WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS FOR FY 2015

HIGH CANAL PHASE 5 PROJECT

SIDNEY WATER USERS IRRIGATION DISTRICT

Funding Opportunity Announcement No. R15AS00002

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1.0 EXECUTIVE SUMMARY – JANUARY 23, 2015

The applicant, Sidney Water Users Irrigation District (SWUID), is located in Richland County, Montana, directly east of the town of Sidney, Montana across the Yellowstone River. The SWUID is not a USBR facility however it is a contracted facility, with the USBR investing in Phase 3 of the High Canal Pipeline Project through a WaterSMART Grant in 2011.

The High Canal Phase 5 Pipeline Project includes the replacement of 24,200-feet of open canal irrigation delivery infrastructure with 11,041-feet of closed conduit pipeline. The Phase 5 improvements will connect to and complete the High Canal Pipeline project allowing for the full realization of water and energy conservation benefits targeted when the project was started. The project will conserve water through elimination of seepage, evaporation, and evapotranspiration losses through the High Canal. NRCS measurements identified 1,225 acre-feet of water loss annually through the Phase 5 reach. Associated water management improvements will further facilitate on-farm improvements which have started with preliminary layouts with the local NRCS staff. Implementation of the Phase 5 improvements will lead to further replacement of traditional flood irrigation methods with sprinkler irrigation due to new pressure provided at the headgate leading to another 940 acre-feet annually of potential water conservation. Water conservation from the project will increase instream flows in the Yellowstone River which will benefit the Pallid Sturgeon and Least Turn, both endangered species in the Yellowstone River. The proposed improvements will lead to an immediate reduction in energy consumption at Pump Station #1 of up to 124,000 kW-hrs annually. The project will include the installation of water measurement devices at each field turnout to supplement the existing water and energy measurement network created through previous phases of the project to quantify and identify water and energy conservation. Phase 5 work is scheduled to begin in the fall of 2015 and will be completed by June 2017. Construction is estimated to take two construction seasons due to the shortened construction season in NE Montana.

2.0 BACKGROUND

2.1 Irrigation District Description and Location

The Sidney Water Users Irrigation District (SWUID) is located adjacent to the Yellowstone River east of Sidney in Eastern Montana. The Project stretches approximately 13 miles south to north along the eastern banks of the Yellowstone River outside of Sidney, Montana. The center of the SWUID is located at latitude 47.66° North and longitude 104.14° West. A map of the proposed project area and its relationship to the Yellowstone River and Sidney, Montana is shown in Figure 1 on Page 2. The SWUID is made up of five sub-districts and currently serves 4,753 acres of irrigated farmland operated by nearly 40 family farms. Irrigators in the SWUID primarily raise alfalfa, sugar beets, corn, and small grains such as wheat and malt barley. The SWUID infrastructure was constructed by the former Works Progress Administration in the 1930s and was officially operational in 1938. The infrastructure was owned by the Montana Department of Natural Resource Conservation until 1995, at which time it was disposed of by the department and transferred to the SWUID. The SWUID maintains a water right from the Yellowstone River to irrigate the acres within the District. The flow rate specified in the water right amounts to 133.22 cfs.

This application deals specifically with the 2,289 acres of Districts 1 and 2 located along the southern end of the irrigation district. Districts 1 and 2 provide irrigation water for 10 farm operations within the SWUID. The two Districts are served by Pump Station #1 located at the far southern tip of the SWUID with a pumping capacity of 57 cfs. In 2006, the SWUID began replacing the High Canal with pipeline and to date have installed over 30,096-feet (5.7 miles) of pipeline starting from Pump Station #1. This installation has taken place over 8 years in 4 separate phases completed by the SWUID. This application will address the remaining 24,200-feet of open canal and laterals serving approximately 400 acres at the end of Districts 1 and 2.

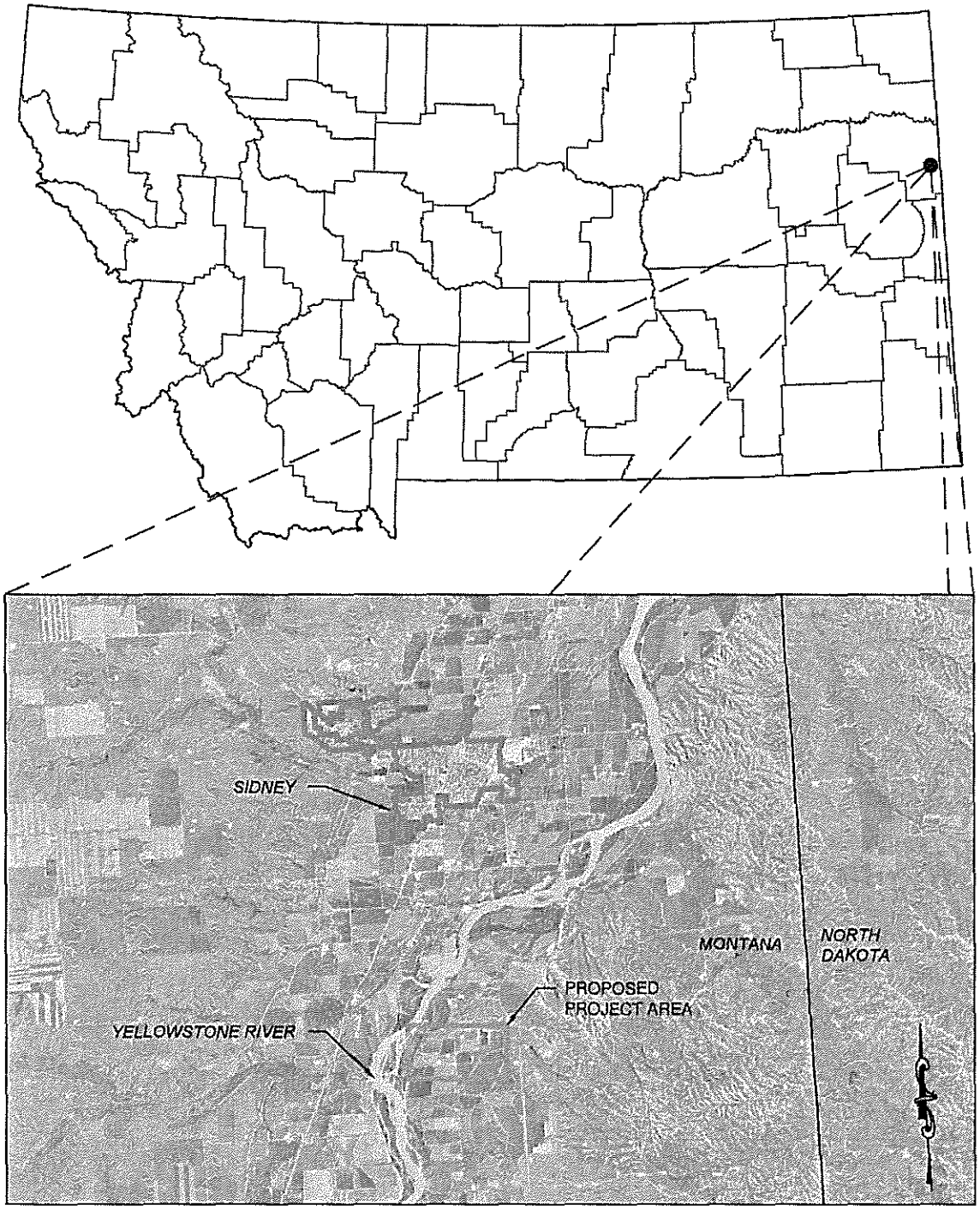

Figure 1. General Location Map

2.2 System Infrastructure

The District 1 & 2 infrastructure consists of gravity canals and laterals fed by a pump system lifting water from the Yellowstone River into the delivery system. SWUID has successfully converted a large portion of the High Canal, which is the primary delivery canal through the Districts, from an open canal to a closed conduit delivery system. Since 2006 SWUID has replaced 5.7 miles of the large open canal with 4.6 miles of closed conduit pipeline building the delivery trunk line through the Districts while replacing nearly 2 miles of delivery laterals with closed conduit pipeline as well. There is currently approximately 4.6 miles of open canal and lateral delivery remaining in Districts 1 & 2 which make up Phase 5 of the proposed project. SWUID has updated the existing Pump Station #1 with electrical equipment and pump overhauls to ensure its continued operation. The remaining pipelines have been installed within the last 10 years and are not near approaching the end of their design lives. The remaining open canal and lateral delivery system however has become overgrown with vegetation and are generally inefficient delivery infrastructure due to conveyance losses and seepage losses.

2.3 Energy Efficiency

Previous phases of the High Canal Project have resulted in a net savings on up to 300,000 kW-hrs per year of energy consumption at Pump Station #1. Through the elimination of seepage and conveyance losses Phases 1-4 of the project have resulted in a drastic overall reduction in energy consumption. It is estimated that the implementation of Phase 5 of the High Canal Project will result in a further reduction in energy consumption of up to 40,000 kW-hrs through improved delivery efficiency and elimination of seepage losses through the final reach of the project. SWUID and the local NRCS monitor energy consumption and document pre- and post-project use to note the effectiveness of the project.

2.4 Project Purpose and Objective

This project is a remediation and conservation project targeting the remaining open canal sections of the High Canal in Districts 1 and 2. The overall objective of the project is to eliminate seepage associated with irrigation delivery within Districts 1 and 2. Through completion of the primary objective two additional objectives will be achieved. First,

overall irrigation efficiency will be improved, resulting in further water conservation associated with on-farm irrigation activities. Secondly, a reduction in power consumption at Pump Station #1 will result from elimination of water loss in the conveyance system.

Between 2003 and 2004 the USDA Natural Resource Conservation Service (NRCS) field office in Sidney, MT worked with the SWUID to determine the extents of water loss within the High Canal. The NRCS worked with the District to measure water flows at various sections along the High Canal. During the field test, all turnouts were closed down in order to isolate the volume of water being lost through the High Canal's berms. These field measurements, in combination with the High Canal's soil data, allowed the NRCS and the SWUID to accurately calculate the volume of water lost throughout the High Canal system. The following depicts the notable milestones achieved by the SWUID in the first four phases of the pipeline project:

- Elimination of a 30 HP re-lift pump saving approximately 39,000 kW-hr per year
- 12.4 cfs seepage loss elimination (40% loss of canal capacity) through the first mile of pipeline
- 6.0 cfs seepage loss elimination (37% loss of canal capacity) through the second mile of pipeline
- Overall reduction of approximately 300,000 kW-hr per year of energy consumption at Pump Station #1

The above referenced improvements and seepage elimination were all measured and documented by the SWUID and local NRCS field staff. Additionally, as part of the pipeline project every field turnout is fitted with a flow meter for tracking water consumption at the field level.

The proposed Pipeline Project Phase 5 will include the replacement of approximately 24,200 feet of High Canal with 10,400-feet of pipeline. ***The NRCS field staff measures water losses through this stretch of canal at 4.5 cfs at the lower end of the system.*** The losses were calculated using open channel water measurements at specified

sections of the canal. Using canal geometry and velocity profile readings throughout the control sections the corresponding flow regime was created. As mentioned earlier, measurements were taken while the canal was flowing prior to the release of any water at field turnouts between the measurement reach. Because there were no releases between the measurements the loss was calculated as the difference between flows at the upstream and downstream stations. ***The total water loss in the Phase 5 reach of the High Canal amount to approximately 1,225 acre-feet per year.***

2.5 Financial Ability – Federal Assistance Necessary

The SWUID is made up of small family farms with 35 landowners making up the District. Typical crops grown within the District include small grains, malt barley, alfalfa, and sugar beets. The District has an overall budget of $166,355 to cover O&M, repairs, staff wages, benefits, and a small reserve fund. When large construction projects such as this present themselves, typically the District's only financial option is to go to the local bank and take out a loan to cover the project costs. This funding method increases irrigation fees within the District to repay the loan. Currently the standard fee for irrigation water within the District is $35 per acre. The $35 per acre fee is one of the higher rates in Montana. The increase in farming input and equipment costs, combined with substantial drops in market commodity prices, the members of the District cannot support a further increase in water fees for construction.

The SWUID is located within the Bakken Shale oil play in northeast Montana which has substantially increased both the cost of living in the area as well as the cost of labor. The areas association with oil development has drastically driven up the cost of diesel as well as the cost of labor for both the District and its individual members. The Sidney area has the highest cost of living within Montana due to natural resource development. These circumstances have contributed to the District reaching out for assistance with the proposed project.

Along with BOR funding assistance, the District has applied for a Renewable Resource Grant through the Montana Department of Natural Resource Conservation (DNRC) for an additional $125,000 to facilitate completion of Phase 5. The DRNC Grant Application

has ranked high enough to be funded through the 2015 Montana Legislature and should be officially contracted by September 2015. Should the District not receive funding from the BOR, the scope of the Phase 5 project will be required to be scaled back. The District will install as much pipe as the budget allows for depending on award from the BOR.

2.6 Project Need – Legal Order

The SWUID is not under any state or federal order to reduce water consumption or mitigate seepage losses. The District has undertaken the project by choice to improve their beneficial use of Montana's water resources and increase irrigation efficiency. Water conservation is a priority for the SWUID for a number of reasons, operational efficiency and cost savings being chief amongst them. The District is taking proactive steps to aggressively curtail water losses within its system do to seepage in the hopes that it will not come under state or federal order to do so in the future. The SWUID will continue to pursue water conservation projects to improve irrigation efficiency within the District and partner with state and federal entities when appropriate.

2.7 Past Project Coordination - USBR

The SWUID is a contract district with the USBR however the infrastructure and water right are owned and maintained by the SWUID. SWUID was awarded a WaterSMART Grant in 2011 for Phase 3 of the same High Canal Project. Construction of the USBR and DNRC funded Phase 3 was completed in 2012 prior to the irrigation season. Under the same 2011 WaterSMART award the District completed a pipeline conversion project within District 5 on the Main Canal. The SWUID completed without problem the construction and installation of both projects on schedule and within budget. The working relationship between the USBR and SWUID has been valuable and crucial in the completion of these water and energy conservation projects.

2.8 Contact Information

The primary point of contact for this project will be Raymond Bell, President of the SWUID. Mr. Bell will serve as Project Manager for the Phase 5 Project, overseeing engineering and construction. The contact information for Mr. Bell is below.

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3.0 TECHNICAL PROPOSAL

3.0.1 Overall Scope of Work

An engineering analysis has been completed on the overall High Canal project in a previous Preliminary Engineering Report (PER). In the previous PER two alternatives were analyzed for pipeline routes and size combinations. Additionally, canal lining in all of its various forms was reviewed and discussed. The SWUID chose to precede forward with the preferred alternative in the original PER which included installation of approximately 7,100-feet of 27-inch pipe (Phases 1, 2 & 3); 1,800-feet of 24-inch pipe (Phase 4); 1,365-feet of 18-inch pipe; and 4,270-feet of 15-inch pipe. That included all appropriate appurtenances such as fittings, valves, turnouts, and flow meters to transport water to the fields within Districts 1 and 2. Phases 1 through 4 were designed and overseen by the local NRCS field staff. Phase 5 has not yet been designed as the design for the final Phase will be included in the Project. The existing site map can be seen in Exhibit E-1.

The SWUID has constructed Phases 1 through 4, including the 27-inch and 24-inch trunk line for the project. Phase 5 will begin at Station 95+85 continuing the 24-inch trunk line to Station 104+35. At 104+35 the pipeline will tee with an 18-inch branch line heading due west and the 18-inch trunk line continuing east under the County Road. The trunk line will continue east under the County Road with 18-inch PVC to Station 125+50 where field turnouts will be installed. Immediately following the three field turnouts, the truck line will continue north as 15-inch PVC from Stations 125+50 to 135+16. At 135+16 field turnouts will be installed and the trunk line will be reduced to 12-inch PVC through its termination at 155+10. See attached Exhibit E-2 for station reference and pipeline alignment.

From the tee located at Station 104+35, the branch line will continue west with 18-inch PVC to Station 19+50 at which point field turnouts will be installed for service. From 19+86 to 51+14 a 12-inch PVC line will be installed with another field turnout installed. At 35+41 the pipeline will turn north along the edge of the field to its termination at 51+14. Field turnouts will be installed on the 12-inch line at Stations 35+41 and 51+14. See attached Exhibit E-2 for station reference and pipeline alignment.

The alignment described in the previous paragraphs is the preliminary sizing for the Phase 5 pipeline. The alignment will not change from what is shown in Exhibit E-2 however pipe sizes and turnout locations may vary slightly to best fit the field conditions during design. It is important to note the Phase 5 has only been preliminarily designed and will go through final design if funding is granted.

The SWUID to this date has completed installation of four phases of the High Canal Project and multiple other pipeline installations within District 3, 4, and 5. The District, its staff, and members have installed over 8.75 miles of pipeline throughout the SWUID. Since 2006 the District has been working on pipeline projects and has developed solid technique and installation methodology which has been overseen and approved by the NRCS. District staff and members work diligently to correctly install the pipelines, as they know that if any part of the installation is done incorrectly they will be the party to deal with the problem. Taking ownership in the construction has ensured that each phase of the High Canal Project has gone smoothly with little troubles with the installed system.

The District uses a combination of equipment for installation of the pipelines. A combination of the following equipment is provided by the District and its members for use during construction.

- Track Hoe
- Backhoe
- Grader

- Loader
- Dump Truck
- Survey Equipment
- Equipment Transport
- Soil Compactor

The District's installation crew is well versed in the operation of all equipment listed above and has sufficient experience to ensure proper execution of Phase 5.

3.0.2 Design Criteria

Phase 5 has not been fully designed at this point. A preliminary design has been completed to ensure proper hydraulics and flow regime through the pipeline. However, further design will be required to determine exact lengths of each pipe size and proper location of field turnouts. The necessary fittings and appurtenances have been identified for the project and are listed in a subsequent table. All design criteria will meet and/or exceed BOR and NRCS standards for pipeline construction. NRCS specifications will be used for the construction package for guidance for the installation crew. The pipeline layout and configuration is shown on Exhibit 1 along with the irrigated acres and the existing High Canal to be replaced.

The SWUID has advertised and contracted a professional engineer to assist the District with the Phase 5 Project. The firm selected was Performance Engineering and Consulting, PLLC (PEC) based on their qualifications and the selection criteria and process required under the State of Montana Procurement Procedures. PEC will work with the local NRCS and the District as needed to provide support in the completion of the project. Table 1 shows the preliminary list of the major components necessary for the pipeline. The components in Table 1 were also used as the basis for the cost estimate for the Phase 5 Project.

Table 1. Pipeline Component List

Item	Quantity	Units
24-inch PVC	850	LF
18-inch PVC	4,100	LF
15-inch PVC	966	LF
12-inch PVC	5,125	LF
Field Turnout Assembly	15	EA
Turnout Bollards Settings	15	EA
Air Vent Assembly	6	EA
18-inch Isolation Valve Assembly	2	EA
Concrete Thrust Blocks	27	EA
Trunk Line Fittings	15	EA
Branch Line Fittings	12	EA
Revegetation	3	AC

3.0.3 Construction

The SWUID will construct the Phase 5 Project in its entirety. The District will order in custom fittings for pipeline joints, tees, and elbows which will be manufactured out of house. The installation of the pipeline, pipeline appurtenances, valves, thrust blocks, and field turnout assemblies will be completed by the SWUID staff and District members. All supplies will be solicited through vendors and delivered to the site. Construction will be overseen by either NRCS local field staff or PEC inspectors for quality control and assurance purposes.

3.1 Water Conservation

3.1.1 Quantifiable Water Savings

The Phase 5 reach of the High Canal has a maximum capacity of 7,000 gpm or 15.6 cfs to serve approximately 441 acres at the end of Districts 1 and 2. Measurements taken by the local NRCS officials in 2009 show typical flow levels of 10.6 cfs during non-peak months. The NRCS used standard stream flow measurement devices to take readings throughout the High Canal at various points. At each point a control section was established through site surveying and the velocity meter was calibrated to read the flow through the control sections. During the flow measurement all turnouts and diversions were closed to gain an accurate measurement in the system. **Losses, as measured by the NRCS, account for up to approximately 4.5 cfs, equating to approximately 1,225 acre-feet, which includes seepage, evapotranspiration, and conveyance losses.**

Losses tend to be more severe during peak months as more water is pushed through the system. Losses account for anywhere from 28-42% of the canal capacity depending on the time of year. Water loss measurements conducted recorded by the NRCS are provided in Appendix B for reference. These losses contribute to the continued inefficiencies at the on-farm application level as well.

Water losses generally stem from seepage, evapotranspiration, and spill throughout the system. Seepage losses eventually reach groundwater in the area for groundwater recharge. Evapotranspiration is lost to vegetation, trees, and brush growing along the open canal through the system. Spill losses through the system are pushed through the District's drain system seeping into groundwater or draining into the Yellowstone River. Spill losses are of concern to the SWUID due to their impact on water quality in the Yellowstone River. Generally water run through the drain system deposits sediment into the river having a negative impact on water quality.

Through the implementation of the Phase 5 project it is anticipated that all seepage and evapotranspiration losses will be eliminated. Phase 5 will include the replacement of 24,200 feet of High Canal with 10,400-feet of closed conduit pipeline ranging in size from 24-inch PIP at the head of the project to 12-inch PIP at its termination. Exhibit E-2 shows the proposed layout and the pipeline configuration with pipe sizes as planned for Phase 5. Minor losses in conveyance will likely remain but those are anticipated to be nearly unnoticeable due to the size of the pipeline and grades in the area. SWUID has documented through the first four phases of the High Canal Project a remarkable reduction in pumping rates and pump volumes over the nine years. SWUID tracks energy consumption and flow rates at Pump Station #1 to note water and energy consumption for Districts 1 & 2. Additionally, flow meters have been installed on each turnout through the High Canal system to monitor and measure application rates and track delivery efficiency through the system. Ditch riders document daily application rates and pump station operations so the SWUID can annual report its water consumption. Phase 5 will include the installation of field turnout flow meters to continue the documentation and report all savings. By comparing prior years of operational records the SWUID will easily

be able to report all water conservation and applied water volumes to the USBR, NRCS and DNRC upon completion of the project and throughout its operational life.

3.1.2 Percentage of Total Supply

The overall water supply for the SWUID Districts 1 & 2 is approximately 4,250 acre-feet annually. The measured losses in the Phase 5 reach of the High Canal account for up to 1,225 acre-feet annually which is unnecessarily diverted from the Yellowstone River and lost. **This translates to a conservation of up to 29% of the overall water supply historically used by Districts 1 & 2.**

3.2 Energy-Water Nexus

3.2.1 Implementing Renewable Energy Projects

This project will not implement or include any renewable energy features.

3.2.2 Increasing Energy Efficiency in Water Management

SUIWD Pump Station #1 consists of three 200 HP pumping 5,100 gpm each. All are vertical turbine pumps with power supplied by Western Area Power Authority (WAPA). Pump Station #1 was reworked in the 1970s with continual maintenance rotated through the pumps and motors regularly. In 2009 all electrical panels and wiring were replaced and upgraded to bring the pump station to code. The Pump Station generally operates under a slower ramp up during the months of May and June with peak service generally seen in the months of July and August. The system is ramped back down during September and shut down in October following fall irrigation and recharge. The SWUID, since undertaking the major conservation efforts in the 1990s, has made it a priority to conserve water and energy. The proposed Phase 5 Project will be the capstone of the High Canal Pipeline Conversion Project helping to fully realize the total water and energy conservation. The proposed project will have a notable impact on water management for the District while reducing overall energy consumption at Pump Station #1 as described in the paragraphs below.

SWUID actively tracks and records energy consumption annually at each pump station to monitor both pump efficiencies and operations as well as to monitor operations. Pump

Station #1 servicing Districts 1 & 2 and the High Canal Project prior to undertaking the previous four phases of the project used approximately 1,100,000 kW-hrs as measured by the metering done at the plant. Recent completion of Phase 3 of the High Canal Project netted an approximate reduction in power consumption of 136,000 kW-hrs annually as metered at the pump station. Completion of Phase 4 netted an approximate reduction in power consumption of 63,000 kW-hrs. The average energy reduction of the four combined phases is over 370,000 kW-hrs per year. These records are recorded with SWUID and WAPA, who provides power. The monthly energy usage from 2006 to 2014 can be seen in Appendix C.

The energy wasted pumping the excess 1,225 ac-ft of water lost through the open canal system in Phase 5 based on the pump curves and flow rates is approximately 177,000 kW-hrs. Completion of Phase 5 will conserve 1,225 ac-ft of water however installation of the pipeline system will also increase friction head and losses. To account for and overcome those energy losses it is assumed that 30% of the 177,000 kW-hr savings from pumping will still be required. ***This would bring the overall energy savings of the Phase 5 project to approximately 124,000 kW-hrs annually.*** To produce the 124,000 kW-hrs of energy wasted approximately 137 tons of CO_2 is generated and discharged into the atmosphere. Implementation of the proposed project will lead to a moderate reduction in discharge of greenhouse gases into the atmosphere.

This energy savings will be documented and tracked by both WAPA and the SWUID. Energy savings will be realized at the original point of diversion along the Yellowstone River, no alternative pump site is being proposed. It should be noted that all water used in the system is untreated water used solely for irrigation purposes.

The Phase 5 Project will improve management of the delivery system which will require less operational oversight. That improvement will lead to less travel by District staff managing water levels in the system. Through the implementation of the pipeline system staff no longer must continually monitor canal water levels for bank overtopping or drastic increases or drops in water levels. Due to the nature of its operation and the multitude of

tasks District staff complete each day it is difficult to accurately estimate the reduction in travel and vehicle mileage due to implementation of the project. ***However, without a doubt the project will lead to less travel time, mileage, and resulting carbon emissions into the atmosphere through dramatically improved water management.***

3.3 Benefits to Endangered Species

The proposed Phased 5 Project will immediately reduce water withdrawn from the Yellowstone River by 1,225 acre-feet annually; reduce power consumption by 124,000 kW-hrs annually; and improve water quality in the Yellowstone River by reducing irrigation return flows.

Wildlife within and around the SWUID is plentiful and includes many species of common birds, animals, and fish. Within the SWUID operating area there are two species listed on the US Fish and Wildlife Services Endangered Species List, the Pallid Sturgeon and Least Tern. There are ten species listed as species at risk due to limited or extremely limited and/or potentially to rapidly declining population numbers and habitat. Five of these species (Blue Sucker, Paddlefish, Sauger, Sturgeon Chub, and Sicklefin Chub) are fish within the Yellowstone River.

In recent years there have been major investments irrigation infrastructure along the Yellowstone River to improve habitat for the Pallid Sturgeon. Directly upstream of SWUID Pump Station #1 is the Lower Yellowstone Irrigation Project's Intake Diversion which the USBR, US Fish and Wildlife, USCOE, MT DNRC, and local irrigation district have invested tens of millions of dollars to modify to allow for improved spawning of the Pallid Sturgeon. The Pallid Sturgeon will directly and immediately benefit from the propose project through the reduction in water withdrawn from the Yellowstone River improving instream flows. Additionally, immediate direct benefits from reduced intake of river water include less impingement of fish on screened intakes and reduced entrainment in unscreened pumps. The US Fish and Wildlife Service's Pallid Sturgeon Recovery Plan can be found at: http://www.fws.gov/yellowstonerivercoordinator/pallid%20recovery%20plan.pdf.

The Phase 5 Project will result in an improvement of instream flows in the Yellowstone

River. Increased instream flows will provide improve fisheries habitat for not just the Pallid Sturgeon but the five fish listed as species at risk. It is important to look at the benefits provided by the Phase 5 Project in the context of long term conservation of both water and the environment. Investments in the improvement of instream flows for the Pallid Sturgeon are marginal in comparison to the major infrastructure investments in diversions, fish ladders, and screening. This project will have a notable long term positive impact on the Pallid Sturgeon and Sturgeon habitat in the Yellowstone River for decades to come.

3.4 Water Marketing

Flow meters will be installed at each field turnout throughout the Phase 5 system. This will cap a conversion of the entire High Canal delivery system to pipeline with flow metering. Flow meters allow the irrigator to determine how much water is being applied at any moment, and they provide a readout of total amount of water applied during the irrigation season. The data from the flow meters, along with the computer programs available at the local NRCS will allow the irrigator to better understand and improve the application of irrigation water.

Installation of the water measuring devices will allow SWUID to charge by water volume used rather than by the number of acres irrigated; thus providing incentives and means for more precise water management and additional water conservation. This market based irrigation water accounting could incorporate all water delivered through the High Canal pipeline system in the District for the entire life of the improvements.

It is difficult to predict the actual volume of water saved among the water users due to the market incentives. It is expected that the water used would also be directed to the highest value crops and to the best use of any given head of water.

3.5 Other Contributions to Water Supply Sustainability

3.5.1 WaterSMART Basin Study Adaption Strategies

A WaterSMART Basin Study has not been completed for the Yellowstone River in the

area SWUID is located. Therefore there is no applicability of this subcriterion.

3.5.2 Expediting Future On-Farm Irrigation Improvements

The High Canal Pipeline Conversion Project Phases 1 through 4 have been a collaboration between the District, MT DNRC, USBR and the NRCS. The local NRCS has been active in every phase of the project due to the improvement it provides for on-farm irrigation. NRCS has engaged in the project and is actively working with irrigators off of the High Canal and in the Phase 5 area to modify traditional flood irrigation (siphon tubes and ditch flood). In the previous four phases of the project the NRCS has worked with six irrigators to improve on-farm irrigation practices. The following are on-farm projects completed along the High Canal as result of Phases 1-4:

- Lorenz Pivots – two center pivots covering 162 acres
- Sheetz Pipe – gated pipe installation covering 80 acres
- Obergfell Pivots – two center pivots covering 260 acres
- Degn Pivot – one center pivot covering 175 acres

These installations have provided further on-farm water conservation on 677 acres served by the High Canal. The following are projects currently in discussion or on the shelf with the NRCS which would also provide on-farm irrigation improvements.

- Mercer Pivot – one center pivot covering 300 acres
- Harper Pivot – one center pivot covering 230 acres
- Degn Pivot – one center pivot covering 20 acres
- Marker Pivot – one center pivot covering 101 acres

Additionally, there is approximately 100 acres with the potential for installation of gated pipe installation in a conversion from open field ditches.

The proposed projects will not be implemented unless the Phase 5 project is completed. Currently these projects don't make technical sense due to the lack of water delivery and water pressure at the field headgates. Without sufficient head provided to pivots or gated pipe at the field turnouts additional pumps or boosters to push water through the respective systems. Open canal delivery systems cannot provide sufficient hydraulic pressure to meet those requirements. This leads to increased operational costs as well

as additional energy consumption when it is not necessary. The Phase 5 project area is currently primarily irrigated through flood irrigation methods. The local NRCS measured field flood irrigation methods and efficiency. When combined with an open canal delivery system, field application efficiencies averaged approximately 27% for traditional flood methods. This low application efficiency measured by the NRCS revealed that 73% of the water applied to the field was either runoff or oversaturation at the head of the field ditch. The majority of the waste water was excess spill at the end of the field from the flood irrigation methods. The NRCS also compared flood irrigation efficiency when combined with a pressurized conduit as Phase 5 will create. They found that when combined with pressure head from a pipeline flood irrigation methods increased in efficiency up to 65%. Models run on fields and soil types located within the project area showed that with a 27% application efficiency a gross application of 48-inches of water per acre is required, while at a 65% application efficiency a gross application of 20-inches per acre is required. Through the implementation of a pressurized conduit delivery system irrigators can better apply water to their fields and substantially reduce topsoil erosion and chemical runoff into the drains and waterways. For the roughly 400 acres of flood irrigation served by Phase 5 this will amount to up to 930 acre-feet per year of potential on-farm water conservation attributed to the work of the WaterSMART Grant.

3.5.3 Building Drought Resiliency

The High Canal Phase 5 Project is located at the extreme downstream end of the Yellowstone River Basin which flows into the Missouri River Basin. In the past decade the Yellowstone River has not experienced severe or extended drought. The Yellowstone River is undammed and remains "wild" in nature with no storage along its route. In-stream flows however are important to the downstream Missouri River Basin and further in the Mississippi River Basin. In-stream flows are critical to downstream water users and water levels in the remaining downstream reservoirs on the Missouri River.

Water saved by the project will help preserve flow regimes in the Yellowstone and Missouri Rivers. The multitude of downstream water users and aquatic habitat and wildlife benefit from in-stream flow preservation during droughts. This project will ensure that

1,225 acre-feet of water annually remains in the Yellowstone and Missouri River Basins during periods of drought for the benefit of downstream users.

3.5.4 Other Water Supply Sustainability Benefits

SWUID actively participates and partners with local and regional agricultural groups to better conserve water and energy in the District. SWUID has and continues to host guided agricultural education tours sponsored by the local Richland County Conservation District and NRCS focused on irrigation efficiencies and on-farm irrigation improvements. The District recently hosted the MonDak Ag Open tour which exposed local and regional irrigators in both North Dakota and Montana to crop rotations, irrigation methods/techniques, energy conservation, water management, and soil quality preservation. The District plans to continue its participation in these groups acting as a leader in water and energy conservation.

The Phase 5 project has drawn large support from local, regional, and state agencies as well as businesses working in the area. A portion of the project will be invested in by the Montana Department of Natural Resource Conservation and the Montana State Legislature due to its contributions to water and energy conservation. The project ranked in the top third of Renewable Resource Grant Applications with the State of Montana. Letters of support from local banks, conservation districts, economic development groups, ag-based businesses, and local agricultural extension offices have been received and are attached in a subsequent part of this application.

The Phase 5 project will pull together the full complement of water and energy conservation by converting the remaining High Canal open canal delivery system to closed conduit pipeline. Water savings from the project will result in lower pumping rates to achieve full irrigation of Districts 1 & 2. The Phase 5 project will be the capstone on a 9 year conversion project to fully achieve the water and energy conservation goals established by the SWUID and NRCS when the project was started. Not only will the SWUID realize these benefits but local, state and national agricultural economies will see the benefit of increase agricultural production from the project. The project will increase

tax bases in all three areas for not just the short term but for decades to come.

3.6 Implementation and Results

3.6.1 Project Planning

Water conservation plans of SWUID include monitoring and surveys compiled by the NRCS. A preliminary investigation was concluded in October of 2003 by the NRCS. A comprehensive resource management plan was developed to include a statement of resource concerns, inventory of baseline conditions and development of alternatives to address the noted concerns. SWUID compiled an additional Water Conservation Plan to help guide the District in future decisions and management of the resources.

Recognizing the need to create a unified approach to economic development the Eastern Plains Resource Conservation and Development Council (RC&D), comprised of the 16 eastern counties in Montana prepared an Area Plan. The Area Plan is the result of a local planning and implementation process designed to create jobs, foster a more stable and diversified economy, improve living conditions, and provide mechanisms for guiding and coordinating the efforts of organizations concerned with all aspects of natural resources and economic development. The natural resources of the area, including the Yellowstone River, have been the sustaining feature of the economy through the last century supporting agriculture, oil and gas, coal and tourism. Through public scoping and interaction with groups and individuals in the 16 county region several issues were identified which could provide long term, sustainable natural resource benefits for the region. Consistent with these identified opportunities the RC&D set Goal B "A coordinated effort of the RC&D Area's residents and governmental units is utilized to.....develop water delivery and irrigation potential; and to improve the overall efficiency of irrigation water use by 2015, as the Area's water is essential to residents' economic livelihood and quality of life." In support of this goal, the RC&D specifically set Strategy B.1.3 "Assist in planning and securing funding to construct or improve efficiency of....delivery systems, such as Sidney Water Users' conversion to buried mainline; to maintain in-stream flows for fisheries, conserve energy, reduce soil erosion, and allow for best management and development of all the area's resources." Given this specific goal and strategy of the

RC&D and recognizing the correlation between the SWUID, Yellowstone River, and other area agencies and businesses it shows the efforts that have been taken to coordinate water conservation and energy.

3.6.2 Readiness to Proceed

The Phase 5 project will be ready for construction upon completion of the 2015 irrigation season in October 2015. The District will have secured funding from the Montana DNRC June of 2015. Preliminary engineering and planning for the project have been completed. The NRCS has collected topography and survey data for the project in preparation for final design when project funding is completed. The project does not include or require any easement or right-of-way acquisition as the pipeline will be installed in the existing canal right-of-way. The SWUID has worked to make sure that the project is shovel ready upon completion of the funding package.

The successful implementation of Phase 5 will include the following major tasks:

- **Task 1 – DNRC and USBR Grant Awards.** It is anticipated that the grant awards will be released in June 2015.
- **Task 2 – Pipeline Design.** SWUID will contract with a licensed professional engineer or the local NRCS engineer to develop the final pipeline system design, conduct inspections, and provide construction administration, as necessary. This task will be completed by September 2015.
- **Task 3 – Regulatory Compliance.** The Engineer or NRCS will obtain the required permits and ensure that the project meets all regulatory requirements. This task will run concurrently with Task 2.
- **Task 4 – Project Review.** The Engineer or NRCS will submit the pipeline design and specifications for review by the SWUID. All comments and concerns will be addressed and the plans and specifications will be finalized. This task will be completed by October 2015.
- **Task 5 – Materials Procurement.** The SWUID will solicit materials prices from multiple material suppliers for construction of the project. All materials purchases

will be done in a manner which meets procurement procedures of the State of Montana. This task will be completed in September-October 2015.

- **Task 6 – Pipeline Installation.** The SWUID will complete the construction and installation of the Phase 5 design. It is estimated that construction will take two irrigation off seasons to install. This task will be completed from October 2015-April 2016 when it will be shut down for the 2016 irrigation season and then final completion will be done October-December 2016.
- **Task 7 – Construction Closeout.** SWUID, in coordination with the Engineer, will work to assure that all issues with installation have been addressed. The Engineer or NRCS will also develop a set of as-built plans to document any changes in the field. This task will be completed in May 2017.
- **Task 8 – Grant Closeout.** SWUID will work with the Engineer or NRCS to assure that proper documentation including invoices, reports, etc. have been submitted and the grant will be closed. This task will be completed in June 2017.
- **Task 9 – Project Completion.** The estimated project completion is June 2017 with construction having been completed prior to the 2017 irrigation season.

Coordination of the project will take place between all local, state, and federal agencies involved. The majority of project coordination will occur between the SWUID, DNRC, BOR, and the contracted engineering firm. Project Manager Raymond Bell will be responsible for facilitation of communication and cooperation between the agencies and organizations involved in the project.

The project will include quarterly progress reports to be submitted by the SWUID to the DNRC and USBR during design and monthly progress reports during construction by the contracted engineering firm. The progress reports will keep the various agencies and organizations up-to-date on the project progress, schedule, and budget. Should any changes or problems arise during the design or construction phases of the project, all involved parties will be notified immediately. The construction phase of the project will include monthly updates to the SWUID from the Project Manager and contracted construction inspector on progress made. The SWUID Project Manager will be

responsible for the completion and submittal of all necessary documentation and billing to the DNRC and SWUID board. The contracted engineer's responsibilities include progress reporting and grant quarterly reporting. SWUID Project Manager Raymond Bell will be the final authority on all payments, reports, and contracts for the project.

3.6.3 Performance Measures

The SWUID has implemented energy metering along with irrigation flow measurement at each field turnout in the first four phases of the High Canal Project. Phase 5 will be include the same measurement devices and the same water measurement plan. SWUID will continue to measure flows at each turnout when water is applied to the fields. Those records will be kept by District staff and compiled be the District Manager. Energy consumption will continue to be metered by WAPA and SWUID at Pump Station #1 and compiled and presented to the SWUID irrigators each year at the annual meeting. Installation of flow measurement devices and continued metering at Pump Station #1.

The NRCS will be working with irrigators to improve and monitor their on-farm irrigation application rates and efficiency. The overall goal of the NRCS will be to continue the conversion of inefficient traditional flood irrigation to more efficient gated pipe or pivot installations. Computer programs are available through the NRCS and Richland Conservation District that will help the irrigators maximize on-farm water management. All conversion projects will be recorded and documented by the NRCS and SWUID.

3.6.4 Reasonableness of Costs

The SWUID have completed numerous pipeline construction projects within the past eight years including the previous four phases and have built a cost data log for estimating costs on future projects. The District has developed relationships with two pipeline suppliers which provide delivered material costs to the District. Fitting costs are derived from suppliers in Montana. The District has developed a linear foot installation cost for the SWUID staff and members to use the equipment previously noted to install the pipelines and appurtenances. Cost tables developed for project construction by the District where used along with pricing data from local suppliers to develop the Construction Cost Estimate that is included in a subsequent section of this report. The

overall budget for the Phase 5 project is $317,444.14. The Montana DNRC has committed $125,000 of that budget while the SWUID has committed $35,846.90 for completion of Phase 5. That leaves $156,597.25 being applied for through this WaterSMART application.

Engineering costs were included in the Construction Cost Estimate to cover both final design and construction inspection. As previously noted, the SWUID has advertised for general irrigation engineering services and selected PEC through a qualifications based selection process which meets all state and federal procurement requirements. All procurement information can be available upon request. The Engineering Budget was developed using an agreed upon rate schedule between the District and PEC in which all direct and indirect costs as well as profit are built into the hourly rates.

As previously outlined the Phase 5 project will conserve up to 1,225 acre-feet of water along with a reduction in energy consumption of 124,000 kW-hrs annually. It is generally accepted that PIP irrigation pipe installed in low-head/low-pressure systems has a design life of 30 years conservatively. PIP installation in eastern Montana and within neighboring districts have shown little to no wear or degredation over 25 years of operation. Additionally, the Montana DNRC staff has accepted 30 year design life as the standard for evaluating pipeline projects within Montana. With a 30 year design life for PIP irrigation pipe and valves the cost of per acre-foot of water conserved through the project over its life is $8.64. This is a marginal cost for water conservation and improved in-stream flows in the Yellowstone River and the benefits it provides.

3.7 Additional Non-Federal Funding

The Montana DNRC has committed $125,000 of that budget while the SWUID has committed $35,846.90 for completion of Phase 5. That leaves $156,597.25 being applied for through this WaterSMART application. The overall construction cost for the Phase 5 project is $317,444.14. The non-federal percentage of funding for the project is 50.7% which exceeds the 50% WaterSMART requirement. Table 2 outlines the funding dollars, sources, and commitment at the time of this application.

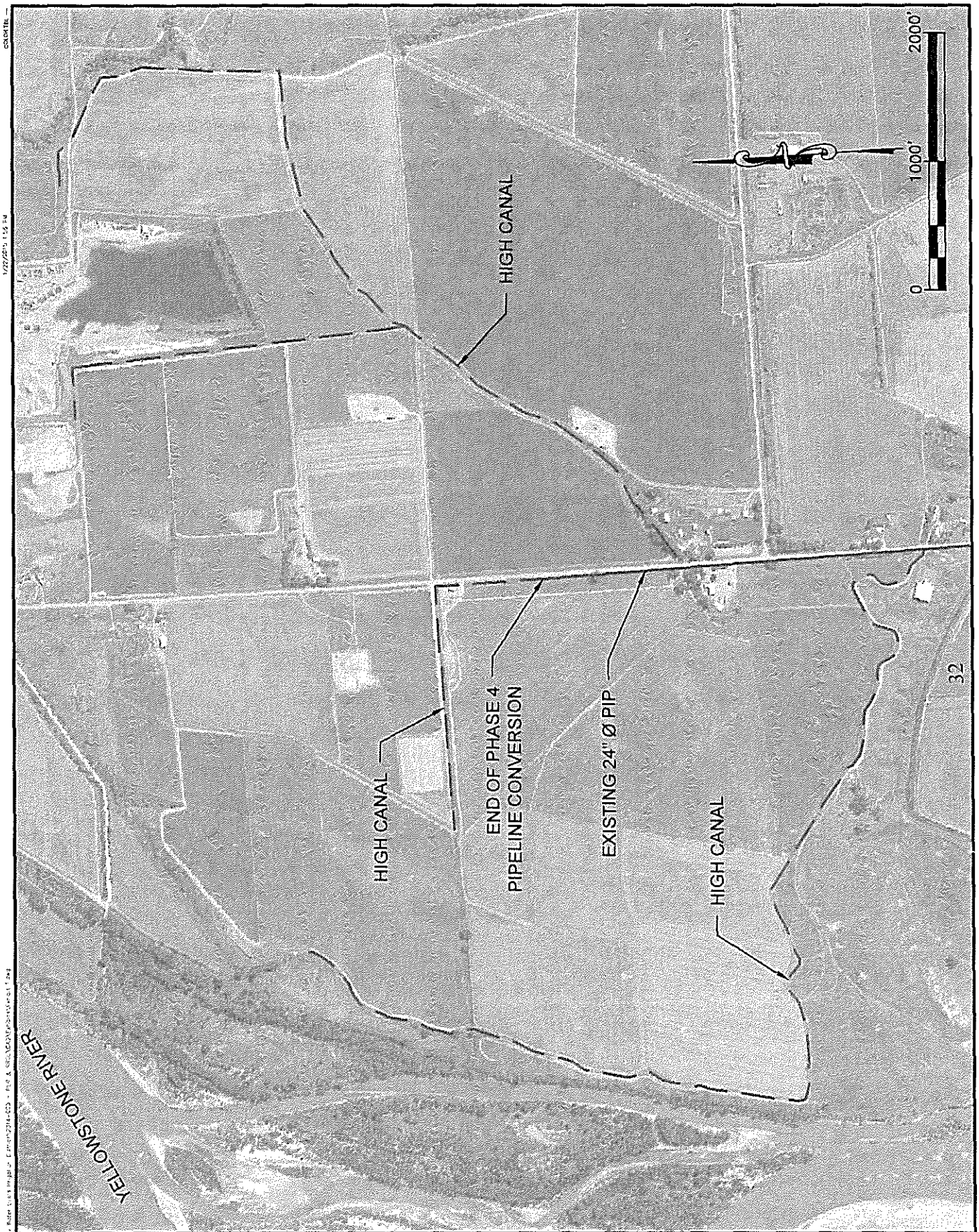
Table 2. Financial Sources & Commitment

Source	Proposed Funding Amount	Funding Commitment
Sidney Water Users Irrigation District	$35,846.90	Committed
Montana DNRC	$125,000.00	Committed
US Bureau of Reclamation	$156,597.25	Pending

3.8 Connection to Reclamation Project Activities

SWUID is a contracted irrigation district with Reclamation and uses Pick-Sloan power administered through the bureau. The project does not include Reclamation lands or facilities. SWUID is however located directly adjacent to the Lower Yellowstone Irrigation Project which is currently undergoing major construction on its intake in the Yellowstone River to accommodate the Pallid Sturgeon under the Endangered Species Act. The proposed Phase 5 project will complement the Lower Yellowstone Irrigation Project work by further contributing to in-stream flows and fisheries habitat.

EXHIBITS



PROJECT TITLE

HIGH CANAL
PIPELINE CONVERSION

EXISTING SITE MAP

DSGN	DATE	CHKD
CPD	Apr-14	BAA

REV	DATE	CHKD

CLIENT

SIDNEY WATER USERS
IRRIGATION DISTRICT

1101 11TH ST SW
SIDNEY, MT 59270
(406) 489-2627

PERFORMANCE ENGINEERING & CONSULTING

2101 OVERLAND AVE
BILLINGS, MT 59102
(406) 461-8392

EXHIBIT

E-1

PROJECT TITLE				CLIENT	
HIGH CANAL PIPELINE CONVERSION PROPOSED SITE MAP	DSGN	DATE	CHKD	SIDNEY WATER USERS IRRIGATION DISTRICT 1101 11TH ST SW SIDNEY, MT 59270 (406) 489-2627	EXHIBIT E-2
	CPD	Apr-14	SAA		
	REV	DATE	CHKD		
				PERFORMANCE ENGINEERING & CONSULTING 2101 OVERLAND AVE BILLINGS, MT 59102 (406) 461-8392	

APPENDIX A

Site Photos

Photo 1 - Beginning of High Canal to Co. Rd. 350. Water flow measurements being done. Erosion of soils on the left side of the canal.

Photo 2 - High Canal at 1500 feet showing the beginning of moss and algae vegetation growing in the middle of the canal.

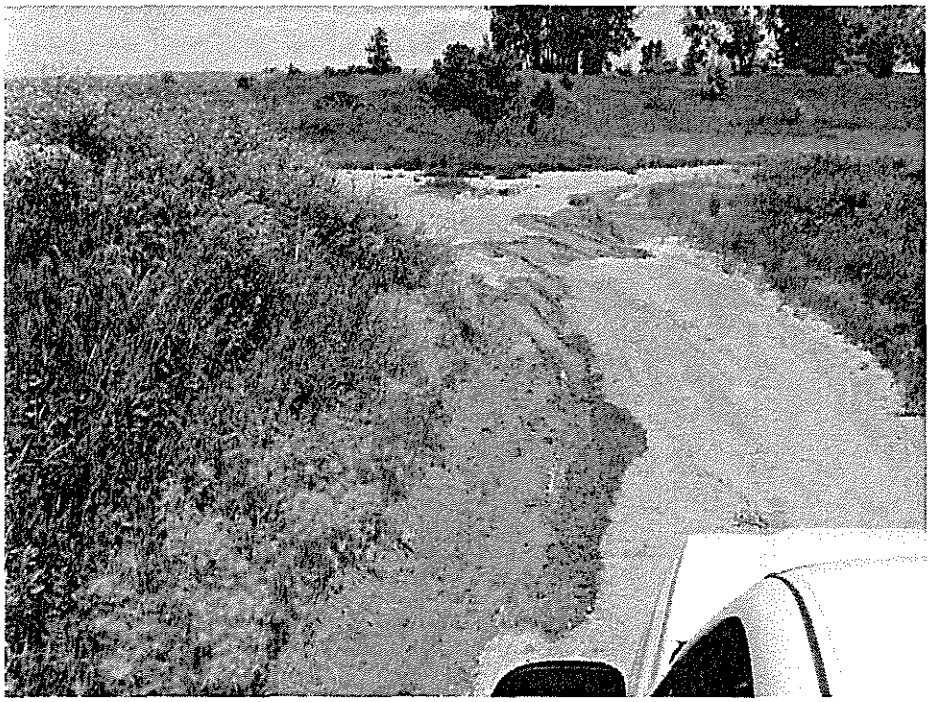


Photo 3 - High Canal just before the siphon showing severe seepage surfacing from the canal banks.

Photo 4 - High Canal at the siphon showing moss and algae growing in the water and floating debris caught up. Infestation of noxious weeds covering the banks.

Photo 5 - High Canal winding around the high side of the contour elevation bench change.

Photo 6 - High Canal just before the last bend to the Co. Rd. 350. Severe vegetation growth on both sides with very slow water flow.

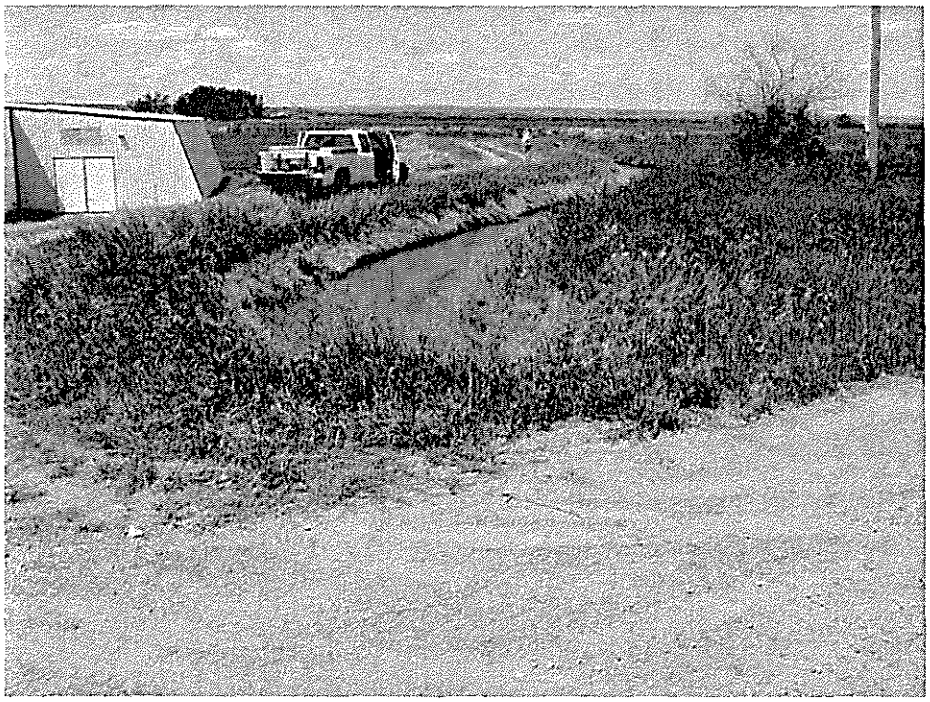


Photo 7 - High Canal at Co. Rd. 350 heading west. Following the high contour edge of the elevation change heading around to the west end. Mosses and algae growing here in the middle of the canal.

Photo 8 - High Canal heading west at swift current showing ditch bank erosion and infested with weeds.

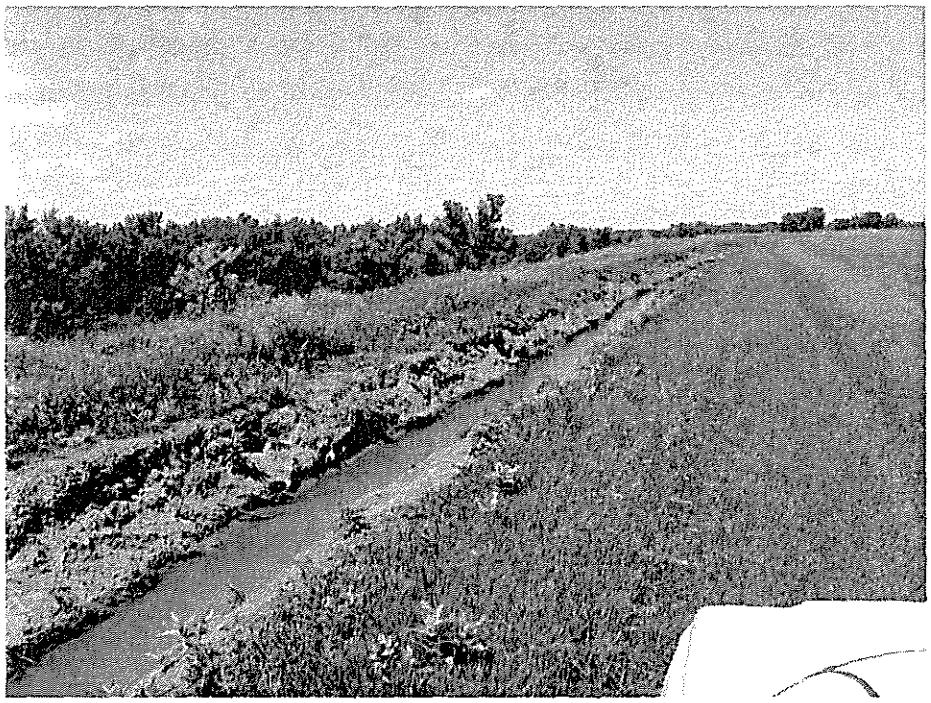


Photo 9 - The back west end of the High Canal. The canal here has been sprayed and cleaned now showing exposed soil on bank causing erosion and sedimentation.

Photo 10 - High Canal on the west end going through a wooded area and slow flow. Notice floating tree branches and debris lodged in the water.

Photo 11 - High Canal 1st Y at the beginning of turn out heading north on west side of Co Rd. 350. High vegetation area and tree growth.

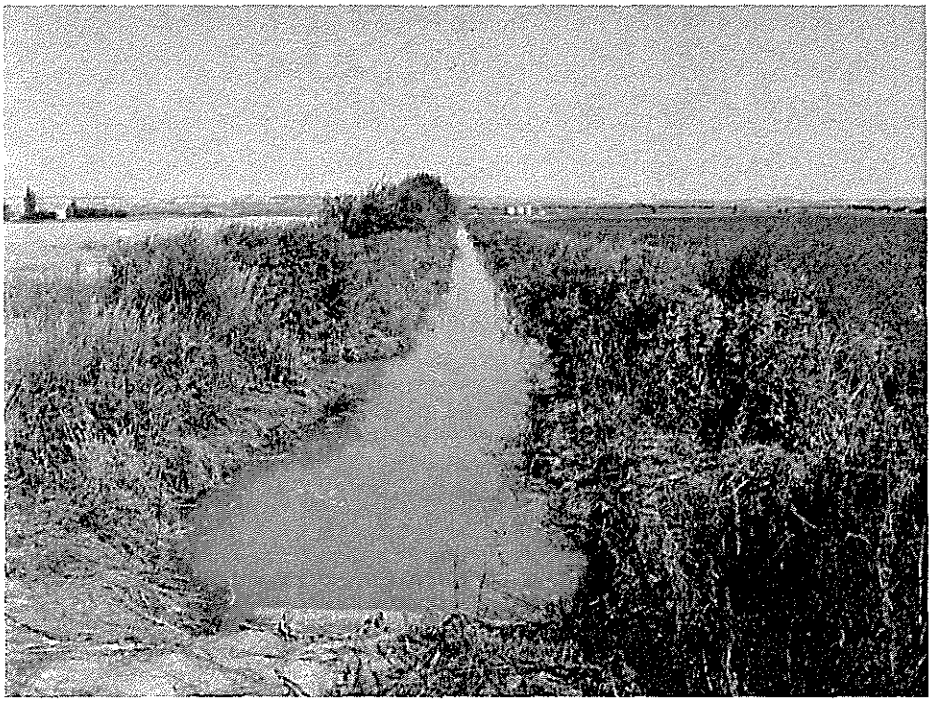


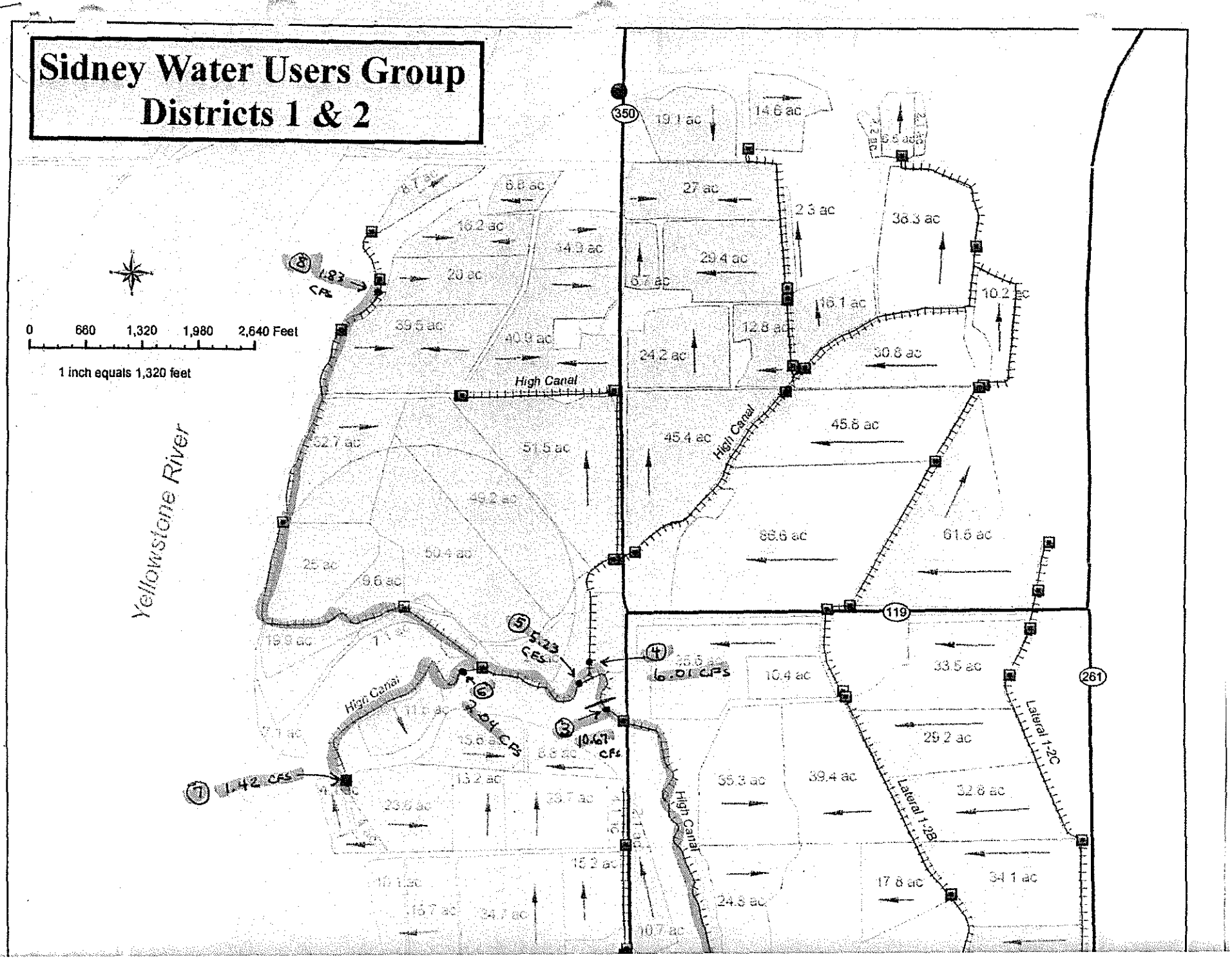
Photo 12 - High Canal after 1st Y heading west from Co. Rd. 350 to the back NW end. Heavy noxious weed and vegetation area on a long straight section of the canal.

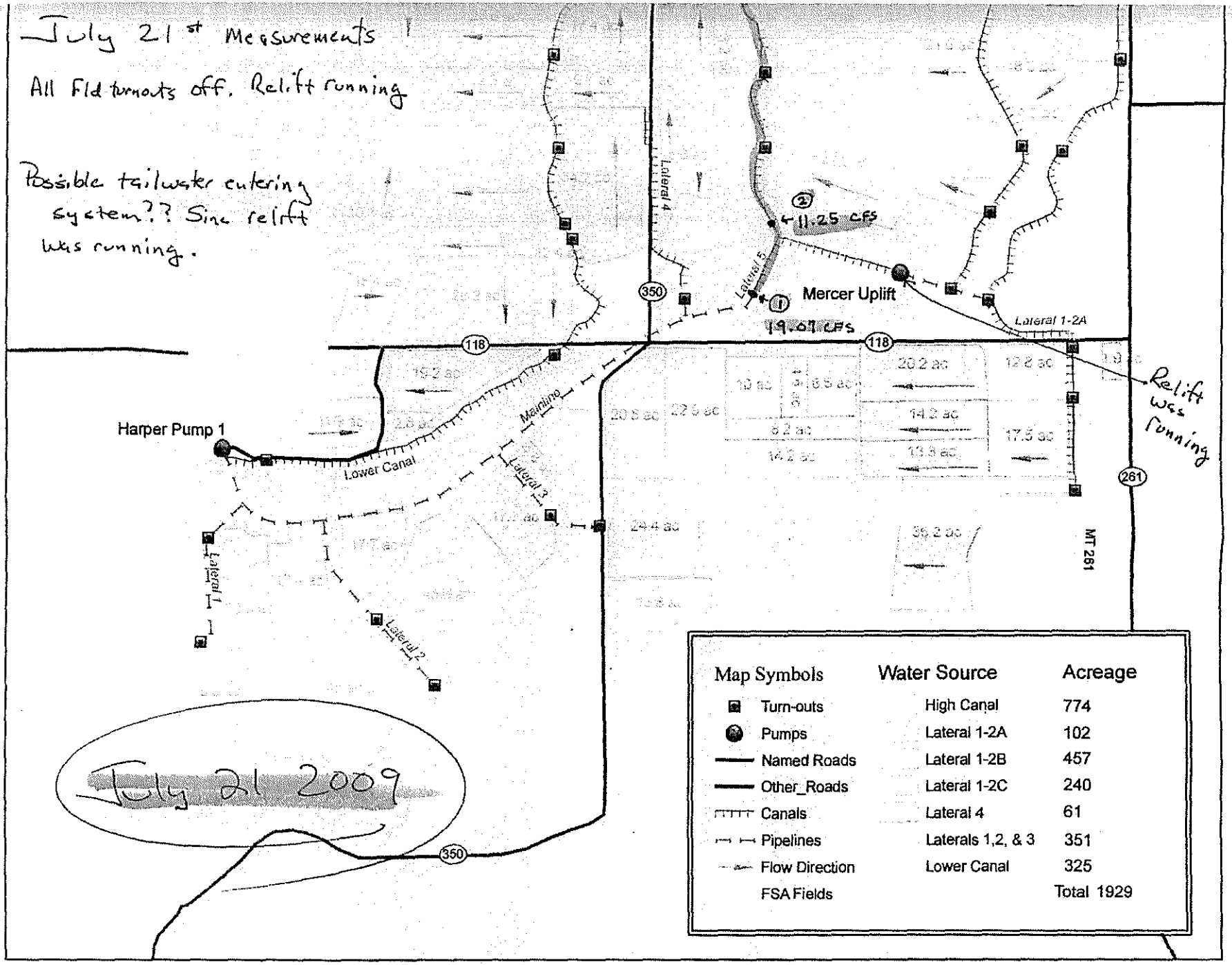
Photo 13 - Beginning of High Canal crossing Co. Rd. 350 heading east. Severe wooded and vegetation area for the first 900 feet.

Photo 14 - High Canal heading east to the end. Showing weeds and vegetation growth with very slow water flow.

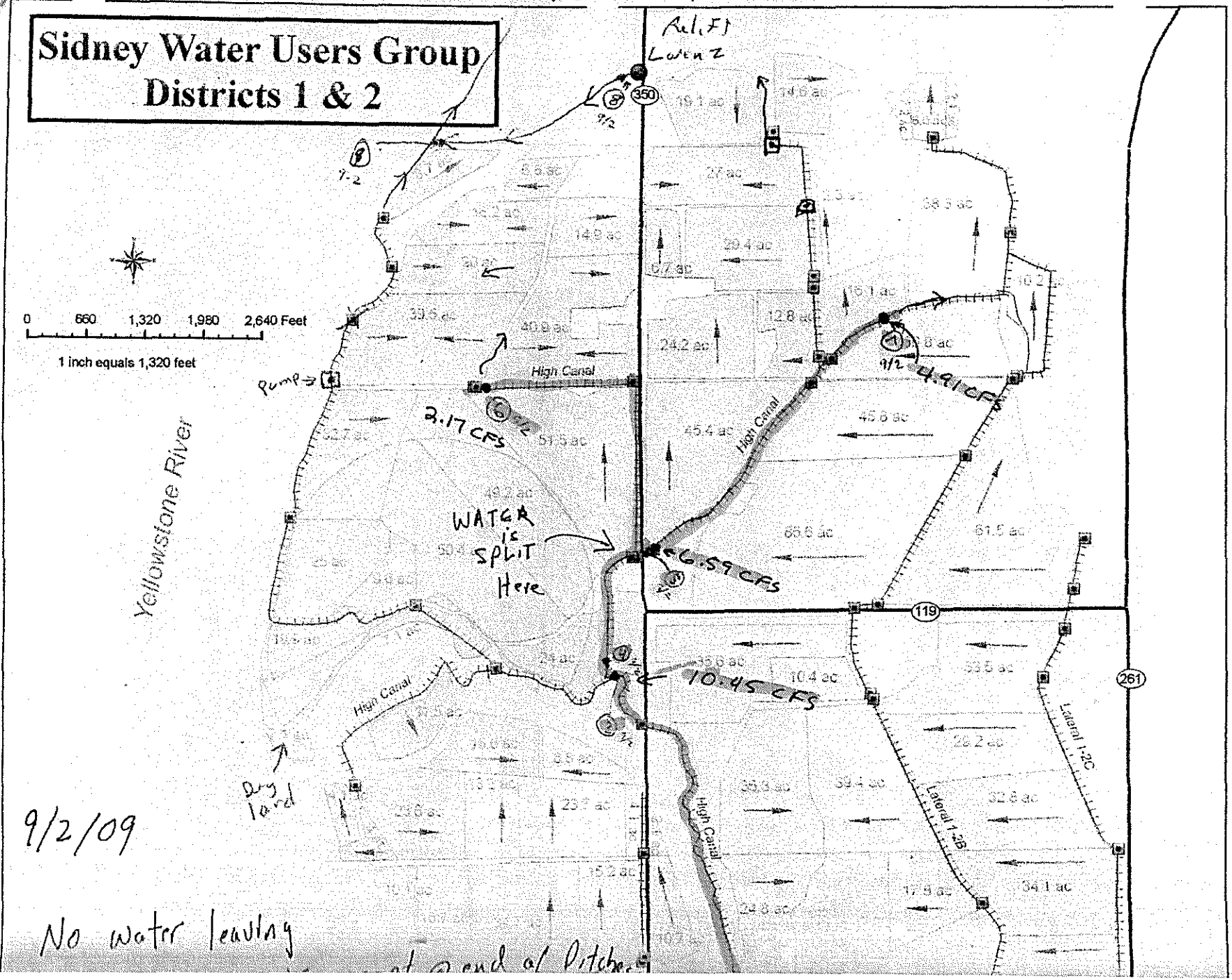
APPENDIX B

NRCS Seepage Loss Measurements


Sidney Water Users Group
Districts 1 & 2
0 660 1,320 1,980 2,640 Feet
1 inch equals 1,320 feet
Yellowstone River
High Canal
Lateral 1-2C
Lateral 1-2B
350
119
261
1.83 CFS
5.23 CFS
6.01 CFS
10.67 CFS
1.42 CFS

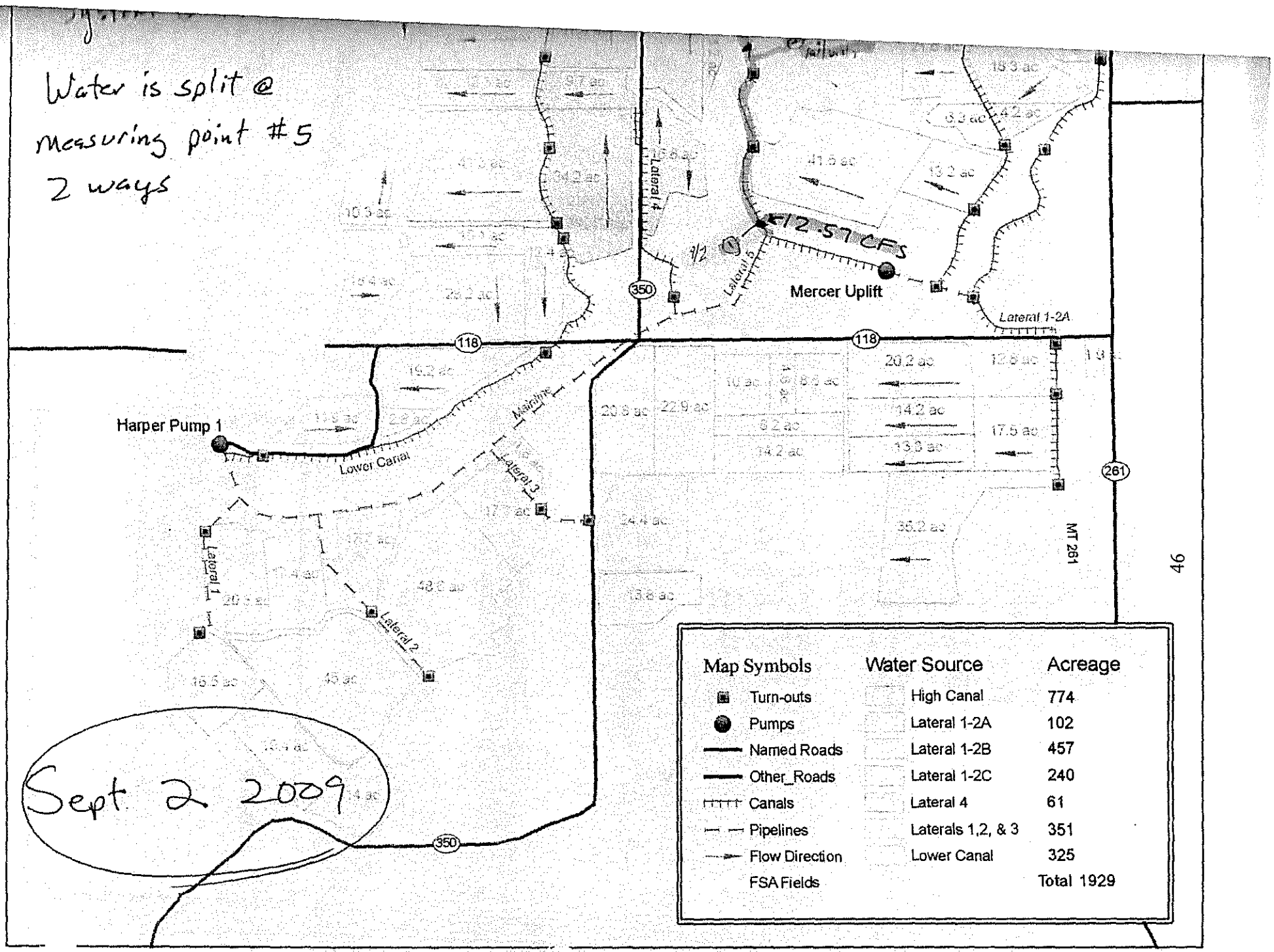

July 21st Measurements
All Fld turnouts off. Relift running
Possible tailwater entering system?? Since relift was running.
Lateral 4
Lateral 5
Mercer Uplift
11.25 cfs
19.07 cfs
Lateral 1-2A
Relift was running
Harper Pump 1
Lower Canal
Mainline
Lateral 3
Lateral 1
Lateral 2
MT 261
118
350
261
July 21 2009
Map Symbols
Turn-outs
Pumps
Named Roads
Other_Roads
Canals
Pipelines
Flow Direction
FSA Fields
Water Source
High Canal
Lateral 1-2A
Lateral 1-2B
Lateral 1-2C
Lateral 4
Laterals 1,2, & 3
Lower Canal
Acreage
774
102
457
240
61
351
325
Total 1929

Maps Bob 232-79C Ex 102



9/2/09

No water leaving [illegible] end of Pitch


Water is split @
measuring point #5
2 ways
12.57 CFS
Mercer Uplift
Harper Pump 1
Lower Canal
Lateral 1
Lateral 2
Lateral 3
Lateral 4
Lateral 5
Lateral 1-2A
Mainline
118
350
261
MT 261
Sept 2 2009
Map Symbols
Turn-outs
Pumps
Named Roads
Other_Roads
Canals
Pipelines
Flow Direction
FSA Fields
Water Source
High Canal
Lateral 1-2A
Lateral 1-2B
Lateral 1-2C
Lateral 4
Laterals 1,2, & 3
Lower Canal
Acreage
774
102
457
240
61
351
325
Total 1929

1 CFS = 448 GPM

SWU JULY WATER MEASUREMENTS

DATE	DISTRICT	LATERAL	MAP REF #	LOCATION DESCRIPTION	FLOW
21-Jul	1	HIGH CANAL	1	Lateral 5 @ concrete outlet	19.07
21-Jul	1	HIGH CANAL	2	80' downstream of Mercer Y	11.25
21-Jul	1	HIGH CANAL	3	75' downstream of CR 350	10.67
21-Jul	1	HIGH CANAL	4	75' North of Degn Y	6.01
21-Jul	1	HIGH CANAL	5	60' West of Degn Y	5.23
21-Jul	1	HIGH CANAL	6	2nd Degn Y turnout West before pivot	2.04
21-Jul	1	HIGH CANAL	7	End of 2nd Y West turnout	1.42
21-Jul	1	HIGH CANAL	8	Northwest end @ Scheetz	1.83
30-Jul	5	LATERAL 1	1	Main Turnout (begin lateral)	17.71
30-Jul	5	LATERAL 1	2	Turnout 2 (Dahl)	3.13
30-Jul	5	LATERAL 1	3	Turnout 3 (Dahl)	3.4
30-Jul	5	LATERAL 1	4	Turnout 4 (Dahl)	5.33
30-Jul	5	LATERAL 1	5	Turnout 5 (Walla)	2.4
30-Jul	5	LATERAL 1	6	Turnout 6 (Walla) End of water	3.36
30-Jul	5	LATERAL 2	7	Main turnout, begin lateral	4.66
30-Jul	5	LATERAL 2	8	West end (Dahl)	3.8

SWU SEPTEMBER WATER MEASUREMENTS

DATE	DISTRICT	LATERAL	MAP REF #	LOCATION DESCRIPTION	FLOW
9/2/2009	1 & 2	HIGH CANAL	1	50' Below mercer Y	12.57
9/2/2009	1 & 2	HIGH CANAL	2	Mercer tailwater entering system	3.94
9/2/2009	1 & 2	HIGH CANAL	3	Degn place approx 50' upstream of Degn Y	10.45
9/2/2009	1 & 2	HIGH CANAL	4	Degn place approx 50' downstream of Degn Y	10.45
9/2/2009	1 & 2	HIGH CANAL	5	Petersen place 20' downstream of CR 350	6.59
9/2/2009	1 & 2	HIGH CANAL	7	East end of lateral at sunny's	4.91
9/2/2009	1 & 2	HIGH CANAL	6	West end at Marker/Scheetz	2.17
9/4/2009	3	RELIFT	8	At relift 1A-1 on CR 350. Begin lateral	4.69
9/6/2009	3	RELIFT	9	End lateral on relift 1A-1	4.63
9/3/2009	5	ONE	1	Lateral 1 Start	7.52
9/3/2009	5	ONE	2	Lateral 1 end	6.42
9/3/2009	5	TWO	3	Lateral 2 start	4.01
9/3/2009	5	TWO	4	Lateral 2 end	2.97

49 %

SWU LATERAL WATER LOSS ANALYSIS

Date	DISTRICT	LATERAL	Segment	BEGIN CFS	Adjustmer Add water	Adjustmt Subtract	END CFS	CFS Loss	LOSS Percent	distance	CFS loss/foot	GPM LOSS/FT	Comment
Sept	1 & 2	HIGH CANAL	High canal Beginning to CR 350 (Degn Y)	12.57	3.94	0	10.5	6.06	48%	7350	0.00082449	0.375143	
July	1 & 2	HIGH CANAL	High canal Beginning to CR 350 (Degn Y)	11.25	0	0	10.7	0.58	5%	7350	7.89116E-05	0.035905	Possible Tailwater missed
July	1 & 2	HIGH CANAL	Degn Y turnout to SW end (Degn)	2.04	0	0	1.42	0.62	30%	2475	0.000250505	0.11398	
July	1 & 2	HIGH CANAL	Degn Y to NW end (Scheetz)	5.23	0	2.04	1.83	1.36	26%	8650	0.000157225	0.071538	
Sept	1 & 2	HIGH CANAL	Degn Y to North end (Sheetz/Marker)	10.45	0	6.59	2.17	1.69	16%	5425	0.000311521	0.141742	
Sept	1 & 2	HIGH CANAL	CR 350 to East end (Lorenz)	6.59	0	0	4.91	1.68	25%	3954	0.000424886	0.193323	
Sept	3	LATERAL 1	Relift pump east to end @ old ditch (Lorenz)	4.69	0	0	4.63	0.06	1%	2600	2.30769E-05	0.0105	
Sept	5	LATERAL 1	Begin to end at Dahl's	7.52	0	0	6.42	1.1	15%	12100	9.09091E-05	0.041364	
July	5	LATERAL 1	Begin to last open turnout (Walla)	17.71	0	14.26	3.36	0.09	1%	9200	9.78261E-06	0.004451	many measurements -
Sept	5	LATERAL 2	Begin to end at Bell's	4.01	0	0	2.97	1.04	26%	4900	0.000212245	0.096571	
July	5	LATERAL 2	Begin to west end (Dahl)	4.66	0	0	3.9	0.76	16%	2000	0.00038	0.1729	

APPENDIX C

WAPA Energy Usage

WAPA Energy Use

Customer Name: Sidney Water Users Association

Meter Name: Sidney Pump One

Meter ID: 1829901

Monthly Energy Usage from 2006-2014 in kW-hrs								
Year	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**Totals**
2006	60	6,901	192,592	325,756	307,058	209,300	134	**1,041,801**
2007		4,310	81,974	317,238	317,555	197,222		**918,299**
2008		174,970	226,495	303,551	321,606	139,612		**1,166,234**
2009		66,077	293,578	236,954	287,448	197,550		**1,081,607**
2010		15,469	20,974	310,255	378,195	172,900		**897,793**
2011			7,236	235,245	336,617	133,303		**712,401**
2012*	58,862	164,484	290,672	350,605	293,866	166,933	795	**1,326,217**
2013	1,652		243,189	215,051	116,179	1,215		**577,286**
2014		975	23,317	272,487	152,967	64,967	443	**515,156**
Average 2006-2009	60	63,065	198,660	295,875	308,417	185,921	457	**1,052,454**
Average 2010-2014*	1,652	8,222	73,679	258,260	245,990	93,096	443	**681,341**

* Note 2012 was an extremely dry year and the water and energy usage was abnormally high. As an outlier it was not used in the 2010-2014 Average.

Environmental & Cultural Resources Compliance

Sidney Water Users Irrigation District Environmental Compliance

High Canal Phase 5 Project

The Phase 5 Project improvements will reduce water withdrawn from the Yellowstone River by up to 1,225 acre-feet annually; immediately reduce energy consumption by up to 124,000 kW-hrs annually; have a positive impact on the water quality in the Yellowstone River; and reclaim approximately 3 acres of ditch to be returned to native grasses and wildlife habitat.

Environmental Resources Present & Detailed Effects

Installation of the pipeline will include ground disturbances which are generally maintained to a 30-foot wide disturbance corridor. The existing canal will be filled in and trenching for the new pipeline installation will follow. Old concrete and steel structures will be removed and disposed of in the appropriate landfill. The majority of the area has been previously disturbed for agricultural practices. Dust could become a concern at different points through construction, however the area is typically damp due to irrigation practices surrounding it. Should dust become of concern the SWUID will take measures to ensure dust abatement such as water applications in the area. Trenching for the pipelines will be conducted in a manner in which the trench is closed and backfilled within a short period of time. This should help to minimize the impacts on wildlife and safety in the area. Additionally, SWUID will take care to backfill trenches directly after pipe installation to ensure that minimal open trenches are present during construction. Construction noise will be present but only temporary in nature. Construction activities will take place within the interior of the District in places generally experiencing "noise" and "disturbance" from farming activities.

Wildlife is present and plentiful within the boundaries of the SWUID. Within the general area there are two species listed as Endangered by the US Fish and Wildlife Service, the Pallid Sturgeon and Least Turn. There are ten species listed as species at risk due to limited to extremely limited and/or potentially to rapid declining population numbers, range, and/or habitat making them vulnerable to extinction. Five of these species are fish

(Blue Sucker, Sturgeon Chub, Paddlefish, Sauger, and Sicklefin Chub). There are three invertebrates (two version of a sand-dwelling mayfly and brimstone clubtail dragonfly). There are two mammals the Townsend's Big Eared Bat and the Meadow Jumping Mouse. Because the work associate with the Phase 5 project is being conducted within the District boundary and away from the river and riparian areas no focus will be placed on the invertebrates and fish. As previously noted, increases in instream flows and water conservation provided by the project will benefit both.

The Least Turn nests on un-vegetated sand pebble beaches and islands of large reservoirs and rivers. The Pallid Surgeon is an endangered prehistoric fish. Both species are likely to see marginal benefit as a result of reducing the amount of water withdrawn from the Yellowstone River. The most beneficial contribution of the project will be helping to ensure base flows in the Yellowstone River to allow the system to withstand the natural flow variations experienced from year to year. This project helps bring additional flows back to the river through the use of best management practices for water delivery.

The Meadow Jumping Mouse is found in dense, tall and lush grass and forbs in marshy areas, riparian areas, woody draws, and grassy upland slopes. It mainly occupies moist lowlands rather than drier uplands, preferring relatively dense vegetation in open grassy and brushy areas of marshes, meadows, and swamps. During winter they occupy underground burrows, usually in banks or hills. There is a possibility that the construction activities could for a short duration disturb the species. However, because the pipeline installation will take place in the fall or early spring it is unlikely to create long-term concerns for the species. Additionally, construction will only disturb small areas at one time with backfill and revegation occurring directly behind the installation. These short-term potential impacts are minor in nature and do not justify mitigation.

There are six species of fish and one species of bird for which the project will likely have a beneficial impact due to increased instream flows. There are three species of invertebrates and one species of mammal in which the project will have no impact or there review is not applicable. There is one mammal species in which the project could have short term adverse impact but that impact will be temporary in nature and short lived during construction. Upon completion of the project the remaining native vegetation

created by the project could provide long term benefits in habitat for the species. It is not anticipated that mitigation will be necessary during construction.

Wetlands

An inventory of the wetlands within the Districts 1 & 2 project area was conducted by the local NRCS staff in 2009 and again by the Performance Engineering & Consulting (PEC) staff in spring of 2014. There were not classified wetlands within the Phase 5 Project corridor identified by either staff during field investigations. Seepage from the High Canal has created small isolated areas which contain water through the irrigation season and dry out once the canal is shut down. It is NRCS national policy, as stated in the NRCS General Manual, Part 190-410, that it is not required to mitigate for artificial wetlands created by seepage from leaking canal systems. The District and the NRCS have followed the referenced NRCS national guidance in design and construction of the previous four phases of the High Canal Project within the project corridor.

The proposed Phase 5 improvements may improve surface water quality and riparian areas both upstream and downstream of the project are and Pump Station #1 through implementation. By supplementing instream flows with up to 1,225 acre-feet of water annually through conservation general riparian habitat will see long term benefits downstream of the project. Additionally, installation of more efficient on-farm irrigation methods such as pivots which will result from completion of the project will also reduce sediment and chemical laden runoff return flows through the drain system.

Historical and Cultural Resources

The SWUID infrastructure was constructed in the 1930s and put into operation in 1938. The SWUID Pump Station #1 and delivery system was a candidate to be listed on the historic/cultural resource list in Montana due to its age and the era it was constructed. However, there have been numerous changes made to the delivery system since it was first constructed. On January 29, 2010 the Montana State Historic Preservation Officer (SHPO) made the determination that the system is not eligible for listing on the National Register due primarily to a severe loss of integrity and the determination that the system is unlikely to yield significant historical information. An analysis of the historical properties, cultural, and archeological resources in the High Canal Project Area was provided by

SHPO. There were no significant archeological or historical sites found within the project corridor.

There are no known Native American sacred sites or burial grounds within the identified project area. Additionally, there is no tribal or trust lands located within or adjacent to the project. Therefore no detrimental impact will result to tribal or Native American sites as result of the project.

There are no unique natural features, wilderness or public lands within the Phase 5 project area. With the exception of Pump Station #1, all District 1 & 2 facilities, canals, and irrigated areas are located above the Yellowstone River floodplain. No construction, excavation, or fill activities associated with the Phase 5 project will occur within a designated floodplain area.

Demographics & Social Structure

The Phase 5 Project is located outside of Sidney, Montana in a historically rural agricultural area. The project is likely to create short-term construction work for local laborers and operators during installation of the project. Additionally, completion of the Phase 5 project will ensure the continued operation of the SWUID for future generations which is a critical component to the local economy.

Vegetation & Noxious Weeds

The proposed project will improve the direct project area and those areas adjacent to it. Through elimination of the open canal delivery system a transportation corridor will be eliminated for noxious weeds and problematic shrubs and forbs within the District. This area has experience infestation from Russian Thistle and Leafy Spurge, both identified and listed as noxious weeds by the Montana Department of Agriculture. The closed pipeline system will prevent transport of noxious weed seeds to downstream areas and help to mitigate noxious weed problems in the area. The pipeline will be revegetated with native grasses or will be cropped over to ensure that weeds are continually mitigated and eliminated.

Letters of Project Support

Letters of Project Support

Leslie Messer, Executive Director
Katie Dasinger, Project Assistant

1060 S. Central Avenue
Sidney, Montana 59270
Phone: (406) 482-4679
Fax: (406) 482-5552
E-mail: redc@midrivers.com
www.richlandeconomicdevelopment.com

A Non-Profit Countywide Economic Development Corporation

March 25, 2014

Montana DNRC
Resource Development Bureau
PO Box 201601
Helena, MT 59620-1601

DNRC Council Members:

It is with great pleasure that I submit this letter in support of the Sidney Water Users Renewable Resource Grant Application. Richland Economic Development Corp's mission is "To take action or encourage action by others which will assist potential new or existing businesses to improve their chances of survival and contribution to the economic growth in Richland County, Montana". We believe that a healthy, vibrant, prosperous community includes businesses and residents, as well as diversified Agricultural development projects.

Sidney Water Users have clearly demonstrated themselves as great stewards of the precious resources in our region. The measures taken to improve the efficiency of the water delivery system by replacing open canal and supply ditches with buried PVC pipes supports this mission.

There is a positive relationship between the levels of economic activities and the land values. Irrigation development increases the tax base, increases the land values, and allows the opportunity for young farmers to make a living on the land that their fathers and/or grandfathers owned. As more and more irrigated crops are grown, the profits from the value-added products will be infused into the economy. Furthermore, the reliability of irrigation, as in the Sidney Water Users project, helps to stabilize the "boom and bust" of other industry impacts on our economy.

The continued support of irrigated acres with a more reliable water supply and the production of advanced specialty crops continue to be an impetus for the attraction of food processors to locate in our region. Agricultural processors would directly equate to an increase of job opportunities.

The indirect effects of irrigated Agriculture on economic development can be significant. The benefits accrued to non-farmers in terms of the increase in personal income and employment may actually exceed the benefits to the farmers. The increase to local businesses is an estimated $3.1 million from the 4,700 acres within the Sidney Water Users Project. (These figures are based on a similar study of 5,174 acres of the West Crane Sprinkler Irrigation Project, conducted by IRZ Consulting, LLC, in 1997.)

Thank you for your time and consideration of this very worthy application. If you require additional information please feel free to contact me.

Leslie Messer

Leslie Messer, Executive Director
Richland Economic Development Corp.

Sidney Sugars
INCORPORATED
35140 County Road 125
Sidney, Montana 59270
Ag Dept: (406) 433-3309

March 25, 2014

Montana DNRC
Resource Development Bureau
PO Box 201601
Helena, MT 59620-1601

Re: SWUID Grant District 1 & 2, Phase 5

I'm writing in support of the grant application from the Sidney Water Users. This improvement to the irrigation district will benefit growers and the community in several ways. Sugar beets are a high value crop that requires water at critical times. This project will help provide that water. It will also insure that the amount of water needed is there.

Another benefit is provided by covering the water supply and reducing the amount of weed seed in the water. This is a double benefit, both reducing the weed competition for the crop and reducing the amount of herbicide needed to protect the crop from weeds.

Growers in this district have been helping themselves by purchasing and using gated pipe and pivot irrigation. This project will help them increase their efficiency and conserve water at the same time.

Thank you for your consideration.

Vanessa Pooch
Agriculturist
Sidney Sugars, Inc.

Stockman Bank

101 South Central Avenue • Sidney, Montana 59270-4123
406.433.8600 Fax 406.433.8633

March 25, 2014

Montana DNRC
Resource Development Bureau
PO Box 201601
625 11th Avenue
Helena, MT 59620-1601

Re: Sidney Water Users Irrigation District (District 1 & 2 Phase 5 Project)

Dear Sirs:

What a great opportunity to write this letter in support of the **"Sidney Water Users Renewable Resource Grant Application".** Stockman Bank views this project as a win/win/win for Water Conversation, Producers, and our Local Economy.

Stockman Bank is the largest AG Lender in this area and recognizes the importance of this worthwhile project to our customers/producers. This project reduces operating expenses and creates new opportunities for production which in turn attracts other new business to our trade area. We just can't underestimate the significant direct and indirect positive impact of this project.

There is a direct correlation between improving Richland County Economics and improving the efficiency of our farmers/producers. Irrigation development increases land values, tax base and provides more dollars to support the businesses necessary to sustain growth in our community. Adding efficiency from this project provides more profits for our farmer/producers to expand their operations, update equipment, and provide financial stability for their operation and families.

Agriculture is the main-stay and life-blood of our community. This project applied for by the Sidney Water Users Association demonstrates forward thinking, conservation, and will benefit future water users/producers and businesses for generations.

Thank you for considering this worthwhile project.

Sincerely,

Garth N Kallevig
President Sidney Office

GNK/db

MONTANA
STATE UNIVERSITY
College of
AGRICULTURE
&
MONTANA AGRICULTURAL
EXPERIMENT STATION

Department
of
Research Centers

Eastern Agricultural
Research Center

1501 North Central Avenue
Sidney, MT 59270

Tel (406) 433-2208
Fax (406) 433-7336
http://ag.montana.edu/earc

March 25, 2014

Montana DNRC
Resource Development Bureau
PO Box 201601
1625 11th Avenue
Helena, MT 59620-1601

To Whom It May Concern:

This letter is written in support of the application by the Sidney Water Users Irrigation District (SWUID) for funding to improve their delivery system. The SWUID is one of the oldest irrigation districts in the state, and its infrastructure continues to need major improvements to remain viable.

The grant would directly benefit water conservation and environmental programs in the Lower Yellowstone River by replacing open canal and supply ditches with buried PVC pipe. The buried PVC piping would greatly reduce seepage losses, reduce weed problems, electrical pumping costs, and will encourage the conversion from low efficiency surface irrigation systems to high efficiency irrigation methods like center pivots to reduce irrigation runoff. More water would remain in the river to help contribute to higher value crops by supplying water at critical times. Our research as well as research in other areas shows that ecological benefits would accrue due to reduced soil erosion and the lower water/agrochemical inputs required under more efficient irrigation methods.

In conclusion, I strongly recommend that the SWUID receive serious consideration for funding. The improvement of the SWUID is a high priority for this region of Montana.

Sincerely yours,

Johannes H.M. Schneider
Superintendent

Cell (406) 480-7408

JHMS/cbg

Lower Yellowstone Rural Electric Assn., Inc.

A Touchstone Energy® Cooperative

PO Box 1047
Sidney MT 59270
Phone: (406) 488-1602
Fax: (406) 488-6524
www.lyrec.com

March 26, 2014

Montana DNRC
Resource Development Bureau
P.O. Box 201601
Helena, MT 59620-1601

To Whom It May Concern:

Please accept my letter of support for the Sidney Water Users Irrigation District's application. They work hard to improve irrigation efficiency as well as energy efficiency in their projects. With more effective use of the resources many people will benefit.

It would be great if all consumers took this approach, using existing resources more proficiently.

Sincerely,

Jami Propp

Jami Propp
Member Services Coordinator

AGRI INDUSTRIES

3/25/2014

Lee Candee
Agri Industries
1775 S Central
Sidney, MT 59270

Montana DNRC
Resource Development Bureau
PO Box 201601
Helena, MT 59620-1601

Regards: Sidney Water Users District 1 & 2 Phase 5 Pipeline Project

To whom it may concern

Water conservation is a vital issue in Eastern Montana. The Endangered Species Act and the fact that our population is growing will make water conservation an ever bigger issue in the future.

Sidney Water Users have taken the initiative to improve their irrigation system in the past by burying laterals and promoting pivot irrigation. It is vital to Montana that irrigation districts like Sidney Water Users remain a viable part of our communities. Sidney Water Users helps attract economic development and people to our rural communities.

Sidney Water User's application for a renewable resource grant will help them reach their goal of conserving our natural resources. It is our recommendation that this application be approved.

Sincerely,

April 9, 2014

Dan Scheetz
12016 County Road 350
Sidney, Montana 59270
cell- (406)489-1993

Montana DNRC
Resource Development Bureau
P.O. Box 201601
Helena, MT 59620

RE: SWUID - Dist 1 & 2 High Canal Phase 5 RRG Application

To Whom It May Concern:
I am a land owner on this application project and being at the end of the irrigation canal gives me a special interest in seeing your committee approve more pipe line funding for Sidney Water Users. Since I took over this farm from my Dad (and all I can ever remember) we had to accept our irrigating is done with the waste water of the users upstream from our place. That gives us a very irregular supply of water at best, but too often provides none at all.

Having been on the board for the Water Users for quite a few years, I know and understand most of the reasons we do not get water, but that doesn't help my sugar beets grow any better. I know ditch cleaning is expensive and they are hard to keep in shape and weed free and our project manager does the best he can, but that doesn't help my sugar beets grow any better. I know the USDA flow meters showed, considering just the seepage and evaporation losses, about half of the water disappeared in the final mile of ditch - with not one turn-out along the way - but that doesn't help my sugar beets grow any better.

So until we finished Phase Three, in 2013 (replacing that gravel/sand ditch with a pipe line), the best I could hope for was for some farmer upstream to be really lazy about changing his water and then I could really cover some ground. The pipeline projects so far have made major improvements in getting more water delivered and I am hoping we can continue to improve this project by getting the pipeline and water directly to me.

We thank you for considering our water project for your funding , and you are welcome to visit anytime to see what good is being done with some of the DNRC dollars.

Let me know if we can help with any other information.

Sincerely,

Dan Scheetz

Dan Scheetz
Commissioner, Sidney Water Users Irrigation District

Richland County Conservation District
2745 W Holly ST
Sidney, MT 59270
PH 406-433-2103 X 101 *Fax 433-7351

April 10, 2014

Montana DNRC
Resource Development Bureau
PO Box 201601
Helena, MT 59620-1601

RE: Sidney Water Users RRG Grant application

To whom it may concern:

The Richland County Conservation District supports the efforts of the Sidney Water Users in pursuing a Renewable Resource Grant to improve the efficiency of their irrigation district. The Sidney Water Users efforts to reduce erosion, reduce noxious weeds, promote water conservation as well as increasing the efficiency of their project are important to natural resources in Richland County. Protecting and conserving our natural resources is the goal of the Conservation District and we support any efforts to help us achieve this goal.

Ongoing efforts of the Sidney Water Users to eliminate the open canal and supply ditches by replacing them with buried PVC pipe helps reduce the Operation & Management costs to the Sidney Water Users. That savings along with the ability to grow higher valued crops will have a positive effect on our local economy. The reduction in their pumping will also be a savings of electricity in turn helping the environment.

As Sidney Water Users continues to their efforts to improve water quantity, reduce erosion and improving the efficiency of their project in Richland County the Conservation District offers full support of the project.

Sincerely,

Dan Young, Chairman
Richland County Conservation District

CERTIFICATE

The undersigned, Raymond Bell and Caroline Kling, hereby certify that they are the President and Secretary, respectively of the Board of Commissioners (Board) of Sidney Water Users Irrigation District and that at a regular meeting of the Board, held in Sidney, MT on January 14, 2015, a quorum of the Board was present and the following Resolution was regularly moved, seconded, and adopted by a vote of 5 in favor, 0 opposed, and 0 abstaining.

RESOLUTION

WHEREAS, the Board is the governing body of Sidney Water Users Irrigation District by the authority of its Bylaws, adopted December, 1995; **AND**

WHEREAS, the Board has legal authority and desire to enter into the Bureau of Reclamation's WaterSMART program for FY2015; **AND**

WHEREAS, a grant proposal entitled "High Canal Phase 5 Rehabilitation" has been reviewed by the Board; **AND**

WHEREAS, the Board understands that a grant of 50 percent of the total cost of the grant proposal of $156,597.25 will be paid by the Bureau of Reclamation to the SWUID as satisfactory progression of the project is made; **AND**

WHEREAS, the SWUID expects to enter into an agreement with the Bureau of Reclamation if the 50% grant is awarded, for the purpose of, among other items, scheduling the completion of the project; **NOW THEREFORE BE IT**

RESOLVED, that the Board supports "High Canal Phase 5 Rehabilitation" and that an application be made to Bureau of Reclamation for assistance under the WaterSMART Program; **NOW THEREFORE BE IT FURTHER**

RESOLVED, that the Board verifies the SWUID has the capability to provide the funding and in-kind contributions specified in the funding plan; **NOW THEREFORE BE IT FURTHER**

RESOLVED, that the Board authorizes its President, Raymond Bell, to enter into an agreement with the Bureau of Reclamation to perform the activities described in SWUID's "High Canal Phase 5 Rehabilitation" WaterSMART Program application.

Dated this 14th day of January, 2015.

Raymond Bell

Raymond Bell, President

ATTEST:

Caroline Kling

Caroline Kling, Secretary

Financial Narrative & Project Budget

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1.0 DIRECT COST BUDGET ELEMENTS

The following subsections under Section 1.0 – Direct Cost Budget Elements, will outline the SWUID's process in the development of cost data for the proposed budget. Further estimate clarification or documentation regarding personnel costs, staff wages, and benefits can be provided upon request but is only summarized in this document for employee privacy rights.

1.1 Personnel Costs

The personnel costs presented in the proposed project budget are actual salary costs and benefits paid by the District. In construction cases the District has hired on laborers on a part time project specific basis. Those costs are also hard costs developed by the District from years of experience in construction of pipeline projects. Projected costs are reasonable for the area and fit within the budgetary limits of the District. Salaries projected are anticipated to remain steady from the time of this application through implementation of the project. Any ancillary increase that should occur between the time of application and construction will be absorbed by the District. The per hour wages for the employees listed in the budget are as presented in Table 1.

Table 1. Employee Title and Wage Data

Position	Wage	Units
Project Manager – Raymond Bell	$25.00	HR
Assist. Project Manager – Garvin Leintz	$25.00	HR
Equipment Operator - TBD	$20.00	HR
Laborer - TBD	$15.00	HR

Fringe benefits associated with the above listed employees include social security, State Fund worker's comp, retirement, unemployment, and healthcare. These categories are presented in percent of the overall wage/salary and are included in the employee compensation package for District employees. Table 2 presents the fringe benefits applied in the project budget.

Table 2. Fringe Benefits

Benefit	Percentage of Wage
Social Security	7.65%
State Fund Worker's Comp	6.00%
Retirement	5.00%
Unemployment	0.50%
Healthcare	5.85%
Total Fringe Benefit	***25%***

1.2 Equipment Costs

All of the equipment proposed for use in the construction of the Phase 5 Project is owned by the SWUID and/or its members. The hourly rates have been developed by the District in conjunction with state and federal equipment rates and are either comparable or lower than those set by state and federal agencies. The SWUID has installed over 8 miles of pipeline since 2006 and has a proven track record of successful completion of projects and in turn has developed a thorough cost spreadsheet for their equipment and hours of use. No equipment will be leased or purchased as a result of this project. Equipment and rates used in the Project Budget are presented in Table 3.

Table 3. Equipment Rates

Equipment	Rate	Units
Track Hoe	$150.00	HR
Backhoe	$85.00	HR
Dump Truck	$70.00	HR
Grader	$80.00	HR
Loader	$75.00	HR
Equipment Transport	$80.00	HR
Survey Equipment	$20.00	HR
Soil Compactor	$35.00	HR

1.3 Material & Supplies

The materials list used in the Project Budget was derived from the preliminary engineering completed by the NRCS and PEC as well as the District's experience in Phases 1 through 4 of the High Canal project. Pipeline prices were obtained from two regional pipeline suppliers with Diamond Plastics providing the lost cost PVC pipeline material. Turnout

assemblies, isolation valve assemblies, air valve assemblies, thrust blocks, pipeline fittings, and revegation estimates were developed from previous project actual cost data for the Sidney, Montana area. The District just completed construction of Phase 4 of the High Canal Project in the fall of 2013 so pricing data for these items is recent and applicable. All items were adjusted for inflation through construction to account for any market price adjustments of that manner. Materials prices are presented in Table 4.

Table 4. Material Prices

Item	Rate	Units
24-inch PIP Pipe	$21.43	LF
18-inch PIP Pipe	$11.81	LF
15-inch PIP Pipe	$7.69	LF
12-inch PIP Pipe	$4.91	LF
Turnout Assembly	$3,500.00	EA
Turnout Bollard Settings	$500.00	EA
Air Vent Assembly	$750.00	EA
18-inch Isolation Valve Assembly	$2,500.00	EA
Concrete Thrust Blocks	$250.00	EA
Trunk Line Fittings	$750.00	EA
Branch Line Fittings	$600.00	EA
Revegation	$350.00	AC

1.4 Environmental & Regulatory Compliance Costs

Because this project is the fifth and final phase of construction on the High Canal the majority of the environmental and regulatory hurdles have already been cleared by the District. The District has cleared wetlands delineation, historical preservation issues, archeological issues, and local, state, and federal permits. The only remaining permits to obtain are local 310 Permit with the Richland County Conservation District and a SWPPP through the Montana Department of Environmental Quality, both at the time of construction. The costs associated with obtaining those permits are included in the engineering budget from the contracted engineer.

The USBR funded a WaterSMART grant from Phase 3 of the High Canal Project in 2011. At that time reviews of environmental, historical, and archeological issues with the High Canal were reviewed and approved for construction. It is assumed that those reviews will still be relevant and accepted without incurring further cost associated with the project.

Should the USBR require further NEPA and historical preservation reviews of the project the cost associated with that work will either be taken from the consultant fees portion of the budget. Should funding exceed the budgeted amount in that line item the District will backfill the budget with District funds to make the line item whole.

1.5 Travel Costs

No travel costs were included in the proposed budget. Through the SWUID's experience it has been shown that a travel budget is not necessary due to the extremely close proximity of the work site to Sidney. Employees travel to the site in personal vehicles and are not reimbursed for mileage in doing so.

1.6 Contingencies

A 12% contingency was included in the proposed budget to protect against unforeseen costs, overruns, or dramatic price increases. Using the SWUID's recent experience in pipeline construction they have shown that they have an ability keep projects within the projected budget with minimal overruns. The most volatile item in pipeline construction is pipeline prices. The contingency is primarily in place to protect against increases in market prices for pipe. The contingency was developed using 12% of the construction costs only, excluding administration, engineering, and permitting costs. The budget includes $30,407.85 for a 12% construction contingency for this project. The District believes that this will satisfy and cover any unforeseen costs which may arise.

2.0 INDIRECT COSTS

All indirect costs associated with the project will be covered by the SWUID. No indirect costs were included in the development of the budget and none are foreseen for the project that haven't already been accounted for in the annual O&M budget for the District.

3.0 COST SHARE BREAKDOWN

There are three proposed partners/sponsors in the Phase 5 Project. Reclamation, the Montana DNRC, and the applicant are all included in the proposed budget for the project. The budget proposal proposes splitting the construction materials equally between Reclamation and DNRC as those items are easy to track. Additionally, the DNRC would cover the cost of the majority of equipment for the construction of the project. This takes

the DNRC total contribution in the project to $125,000. Reclamation budget, in addition to the split in construction materials, would cover construction contingency and consulting fees for the project taking the USBR contribution to $156,597.25. The salaries/wages will be covered by the SWUID along with fringe benefits, and a portion of the equipment costs for the project. This approach aimed to equally split the construction costs dollar for dollar between the DNRC and Reclamation to easily track the matching amounts and show the funding match was made. The cost share summary for the project is as shown in Table 5.

Table 5. Cost Share Summary

Construction Component	Reclamation	DNRC	SWUID	Total Cost
Salaries & Wages	$0.00	$0.00	$19,750.00	$19,750.00
Fringe Benefits	$0.00	$0.00	$4,937.50	$4,937.50
Equipment	$0.00	$27,510.60	$11,159.40	$38,670.00
Construction Materials	$97,489.40	$97,489.40	$0.00	$194,978.79
Construction Contingency	$30,407.85	$0.00	$0.00	$30,407.85
Consultant Fees	$28,700.00	$0.00	$0.00	$28,700.00
Indirect Costs	$0.00	$0.00	$0.00	$0.00
Total	***$156,597.25***	***$125,000.00***	***$35,846.90***	***$317,444.14***

Reclamation funds are the only uncommitted dollars associated with the project at this time. The DNRC has ranked and recommended funding for the Phase 5 Project and it has been included in the Governor Steve Bullock's State Budget presented to the 2015 Montana Legislature. The Appropriations Long Range Planning subcommittee held the hearing for the Phase 5 project on January 19, 2015 with no comments, issues or concerns presented by any party. Funding is likely to be available to fill the DNRC component of the project in July 2015 upon completion of the 2015 Montana Legislature. The SWUID has approved the funds for project and can easily fit the costs presented in the budget above in their operational and special projects budgets.

High Canal Phase 5 Construction Project

Construction Budget

Sidney Water Users Irrigation District

January 16, 2015

Budget Item Description	Computation				State DNRC Funding	Reclamation Funding	Recipient Funding
	Quantity	Unit	Unit Cost	Total Cost			
Salaries & Wages							
Project Manager	200	HR	$25.00	$5,000.00	---	---	$5,000.00
Assistant Project Manager	200	HR	$25.00	$5,000.00	---	---	$5,000.00
Equipment Operator	300	HR	$20.00	$6,000.00	---	---	$6,000.00
Laborer	250	HR	$15.00	$3,750.00	---	---	$3,750.00
			Subtotal	$19,750.00	$0.00	$0.00	$19,750.00
Fringe Benefits							
Fringe Benefits 25% of Salary	1	LS	---	$4,937.50	---	---	$4,937.50
			Subtotal	$4,937.50	$0.00	$0.00	$4,937.50
Equipment							
Track Hoe	175	HR	$150.00	$26,250.00	$15,090.60	---	$11,159.40
Backhoe	60	HR	$85.00	$5,100.00	$5,100.00	---	---
Dump Truck	10	HR	$70.00	$700.00	$700.00	---	---
Grader	12	HR	$80.00	$960.00	$960.00	---	---
Loader	12	HR	$75.00	$900.00	$900.00	---	---
Equipment Transport	2	HR	$80.00	$160.00	$160.00	---	---
Survey Equipment	125	HR	$20.00	$2,500.00	$2,500.00	---	---
Soil Compactor	60	HR	$35.00	$2,100.00	$2,100.00	---	---
			Subtotal	$38,670.00	$27,510.60	$0.00	$11,159.40
Construction Materials							
24" PIP Pipe	850	LF	$21.43	$18,215.50	$9,107.75	$9,107.75	---
18" PIP Pipe	4,100	LF	$11.81	$48,421.00	$24,210.50	$24,210.50	---
15" PIP Pipe	966	LF	$7.69	$7,428.54	$3,714.27	$3,714.27	---
12" PIP Pipe	5,125	LF	$4.91	$25,163.75	$12,581.88	$12,581.88	---
Turnout Assembly	15	EA	$3,500.00	$52,500.00	$26,250.00	$26,250.00	---
Turnout Bollard Settings	15	EA	$500.00	$7,500.00	$3,750.00	$3,750.00	
Air Vent Assembly	6	EA	$750.00	$4,500.00	$2,250.00	$2,250.00	---
18" Isolation Valve Assembly	2	EA	$2,500.00	$5,000.00	$2,500.00	$2,500.00	---
Concrete Thrust Blocks	27	EA	$250.00	$6,750.00	$3,375.00	$3,375.00	---
Trunk Line Fittings	15	EA	$750.00	$11,250.00	$5,625.00	$5,625.00	---
Branch Line Fittings	12	EA	$600.00	$7,200.00	$3,600.00	$3,600.00	---
Revegetation	3	AC	$350.00	$1,050.00	$525.00	$525.00	---
			Subtotal	$194,978.79	$97,489.40	$97,489.40	$0.00
Construction Contingency							
12% Contingency	1	LS	$30,407.85	$30,407.85	---	$30,407.85	---
			Subtotal	$30,407.85	$0.00	$30,407.85	$0.00
Consultant Fees							
Engineering/Permitting (see attached)	1	LS	$28,700.00	$28,700.00	---	$28,700.00	---
			Subtotal	$28,700.00	$0.00	$28,700.00	$0.00
Indirect Costs							
Indirect Costs	0	LS	$0.00	$0.00	---	---	---
			Subtotal	$0.00	$0.00	$0.00	$0.00
				Total Construction Cost	*State DNRC Funding*	*Reclamation Funding*	*Recipient Funding*
Total Project Cost				***$317,444.14***	***$125,000.00***	***$156,597.25***	***$35,846.90***