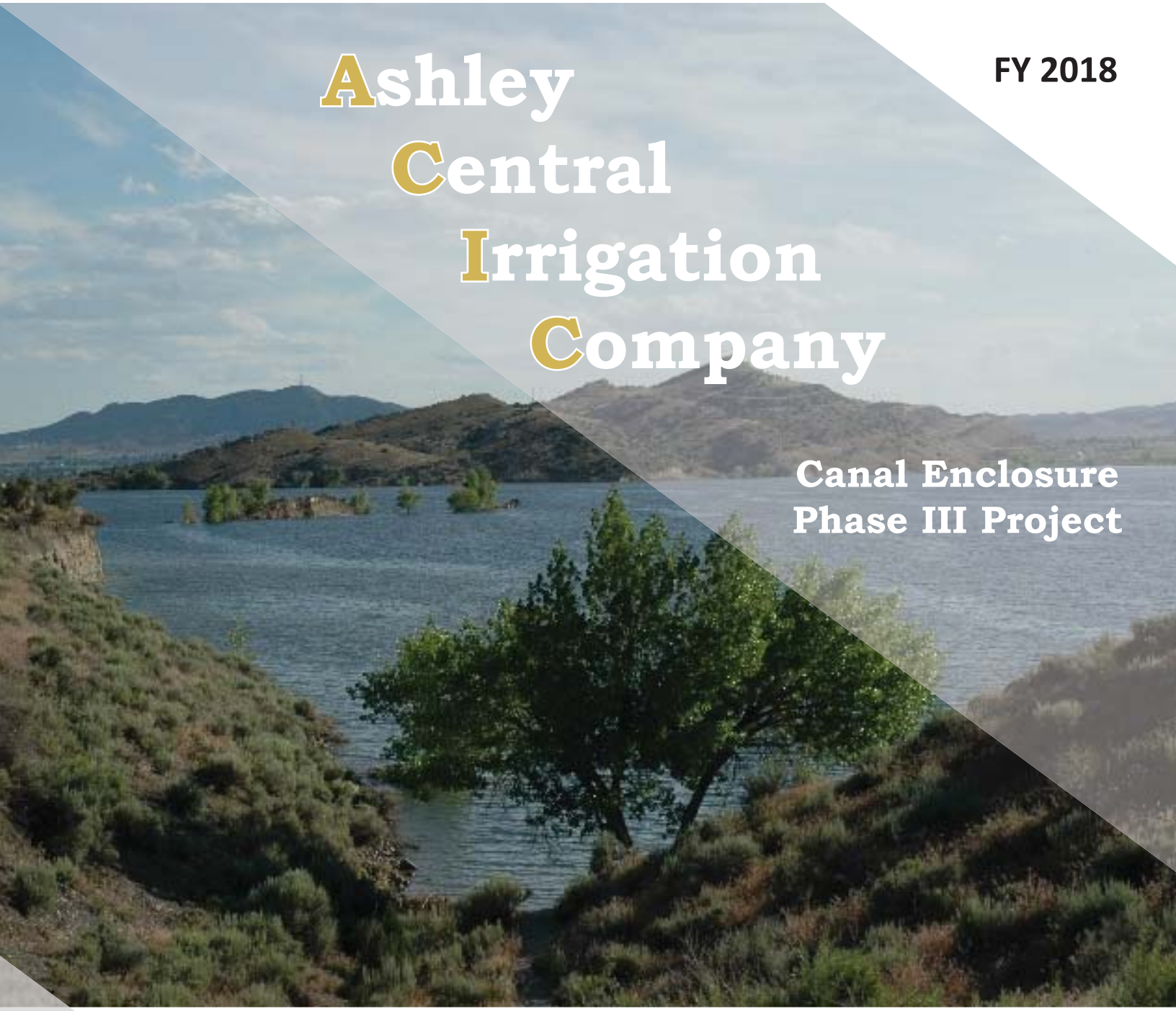
WaterSMART Grants: Water and Energy Efficiency Grants
FOA# BOR-DO-18-F006



Ashley Central Irrigation Company

FY 2018

Canal Enclosure Phase III Project

Applicant

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Applicant Info

Date: May 10, 2018

Applicant Name: Ashley Central Irrigation Company (ACIC)

City, County, State: Vernal City, Uintah County, Utah

Project Manager:

Brian Deeter
Project Manager/Engineer
801-547-0393
brd@JUB.com

Project Funding Request: Funding Group I $300,000; Total Project Cost $723,340

Project Summary

Specify the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA.

The Ashley Central Irrigation Company (ACIC) Canal Enclosure Phase III Project is the third phase of a larger multi-phase canal enclosure project that will pipe and pressurize the Ashley Central Canal. This phase includes piping over a mile of open canal with 26-inch through 30-inch High Density Polyethylene (HDPE) pipe and install user turnouts and meters. This is a high-priority project for the irrigation company because the open canal system is losing 1,625 acre-feet of water, is unmetered at turnouts, and unlined. Then you add drought, growth, erosion, and stormwater impacts and you have a system that is simply not getting water to its users; as well as causing conflicts in the water supply/delivery system among ACIC users, residents, local businesses, and community leaders.

The canal travels through the City of Vernal. Seepage losses, the age of the canal, and the fact that it is an unlined canal have given Vernal City a reason to be in full support of this project.

They understand that because of development encroachment, debris and overgrowth problems, and flooding concerns, ACIC needs to pipe the canal to help improve conservation and water reliability to it users and to provide safety for the community.

The proposed project will contribute to the goals of this FOA in the following ways:

- **Conserve Water:** The project will conserve 1,625 acre-feet of water and use water more efficiently by piping the canal and installing a screening/overflow structure, turnouts, and meters at each turnout location.
- **Water Efficiency:** The project follows a Master Plan that shows future phases of canal piping, which will promote the transition from flood irrigation to sprinkler irrigation, made possible by future piping and pressurizing projects. This will allow farmers to use less water while still producing high-quality crops. It also includes metering that will allow ACIC and its irrigators to keep better track of water allotment to each farm, which in the past, has not been happening. This has caused conflict between irrigators.
- **Mitigate Conflicts:** The proposed project and all its system improvements will help mitigate current and future risk of conflict. The ACIC service area suffers greatly from drought. Water allotments have been reduced to nearly 33 percent just this past year because of drought. Enclosing the canal and installing meters at every turnout will lessen the chance that users will take more water than their share, now that a meter is available to monitor and document the amount of water each user is taking on their water turn.

Length of Time and Estimated Completion Date

State the length of time and estimated completion date for the proposed project.

The project is ready to move forward as soon as it is awarded. The environmental reports and final design will take an estimated six to nine months to complete. Bidding will take place thereafter and construction is anticipated to begin in October 2019 and go through April 2020, outside of irrigation season. As soon as construction is complete, project details and costs will be finalized, and the final report prepared and submitted. The project is expected to span the entire two-year allowance; October 2018 – September 2020.

Federal Facility

Whether or not the project is located on a Federal facility.

The project is not located on a Federal facility, but it does receive water directly from Steinaker Reservoir through the Steinaker Service Canal at 2 locations; 400 North and 1500 West, and 2200 South and 500 West. Steinaker Reservoir is a Federal Reclamation off-channel storage facility located just over 3 miles north of Vernal, Utah.

Background Data

The Ashley Central Canal is an unlined 100 plus-year-old canal, which travels through Vernal City, Naples City, and through the unincorporated areas of Uintah County. It consists of 10 miles of canal with approximately 50 delivery points. Multiple locations are identified to have stormwater draining into the canal as it travels through populated areas. The lower end of the canal has a segment enclosed in a concrete box culvert, approximately 1,540 feet in length.

For years, Ashley Central Canal was commonly known as "The Kids Canal," a summertime fishery for young anglers. However, because of rising concerns of chemicals killing the fish, the irrigation company asked that the Division of Wildlife resources stop putting trout into the canal. Information regarding this can be found here or see Attachment 1A- DWR Fish Article. The Kids canal has also been a popular swimming hole for youngsters, which puts the Ashley Central Irrigation Company at risk of potential legal issues. Years ago, a teenager drowned in the canal and it was argued that "…an accumulation of debris at the bottom of the spillway…created unusual turbulence." Although the case against ACIC was unsuccessfully argued, debris in an open canal proves dangerous. An article on this story can be found in Attachment 1B – Canal Death Case. Due to the issues facing ACIC's canal system, the Ashley Central Canal and its recreational purposes are becoming less and less popular.

Water dependability issues, growth, and dangers present in ACIC's aging, unlined, open canal system have advanced the need to pipe the canal to reduce water losses, provide safety, and improve water reliability for the Company's water users. Other factors that have played a major role in the need for the development of this project include the following:

Drought – More than 90 percent of the state is in a severe drought. Statistics compiled by the National Resources Conservation Service show that the year-to-date precipitation in the Duchesne River Basin stands at 47 percent of average for the water year, and Mosby Mtn., which services Ashley Valley, is only 49 percent of average. This has an impact on ACIC water users, in that they are continually worried about not having enough water for their crops. Last year alone, they had to reduce water allotments by nearly 33 percent, and it looks like this year is going to be much worse. Follow this link for the Snowpack information, and/or see Figure 1.

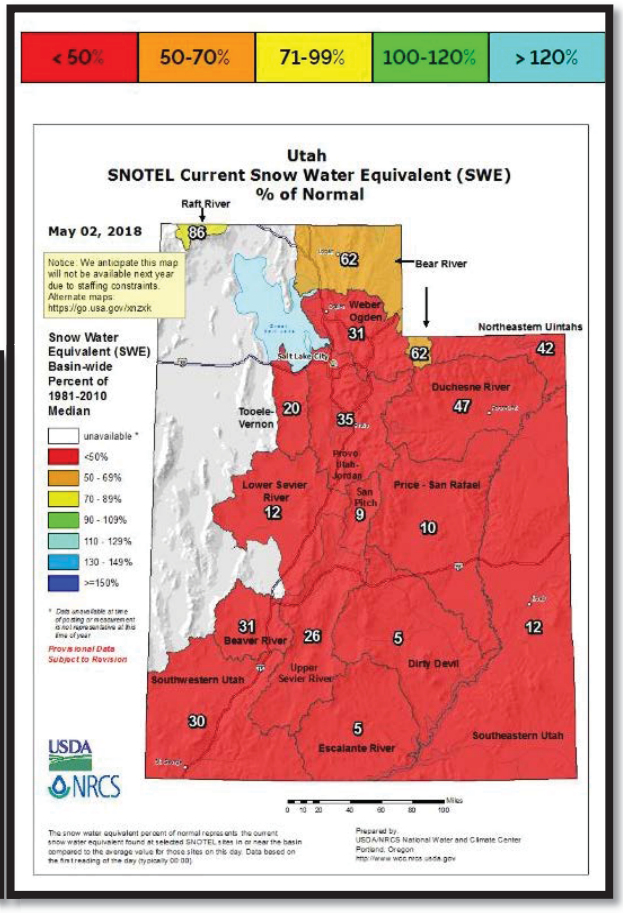
Figure 1 – NRCS Snowpack Information

DUCHESNE

Close (X)

Site	Elev.	SWE	Avg % Avg	Precip	Avg % Avg
Lakefork Basin	10885	15.9	207 77	18.8	23.6 80
Five Points Lake	10943	11.0	17.8 62	14.3	21.5 67
Brown Duck	10574	9.7	18.9 51	13.6	22.7 60
Chepeta	10499	3.5	12.5 28	11.1	18.0 62
Lakefork #1	10128	3.6	9.2 39	10.8	15.6 69
Trial Lake	9992	15.2	22.7 67	19.1	27.0 71
Mosby Mtn.	9553	.1	7.9 1	8.3	17.1 49
Indian Canyon	9171	.0	3.6 0	9.6	16.6 58
Lakefork #3	8464	.3	-M *	6.3	-M *
Strawberry Divide	8123	.0	7.1 0	13.3	22.8 58
Daniels Strawberry	8008	.0	4.6 0	14.4	22.5 64
Currant Creek	7915	.0	.0 *	10.2	16.0 64
Rock Creek	7886	.1	.0 *	7.9	13.6 58

SWE: Represents the snow water equivalent found at selected SNOTEL sites in inches.
Precip: Water year (Oct. 1 - Sept. 30) precipitation in inches.
Elev: Elevation of SNOTEL site, in feet
*-M: Missing data, *: Data may not provide valid measure of conditions*



Seepage – Water lost from seepage has impacted residential basements and has required home owner's sub-pumps to run constantly during irrigation season. The rise in local ground water levels has reduced the ability for many farmers to plant

areas of their farms, and is also making the ground too wet for residential development opportunities in some areas.

Safety – Debris, erosion, and sediment along the canal have triggered flooding and rapid water flows, causing the canal to become dangerous to those who live and work around the canal; as the canal runs right through the middle of the City of Vernal.

No Turnout Meters – Not being able to meter at individual turnouts has caused conflict between water users, and has resulted in water shares not being available for some irrigators when it is their turn to use their allotted water time.

Water Supply

Source of water supply and water rights involved.

Source of Water Supply

ACIC receives water from two sources. They receive approximately 25 percent of the natural flows from Ashley Creek. They also receive storage water from Reclamation's Steinaker Reservoir.

ACIC owns and operates the Ashley Central Canal, which diverts water from Ashley Creek on the northwest portion of Ashley Valley. The diversion structure is approximately 4 miles north and west from Vernal City and a mile north of Maeser in the un-incorporated area of Uintah County, Utah. ACIC also receives water stored in Steinaker Reservoir through the Steinaker Service Canal at 2 locations; 400 North and 1500 West, and 2200 South and 500 West.

Steinaker Reservoir is a Reclamation off-channel storage facility located just over 3 miles north of Vernal, Utah. The construction of this rolled earth-filled dam was started in 1959 and completed in 1962. The reservoir is fed by the Steinaker Feeder Canal, which receives water through the Fort Thornburgh Diversion Dam located on Ashley Creek approximately two miles southwest of the reservoir. The Dam and Reservoir are features of the Central Utah Project, Vernal Unit and provide water to lands south of the reservoir.

The project provides a supplemental water supply of 17,900 acre-feet to about 14,700 acres. Project water also replaces water in Ashley Creek, which allows irrigation of lands above Steinaker Service Canal and diversion of water from Ashley Springs on Ashley Creek into the municipal pipelines, which supply 1,600 acre-feet of water annually to the communities of Vernal, Naples and Maeser.

Steinaker Reservoir has a total capacity of 38,173 acre-feet and a surface area of 820 acres. Steinaker Dam is a zoned earth-filled structure. The dam is 162 feet high, has a crest length of 1,997 feet, and contains 1,892,000 cubic yards of material.

Water Rights Involved

The base water right for ACIC is for 178.935 cfs out of Ashley Creek. The Ashley Creek Distribution System Annual Report for 2017 includes a water delivery schedule for all users with water rights on Ashley Creek. The water delivery schedule for both 2017 and 2018 included in that report shows ACIC receiving approximately 25 percent of the natural flows for both years.

In addition, ACIC owns 5,850 shares of Steinaker Reservoir water.

Table 1 shows the monthly totals from both sources for 2017.

Table 1 – 2017 Monthly Water Flow (AF) Totals from Ashley Creek and Steinaker Reservoir

	April	May	June	July	August	September	October	Total	%
Ashley Creek	210	2152	1142	725	738	508	110	5585	42%
Steinaker	5	643.5	1375	2454.5	1988	1135	75.5	7676.5	58%
Total (AF)	215	2795.5	2517	3179.5	2726	1643	185.5	13261.5	

Current water uses and number of water users served.

ACIC's current water use includes irrigating farmland in Ashley Valley. There are 522 shareholders with shares in the Ashley Central and Steinaker Service Canals.

Current and projected water demand/potential shortfalls in water supply.

ACIC diverted approximately 13,262 acre-feet in 2017. The current demand for water is not expected to change.

Potential Shortfalls in Water Supply

The major existing shortfalls in the water supply are water losses in the unlined canal and drought. Due to the reduced water levels in the Steinaker Reservoir and Ashley Creek, water allotments this past year have been at an all-time low for the ACIC service area, reduced to nearly 33 percent. Because of this shortfall, farmers are not getting enough water to get the normal yield of hay or alfalfa that they have come to rely on. ACIC's delivery system has a number of deficiencies because it is an old unlined canal that will continue to add to the shortfalls of the system; seepage, debris, sediment, flooding, and others that are direct consequences of an open and unmetered canal.

If water is primarily used for irrigation, describe major crops and total acres served.

Approximately 4,000 acres of farmland in Ashley Valley are irrigated by the Ashley Central Canal. Major crops include pasture, grass, alfalfa, small grains and corn.

Water Delivery System

Describe the applicant's water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements.

The Ashley Central Canal travels through Vernal City and Naples City, as well as through the unincorporated areas of Uintah County, and consists of 10 miles of canal with a capacity ranging from 20 to 60 cubic feet per second (cfs). Average flows are approximately 45 cfs during irrigation season and there are approximately 50 delivery points. Multiple locations were identified to have stormwater and drainage water coming into the canal. The canal travels through populated areas with numerous roadway crossings, culverts, and modifications – as growth has occurred in Ashley Valley. The lower end of the canal has a segment enclosed in a concrete box culvert approximately 1,540 feet in length.

Energy Efficiency

If the application includes hydropower or energy efficiency elements, describe existing energy sources and current energy uses.

There will be no energy efficiency elements in this phase of the project.

Relationship with Reclamation

Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).

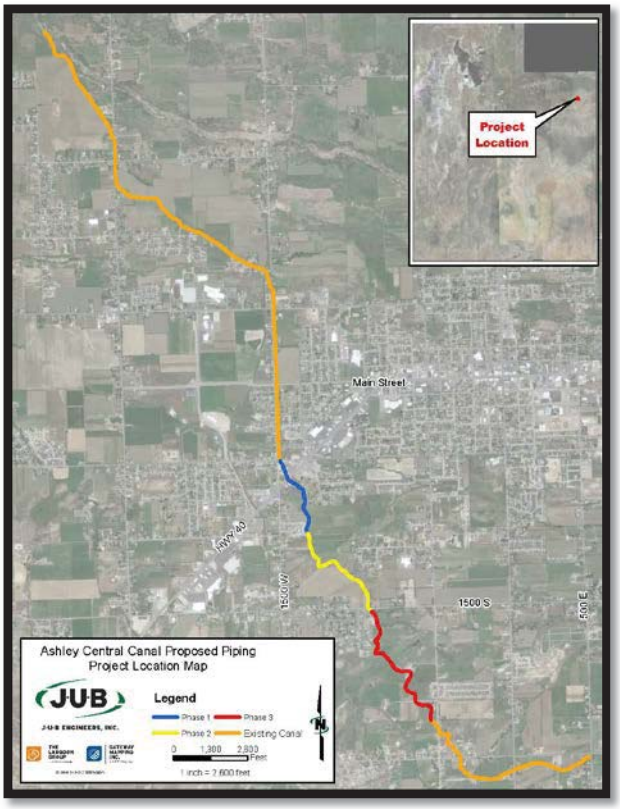
ACIC receives over 50 percent of the water delivered to users annually from Reclamation's Steinaker Reservoirs via the Steinaker Canal. The Steinaker Canal and the Ashley Central Canal parallel each other for much of their length through Vernal City. Steinaker Reservoir is a Reclamation off-channel storage facility located just over 3 miles north of Vernal, Utah. Construction of this rolled earth-filled dam was started in 1959 and completed in 1962. The reservoir is fed by the Steinaker Feeder Canal, which receives water through the Fort Thornburgh Diversion Dam located on Ashley Creek approximately two miles southwest of the reservoir. The Dam and Reservoir are features of the Central Utah Project, Vernal Unit and provide water to lands south of the reservoir.

Project Location

Provide specific information on the proposed project location or project area including a map showing the geographic location.

Geographic Location

The project is located in Uintah County, Utah. The project is within unincorporated Uintah County just outside of the Vernal City limits. See Attachment 2 – Project Location Map and Attachment 3 – Phase III Project Detail Map. Also, a map outlining Phase III in relation to Phases I and II can be found in Attachment 4 – Ashley Central Canal Piping Phasing Map.



Technical Project Description

Describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal.

This project will include piping approximately 5,500 feet of unlined earthen canal with 28-inch through 30-inch HDPE pipe. The pipe will be buried within the existing canal easement. The canal will be left open to become a future storm water facility for Uintah County and Vernal City. There are six existing irrigation turnouts to farms within the project. Each of these existing

turnouts will be replaced with a gated turnout and meter. The new turnout assemblies will be designed for telemetry.

E.1. Technical Proposal: Evaluation Criteria

E.1.1. Evaluation Criterion A – Quantifiable Water Savings

Quantifiable Water Savings

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

The amount of water expected to be conserved as a direct result of this project is 1,625 acre-feet.

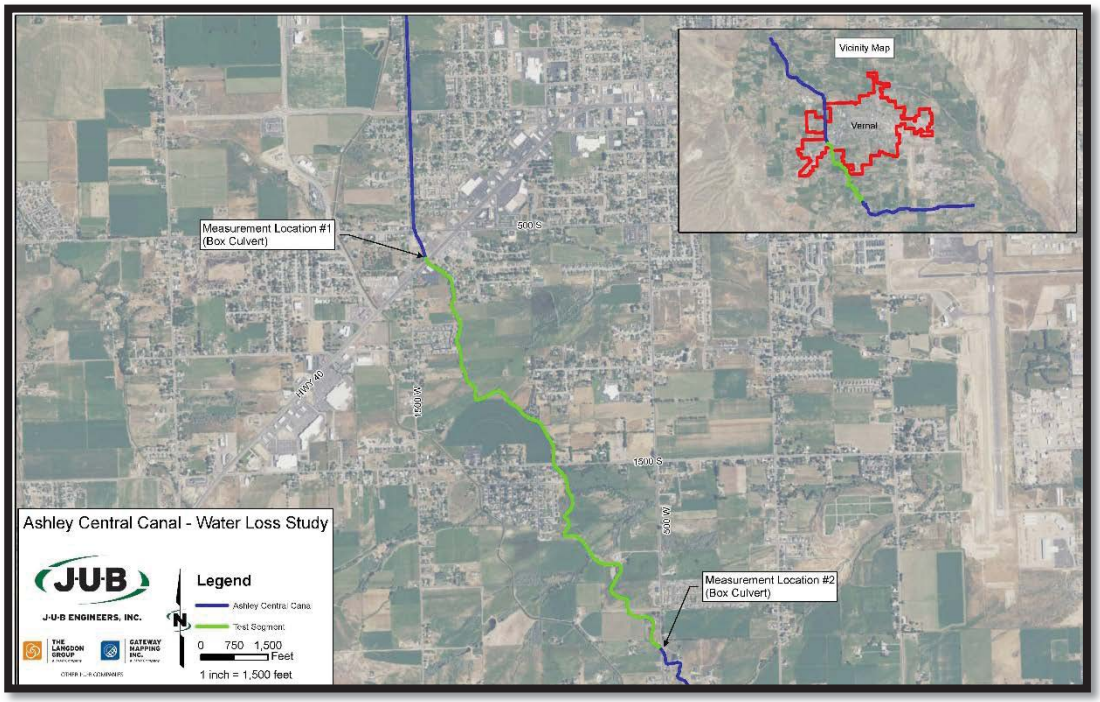
Describe current losses. Explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

Current water losses, primarily due to seepage, are percolating into the underlying soils beneath the canal, as the canal is unlined; and because the canal is an open ditch, there are also evaporative losses as well.

Describe the support/documentation of estimated water savings. Provide sufficient detail supporting how the estimate was determined, including all supporting calculations.

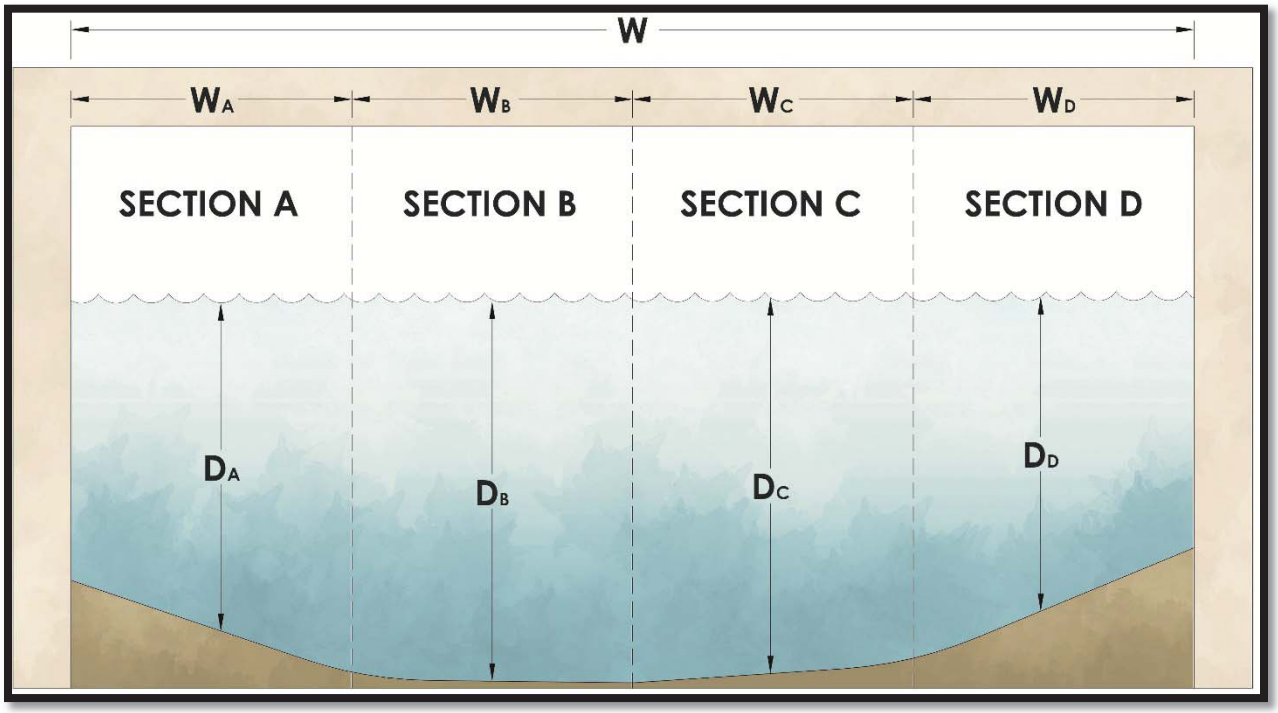
On August 22, 2017, a seepage and evaporation loss study was conducted on this section of the canal. Measurements were taken at 2 locations within the canal while water was flowing and no water users were taking water from the canal. Figure 2 below shows the location of the measurements that were taken. The measurement locations were rectangular concrete box culverts located at US Highway 40 and at 500 West. These box culverts were selected as locations for flow measurement because they provided fixed geometry with measurable

Figure 2 Measurement Location for Water Loss Study



dimensions. The average depth of water was measured and recorded in the box culvert. The box culvert width was divided uniformly into sections and velocities were measured at the center of each section (See Figure 3 below). Velocities were measured using a hand-held velocity probe. The total flow was the sum of the flow in each of the smaller sections.

Figure 3 Cross Section Areas



$$Flow = WxDxVelocity$$

The flow rate for each section was calculated by multiplying the cross-section area (width x flow depth) by the velocity. The overall flow rate was calculated by adding the flow of each small section. Table 2 summarizes the flow rate at each location and the flow loss between the locations.

Table 2 – Summary of Flow Rate at each Box Culvert Location and Flow Loss between Locations

Location	Description	Flow (cfs)	Loss (cfs)	Loss (%)	Distance (ft)	Distance (mi)	Loss (%/mi)
#1	Box Culvert	41.65					
#2	Box Culvert	27	14.7	35.2%	13200	2.5	14.1%

The section measured was 2.5 miles in length. The section addressed by this application is the last 1 mile of this section. To address anticipated annual water loss in the last 1 mile of this segment, the following method was employed.

Using the measurements from Table 2 above, the water loss was expressed in terms of percent loss per mile.

$$35.2\% \div 2.5 \text{ miles} = 14.1\% \text{ per mile}$$

This loss was applied to the annual average flow rate for 2017 in this section of canal over the length of the 2017 irrigation season. The Ashley Creek Distribution System Annual Report for 2017 shows an average annual flow rate of 38.2 cfs and a 175-day irrigation season for that year. The average flow rate of 38.2 cfs was for the entire canal. To determine what the average annual flow rate was for the section being studied, the flow rate for that day of the water loss study (August 22, 2017) from the annual report was compared to the measured flow at section #1 on that day. The Ashley Creek Distribution System Annual Report for 2017 shows a flow of 48 cfs for the canal and the measured flow was 41.65 cfs. This reflects a water loss of 13.2 percent between the head of the canal and the measured section. (All users were instructed not to take water on the day of the study.) Applying this same water loss ratio to the average annual flow rate of 38.2 cfs gives an average annual flow of 33.2 cfs at the studied section.

$$38.2 \text{ cfs x } (100\% - 13.2\%) = 33.2 \text{ cfs}$$

This represents an annual volume of 11,524 acre-feet through the studied section.

$$33.2\frac{ft^3}{sec}x60\frac{sec}{min}x60\frac{min}{hr}x24\frac{hr}{day}x175day \div 43{,}560\frac{ft^2}{acre} = 11{,}524acreft$$

The water loss through this section is 14.1 percent per mile, as determined above. The 1 mile section being addressed in this application represents a total loss of 14.1 percent.

$$14.1\frac{\%}{mile}x1mile = 14.1\%$$

Applying this 14.1 percent over the 11,524 acre-feet gives a total annual loss of 1,625 acre-feet.

$$11{,}524 \text{ acre-feet x } 14.1\% = 1{,}625 \text{ acre-feet}$$

Canal Lining/Piping

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

  The average annual water savings will be the current average annual seepage and evaporative losses of 1,625 acre-feet. Seepage and evaporative losses were calculated in the previous section. It can be assumed that once the open and unlined canal is piped, these losses will be completely eliminated. The pipe will completely separate the flow from the underlying soils,

which is the cause of the seepage. The pipe will also completely cut off the water from the solar radiation that causes evaporation.

- *How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.*

  As previously stated, a seepage loss study was conducted on this section of the canal. Measurements were taken at two locations within the canal while water was flowing and no water users were taking water from the canal. Figure 2 above shows a map of the two measurement locations. The flow rate for each section was calculated by multiplying the cross-section area (width x flow depth) by the velocity. The overall flow rate was calculated by adding the flow of each small section.

  The section measured was 2.5 miles in length. The section addressed by this application is the last 1 miles of this section.

  This loss was applied to the annual average flow rate for 2017 in this section of canal over the length of the 2017 irrigation season. The Ashley Creek Distribution System Annual Report for 2017 shows an average annual flow rate of 38.2 cfs and a 175-day irrigation season for that year. The average flow rate of 38.2 cfs was for entire canal. To determine what the average annual flow rate was for the section being studied, the flow rate for that day of the water loss study (August 22, 2017) from the annual report was compared to the measured flow at section #1 on that day. The Ashley Creek Distribution System Annual Report for 2017 shows a flow of 48 cfs for the canal and the measured flow was 41.65 cfs. This reflects a water loss of 13.2 percent between the head of the canal and the measured section.

  The water loss through this section is 14.1 percent per mile, as determined above. The 1 mile section being addressed in this application represents a total loss of 14.1 percent.

  All supporting sets of data/measurements pertaining to the described methods, measurement locations and velocities are found above.

- *What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?*

  The average annual water savings will be the current average annual seepage and evaporative losses of 1,625 acre-feet. Seepage and evaporative losses were calculated in the previous section. It can be assumed that once the open and unlined canal is piped, these losses will be completely eliminated. The pipe will completely separate the flow from the underlying soils that cause the seepage. The pipe will completely cut off the water from solar radiation that causes evaporation.

- *What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?*

  The project is 1 miles in length and the total losses are 1,625 acre-feet. The annual loss reductions will be 1,625 acre-feet per mile.

1. *How will actual canal loss seepage reductions be verified?*

   The flow into and out of the piped section can easily be calculated by measuring velocities and cross-sectional flow area, and multiplying these figures to arrive at a flow rate in and out of the canal section to be piped with this project. All user turnouts will be metered and can be included in this inflow/outflow equation. It is assumed that seepage losses will be zero.

2. *Include a detailed description of the materials being used.*

   - **High-Density Polyethylene (HDPE) DR 41 PIPE and fittings –** This is a common pipe material frequently used in water conveyance. It will be produced in accordance with ANSI/AWWA C906 Polyethylene (PE) Pressure Pipe and Fittings.
   - **Concrete Screening and Overflow Structure –** The screen will be a traditional style screen as commonly specified on the Bureau of Reclamation's Technical Service Center site. Construction will be of galvanized steel. The screen will be housed in a reinforced concrete structure.
   - **Turnout Meters –** There will be a meter located on each user turnout from the mainline pipe. The style will be a Doppler/Transit-Time/Ultrasonic Flow Meter. Each turnout assembly will include a valve and meter station and will be telemetry-capable.

E.1.2. Evaluation Criterion B – Water Supply Reliability

Address how the project will increase water supply reliability. Provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

- *Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?*

  Yes, many users, County Commissioners, community leaders, and others have been collaborating with ACIC for over a year on the best way to increase the water reliability for the Company's users and also allow for better flood control to still be available within the existing canals as the canal is piped.

  - *Is there widespread support for the project?*

    There have been multiple meetings with Uintah County, Vernal City and Naples City to specifically discuss this project. Those entities are interested in the success of this project because it provides irrigation water for themselves and their citizens. The project will allow those entities to use the open canal for storm drainage without combining stormwater and irrigation water, which in the past has resulted in flooding. The Community is also interested in creating a trail system over the piped canal alignment. See Attachment 5 – Letters of Support.

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

    Uintah County, Vernal City and Naples City have expressed a willingness to participate monetarily in the project, even though the specific amounts are still to be decided.

  - *Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?*

    This is the third phase in a multi-phased project. Later phases will result in a pressured system, which will allow individual farmers to approach the NRCS for funding to implement sprinkled on-farm systems to replace the current flood

irrigation methods they use. Farmers are already sprinkling their land, but they use pumps to run their systems. There are farmers who are interested in meeting with NRCS to add improvements to their farms. These will be addressed in the on-farm area.

In addition, a more reliable system without the problems of silt and sediment in the water will allow the Uintah Recreation District to take irrigation water directly from the canal to replace the potable water they are currently using on some of their parks.

- *Will the project make water available to address a specific water reliability concern? Please address:*
  - *Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.*

Seepage – Because the Ashley Central Canal is unlined, water is seeping into the underlying soils. Water is also getting into basements and causing some land in the area to become undevelopable and un-farmable because the ground is too wet.

Debris – Debris and other structures along the canal are causing blockages, which cause flooding and rapid water flows that become dangerous to those working/playing around or in the canal.

Safety – Erosion and sediment along the canal have triggered embankments to sluff off and collapse, becoming hazardous to homes that have backyards that back up to the canal; as the canal runs right through the middle of the City of Vernal.

In June 1986, a teenager was found dead downstream after saving a friend who was trapped in the canal below the spillway of a dam, which backed up water for an irrigation ditch outlet. The court ruled that ACIC is not liable for the drowning of the teenager. However, this story represents a real danger that was described in the article as a "deep hole and an accumulation of debris at the bottom of the spillway, which created unusual turbulence." In an article released in the Salt Lake Tribune, the writer, Sheila R. McCann states, "The waterway was locally known as 'the kids canal,' because locations along it were popular swimming holes."

Under-maintained Fence Obstructions – Some of the fences made to keep livestock from traveling up the flow line and getting into adjacent properties have not been well-maintained, and like debris buildup, are obstructing the normal flow of

water. Fences could be better maintained to allow the natural flow of water, reduce potential flooding, and still contain livestock. Corral panels have also been placed across the canal channel to contain livestock. These have also been under-maintained and are catching debris and causing flooding.

Farmers holding onto water – Water is scarce and farmers feel the need to spread it out longer through the irrigation season. Many farmers are already struggling to produce their third cutting of alfalfa and are worried what their future might hold.

Lack of meters – Ashley Central Canal's lack of meters means that there is no way to account for water being used by each farmer. Some farmers are taking way too much water for themselves and not leaving enough for others.

Silt in canal – Silt in the canal creates erosion problems in the canal system and deprives the farmers of the rich soil they used to receive along with the irrigation water. Silt is also affecting the soils of the local cemetery and ball parks managed by Vernal City.

Golf Course Affected – Vernal City's golf course is threatened by seepage and/or flooding because the nearby Ashley Central Canal ditch is in bad shape. Further, all recreation areas along the Ashley Central Canal ditches are threatened by seepage and/or flooding.

- *Describe where the conserved water will go/how it will be used. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)? Will it be left in the river system?*

The general attitude among farmers in the area is that if water is to be conserved, then they should receive more water. ACIC agrees that the conserved water should be delivered to farms, especially since their water allocation has already been cut to nearly 33 percent – due to significant drought impacts. However, the Company hopes that by installing meters at each turnout, better water management and conservation will be encouraged, and that when later phases are completed, farmers will take advantage of the pressurized system and available NRCS funds to install sprinkler irrigation systems. These efforts will ultimately result in more water being left in the river system.

- *Describe how the project will address the water reliability concern?*

One of the most significant benefits to water reliability in the proposed project is the meters that will be installed at each turnout. These meters will keep the farmers honest in the amount of water used to irrigate their crops. This will ensure that each farmer receives their fair share without worrying about whether or not their water has gone to another farm.

Piping the canal will solve all the other water reliability issues, including seepage, evaporation, silt, debris, and other problems associated with an open, unlined canal. Erosion and sluffing will no longer occur because of the enclosed, piped system.

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

While the proposed project cannot prevent drought, it will introduce measures that will reduce the impact drought has on the area. Piping the system will keep water from seeping and/or evaporating. Turnouts and metering will allow for better delivery efficiency and use of Steinaker Reservoir's water storage. Because of the drought, water allotments have been cut down to nearly 33 percent, and as previously stated, farmers are holding onto their water to spread it out longer through the irrigation season. No one can blame the farmers. They are worried that they do not have enough water for their crop. However, ACIC believes that water conservation measures, such as piping the system – and in later phases pressurizing the system – will significantly reduce the amount of water loss and the burden placed upon farmers because of that water loss.

While there have been no threats of litigation, the most prominent water reliability conflict in the ACIC service area that has caused tension among farmers is the question of how much water each farmer is taking. Because there are no meters, farmers could be taking more than their allotted share. This concern is one that can be easily resolved through the installation of meters at each turnout.

Other conflicts involved that the proposed project will work to prevent include canal seepage getting into local basements and rendering land unbuildable and un-farmable because ground is too wet.

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

The piping of the canal will conserve water and allow it to be delivered to the users, as it was intended to be. Irrigators will have a dependable source of water that they can now count on, especially during the critical drought years and hot summer months when they rely on having the water for their crops. Users will be able to get their full share of water, which they have been unable to receive in the past.

- *Describe the roles of any partners in the process. Please attach any relevant supporting documents.*

Vernal City and Uintah County have committed to contribute money to the project, as they will benefit from having the open canal available for storm water control after it is piped. They will also enjoy recreational benefits from the proposed trail system along the canal corridor. The amount of money to be contributed by the city and county is yet to be determined. Letters of support from Vernal City and Uintah County are found in Attachment 5 – Letters of Support.

ACIC has also submitted a grant application to the Utah Conservation Commission for $100,000. This is in the form of a grant.

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

The conservation of 1,625 acre-feet per year as a result of the proposed project will go to farmers in the ACIC service area.

- *Will the project benefit Indian tribes?*
  The Uintah and Ouray Indian Reservation is just 10 miles south of this project. Water quality in the Green River will benefit directly from this project. The Green River runs through the reservation.

- *Will the project benefit rural or economically disadvantaged communities?*
  Yes, Vernal City is a predominantly rural area, and as is the case with many rural areas in the State of Utah, farming is a way of life. Residents and their communities rely on quality crop production for economic sustainability, and during years when drought takes a significant toll, farmers struggle to make ends meet. The ACIC service area currently faces this hardship. Vernal City communities are in full support of all canal system improvements that ACIC is willing to make to ensure precious water resources are available to sustain their way of life.

- *Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance). Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.*
  The Utah Department of Environmental Quality Division of Water Quality has listed the section of Ashley Creek from the point where the Ashley Central Canal drains into the creek to its confluence with the Green River 8 miles downstream as an impaired water body. It is listed on the State's 303D list of impaired waters and has been designated as not meeting its warm water fishery beneficial use due to high concentrations of Selenium (Se) and its agricultural beneficial use due to high concentrations of Total Dissolved Solids (TDS).

  One of the primary sources of Se and TDS being introduced into the creek is from irrigation return flows from flood irrigation and from flows out of the end of open canals, including the Ashley Central Canal. According to the Bureau of Reclamation, the Ashley Central Canal contributes 1,850 tons of salt to the Colorado River annually. This project will eliminate 48 tons of salt from the Colorado River annually.

  Reducing Se, TDS and salinity in the Ashley Creek and the Green River will benefit the 4 endangered fishes that are known to exist in Uintah County:

  - Bonytail Chub
  - Humpback Chub
  - Colorado Pikeminnow
  - Razorback Sucker

- *Will the project address water supply reliability in other ways not described above?*
  ACIC feels that all current and future water supply reliability issues associated with their Central Canal system and service area have been addressed above.

E.1.4. Evaluation Criterion D – Complementing On-Farm Irrigation Improvements

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

- *Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.*
    - *Provide a detailed description of the on-farm efficiency improvements.*

This project will help provide a safer, more reliable, and more efficient water delivery system for ACIC. Many farmers already have installed pipes, sprinklers, and pivots to make their irrigation systems more efficient, and have found that it has allowed for higher crop yields. Others who have not taken this opportunity have shown interest and are looking forward to evaluating the best option for their agricultural lands.

This project will be a positive move toward ensuring that shareholders will receive their shares of water through a closed pipe system to ensure water delivery.

ACIC is aware of a few local farm projects that are being considered, most of which are ditch expansions, piping of ditches, and conversion of water deliveries from flood irrigation to sprinklers. There is a list of farmers that have substantial acreage who have interest in on-farm efficiency projects. See Attachment 6 – On Farm Signature Page.

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

The farmers listed have expressed interest in participating in NRCS funding programs and have in the past participated in other opportunities with NRCS. This project will give them more security in knowing that the canal will function properly and allow for better safety and conservation of water. They have not requested assistance from NRCS; however, they plan to in the future.

- *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*

The on-farm assistance has not been requested from NRCS. Farmers have a strong interest to meet with NRCS to develop high-efficiency irrigation systems. As previously stated, many farmers already have on-farm sprinkler improvements. Some of these farmers listed have sprinklers on another acreage they farm and want to expand, and others are interested in acquiring the sprinkler systems for the first time. Those who have signed up represent 33 percent of the acreage.

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

The farmers have signed a signature page that can be found in Attachment 6 – On Farm Signature Page. This form indicates the name, signature, and acreage of those irrigators benefiting from the project who are interested in applying for NRCS assistance.

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

    N/A

    OR

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

    Yes, the proposed project will complement the on-farm project in the following ways:

    – Irrigators will have a dependable source of water that they can now count on, and it will be metered and allow them to receive their allotted shares.
    – Users who wait to use their time allotment for later in the season will now be able to receive their water, which they have been unable to receive in the past.
    – More confidence in the main canal system will allow farmers to make an investment in sprinkling and drip irrigation methods.

- *Describe the on-farm water conservation or water use efficiency benefits that would result from the on-farm component of this project.*
    - *Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.*

    Based on calculation and information available from NRCS, flood irrigation is only 40 to 50 percent efficient compared to the 75 percent efficiency of sprinkling. Estimates have not been made for the potential savings for on-farm implementation projects. However, water savings already submitted as part of this application are substantial and will work towards having an impact on saving essential water resources in the area; the most meaningful benefit that comes from sprinkling acreage that has in the past not been sprinkled. This will help to reduce nutrients that flow off of the land into the Ashley Creek River, which is an impaired river. This alone will have an impact on all the water users and should be considered a significant water quality savings.

E.1.5. Evaluation Criterion E – Department of the Interior Priorities

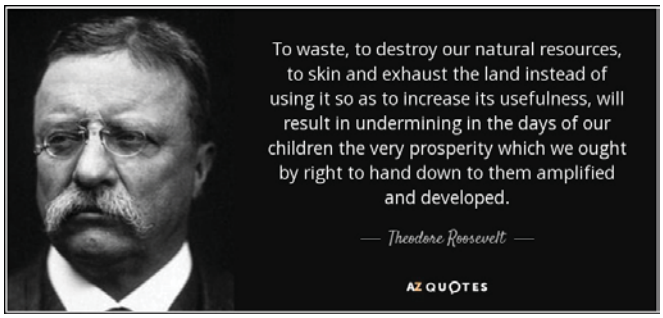
Address those priorities that are applicable to your project. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the Priority(ies) is well supported in the proposal.

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

Teddy Roosevelt wisely said, "To waste, to destroy our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand down to them amplified and developed." In an area impacted so heavily by drought, farmers are worried that they will have nothing to sustain themselves in the future, and nothing to hand down to future generations. ACIC does not want for their communities and water users to worry. Worry over water storage and reliability has already caused enough tension in the area, and

ACIC is determined to provide a solution by which the Company and local water users can implement ways to conserve Utah's valuable water resources.

ACIC has reviewed their water storage and distribution system to identify opportunities to resolve conflicts and expand capacity; and the result is the proposed project. Piping the Central Canal system and installing a screening/overflow structure, turnout assemblies, and meters at each turnout will provide the means for both water user and Company to contribute to the conservation stewardship legacy left by Teddy Roosevelt. Even though the common attitude among ACIC's water users is that conserved water means more water for their farms, ACIC hopes that through its own conservation efforts, farmers will be inspired to conserve as well. This will become even more possible in future phases when the ACIC is pressurized and farmers have the means to implement sprinkler irrigation without the cost of pumping.



In addition to the proposed canal improvements, ACIC has the opportunity to work with The Uintah Recreation District, a special service district that was formed to benefit the citizens of Vernal and the surrounding area, who are advocating for the construction of a trail along sections of the Ashley Central Canal. This goes along with the DOI's goals and Roosevelt's conservation legacy by fostering relationships with conservation organizations advocating for balanced stewardship and use of public lands. The enclosed canals will provide additional safety for this type of recreation activity and prevent flooding that could potentially damage a nearby trail.

2. Restoring trust with local communities

Trust with its local communities is something that ACIC risks losing if they do not implement the proposed canal improvements. So much tension exists among water users in the service area because of the recent impacts from drought and water loss due to an unlined and eroding canal system. Farmers have felt the need to take matters into their own hands by holding onto water longer so as to spread it out through the irrigation season. Also, farmers are at each other's throats about how much water everyone is taking for their farms, and ACIC currently has no way to resolve these disputes because there are no meters at the turnouts. The proposed project will mitigate these disputes by installing meters at each newly-gated turnout; and by replacing the open ditch with a piped system that will reduce water loss caused by unreliable infrastructure.

A conflict from Ashley Central Canal's past that has caused tension between local residents and the canal company is the 1986 drowning of a Vernal City teenager in the Ashley Central Canal. This story has resurfaced in more recent years, where family of the young victim have spoken out concerning whether or not the open ditches, so close to residences, are safe. The piping (enclosure) of the canal will hopefully bring peace of mind to these residents who are

concerned about their children's safety, sparked by this unfortunate event. The full story can be found in Attachment 1B – Canal Death Case.

3. Modernizing our infrastructure

ACIC's proposed project is an infrastructure improvement project. Its sole purpose is to improve water quantity, quality, and efficiency by completely replacing old and outdated infrastructure with new and modernized infrastructure. Modern infrastructure design prides itself in outliving the useful life of old infrastructure design, such as ACIC's unlined and eroding canal system.

New infrastructure, such as meters, will be placed at each turnout, where previously there weren't any. ACIC seeks to provide its communities with the amount of water needed to ensure the production of quality crops, and to ensure continued economic sustainability. Providing new and modernized infrastructure is the way to accomplish this. The quote above by Teddy Roosevelt backs the importance of ridding America of the infrastructure that is skinning and exhausting the land, and replacing it with new and improved infrastructure that will increase the land's usefulness, to better serve America's current and future needs; "…to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children…"

E.1.6. Evaluation Criterion F – Implementation and Results

E.1.6.1. Subcriterion No. F.1 – Project Planning

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

Provide the following information regarding project planning:

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

   ACIC has a 2016 Water Conveyance Facility Management Plan in place for the Ashley Central Irrigation Canal that identifies each municipality or county through which water is conveyed or delivered by the water conveyance facility; and includes an evaluation on potential risks to the delivery system/service area. The plan also includes a maintenance and improvement plan, an implementation schedule for that plan, potential funding sources for canal improvements, and an emergency response plan. A copy of this plan can be found in Attachment 7 – Water Conveyance Facility Management Plan.

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

   Three long-term canal improvements have been identified in the Plan to increase safety and enhance the performance of the canal:

   1) Install pipe or box culvert to replace the open-channel segments
   2) Coordinate with the County, Naples City, and Vernal City on improvements to the existing channel for increasing drainage and stormwater capacity, drainage crossings and outlets
   3) Install an overflow structure at head of the piped segment.

The following table shows a tentative implementation schedule for these canal improvements:

Potential Project	Est. Completion Date
Canal Enclosure	April 2025
Stormwater Improvements	2018 to 2030
Automated Flow Control and Measurement Devices	2020

E.1.6.2. Subcriterion No. F.2 – Performance Measures

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

The flow into and out of the piped section can easily be calculated by measuring velocities and cross-sectional flow area and multiplying these figures to arrive at a flow rate in and out of the canal section to be piped with this project. All user turnouts will be metered and can be included in this inflow/outflow equation. It is assumed that seepage losses will be at zero directly following construction of the proposed canal improvements.

Each of the gated turnouts will be metered as a result of the proposed project. These meters are ACIC's performance measure, one that will allow them to quantify actual water usage at each turnout; and thereby implement better management practices and realize water savings.

E.1.7. Evaluation Criterion G – Nexus to Reclamation Project Activities

Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:

58 percent of the water delivered by the Central Canal in 2017 was water from the Steinaker Reservoir and delivered to the Central Canal via the Steinaker Canal. Both the Steinaker Reservoir and Canal are Reclamation facilities.

- *Does the applicant receive Reclamation project water?*
  In 2017, the Central Canal received 7,677 acre-feet of Reclamation water, which represents 58 percent of the water delivered by the Ashley Central Canal.

- *Is the project on Reclamation project lands or involving Reclamation facilities?*
  The project is not located on Reclamation project lands, but does receive water from Reclamation facilities. The Ashley Central Canal and Reclamation's Steinaker Service Canal parallel each other in some areas and actually cross one another in one location.

- *Is the project in the same basin as a Reclamation project or activity?*
  This project is in the same basin as Vernal Unit of the Central Utah Project. Principal constructed features of the unit are Fort Thornburgh Diversion Dam and Steinaker Feeder Canal, through which surplus flows of Ashley Creek are conveyed to the off-stream Steinaker Reservoir. Water stored in the reservoir is released into the Steinaker Service Canal, which delivers water to the Ashley Central Canal at two locations.

- *Will the proposed work contribute water to a basin where a Reclamation project is located?*
  Yes, a piped canal system, with its gated turnouts and meters, will allow water to be better managed and saved, allowing water to be held in the Steinaker Reservoir (a Reclamation facility) for longer in the season.

Will the project benefit any tribe(s)?
No, the proposed project will not benefit any tribes.

E.1.8. Evaluation Criterion H – Additional Non-Federal Funding

State the percentage of non-federal funding provided using the following calculation: Non-Federal Funding divided by Total Project Cost.

$$\frac{\$423{,}340.00 \text{ ACIC Funding}}{\$723{,}340.00 \text{ Total Project Cost}} = \mathbf{59\%}$$

Percentage of Non-Federal and Federal Funding Sources

FUNDING SOURCES	***% of Total Project Cost***	***Total Cost by Source***
Recipient Funding	59%	$423,340.00
Reclamation Funding	41%	$300,000.00
Other Federal Funding	0%	$0.00
Totals	100%	$723,340.00

Project Budget

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained.
Non-federal funding sources include Ashely Central Irrigation Company, Vernal City, Uintah County and the State of Utah. Any non-federal share of project costs not being met by the applicant, Vernal City, Uintah County and a Utah Conservation Commission grant will be received from the Utah State Board of Water Resources in the form of a loan.

How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).
The ACIC cost share will be a cash contribution.

Describe any donations or in-kind costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:
N/A

Describe any funding requested or received from other Federal partners. Note: other sources of Federal funding may not be counted towards the required cost share unless otherwise allowed by statute.
Vernal City and Uintah County have committed to contribute money to the project, as they will benefit from having the open canal available for storm water control after it is piped. They will also enjoy recreational benefits from the proposed trail system along the canal corridor. The amount of money to be contributed by the city and county is yet to be determined.

ACIC has also submitted a grant application to the Utah Conservation Commission for $100,000. This is in the form of a grant.

Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

Regardless of the level of funding provided by Vernal City and Uintah County, and regardless of the outcome of the grant application, the project will proceed with the balance of non-federal project costs being met through a loan from the Utah Board of Water Resources.

Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	***AMOUNT***
Non Federal Entities	
Recipient Funding	$423,340.00
Non-Federal Subtotal	$423,340.00
Other Federal Entities	
Other Federal Subtotal	$0.00
Requested Reclamation Funding	**$300,000.00**
Total Project Funding	**$723,340.00**

Budget Proposal

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity		
Salaries & Wages	$0.00	-	-	**$0.00**
Fringe Benefits	$0.00	-	-	**$0.00**
Travel	$0.00	-	-	**$0.00**
Equipment	$0.00	-	-	**$0.00**
Supplies and materials	$0.00	-	-	**$0.00**
Contractual /Construction				**$721,340**
Design	$48,000	1	EA	$48,000
Environmental Review (NEPA)	$22,000	1	EA	$22,000
Construction Management	$48,000	1	EA	$48,000
Mobilization	$30,000	1	LS	$30,000
26" HDPE DR 41 PIPE	$61.00	4550	LF	$277,600.00
28" HDPE DR 41 PIPE	$65.00	540	LF	$35,100.00
30" HDPE DR 41 PIPE	$70.00	430	LF	$30,100.00
Fittings	$20,000	1	LS	$20,000
Furnish and Install Turnout Assembly	$22,000	6	EA	$132,000
Remove Trees	$2.00	5,520	LF	$11,040.00
Remove and Replace Existing Fence	$19.00	250	LF	$4,750.00
Fill Existing Ditches	$5.00	5,520	LF	$27,600.00
Reseeding	$2.00	5,520	LF	$11,040.00
Furnish Imported Pipe Bedding Material Type A3	$25.00	860	TON	$21,500.00
Furnish Imported Foundation Material Type A5	$29.00	90	TON	$2,610.00
Other				**$2,000**
Reclamation Review Environmental Report	$2,000	1	EA	$2,000
Total Direct Costs				**$723,340**
Indirect Costs				
Type of rate	Percentage	$base		**$0.00**
Total Estimated Project Costs				**$723,340**

Budget Narrative

Salaries and Wages
No separate salaries or wages outside of contractual costs will be included.

Fringe Benefits
No separate fringe benefits will be included.

Travel
No separate travel costs will be included.

Equipment
No separate equipment costs will be included. All of these costs are included in the contractual contracts.

Materials and Supplies
No separate materials and supplies costs will be included. All of these costs are included in the contractual contracts.

Contractual
In order to determine unit costs, which were included in the cost estimate for this project, ACIC relied upon contract unit prices from similar projects recently completed for similar projects. ACIC follows the State of Utah procurement process for procuring a contractor for this project. They will bid the construction portion of the project to several prequalified construction companies. The contractual costs shown are estimates for each of the components to furnish and install all the pipe and equipment. Generally, the low bidder will be selected based on a determination of acceptable qualifications.

J-U-B Engineers, Inc. has been working with ACIC for a few years. They have been contracted to prepare the design and NEPA documents for this project. The contractual for the proposed project will include design, construction management, NEPA, mobilization, furnishing and installing Central Canal improvement components, including HDPE pipe, fittings, screening and overflow structures, turnout assemblies, meters, and other miscellaneous items listed within the budget.

The Engineering fees have been evaluated to ensure that they are fair and reasonable based on the American Society of Engineering Consultants data.

Environmental and Regulatory Compliance Costs
It is anticipated that the environmental document will be a categorical exclusion, in that ACIC will be working within the existing canal alignment, which has been disturbed and has continued to be disturbed over the past 20 or so years. It is expected that it will take $22,000 to evaluate the required information, prepare the report, and update any changes required from Reclamation after their review of the proposed project. The total cost is 4 percent of the project, which includes the $2,000 for review by Reclamation.

Other Expenses

The other expense that is expected for ACIC is the setting aside of $2,000 in funds for Reclamation to review the environmental document.

Indirect Costs

No indirect costs will be part of the proposed project.

Total Costs

ACIC Portion: $423,340 Fed Portion: $300,000 Total: $723,340

Environmental and Cultural Resources Compliance

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

Impacts will be those associated with piping the canal, and installing a screening/overflow structure, turnout assemblies, and meters. The proposed project improvements will take place entirely within the existing right-of-ways. In the past, similar projects have had minimal impacts. The surface vegetation will be restored upon completion of the project.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

ACIC is not aware of any impacts concerning threatened or endangered species in this area.

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

ACIC is not aware of any impacts to wetlands in this area.

When was the water delivery system constructed?

Many improvements have been done over the years. As part of the completed environmental document, the required historical documentation for the project will be completed.

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

No, this project will completely replace features owned by ACIC, namely replacing the open irrigation ditch with a piped system, fittings, a screening/overflow structure, turnout assemblies, and meters.

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

ACIC is not aware of any buildings, structures or features that would qualify. A cultural resource inventory will be completed as part of the submitted environmental document.

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

ACIC is not aware of any impacts to or locations of archeological sites.

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

No, the project will not require a right-of-way or relocations from adjacent properties and will have no impact on residential uses within the study area.

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

No.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No.

Required Permits or Approvals

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

- Excavation Permits from Vernal City and Uintah County. These are both funding partners for this project and will expedite these permits. This is a standard permit that will be required by the contractor selected for construction.

Letters of Support

Include letters of support from interested stakeholders supporting the proposed project.

Letters of support are included in Attachment 5 – Letters of Support from the following entities:

- Ashley Water Users Association
- Naples City
- Uintah County
- Uintah Water Conservancy District
- Vernal City

Official Resolution

Include an official resolution adopted by the applicant's board of directors or governing body. The official resolution may be submitted up to 30 days after the application deadline.

The official resolution for the Ashley Central Irrigation Company (ACIC) Canal Enclosure Phase III Project will be submitted within 30 days after the application deadline.

http://www.ubmedia.biz/vernal/news/article_fc9d52c2-06eb-11e4-a52c-001a4bcf887a.html

Kids Canal not stocked for kids fishing

By Mary Bernard mbernard@ubmedia.biz Jul 8, 2014

The Kids Canal has been as a summertime fishery for young anglers for as long as anyone can remember.

A popular kids fishing hole, it's really part of the Ashley Central irrigation canal that runs along 1500 West from 500 North to 100 South.

The Division of Wildlife resources through the Utah Department of Natural Resources has supplied trout to the Kids Canal until this year, when they were asked to forgo the practice.

“No fish, not this year,” said Wayne Simper, Ashley Water Users, the company that operates the Central Canal.

The request was made by the Uintah Water Conservancy District in an April letter to the DNR asking them not to stock the fish.

Apparently, the state received an unspecified number of complaints over dead fish in the Kids Canal last year, according to Simper.

Gawin Snow, Manager of the Uintah Water Conservancy District, said the fish died from the exposure to a herbicide used by the agency to suppress weedy growth in the service canal.

“It's intended to kill moss and algae in the Steinaker Service Canal, but some of the herbicide entered the Central canal,” said Snow.

The chemicals have been used for years without incident but in 2013 the treatment killed some fish said Snow.

He says the chemicals were applied correctly, perhaps in less quantities than usual, but some herbicide may have gotten in to the canal anyway.

“I don't want to kill fish in any circumstances, and don't want the kids to handle the dead fish. I'd like to have a safe fishery, not this,” Snow said.

There's a lot reasons why fish die and, in fact, pretty much all the fish in the Central die when the water is turned off.

Snow says they could avoid the problem by keeping fish out of the canal – no fish, no exposure, no fish kill.

The herbicide-fish-kill could be a costly error, to the tune of an $11,000 fine levied by the state.

That's an initial penalty calculation, according to John Whitehead, the Assistant Director of the Division of Water Quality, Utah Department of Environment Quality.

The incident is still under investigation, “we do not have all the answers why a common practice would become deadly.”

Whitehead says the notice of violation was sent as the herbicide, if used properly, has not caused a problem.

“It's possible the water may have have less dissolved oxygen because of the higher temperatures (in drought years) making the fish more vulnerable,” he said.

Water volumes in drought years are lower, meaning the mossy growth becomes more difficult to control.

Meanwhile, the Division of Wildlife Resources Vernal office is dealing with the request that the fish stocking be suspended for the year.

Agency agreements to stock the Kids Canal fishery has been in-place for years, says Ron Stewart, DWR conservation outreach manager.

“In my history with the Division, almost 30 years, I can't remember a year we didn't stock fish,” said Stewart.

He admits that the primary use of the canal is to deliver water to its users and that fishing is secondary, but the practice has become a time honored tradition.

“People remember fishing the canal as kids and now, it's still fishable with their kids and grandkids,” he said.

Stewart says from time to time, there have been minor fish kills, recalling “only one similar event happened maybe 25 years before, but it was settled fairly quickly.”

If the herbicide is the cause of the fish kill; whether handled properly or improperly, it's unfortunate that its the kids who lose out.

In the future the closure of one pond may not be as big an issue as the Division is looking into developing other urban fisheries.

The Aquatics Chief for the DWR Roger Wilson says there are roughly 50 urban fisheries around the state.

Wilson says in developing community fisheries, they would “like to partner with community and local government to establish another fishing program.

Asked whether a Kids Canal alternate will be found, Wilson said “it's an idea we are pursuing, but it won't happen this year.”

Court Rejects Canal-Death Case

Ditch Firm Not Liable In '86 Drowning of Vernal Teen-Ager

By Sheila R. McCann
THE SALT LAKE TRIBUNE

Teen-ager Randal Golding was swimming with four friends in a popular canal that runs through Vernal when another friend stopped to warn them of the danger.

Jeff Jackson tossed a piece of wood into the canal below the spillway of a dam, which backed up water for an irrigation ditch outlet. Turbulence churned the chunk of wood under the water, and Jackson said he had almost drowned at the spot a year earlier.

While the group was climbing out, planning to swim above the dam, one boy fell and became trapped. Golding, 17, jumped in and saved him, but was unable to escape himself. He was found downstream, but died two days later, in June 1986.

In its second ruling in a wrongful-death case brought by the boy's father, the Utah Supreme Court has decided the canal owner, Ashley Central Irrigation Company, is not liable.

The Utah Limitation of Landowner Liability Act encourages landowners to allow the public to use their property for recreation by limiting the liability of the owner, the high court noted.

Under the act, a landowner is not liable for an open, obvious hazard, such as the condition of the spillway in the Vernal canal, the court said in an opinion released Tuesday.

Gerald Golding, the boy's father, unsuccessfully argued there were hidden dangers, such as a deep hole and an accumulation of debris at the bottom of the spillway, which created unusual turbulence.

"In my judgment, there is no protection for children around irrigation ditches," said the family's attorney, Richard I. Ashton. "It seems to me we're going too far to protect canal owners and not far enough to protect children."

Canal company attorney Gayle McKeachnie said "no one is happy to see a boy drowned."

The act however, represents "100 years' worth of court law. Earlier cases all established the public good from allowing water to flow from the mountains to cities, farms etc.," he said. "That's still important, according to the Utah Supreme Court."

The Utah Farm Bureau Federation had filed a friend-of-the-court brief in the case.

Under the act, landowners are liable only if they know of a dangerous condition, and then willfully or maliciously fail to guard against it or post warnings of it. Specifically, if a landowner knows of an uncommon or hidden peril a trespasser would not normally discern, a failure to warn against it may meet the "willful" test.

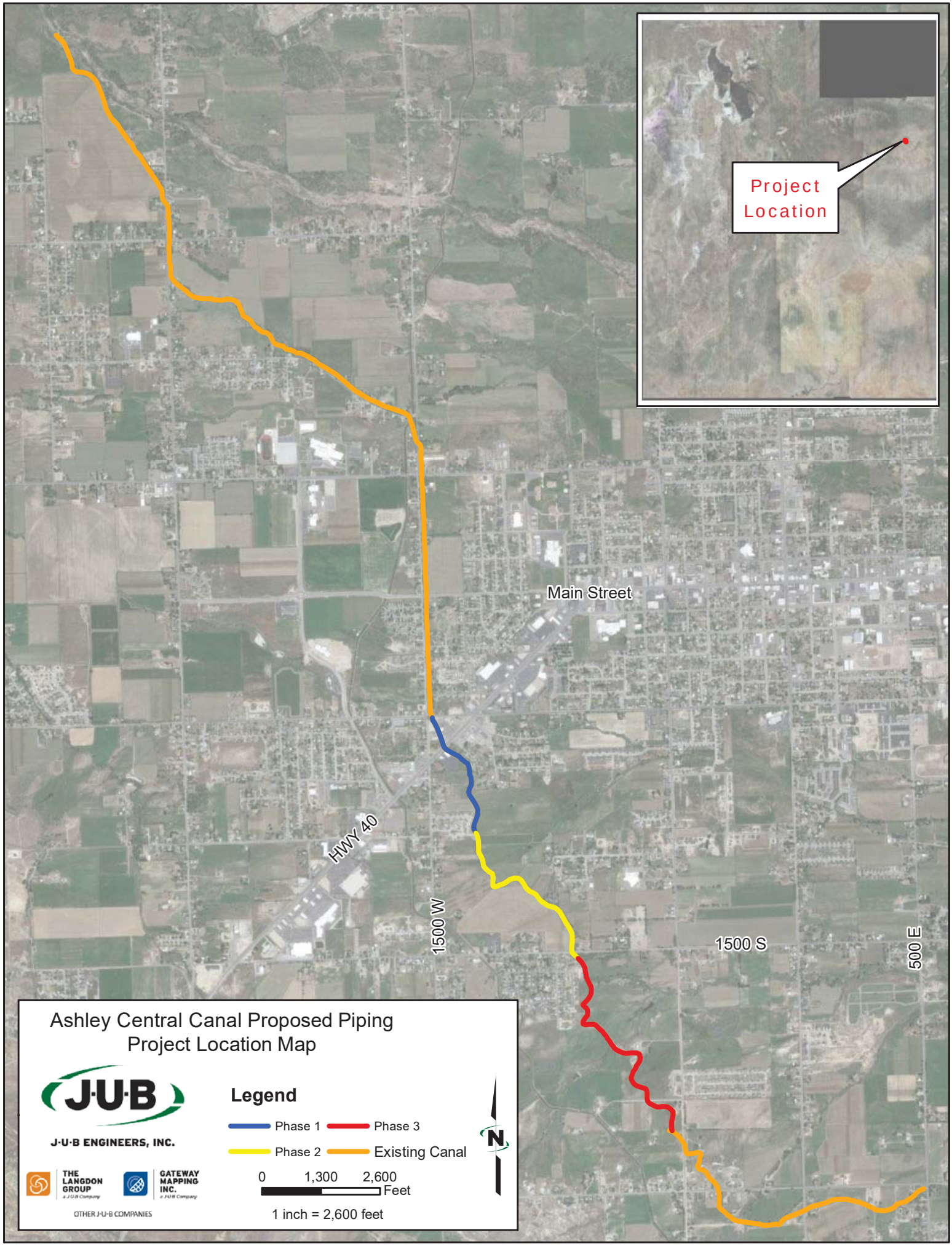
But the conditions in the Vernal canal, Justice I. Daniel Stewart wrote, were typical of canal spillways throughout the state. The hazards did not qualify as "hidden," he said.

"That [Randal Golding] may not have known every particular about the pool does not mean that the danger was hidden," the opinion said. "A person does not need to know the temperature of a flame to understand that it will burn."

The company did not invite the public to swim in the canal, but did not post signs prohibiting it. The waterway was locally known as "the kids canal," because locations along it were popular swimming holes.

The court upheld 8th District Judge A. Lynn Payne's decision dismissing the case.

The case had been dismissed once previously, and the Golding family had appealed to the supreme court. In a 1990 ruling, the high court sent the case back to the trial court, asking the judge to re-examine whether the landowner liability act applied to the company. The judge decided the act did apply and dismissed the case again, sparking the second appeal.



Ashley Central Canal Proposed Piping
Project Location Map

J-U-B ENGINEERS, INC.

THE LANGDON GROUP a J-U-B Company

GATEWAY MAPPING INC. a J-U-B Company

OTHER J-U-B COMPANIES

Legend

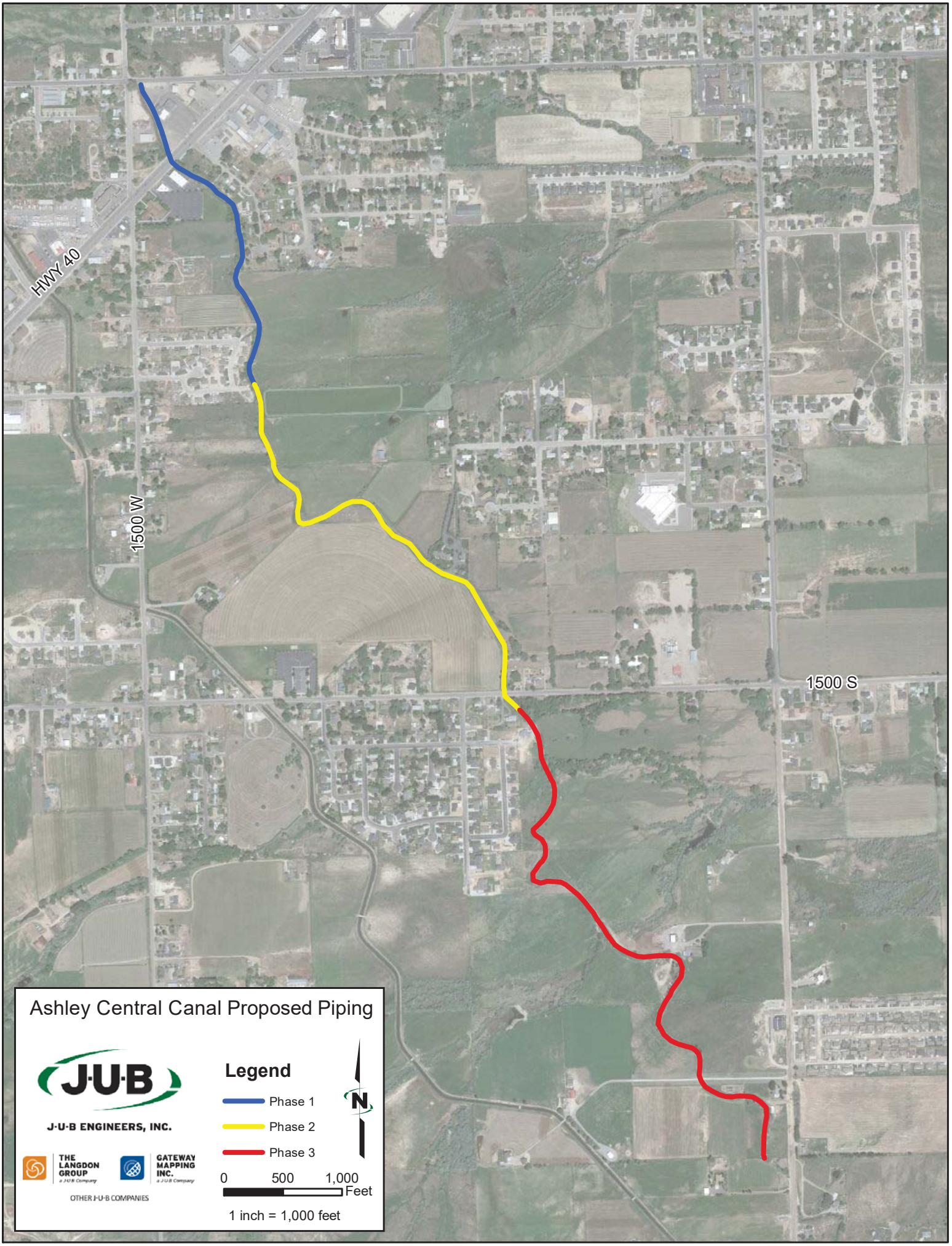
Phase 1
Phase 3
Phase 2
Existing Canal

0 1,300 2,600 Feet

1 inch = 2,600 feet

N


Start
Lat: 40.4333009
Long: -109.5455828
1500 S
500 W
End
Lat: 40.422756
Long: -109.538426
Ashley Central Canal Proposed Piping
Phase 3
J·U·B ENGINEERS, INC.
THE LANGDON GROUP
GATEWAY MAPPING INC.
OTHER J·U·B COMPANIES
Legend
Phase 3
0 250 500 Feet
1 inch = 500 feet
N


HWY 40
1500 W
1500 S
Ashley Central Canal Proposed Piping
J·U·B ENGINEERS, INC.
THE LANGDON GROUP
GATEWAY MAPPING INC.
OTHER J-U-B COMPANIES
Legend
Phase 1
Phase 2
Phase 3
N
0
500
1,000
Feet
1 inch = 1,000 feet

Ashley Central Irrigation
Ashley Valley Reservoir Co.
Island Ditch Company

Ashley Upper Irrigation
Highline Canal Company
Rock Point Canal & Irrigation

ASHLEY WATER USERS

44 WEST 100 NORTH
VERNAL, UT 84078
(435) 789-3212 FAX (435) 781-0515
ashleywater@stratanet.com

April 17, 2018

Wayne Simper, President
Ashley Central Irrigation Company
44 W 100 N
Vernal, UT 84078

Dear Mr. Simper,

We are pleased to write in support of your grant application being submitted to the Bureau of Reclamation Water and Energy Efficiency Grants Program. We applaud your efforts to increase the efficiency of your system to safeguard valuable water and energy.

We as an Association recognize the importance of water preservation in our often water-short basin. The water saved through these improvement projects will provide benefits to water users and the regional environment. We as the central office for several of the local canal companies applaud the efforts being taken to conserve one of our most precious natural resources.

We strongly support your grant application and appreciate the advancements it will make in improving efficiency for Ashley Central Irrigation Company.

Sincerely,

Curt Smuin, President
Ashley Water Users Association

Naples City Council

Dean A. Baker
Mayor

Energy * Recreation * Family

1420 East 2850 South
Naples, Utah 84078
(435) 789-9090 Fax: 789-9458

April 24, 2018

Wayne Simper, President
Ashley Central Irrigation Company
44 W 100 N
Vernal, UT 84078

Dear Mr. Simper,

Naples City is pleased to write in support of your grant application being submitted to the Bureau of Reclamation Water and Energy Efficiency Grants Program. We applaud your efforts to increase the efficiency of your system to safeguard valuable water and energy, as a large portion passes through Naples City.

As an entity located within Uintah County, Naples City recognizes the importance of water preservation in our often water-short basin. The water saved through these improvement projects will provide benefit to water users and the regional environment.

We strongly support your grant application and appreciate the advancements it will make in improving efficiency for Ashley Central Irrigation Company.

Sincerely,

Dean A. Baker
Mayor
Naples City

UINTAH COUNTY

STATE OF UTAH

Our Past is The Nation's Future

May 1, 2018

Wayne Simper, President
Ashley Central Irrigation Company
44 W 100 N
Vernal, UT 84078

Dear Mr. Simper,

Uintah County supports your grant application being submitted to the Bureau of Reclamation Water and Energy Efficiency Grants Program. We are in support of your efforts to increase the efficiency of your system to safeguard valuable water and energy. Uintah County and some of its subsidiary organizations have direct interests in the Central Canal and could realize some benefits from increased efficiency and water conservation.

Uintah County recognizes the importance of water preservation in our often water-short basin. The water saved through these improvement projects will provide benefit to water users and the regional environment. In addition to the water savings, this project has the potential to enhance the quality of life for city and county residents through open space and green belt enhancements

We strongly support your grant application and appreciate the advancements it will make in improving efficiency for Ashley Central Irrigation Company.

Sincerely,

Uintah County Commission

William C. Stringer, Chairman

Brad G. Horrocks

Duane W. Shepherd

Uintah Water Conservancy District

78 West 3325 North
Vernal, Utah 84078
Phone: (435) 789-1651
Fax: (435) 789-1670

"Steinaker Dam" "Red Fleet Dam"

April 26, 2018

Wayne Simper, President
Ashley Central Irrigation Company
44 W 100 N
Vernal, UT 84078

Dear Mr. Simper,

Uintah Water Conservancy District is pleased to write in support of your grant application being submitted to the Bureau of Reclamation Water and Energy Efficiency Grants Program. We applaud your efforts to increase the efficiency of your system to safeguard valuable water and energy.

Uintah Water Conservancy District recognizes the importance of water preservation in our often water-short basin. The water saved through these improvement projects will provide benefit to water users and the regional environment. As a major water user of the Vernal Unit, this project will support the Vernal Unit Efficiency Project Study that was funded by the District in October 2012.

We strongly support your grant application and appreciate the advancements it will make in improving efficiency for Ashley Central Irrigation Company.

Sincerely,

N. Gawain Snow
General Manager

374 East Main
Vernal, Utah 84078
Phone: (435) 789-2255
Fax: (435) 789-2256
www.vernalcity.org

April 25, 2018

Wayne Simper, President
Ashley Central Irrigation Company
44 W 100 N
Vernal, UT 84078

Dear Mr. Simper,

As the City Manager of Vernal City, I submit this letter of support for you grant application for the Bureau of Reclamation Water and Energy Efficiency Grants Program. The City Council has discussed the project on several occasions and understands the purposes behind the project. We support your efforts to increase the efficiency of your system to safeguard valuable water.

Vernal City recognizes the importance of water preservation in our often water-short area. The water conserved through these improvement projects will provide benefit to water users. We see a potential benefit to irrigation operations for public spaces as well. We look forward to having further discussions about Phase 2 of the project - the canal portions along 1500 West and how the project can be designed to benefit the neighboring properties.

I support your grant application and the advancements it will make in improving efficiency for Ashley Central Irrigation Company.

Sincerely,

Quinn Bennion,
Vernal City Manager

Ashley Central Irrigation Company (ACIC)
On-farm Intent Signatures - Canal Enclosure Project
FOA# BOR-DO-18-F006

Landowner Name	Claimable Acreage	Landowner Signature I have an interest to install a high-efficiency irrigation system when sufficient water quantity, quality, and application requirements are met.
Maler 520 LLC	120	Annette P Parslow
Tamra Massey	920	T Massey
Wayne Simper	110	Wayne Simper
Chivers Ranch	168	Jenny B. Chivers
Cheryl Keller	3	Cheryl Keller

Ashley Central Irrigation Company (ACIC)
On-farm Intent Signatures - Central Canal Piping Project
FOA# BOR-DO-18-F006

Landowner Name	Claimable Acreage	Landowner Signature I have an interest to install a high-efficiency irrigation system when sufficient water quantity, quality, and application requirements are met.
Jim Slaugh	5	
Larris Hunting	60	

WATER CONVEYANCE FACILITY MANAGEMENT PLAN

February 2016

ASHLEY CENTRAL IRRIGATION COMPANY

PREPARED BY:

1509-082

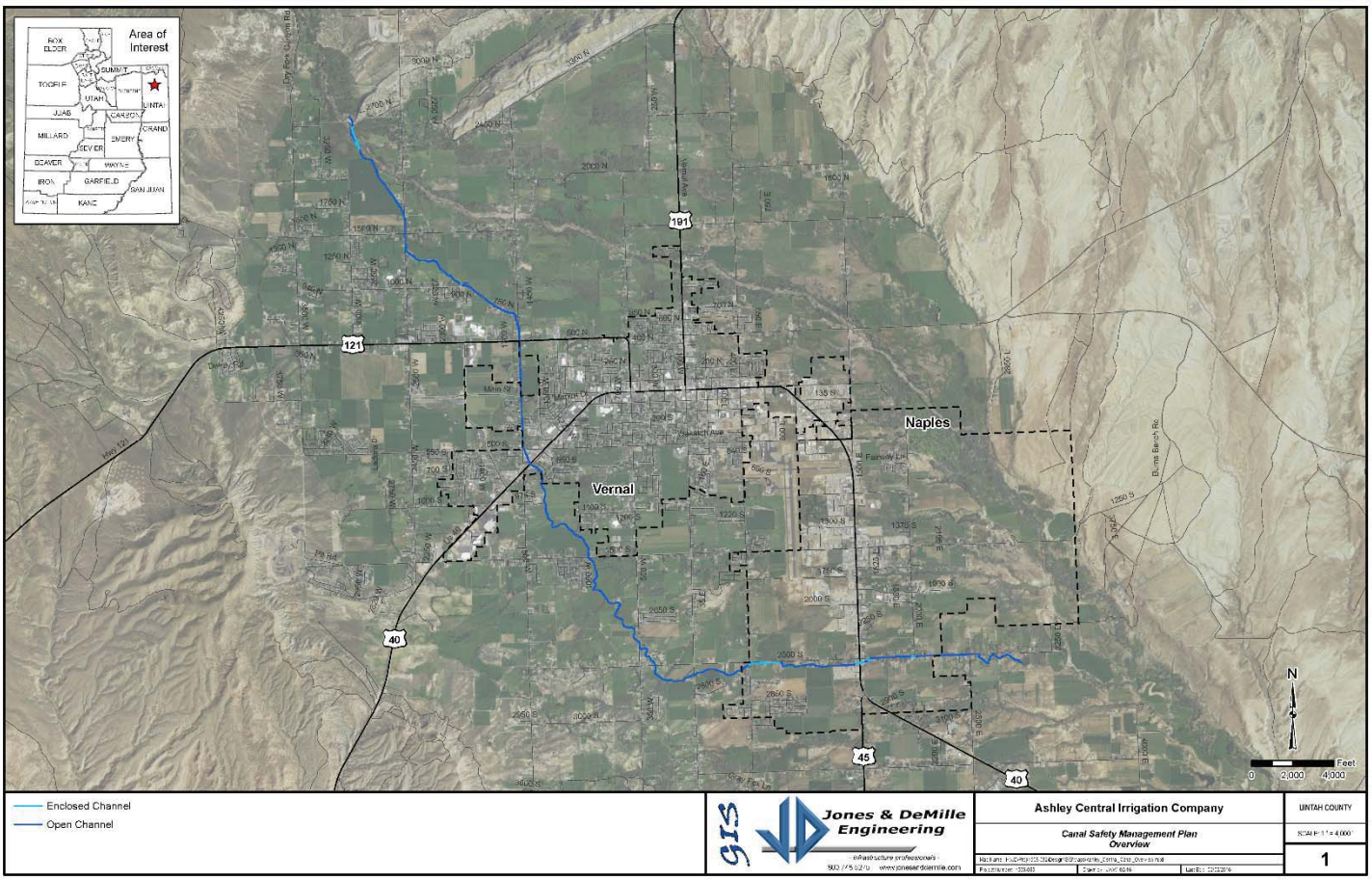
TABLE OF CONTENTS

§73-10-33(3)(h) – identification of each municipality or county through which water is conveyed or delivered by the water conveyance facility

The Ashley Central Irrigation Company (ACIC) owns and operates the Ashley Central Canal, which diverts water from Ashley Creek on the northwest portion of Ashley Valley. The diversion structure is approximately 4 miles north and west from Vernal City and a mile north of Maeser in the un-incorporated area of Uintah County, Utah. ACIC also receives water stored in Steinaker Reservoir through the Steinaker Service Canal at approximately 400 North. Approximately 4,000 acres of farmland in Ashley Valley are irrigated by the Ashley Central Canal, consisting of 10 miles of canal with a capacity ranging from 20 to 60 cubic feet per second (cfs). Average flows are approximately 45 cfs during irrigation season and there are approximately 50 delivery points and 522 shareholders with shares in Ashley Central and Steinaker Service Canals.

The Ashley Central Canal travels through Vernal City and Naples City, as well as unincorporated areas of Uintah County. Multiple locations were identified to have stormwater and drainage water coming into the canal. The canal travels through populated areas with numerous roadway crossings, culverts, and modifications as growth has occurred in Ashley Valley. The lower end of the canal has a segment enclosed in a concrete box culvert approximately 1,540 feet in length.

Alignment maps showing City and County boundaries and the Ashley Central Canal are included in Tab 9.



§73-10-33(3)(a) – a GIS coverage or drawing of each potential risk location of a water conveyance facility identifying any:
(i) existing canal and lateral alignment of the canal facility;
(ii) point of diversion;
(iii) bridge;
(iv) culvert;
(v) screen or trash rack; and
(vi) spill point

By definition in 73-10-33(1):

(f) "Potential risk" means a condition where, if a water conveyance facility fails, the failure would create a high probability of:
(i) causing loss of human life; or
(ii) causing extensive economic loss, including damage to critical transportation facilities, utility facilities, or public buildings.

(g) "Potential risk location" means a segment of a water conveyance facility that constitutes a potential risk due to:
(i) location;
(ii) elevation;
(iii) soil conditions;
(iv) structural instability;
(v) water volume or pressure; or
(vi) other conditions.

The Ashley Central Canal is relatively low risk, with a majority of the canal being adjacent to agricultural open space and through the central portions of the valley compared to its counterparts running along the benches in elevated areas. During field reviews and interviews with the watermaster, several locations were identified to have had a history of failures and flooding, however there has not been extensive damage done to homes or buildings. Maintenance and bank repair activities have been accomplished in these areas. Additional areas were identified to have some risk to homes, utilities, and other infrastructure and are noted on individual site assessment reports under the slope instability section (see Tab 4).

The areas identified as potential risk areas were sometimes associated with potential slope instability locations, but also included areas with high amounts of trees, limbs, and obstructions in canal, such as gates or fences, low utility crossings, and bridges. Driveway crossings and roadway crossings were in locations that did not pose a high probability of causing extensive damages. Continual maintenance and periodic observation by canal personnel will reduce these potential risks of culverts being plugged by debris or instable soils causing bank to collapse or canal embankments failing and damming off channel, causing a backup of water and eventually a breach.

The following locations have been identified as potential risk areas:
(See Maps in Tab 9 for Slope Instability and Potential Risk Area points)

Finding Number 2016-1

Upper portion of canal system, approximate address of 1953 North 2500 West.
Latitude: 40.483803, Longitude: -109.579984

Evidence of erosion and sluffing of the canal bank. Fence, utility pole, and yard landscape may contribute to a potential risk also. Downstream on the same property, a stormwater entry point (#4) has a deficiency with a shed and foundation erosion is evident. See reports and photos.

Finding Number 2016-2

Righteous Lane area home and utility crossings. Land ownership data shows Robert Jolley as the property owner. Latitude: 40.468583, Longitude: -109.563338

Home foundation is constructed within 25' of main canal channel. The canal runs through a heavily wooded area and could have enough debris build up to cause the main canal channel to become blocked off. Damage to utility lines crossing the canal, potential risk to the home and its foundation. Utility crossings near a walk-over bridge w/ poly pipe casings suspended from it and a 10" steel pipe casing. 10" steel casing is 20" above canal flow line. Poly pipe casings are suspended 40" above flow line. These casings and utility crossings have a potential to catch debris and trash and constitute a potential risk to nearby home and ACIC.

Finding Number 2016-3B

Approximately 1400 West and Hwy 40. Starting on the East side of Hwy. 40, extending east approx. 1200' beyond the housing area. At this point the area opens back up to more open agricultural areas. Latitude: 40.446135, Longitude: -109.555682.

This area of the canal runs along the back yard area of a trailer park and housing area. The current canal appears to be stable, but there are areas where trees or limbs have fallen across the canal and there are some large debris build ups. If the canal was to have flood stage flows, it could run over, possibly erode and breach the canal banks and flood the lower elevation areas of the yards and homes situated below this area. Trees and fallen limbs are creating blockages in the canal channel.

Finding Number 2016-3C

Property at 1020 West 1100 South, Latitude: 40.440621, Longitude: -109.553247.

Fence panels placed across the canal channel are catching debris. Potential for causing flooding.

Finding Number 2016-4

Approximately 1954 South 500 West; Latitude: 40.427188, Longitude: -109.540823

This is an area with somewhat of an elevated canal bank. The canal appears to be stable and does not pose an immediate risk. However, there is a major county road and new housing developments expanding below this area. Elevated canal, large trees and expanding housing developments below the canal pose a potential risk area. No immediate problems were identified but consistent monitoring and good maintenance practices are in order.

§73-10-33(3)(b) – an evaluation of any potential slope instability that may cause a potential risk, including:
(i) failure of the facility;
(ii) land movement that might result in failure of the facility; or
(iii) land movement that might result from failure of the facility

EVALUATION

An evaluation of potential slope instability on the Ashley Central Canal was performed in January 2016. There were several locations that are noted in the previous section that had potential risk based on observed erosion and bank stability compromises. Several areas would impact power poles or other utilities. One of the slope instability findings is shown below and did not constitute a major risk, and therefore, wasn't included in the previous section:

Slope Instability Finding 2015-3A

Approximately1500 west 500 South; Latitude: 40.447969, Longitude: -109.556658

There has been some significant erosion at the end of the headwall structure from the culvert crossing under 500 South and 1500 West. The East bank shows indications of erosion. Utility poles are located a short distance further east from this point. Recommended for repairs, including armoring this bank before it encroaches upon utility pole and other underground utilities.

The following pages include the inspection forms that describe each location. Tab 9 includes maps showing slope instability areas correlating with each finding number.

RECOMMENDATION/MITIGATION

It is recommended that areas with sloughing banks or erosion potential be reinforced with riprap liner or other suitable material to prevent further instability and bank failure.

It is recommended that areas identified as potential slope instability and/or potential risk areas be high priority on the maintenance and improvement plans. A routine maintenance schedule will ensure the channels are clean and canal is prepared for the storm event before it comes. Future piping of the canal is a mitigation action that would reduce flows in the canal and increase capacity for canal to carry runoff water during storm events.

§73-10-33(3)(i) – a statement concerning whether storm water enters the water conveyance facility, and

§73-10-33(3)(j) – if storm water enters the water conveyance facility:

(i) an estimate of the maximum volume and flow of all water present in the water conveyance facility as a result of a six-hour, 25-year storm event;

(ii) on the basis of information provided in accordance with Subsection (4), identification of the points at which any storm structures introduce water into the water conveyance facility and the anticipated flow that may occur at each structure; and

(iii) the name of each governmental agency that has responsibility for storm water management within the area from which storm water drains into the water conveyance facility.

There are approximately 19 drainages that were documented to either enter or cross underneath the Ashley Central Canal. The primary types of stormwater entry point are natural channels or drainages in the agricultural portions of the canal and culverts draining roadway drainage into canal through the populated areas adjacent to the canal. It is important to note that the Ashley Central Canal has canals to the west that capture a large portion of the drainage water entering the Ashley Valley and most runoff and drainage comes from areas between the Ashley Central Canal and the Steinaker Service Canal and/or Upper Canal. The Highline and Upper Canal are being considered for piping and the County is coordinating with these entities to utilize the existing canal channels to convey stormwater runoff away from populated areas. It is assumed that these canals capture the stormwater from the basins uphill from their course and Ashley Central only receives runoff from developments and lands below the Steinaker Canal or Upper Canal in areas where Steinaker Service canal is east of Ashley Central. The following pages show the locations and descriptions documented in the field for these stormwater entry points.

The six-hour, 25-year storm event for Vernal using the Vernal Airport Station in NOAA data is 1.29 inches of precipitation. This depth was used in conjunction with areas and curve numbers found in the Ashley Valley Stormwater Master Plan (2008) for delineated watersheds with flow paths crossing the Ashley Central Canal. Since the master plan used a 24 hour rain event, and some watersheds were not delineated to assume canal would catch stormwater, corrections were made to calculate a 25 year, 6-hour event according to the length and sub-basin areas above the canal.

To summarize the findings, it is recommended that the Ashley Central Canal receive further improvements and study to identify problem areas and coordinate with Vernal, Naples and Uintah County as future development occurs and increases runoff volumes. The canal has a maximum capacity that varies along the length of the canal and historical events have shown that drainage can fill up canal and overtop banks at certain locations. The upper portion above 1500 West has a capacity of approximately 45 cfs, with the middle portion below 500 North can handle up to 60 cfs. The bottom portion will spill at 20 cfs and usually only carries 10 cfs max. Historically, there have been two times in the memory of the watermaster, where heavy rains combined with existing snow and ice required major effort to dump excess water in laterals draining to natural channels to avoid widespread flooding. In these cases, the 13 Ditch was used to dump into Ashton Gulch, eventually making its way to Ashley Creek.

The amount of acreage estimated to drain lands above the Ashley Central Canal is 2400 acres, with a majority of the land being agricultural with low runoff potential. High runoff potential is found in the subdivisions and roadways that drain to the canal and those flow rates have been shown in Table 2. Table 2 shows the entity responsible for stormwater and the estimated flow rate using the SCS method and assuming that the Service and Upper Canals catch portions of the stormwater.

Table 2. Responsible agency and anticipated flow rate for storm water entry points.

Entry Point No.	Responsible Agency	Flow Rate* (cfs)
1 to 3	Uintah County	1
4 to 6	Uintah County	8
7 to 8	Uintah County	7
9 to 10	Uintah County	11
11	Uintah County	3
12	Uintah County	0.1
13 to 14	Uintah County	3
15 to 17	Uintah County	5
18 to 25	Vernal City/Uintah County	6
26	Vernal City/Uintah County	8
27	UDOT	1
28 to 29	UDOT/Uintah County	8
30 to 35	Uintah County	17
36	Uintah County	3
37 to 42	Uintah County	11
43 to 44	Uintah County	3
45 to 47	Uintah County	7
48 to 49	Uintah County	9
50	Naples City	16
Sum of flow from storm water entry points (cfs):		127
Typical daily maximum canal flow rate (cfs):		45
**Estimated maximum capacity of canal (cfs):		60
Maximum flow of all water present in the canal (cfs):		**182**

*Maximum flow rate as a result of a six-hour, 25-year storm event
** Max flow at 1500 West approx. 45 cfs, Max flow at 500 South 60 cfs, and lower end maximum flow approximately 20 cfs. Multiple spill points identified that would spill should large amounts of stormwater enter canal.

§73-10-33(3)(d) – a maintenance and improvement plan;

§73-10-33(3)(e) – a schedule for implementation of a maintenance and improvement plan;

§73-10-33(3)(g) – any potential source of financing for maintenance and improvements under a maintenance and improvement plan

CANAL MAINTENANCE

Daily/Weekly

The Ashley Central Irrigation Company employs a watermaster, multiple ditch riders on laterals, and has three Directors who are responsible for water conveyance and delivery in the Ashley Central Canal. The recurring maintenance activities that they perform are mostly associated with water conveyance, but they regularly drive areas of the canal to do visual observations of flow during irrigation season. Currently, Larris Hunting, the watermaster travels along roads accessing critical points on the canal twice daily during irrigation season and has numerous locations that require daily trash and debris removal including:

- Ashley Creek diversion heading (Thornberg Diversion)
- Inlet to box culvert and headgates at 500 East 2500 South
- Butcher Gulch outfall at 2500 South and approximately 2560 East
- Twin culvert crossing at Main Street and 1500 West
- Steinaker Service Canal Headgate and Culverts (400 North 1500 West)
- Pipeline intake screens as needed in multiple locations

Intermittent

In the performance of his duties, the watermaster typically travels roadways along portions of the canal daily as noted above, and therefore frequently observes the general condition and performance of the majority of the canal. Occasionally a maintenance issue arises that the watermaster or ditchrider is unable to immediately resolve. In these situations the ditch riders/watermaster notifies one or more members of the board (directors) and additional resources are approved to perform the necessary repairs to ensure continuous water conveyance.

Intermittent aquaweed treatments have been used, as screens for pipeline intakes must be cleaned on a regular basis. Additionally, areas with seepage and damage from muskrats or other animals have to be restored using heavy equipment, clay, and embankment material.

Annual

Maintenance activities that are performed on an annual basis include: removing sediment and debris, clearing vegetation, picking up trash, repairing erosion or animal damage, and repairing or upgrading structures. These activities are completed during the non-irrigation season, usually in the early spring. No burning is used because of the proximity to houses and structures.

Future System

The future for Ashley Central Canal will likely include segments being piped or placed in a box culvert. Maintenance will still be required for segments of the open channel that could receive irrigated water and drainage water. Coordination with Uintah County, Vernal City, and Naples City for drainage water being caught by the canal and future stormwater improvements is recommended. It is recommended that ACIC and Uintah County, Vernal City, and Naples City clearly define roles of maintenance of the segments of canal being placed in pipe or box culvert.

Financing for Maintenance and Improvements

Financing for maintenance activities is paid for through assessments of water shareholders in the system. For larger projects, including the future piping or enclosure, funding can be sought through grants and programs available through the Bureau of Reclamation as well as Naples City, Vernal City, and Uintah County as growth requires portions of the canal to be enclosed. With three of the other major canals being piped and their channels converting over to drainage channels, Ashley Central Canal will likely see a reduction on drainage water entering canal, however, as growth continues, an increase in drainage water and higher peak flows will be experienced. It is recommended that ACIC pursue funding through all parties mentioned to plan ahead for future enclosure of their canal. The Uintah Water Conservancy District will also have a part in future improvements with their Steinaker Service Canal and future automation of the headgates and flow measurement.

CANAL IMPROVEMENTS

Three long-term canal improvements have been identified to increase safety and enhance the performance of the canal: 1) install pipe or box culvert to replace the open-channel segments, 2) coordinate with the County, Naples City, and Vernal City on improvements to the existing channel for increasing drainage and stormwater capacity, drainage crossings and outlets, and 3) install an automated flow measurement and control device at diversion and Steinaker Service Canal turnout. Each improvement is described in more detail in the succeeding paragraphs and constitutes a potential improvement that may be considered by ACIC.

Pipe Installation

Four other major canals in Ashley Valley (Highline, Upper, Steinaker Service, and Rock Point) are being piped or otherwise enclosed. Naples City has indicated an interest to aide in enclosing portions of the canal in their City with improvements to drainage capacity and extending improvements recently installed with 2500 South. As growth occurs, Uintah County and Vernal City should also be coordinated with for possible funding and assistance in making improvements for increased drainage needs. The future canal will likely need to continue to serve dual purposes for both irrigation and drainage. One possible source of funding for a proposed piping project is administered under the Colorado River Basin Salinity Control Program by the U.S. Bureau of Reclamation.

Stormwater Master Plan Improvements & Coordination with County and City Plans

Uintah County is currently updating their stormwater master plan with identification of capital improvement projects. The Upper, Highline, and Rock Point canals along the perimeter of Ashley Valley are being proposed as future drainage channels as canals are piped separately for irrigation water. Elements of the Master Planning effort may effect Ashley Central Canal and future growth and development will require close coordination with Uintah County, Vernal City, and Naples City. Stormwater and drainage master plans for these Cities are recommended to address the Ashley Central Canal and provide recommendations on future increases in stormwater entering canal. Further study and design is required for this action and improvement. Providing this plan and information on stormwater entry points within each entities jurisdiction will allow this coordination to take place.

Automated Flow Measurement and Control

Currently there are no automated flow measurement and control devices on the system, however with future piping project and future improvements on the Steinaker Service Canal and other Ashley Valley canals, automation of the headgates and flow measurement devices is planned future improvement. While daily inspection is currently being done on the majority of the open canal, it will likely decrease in frequency with the new piped system and an automated and SCADA capable system will improve efficiency and water conservation by delivering set amounts of water with the ability to control the system remotely and monitor flows in pipeline and supply. The Steinaker Service Canal will likely be installing an automated device at their turnout to the Ashley Central in the near future.

POTENTIAL IMPLEMENTATION SCHEDULE AND FINANCING

The following table shows a tentative implementation schedule and sources of funding for the three potential canal improvements.

Potential Project	Est. Completion Date	Funding Sources
Canal Enclosure	April 2025	External funding source through Colorado Basin Salinity Control Program administered by U.S. Bureau of Reclamation; Possible partnering through Uintah County, Naples City, Vernal City
Stormwater Improvements	2018 to 2030	Funding through Uintah County, Naples City, Vernal City
Automated Flow Control and Measurement Devices	2020	Uintah Water Conservancy District Automation Project; Internal company resources and/or Salinity Control Program funds; Uintah Water Conservancy District Steinaker Canal Enclosure Project, Future Phase

§73-10-33(3)(c) – proof of insurance coverage or other means of financial responsibility against liability resulting from failure of the water conveyance facility

The Ashley Central Irrigation Company has an insurance policy. The following page(s) provide a photocopy of the declarations page(s) showing the insurance policy limits. Full details are kept at the office of the Ashley Valley Water Users.

§73-10-33(3)(f) – an emergency response plan that:
(i) is developed after consultation with local emergency response officials;
(ii) is updated annually; and
(iii) includes, in the case of an emergency, how a first responder can:
(A) contact the facility owner or operator; and
(B) obtain information described in Subsection (3)(a)

The Ashley Central Irrigation Company's emergency response plan consists of emergency contacts and phone numbers, and a map that shows the location of the major components of the canal system. It has been distributed to Uintah County Emergency Management and Sherriff's department, as well as Vernal City and Naples City officials.

The following page and maps constitute the Ashley Central Irrigation Company's emergency response plan.