded with a report titled "An Archeological Pedestrian Survey of Open Ditch Laterals Within the Kirwin and Webster Units, Solomon Division, Pick-Sloan Missouri River Basin Project, Bureau of Reclamation, in Phillips, Smith, Osborne, and Rooks Counties, Kansas, January 2011". This survey included 234.8 acres of privately owned lands that were identified as future projects for the replacement of open ditch laterals with buried pipe. The report resulted in a finding of ***no historic properties affected*** which was proposed by NKAO Archeologist Bill Chada in his March 2, 2011 letter to the Kansas State Historic Preservation Office. Mr. Chada recommended that no further cultural resource survey or testing be required and that the proposed project proceed as planned. The Kansas State Historic Preservation Office concurred with the conclusion that the proposed project will have no effect on historic properties as defined in 36 CFR 800 and had no objection to the canal/buried pipeline conversion (see the Kansas SHPO March 14, 2011 letter in Appendix B).

#### **REQUIRED PERMITS AND APPROVALS**

NEPA compliance activities will be completed as referenced in the previous section. All utilities will be contacted through Kansas Dig Safe or by direct contact. The pipe project is within existing easements of the open ditch lateral, so there are no land acquisition activities required for this project.

#### **LETTERS OF PROJECT SUPPORT**

The District has received letters of support for this project from Kansas Groundwater Management District No. 4 and the U.S. Fish and Wildlife Service. The District is anticipating letters of support from the Kansas Water Office and the Kansas Division of Water Resources. Copies of letters of support are included in Appendix D.

#### **OFFICIAL RESOLUTION**

The Kirwin Irrigation District No. 1 signed a Resolution stating their support for this project on July 3, 2018. A copy of this resolution is included in Appendix E.

**RESOLUTION**  
**WaterSMART**  
**Small-Scale Water Efficiency Projects for Fiscal Year 2018**

**WHEREAS**, the Kirwin Irrigation District No. 1 (District) is applying with the United States Department of the Interior, Bureau of Reclamation for grant financial assistance through the WaterSMART (Sustain and Manager America's Resources for Tomorrow) program, Small Scale Water Efficiency Projects for Fiscal Year 2018, Funding Opportunity No. BOR-DO-18-009; and,

**WHEREAS**, Andrew Wilson, General Manager of the District, has reviewed the application and is hereby authorized to submit an application and enter into agreement on behalf of the District for the WaterSMART: Small-Scale Water Efficiency Projects for Fiscal Year 2018; and,

**WHEREAS**, the District Board of Directors support the application submitted; and,

**WHEREAS**, The District has sufficient funds in its Public Fund to satisfy its portion of the cost share as specified in the funding plan; and,

**WHEREAS**, the District is committed to cooperate with the United States Department of the Interior, Bureau of Reclamation to meet established deadlines for entering into cooperative agreements.

**NOW, THEREFORE, BE IT RESOLVED** that the Kirwin Irrigation District No. 1 prays it is awarded the WaterSMART: Small-Scale Water Efficiency Projects for Fiscal Year 2018 Grant and is fully committed to replace open ditch Kirwin Lateral 6.8 with buried pipe as expeditiously as possible to conserve energy, conserve water, increase water measurement accuracy, and to help increase future water supplies for agricultural, recreational, and environmental purposes.

Passed and adopted this 3rd day of July, 2018.

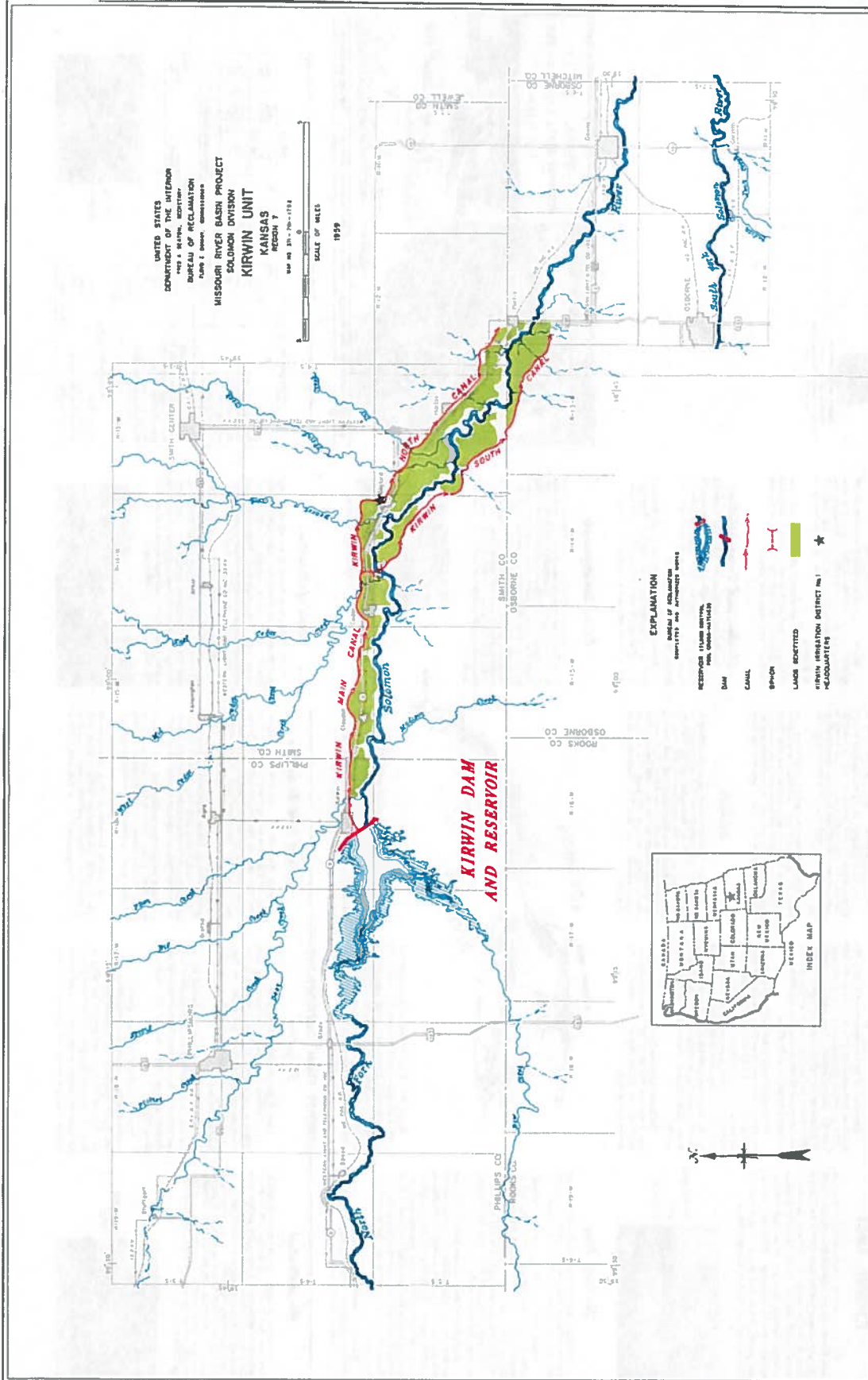
KIRWIN IRRIGATION DISTRICT NO. 1

  
\_\_\_\_\_  
Dennis Lehmann, Board President

  
\_\_\_\_\_  
Raegan Kirchhoff, Board Secretary







GPO 88184

## KIRWIN UNIT

The Kirwin Unit is a development of the Solomon Division of the Missouri River Basin Project. The unit is located on the North Fork of the Missouri River in Phillips, Smith, and Osage Counties in north central Kansas. Kirwin Reservoir provides irrigation water, flood protection, and excellent opportunities for recreation. Other unit facilities are canals, laterals and drains to serve irrigated lands along the river from Kirwin to Paris.



KIRWIN DAM AND RESERVOIR

### The Unit Plan

Improved unit facilities are Kirwin Dam and Reservoir, Kirwin Main, North, and South Canals; and a lateral system to distribute the water.

Kirwin Dam, on the North Fork of the Solomon River near Kirwin, Kansas, was completed in August 1955. It rises 117 feet above streambed and 189 feet above the lowest inundation point. About 5,577,000 cubic yards of earth and rock and 44,000 cubic yards of concrete were used for the dam, spillway, and outlet works.

A concrete gateway on the right abutment of the dam divides the river into two channels. The left channel carries water through a gated slotted-crest spillway. Discharge through the bottom of the spillway into the outlet works, the outlet works are used primarily to make controlled releases of flood waters. Outlet works through the base of the dam return water for irrigation and for downstream navigation.

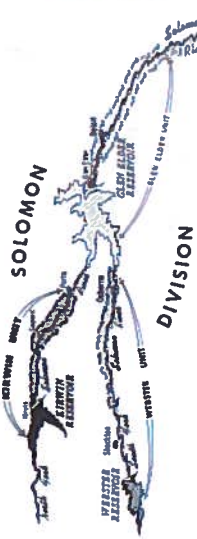
The total capacity of the reservoir is 31,000 acre-feet—86,800 for flood control and 29,100 for flood control and 5,700 flood storage.

### History

Settlement of the unit area began in 1892. The influx of homesteaders was hastened in the late 1890s and early 1900s after the Central Branch Railroad was built through the area. The population grew rapidly, reaching a peak in 1920. Since then it has declined due to smaller families, mechanization of agriculture, and the drought and economic hardships of the 1930's.

Developed droughts of the 1920's and damaging floods focused attention on flood control and water conservation, and local and state interests advised the investment of federal funds. The plan for the unit was authorized by Congress in the Flood Control Act of 1944 as part of the Missouri River Basin Project. Construction started early in 1952.

The Kirwin Irrigation District No. 1 organization was completed August 8, 1950. A replacement contract with the United States was signed by the district June 9, 1952.



### Water Supply and Requirements

The drainage area above Kirwin Dam is 1,773 square miles. Studies based on the period 1920-1950 have indicated that the unit requires 42,000 acre-feet, after making allowance for present and future requirements outside the unit.

For adequate irrigation, 1.5 feet per acre annually during 1957 and 1958 when winter deficits were close to only part of the unit. They are under irrigation. Diversion requirements are expected to average less than 2 acre-feet per acre.

### Climate

This area is well known for its variable climate. Temperature extremes at nearby Phillipsburg range from 65 to 108 degrees Fahrenheit during the hot. Precipitation has averaged a little over 22 inches annually but has varied from less than 12 inches to more than 40 inches. About 70 percent of the season, which averages 66 days. The irrigation season extends from May 1 to September 30 or 32 days.

Of the 11,500 acres of unit lands, 2,650 acres receive water directly from the dam and 8,850 acres are served by canals and laterals. Deep drains will be constructed on the new develops to protect the irrigated lands.

### Benefits from Development

#### Irrigation

Lands in the unit are highly productive and the growing season is ample for field crops. A wide variety of crops can be grown, but the principal ones are corn, grain sorghum, and alfalfa hay. They are replacing dryland wheat and encouraging livestock feeding.

The potential production is indicated by the average yields per acre on a development farm established on the unit: corn 98 bushels, grain sorghum 88 bushels, alfalfa hay 4.4 tons, and corn silage 28 tons.

Increased farm income from higher crop yields creates benefits to manufacturers and dealers, both locally and regionally. New opportunities for agriculture-based industries and services are afforded. Through irrigation, the local economy is stabilized. An adequate, steady income assures good homes, schools, churches, roads, and other conveniences.

### Soils

Lands capable of increased production through irrigation were selected for inclusion in the unit. These lands are better than 100,000 acre-feet of low-irrigated and medium-irrigated lands, but the irrigated lands are better than 100,000 acre-feet of low-irrigated lands. Only a minor portion are on the flood plain or bottomlands.

In general, the cultivated (water deposited) materials on the high terraces are capped with loess for indurated material. Sloping soils of the low terraces and bottoms are of the flood plain or bottomlands.

### Markets and Transportation

Agricultural products are generally marketed through dealers in neighboring towns. The dealers then ship the products to centers such as Salina or Kansas City. The towns also serve as distribution centers for manufactured goods.

A branch line of the Missouri Pacific Railroad provides convenient transportation. U. S. Highways 183 and 211 and Kansas Highway 9 provide excellent communication for trucking operations.

### Other Developments

The Solomon Division of the Missouri River Basin Project is being developed by the Kansas Division of the Division now includes the Weirner Unit on the South Fork of the Solomon River with its principal Dam, and a canal and lateral system. Another development of the Division, the Chen Elder Unit, is authorized for future construction on the main stem of the river. This unit will be developed by the Reservoir and a distribution system to serve unit lands.

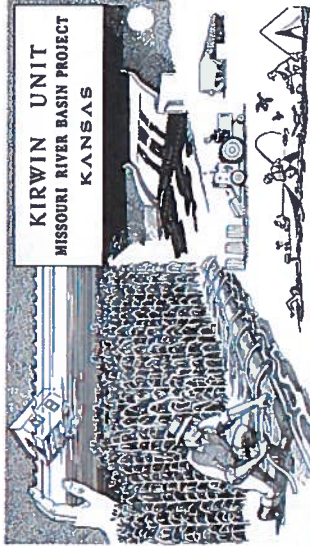


KIRWIN MAIN CANAL

### Plan of Operation

Kirwin Dam and Reservoir are operated and maintained by the Bureau of Reclamation. Operation of the reservoir is coordinated with that of others in the Kansas River Basin. Water in the flood control pool is released in accordance with instructions furnished by the Corps of Engineers.

Operation and maintenance of the canals, laterals, and drains are to become responsibility of the Kirwin Irrigation District on January 1, 1953. The Kirwin Reservoir and Weirner Dam are operated and maintained under a joint management and cost sharing plan. This will reduce costs to the water users.



U. S. DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION, REGION 7, DENVER, COLORADO

### PROJECT DATA

KIRWIN DAM AND RESERVOIR			
Item	Quantity	Unit	Value
Type Dam	1	Concrete	1,778.4
Crest Elevation (FT)	117		80,320
Height of Dam (Feet)	117		4,437
Length of Dam (FT)	12.48		316,020
Width of Dam (FT)	30		
Reservoir			
Normal Water Surface Elev. (FT)	1,728.4		
Normal Storage Capacity (Acre-Feet)	31,000		
Normal Storage (Acre-Feet)	29,100		
Normal Spillway (Acre-Feet)	1,900		
Total Controlled Storage (Acre-Feet)	31,000		

LATERALS AND DRAINS			
Item	Quantity	Unit	Value
Length (Miles)	77	Mi	3,000
Width of Canal (Feet)	50		1,300

CANALS			
Item	Quantity	Unit	Value
Length (Miles)	77	Mi	3,000
Width of Canal (Feet)	50		1,300

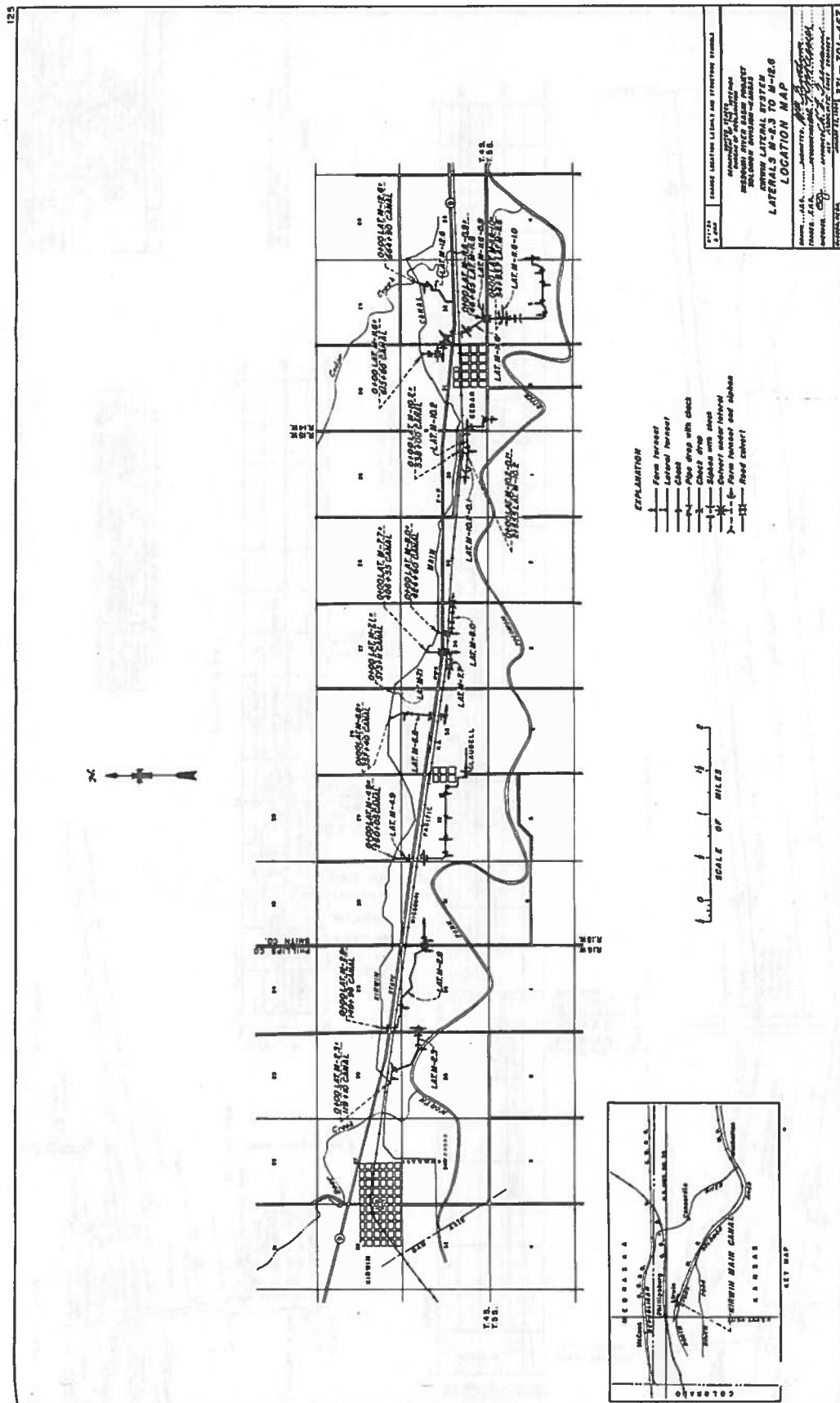
  

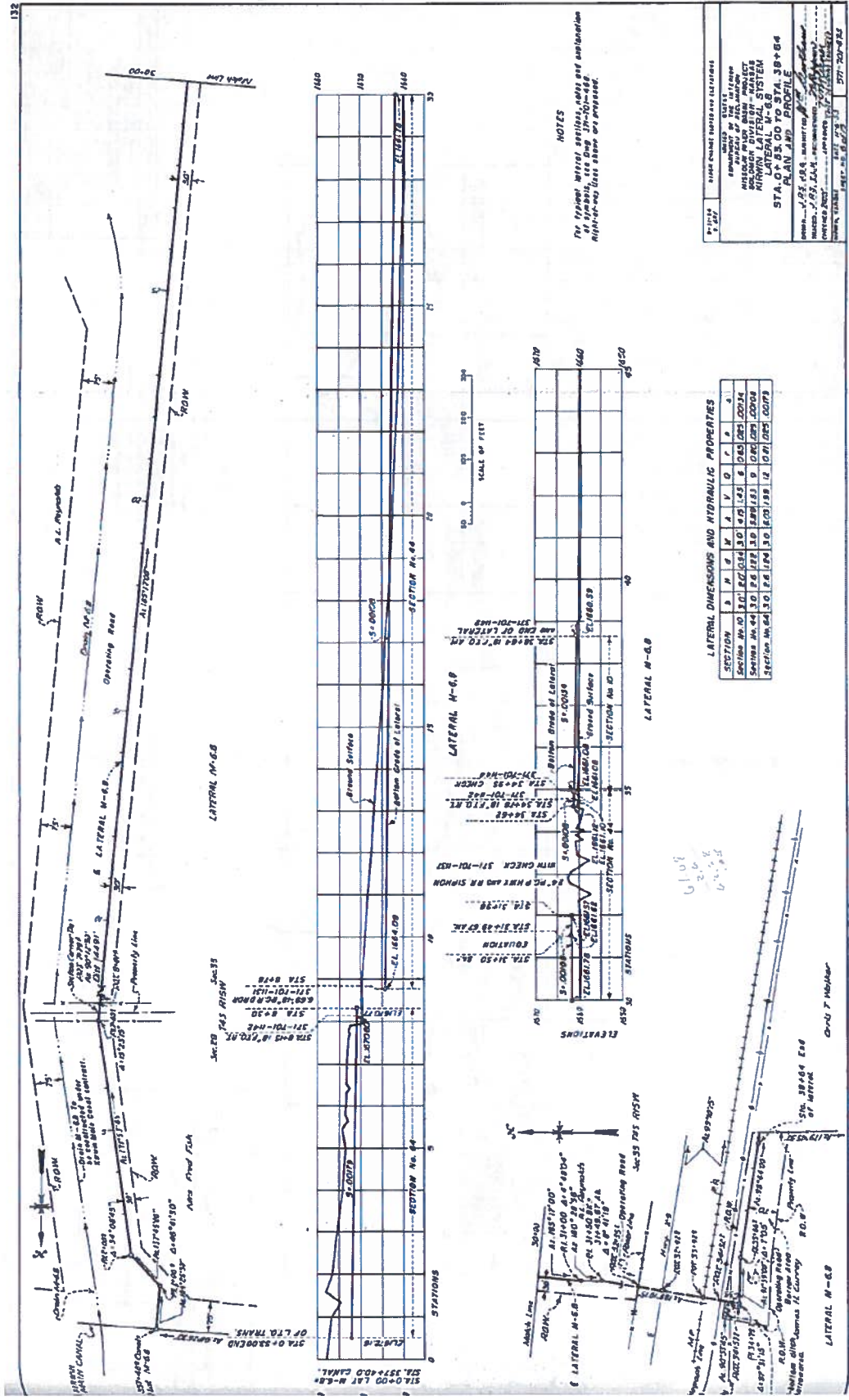
LATERALS AND DRAINS			
Item	Quantity	Unit	Value
Length (Miles)	77	Mi	3,000
Width of Canal (Feet)	50		1,300

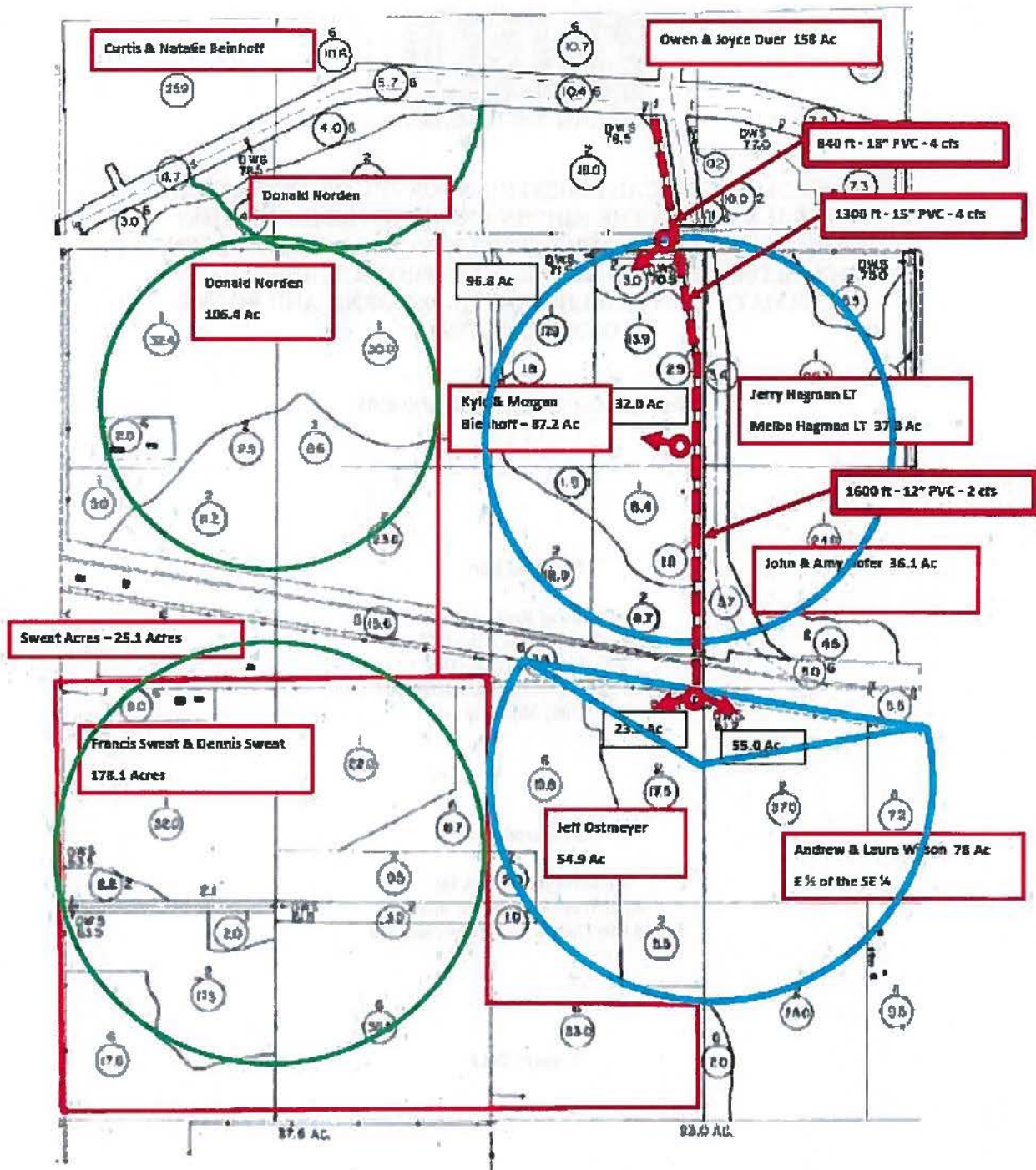
TYPICAL LATERAL			
Item	Quantity	Unit	Value
Length (Miles)	77	Mi	3,000
Width of Canal (Feet)	50		1,300







### Kirwin Lateral 6.8 Pipe Project





**AN ARCHAEOLOGICAL PEDESTRIAN SURVEY OF OPEN DITCH  
LATERALS WITHIN THE KIRWIN AND WEBSTER IRRIGATION  
DISTRICTS, KIRWIN AND WEBSTER UNITS, SOLOMON DIVISION,  
PICK-SLOAN MISSOURI RIVER BASIN PROJECT, BUREAU OF  
RECLAMATION, IN PHILLIPS, SMITH, OSBORNE, AND ROOKS  
COUNTIES, KANSAS**

**Reclamation Contract No. R10PX60203**

**Prepared For:**

**Bureau of Reclamation  
Nebraska-Kansas Area Office  
P.O. Box 1607 (NK-310)  
Grand Island, Nebraska 68802-1607  
(308) 389-5320**

**Prepared By:**

**Cultural Resources, Inc.  
3213 West Main Street #249  
Rapid City, South Dakota 57702-2314**

**January 2011**



**AN ARCHAEOLOGICAL PEDESTRIAN SURVEY OF OPEN DITCH  
LATERALS WITHIN THE KIRWIN AND WEBSTER IRRIGATION  
DISTRICTS, KIRWIN AND WEBSTER UNITS, SOLOMON DIVISION,  
PICK-SLOAN MISSOURI RIVER BASIN PROJECT, BUREAU OF  
RECLAMATION, IN PHILLIPS, SMITH, OSBORNE, AND ROOKS  
COUNTIES, KANSAS**

**Reclamation Contract No. R10PX60203**

**Prepared For:**

**Bureau of Reclamation  
Nebraska-Kansas Area Office  
P.O. Box 1607 (NK-310)  
Grand Island, Nebraska 68802-1607  
(308) 389-5320**

**Prepared By:**

**Cultural Resources, Inc.  
3213 West Main Street #249  
Rapid City, South Dakota 57702-2314**

**January 2011**



**CRI Project No. 1484**

**January 4, 2011**

**AN ARCHAEOLOGICAL PEDESTRIAN SURVEY OF OPEN DITCH  
LATERALS WITHIN THE KIRWIN AND WEBSTER IRRIGATION  
DISTRICTS, KIRWIN AND WEBSTER UNITS, SOLOMON  
DIVISION, PICK-SLOAN MISSOURI RIVER BASIN PROJECT,  
BUREAU OF RECLAMATION, IN PHILLIPS, SMITH, OSBORNE,  
AND ROOKS COUNTIES, KANSAS**

**BOR Contract No. R10PX60203**

**Prepared For:**

**Bureau of Reclamation  
Nebraska-Kansas Area Office  
P.O. Box 1607 (NK-310)  
Grand Island, Nebraska 68802-1607  
(308) 389-5320**

**Prepared By:**

**Aimee J. Leithoff  
*Principal Investigator***

**Cultural Resources, Inc.  
3213 West Main Street #249  
Rapid City, South Dakota 57702-2314  
757-813-0344**

## ABSTRACT

From October 4 through October 8, 2010, Cultural Resources, Inc. (CRI) conducted a cultural resources survey of the Bureau of Reclamation (Reclamation) Kirwin and Webster Irrigation District open ditch laterals, under Reclamation Contract No. R10PX60203. This project entails the replacement of open ditch lateral with buried pipe off the Kirwin Main, Kirwin South, Kirwin North and Osborne Canals in Philips, Smith Osborne and Rooks counties, Kansas. Laterals ranged in length from approximately 300 feet to over 12,000 feet in length. The width of the project Area of Potential Effect (APE) was limited to 15 to 23 meters (50 to 75 foot) BOR lease easement for the laterals and the archaeological survey was limited to the 15-23 meter APE. CRI designed the survey methods to provide BOR with definitive information on the presence and type of cultural resources located within the project APE and to assess the potential for further investigation of any identified sites.

The archaeological field work included pedestrian reconnaissance of the proposed APE, in an effort to identify surface and subsurface cultural resources and to document the level of integrity and prior disturbances. Two transects were walked one on each side of the open ditch lateral at 15 meter spacing. Surface visibility ranged from 60% to 100% and the project area consisted of two track dirt road, gravel section roads, plowed, disked and planted agricultural fields, and old Railroad beds. In a few instances either old railroad bed or pasture land occupied one side of the lateral and surface visibility was less than 50%, in these instances the centerline of the lateral was walked allowing for 85% to 100% visibility. When archaeological sites were identified 10 meter transects were walked across the site to establish site boundaries.

### *Results of the Archaeological Survey*

There are no previously identified archaeological sites within the APE. Archaeologists surveyed a total of 234.8 acres within the proposed APE. Two archaeological sites (14OB107 and 14OB108) and a standing structure (141-129) were identified during the survey. Site 14OB107 is an Alibates Archaic or Early Ceramic period projectile point located within the open ditch lateral. No additional cultural material was documented within the lateral or the adjacent agricultural fields and it is likely the point was washed down the lateral, and due to a low research potential associated with a single point, and a lack of cultural features or layers CRI recommends the site not eligible for listing under Criterion D of the NRHP and no further work is recommended. Criterion A, B and C were considered not applicable. The site will be buried by the proposed buried pipeline. Site 14OB108 is a 20<sup>th</sup> century trash scatter located in a road cut between two agricultural fields and the edge of the lateral. A diffuse scatter of ceramic, glass, and metal artifacts were located in the road cut with no additional artifacts in either agricultural field. Due to a lack of research potential associated with a 20<sup>th</sup> century trash scatter and a lack of features or cultural layers CRI recommends the site not eligible for listing on the NRHP under Criterion D and no further work is recommended. Criterion A, B and C were considered not applicable. The site will not be impacted by the proposed buried pipeline. The standing structure 141-129 is a limestone historical marker that was erected in 1938. The marker is on the edge of the Reclamation easement however will not be impacted by the proposed buried pipeline and therefore no further work is recommended.

## IX. PROPOSALS TO AVOID, MIMIMIZE, TEST OR MITIGATE

Two archaeological sites and one standing structure were recorded as part of the archaeological survey of approximately 234.8 acres of open ditch lateral within the Kirwin and Webster Irrigation Districts. Site 14OB108 and standing structure 141-129 will not be impacted by the proposed replacement of open ditch laterals with buried pipe. Site 14OB107 is an isolated projectile point on the floor of the open ditch lateral and as such this location will be buried by the proposed replacement of open ditch laterals with buried pipe. The artifact was collection and the location documented with GPS. As no further evidence of cultural material was identified within the lateral or the adjacent agricultural fields it is likely that the projectile point was washed down the lateral and no further information is to be gained from this site. *Therefore CRI recommends no further work for sites 14OB107, 14OB108, and 141-129.*

### Conclusions of the Archaeological Survey

From October 4 through October 8, 2010, CRI conducted a cultural resources survey of the Reclamation Kirwin and Webster Irrigation District open ditch laterals, under Reclamation Contract No. R10PX60203. This project entails the replacement of open ditch lateral with buried pipe off the Kirwin Main, Kirwin South, Kirwin North and Osborne Canals in Philips, Smith Osborne and Rooks Counties, Kansas. Laterals ranged in length from approximately 300 feet to over 12,000 feet in length. The width of the project Area of Potential Effect (APE) was limited to 15 to 23 meters (50 to 75 foot) BOR lease easement for the laterals and the archaeological survey was limited to the 15-23 meter APE. CRI designed the survey methods to provide BOR with definitive information on the presence and type of cultural resources located within the project APE and to assess the potential for further investigation of any identified sites.

The archaeological field work included pedestrian reconnaissance of the proposed APE, in an effort to identify surface and subsurface cultural resources and to document the level of integrity and prior disturbances. Two transects were walked one on each side of the open ditch lateral at 15 meter spacing. Surface visibility ranged from 60% to 100% and the project area consisted of two track dirt road, gravel section roads, plowed, disked and planted agricultural fields, and old Railroad beds. In a few instances either old railroad bed or pasture land occupied one side of the lateral and surface visibility was less than 50%, in these instances the centerline of the lateral was walked allowing for 85% to 100% visibility. When archaeological sites were identified 10 meter transects were walked across the site to establish site boundaries.

There are no previously identified archaeological sites within the APE. Archaeologists surveyed a total of 234.8 acres within the proposed APE. Two archaeological sites (14OB107 and 14OB108) and a standing structure (141-129) were identified during the survey. Site 14OB107 is an Alibates Archaic or Early Ceramic period projectile point located within the open ditch lateral. No additional cultural material was documented within the lateral or the adjacent agricultural fields. It is likely the point was washed down the lateral and does not represent an intact archaeological find. CRI recommends

the site not eligible for listing on the NRHP under Criterion D. Criterion A, B and C were considered not applicable. The site will be buried by the proposed buried pipeline, however due to the limited nature of the find no further work is recommended. Site 14OB108 is a 20<sup>th</sup> century trash scatter located in a road cut between two agricultural fields and the edge of the lateral. A diffuse scatter of ceramic, glass, and metal artifacts were located in the road cut. No additional artifacts were identified in either agricultural field. Due to a lack of research potential associated with a 20<sup>th</sup> century trash scatter and a lack of features or cultural layers CR1 recommends the site not eligible for listing on the NRHP under Criterion D and no further work is recommended. Criterion A, B and C were considered not applicable. The site will not be impacted by the proposed buried pipeline. The standing structure 141-129 is a limestone historical marker that was erected in 1938. The marker is on the edge of the Reclamation easement however will not be impacted by the proposed buried pipeline. No further work is recommended.

The table below summarizes the recommendations.

Table 4. Summary of Cultural Resources Identified During the Survey with Recommendations				
County	Resource #	Resource Date	Resource Type	Recommendation
Osborne	14OB107	Archaic/Early Ceramic	Alibates Point	Not Eligible, No Further Work
Osborne	14OB108	20 <sup>th</sup> Century	Trash Scatter	Not Eligible, No Further Work
Osborne	141-129	1938	Historical Marker	No Further Work

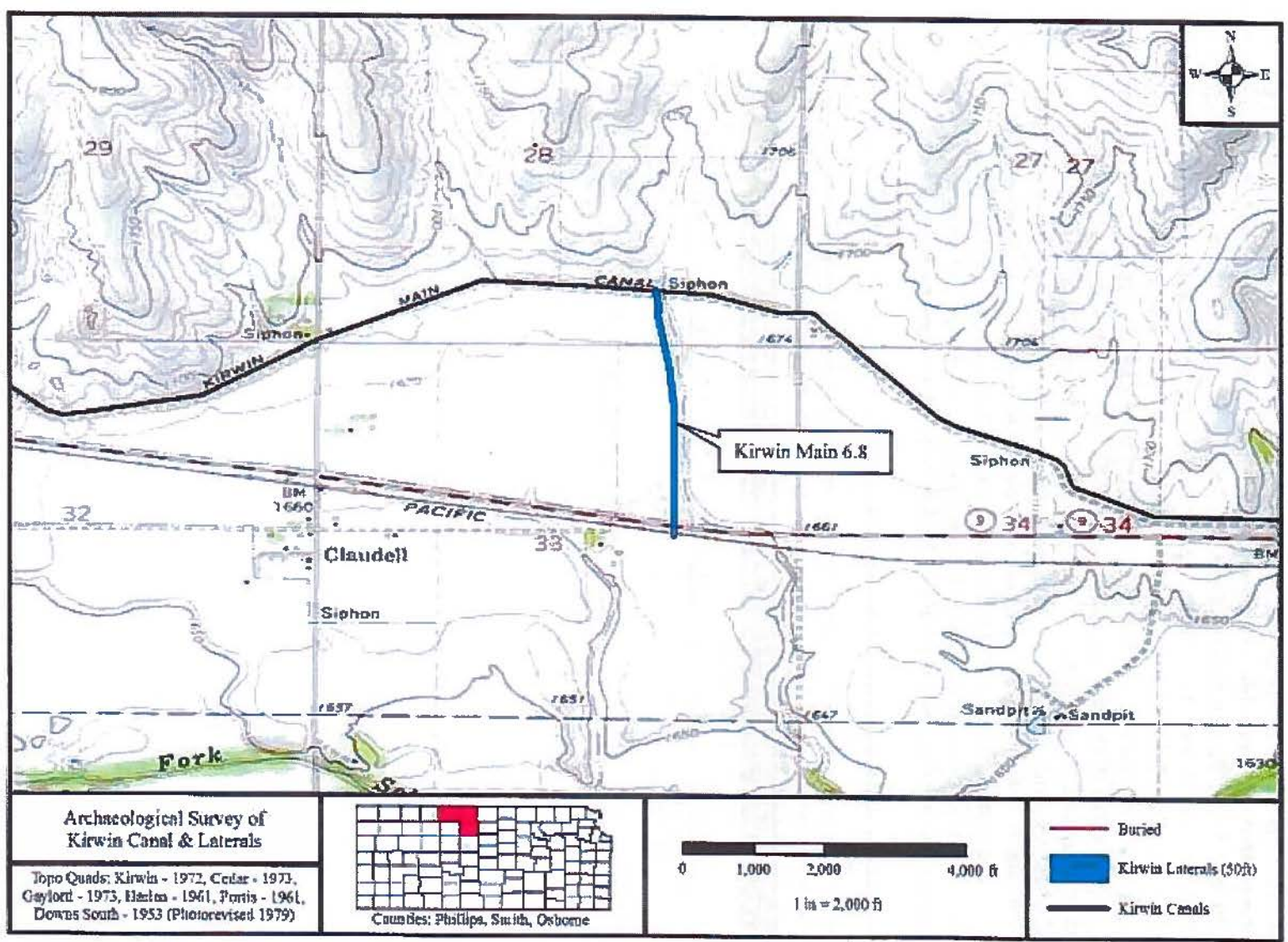


Figure 8. Detail of Kirwin, KS 1972 USGS 7.5 minute series Quadrangle Depicting the Kirwin Main 6.8 Project Area; T4S & 5S R15W.

18668 (9-89)  
Bureau of Reclamation



# United States Department of the Interior

BUREAU OF RECLAMATION  
Great Plains Region  
Nebraska-Kansas Area Office  
P.O. Box 1607  
Grand Island, Nebraska 68802-1607

IN REPLY REFER TO:

NK-310  
ENV-3.00 KIR & WEB

MAR 02 2011

Ms. Jennie A. Chinn  
State Historic Preservation Office  
Kansas State Historical Society  
6425 S.W. 6<sup>th</sup> Avenue  
Topeka KS 66615-1099

OFFICIAL FILE COPY		
DATE	SURNAME	CODE
3/1	ARC	Chinn
3-1	Walters	Kinder
3/3	BEW	Esplin
3/2	@	Thompson
Classification ENV-3.00		
Project GF 3437		
Control No. 11016058		
Folder I.D. 1018995		

Subject: Results of an Archeological Pedestrian Survey of 234.8 Acres of Privately Owned Lands within the Kirwin and Webster Irrigation Districts Proposed for Irrigation Canal Replacement with Buried Pipelines, Phillips, Smith, Osborne, and Rooks Counties, Kirwin and Webster Units, Solomon Division, Pick-Sloan Missouri Basin Program, Kansas.

Dear Ms. Chinn:

Please find enclosed for your review, concurrence, and files two copies (one bound and one unbound) of the final report by Aimee Leithoff titled "An Archaeological Pedestrian Survey of Open Ditch Laterals Within the Kirwin and Webster Irrigation Districts, Kirwin and Webster Units, Solomon Division, Pick-Sloan Missouri River Basin Project, Bureau of Reclamation, in Phillips, Smith, Osborne, and Rooks Counties, Kansas". An electronic version on this report is available upon request.

During October 2010, archeologists with Cultural Resources, Inc. conducted a cultural resource pedestrian survey on privately owned lands while under contract for the Nebraska-Kansas Area Office (NKAO) of the Bureau of Reclamation. The proposed project consists of the replacement of open ditch laterals with buried pipelines. This project is expected to span several years and will be completed when funding is available. The order of the replacement laterals has not yet been determined. The laterals are located in two irrigation districts (the Kirwin Irrigation District and the Webster Irrigation District) in Phillips, Smith, Osborne, and Rooks Counties, Kansas. The proposed buried pipelines will be placed down the center of existing canal or ditch right-of-ways. The survey locations and acreage are listed in the attached report by Ms. Aimee Leithoff of Cultural Resources, Inc.

A file search with the NKAO files and the Kansas State Historical Society / DASC Archeological Viewer on September 29, 2010 disclosed no previously identified archeological sites within the proposed project areas.

**Subject: Results of an Archeological Pedestrian Survey**

**2**

The areas involved, 234.8 acres in total, received a 100% cultural resource survey using parallel transects placed at no more than 15 meter intervals, with visibility ranging from 60-100%. All survey areas were located along existing ditches or canals and/or agricultural fields that have experienced heavy disturbance from previous modern agricultural activities.

Two archeological sites (14OB107 and 14OB108) and a standing structure (141-129) were identified during the survey. Site 14OB107 consists of an isolated find, an Alibates Archaic or Early Ceramic period projectile point located in secondary deposition on the floor of an open ditch lateral. No additional cultural material was documented within the lateral or the adjacent agricultural fields. It is likely that the point was washed down the lateral. Due to the low research potential associated with a single point, and the lack of cultural features, it is recommended that site 14OB107 is not eligible for listing on the National Register of Historic Places (NRHP) and no further work is recommended. Site 14OB108 consists of a 20<sup>th</sup> century trash scatter located in a road cut between two agricultural fields and the edge of an open ditch lateral. The site contains ceramic, glass, and metal artifacts and is located in the road cut with no additional artifacts in either agricultural field. Due to the lack of research potential associated with a 20<sup>th</sup> century trash scatter and the lack of features or cultural layers, it is recommended that site 14OB108 is not eligible for listing on the NRHP and no further work is recommended. The standing structure (141-129) consists of a limestone historical marker that was erected in 1938. The marker is on the edge of a Reclamation easement; however, it will not be impacted by the proposed buried pipeline project and, therefore, no further work is recommended.

Because neither site (14OB107 or 14OB108) appears to be potentially eligible for the NRHP, and because the standing structure (141-129) will be avoided during construction, a finding of no historic properties affected is proposed for this project. It is recommended that no further cultural resource survey or testing be required and that the proposed project proceed as planned.

If you have any questions or comments, please contact me at the above address or by phone at 308-389-5320. Thank you.

Sincerely,

**BILL R. CHADA**

Bill R. Chada  
Area Archeologist

Enclosure - *10/ AKAD Archeology Division*

WBR: BChada: acarlson: 03/01/2011: 308-389-5320  
Leithoff 2010a 030111

KSR&C No. 11-03-231

6425 SW 6<sup>th</sup> Avenue  
Topeka, KS 66615

RECEIVED  
BUREAU OF RECLAMATION



phone: 785-272-8661  
fax: 785-272-8682  
email@kshs.org

2011 MAR 17 11:10:15  
Kansas Historical Society

NEBRASKA-KANSAS AREA OFFICE  
GRAND ISLAND, NEBRASKA

March 14, 2011

Bill R. Chada  
Area Archeologist  
Bureau of Reclamation  
Nebraska-Kansas Area Office  
P.O. Box 1607  
Grand Island, Nebraska 68802-1607

Dear Mr. Chada:

In accordance with 36 CFR 800, the Kansas State Historic Preservation Office has reviewed a final report entitled *Results of an Archeological Pedestrian Survey of 234.8 Acres of Privately Owned Lands within the Kirwin and Webster Irrigation Districts Proposed for Irrigation Canal Replacement with Buried Pipelines, Phillips, Smith, Osborne, and Rooks Counties, Kirwin and Webster Units, Solomon Division, Pick-Sloan Missouri Basin Program, Kansas*, by Aimee J. Leithoff of Cultural Resources, Inc. We find the report to be acceptable and concur with its recommendations that archeological sites 14OB107 and 14OB108 are not eligible for listing in the National Register of Historic Places. We further concur that since the historic marker (standing structure 141-129) is outside of the project area and will not be affected by construction, no further investigation will be necessary. Finally, our office concurs with the conclusion that the proposed project will have no effect on historic properties as defined in 36 CFR 800. We have no objection to the canal/buried pipeline conversion.

This information is provided at your request to assist you in identifying historic properties, as specified in 36 CFR 800 for Section 106 consultation procedures. If you have questions or need additional information regarding these comments, please contact Tim Weston at 785-272-8681 (ext. 214).

Sincerely,

Jennie Chinn, Executive Director and  
State Historic Preservation Officer

Patrick Zollner  
Deputy SHPO

San Brownback, Governor Jennie Chinn, Executive Director			
Route To	Initial	Date	Action
Esplin	DE	3/12	
Chada	erouted		
Remarks			
Classification: ENV-3.00			
Project: 3437 6F			
Control No: 11021368			
Folder ID: 1018995			



# LANDOWNER FUNDING COMMITMENT

Kirwin Irrigation District No. 1  
P.O. Box 660  
304 First Street  
Gaylord, Kansas 67638  
785-697-2273  
[kidwid@ruraltel.net](mailto:kidwid@ruraltel.net)

January 26, 2018

Agreement on the Cost of Construction on Kirwin Lateral 6.8

Total Cost: \$16,400

Monies payable to Kirwin Irrigation District

Kirwin Irrigation District will reimburse Schamp Construction \$16,400  
after completion of project.

Kyle Bienhoff      79 Acres      \$77.85 per acre      \$6,150.05

Sign  \_\_\_\_\_

A.J. Wilson      55 Acres      \$126.54 per acre      \$6,959.70

Sign  \_\_\_\_\_

Equity Trust Company custodian

FBO Jeff Ostmeyer      26 Acres      \$126.54 per acre      \$3,290.04

Sign  \_\_\_\_\_

Randy Schamp  
Contractor Sign  \_\_\_\_\_

Andy Wilson  
District Manager Sign  \_\_\_\_\_

## LANDOWNER PIVOT COMMITMENT

Kirwin Irrigation District No. 1

204 First Street

Gaylord, KS 67638

I currently own land served by Kirwin Lateral 6.8. My land is located in the NE ¼ of the SE ¼ of Section 33, Township 4 South, Range 15 West. If Kirwin Lateral 6.8 is placed in pipe, I have a verbal agreement with my neighbor to the west (W ¼ of the SE ¼ of Section 33, Township 4 South, Range 15 West), who's ground is also served by Lateral 6.8, that I will install a center pivot that will cover both my property and my neighbor's property.

If Kirwin Lateral 6.8 is converted to buried pipe, I plan on installing a center pivot that will serve all District lands located in the SE ¼ of Section 33, Township 4 South, Range 15 West.

*af. will*



1290 West 4th Street  
P.O. Box 906  
Colby, Kansas 67701-0905

---

June 20, 2018

Kirwin Irrigation District No. 1  
304 First Street  
P.O. Box 660  
Gaylord, Kansas 67638

RE: FOA BOR-DO-009, WaterSMART Grants: Small-Scale Efficiency Projects for FY 2018


KID Board of Directors:

This letter is in support of your application for a Federal Grant to replace an open ditch lateral with underground pipe. I know from experience that this will greatly decrease water loss, and will increase efficiency of the system.

While this project does not directly impact groundwater in NW Kansas, we realize that efficiency improvements in irrigation districts serviced by reservoirs that have their headwaters with the boundaries of GMD #4 can, and should, reduce water demands on those reservoirs. The reduced demand can help in the over-all water balance of the region.

We feel that this is a worthwhile project, and do support your grant request.

Sincerely,



Ray P. Luhman  
Manager  
GMD #4



## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

Rainwater Basin Wetland Management District  
73746 V Road, P.O. Box 8  
Funk, Nebraska 68940  
Phone: 308-263-3000, Fax 308-263-3001

July 16, 2018

Andrew Wilson  
Manager  
Kirwin Irrigation District No.1  
304 1<sup>st</sup> Street  
Gaylord, KS 67638

Dear Andrew:

This letter represents a commitment on the part of the U.S. Fish and Wildlife Service Kirwin National Wildlife Refuge to support the grant titled project "FOA BOR-DO-009, WaterSMART Grants: Small-Scale Efficiency Projects for Fiscal Year 2018" submitted by the Kirwin Irrigation District No.1. The Refuge manages 10,778 acres of wildlife habitat and fisheries as an overlay project on a Bureau of Reclamation irrigation and flood control reservoir. The Kirwin National Wildlife Refuge Comprehensive Conservation Plan provides a framework for management of these properties. This plan has several objectives and strategies that will be addressed through the actions outlined in this grant. To support implementation of grant activities the U.S Fish and Wildlife Service Kirwin National Wildlife Refuge has committed support in the form of a support letter. Actions that will be supported include use documentation and management plans targeting the benefits for people and communities within the District focusing on socio-economic contributions and the benefit of the refuge water use.

Sincerely,

A handwritten signature in blue ink, appearing to read "Brad Krohn".

Brad Krohn  
Project Leader  
Rainwater Basin Wetland Management District  
U.S. Fish and Wildlife Service

