



North Unit Irrigation District

North Unit Irrigation District: Lateral 41-9 and 58-3-2 Piping Project



WaterSMART: Small-Scale Water Efficiency Grants for Fiscal Year 2021

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Technical Proposal and Evaluation Criteria

Executive Summary

Date: March 16, 2021
Applicant Name: North Unit Irrigation District
City/County/State: Madras, Jefferson County, Oregon
Category: Category A, Irrigation district

To improve water efficiency, North Unit Irrigation District (the District) proposes to improve conveyance efficiency and operational control by replacing two open canals, Lateral 41-9 and Lateral 58-3-2, with 4,450 ft of buried pipe. This project will save 230 acre-feet water lost to seepage each year, improve conveyance efficiency, and reduce problematic sediment transport. The project will take two years to complete, ending April 2024. This project is located within the North Unit canal network, which is a Bureau of Reclamation Project, though managed by the District. The District delivers irrigation water to nearly 59,000 acres through the 300 miles of open and piped canal. The growers within North Unit Irrigation District function at over 90% on-farm water efficiency, providing over 50% percent of the hybrid carrot seed for the United States. But as the junior water right holder to the over-allocated Upper Deschutes River, the District still struggles to sustain sufficient water supply to its productive agricultural region through drought and endangered species management. To survive, the District is dedicated to identifying sources of water inefficiencies within its distribution system. Because only 15% of the district is piped, significant seepage loss occurs through open, earthen canals, making piping the primary focus for efficiency improvements. This piping project is one of many outlined in the Districts 2017 System Improvement Plan to eventually pipe the entire district.

Project Location

North Unit Irrigation District is the second largest irrigation district in the state of Oregon and the junior water right holder for Upper Deschutes River. Its canal network expands across Jefferson Country through the cities of Culver, Metolius, and Madras, OR. As shown in Figure 1, the two laterals included in this project are not adjacent but instead identified as problematic laterals in need of piping. Figure 2 shows Lateral 41-9, which is located 2 miles northwest of Culver, OR at GPS coordinates 44.541875, -121.231618. Figure 3 shows Lateral 58-3-2, which is located 4 miles northeast of Madras, at GPS coordinate 44.678958, -121.090732.

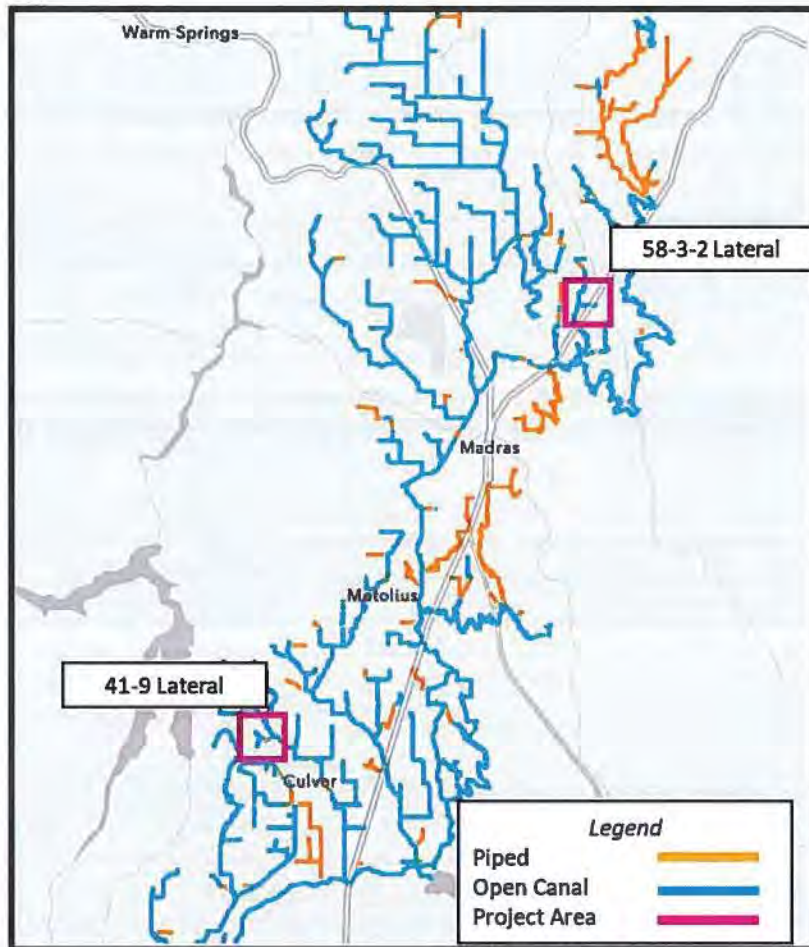


Figure 1. Partial view of North Unit Irrigation District distribution system as it expands through Culver, Metolius, and Madras Oregon. Shown in pink are the relative locations of the two laterals, Lateral 41-9 and 58-3-2, proposed to be piped within this project. The open, earthen canals are shown in blue, and the piped canals are shown in orange.

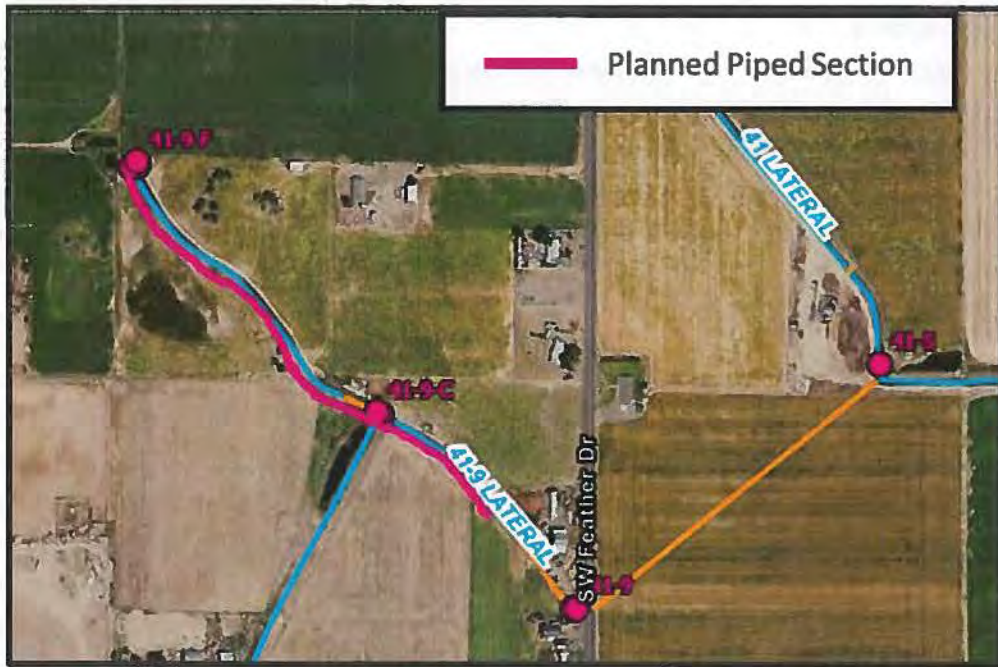


Figure 2. Lateral 41-9 Piping Project. Shown in pink is the 2,550 ft stretch of canal to be replaced by buried pipe. This project does not cross any major roads.



Figure 3. Lateral 58-3-2 Piping Project. Shown in pink is the 1,900 ft stretch of canal to be replaced by buried pipe. This project parallels Dogwood Ln and cuts under Hwy 97.

Project Description

This project plans to address the challenges of two problematic laterals, Laterals 41-9 and 58-3-2, by installing buried pipe. The laterals are both open earthen canals that were constructed by the Bureau in the 1930's and have been exposed to nearly 100 years of use, maintenance, and evolution in response to surrounding developments and changes. The unique conditions of each lateral pose its own challenge, but both improve water efficiency and water quality through the install of buried pipe within these open canals. By installing the 4,450 ft of buried pipe across these two laterals, 230 acre-feet per year can be saved.

Lateral 41-9: Lateral 41-9 provides a challenge to both district staff and the water users because of the low grade and width of the canal. The ditchrider has to divert far more water than what is needed to create the necessary velocity and volume in the canal to make the deliveries. Lateral 41-9 has continued to require excess carry water to deliver water because it is too wide, shallow, and flat for effective water delivery. It is estimated that 0.40 cfs can be saved through the piping of this lateral, equating to 140 acre-feet per year. Piping this section will improve water efficiency by reducing the operational carry necessary to make the deliveries and by preventing seepage loss. And it will reduce storm drainage from surrounding cattle farms which have caused high nutrient and E. Coli loads into Lake Billy Chinook.

During the winter maintenance season between October and March of 2021 or 2022 (depending on funding allotment), this project will regrade lateral 41-9 in preparation to install and bury 2,550 ft of 12" PVC pipe. A lowboy will be used to transport equipment to the construction site. A 320 excavator will be used to clear existing structures, prepare the site, and excavate to the proper depth. A 420 backhoe will then be used to assemble the pipe, install. At either end, a 420 backhoe will excavate and prepare for the construction of a concrete headwall at either end of the pipeline. Concrete form will be constructed and formed. Once secure, a 10yd dump truck will bring backfill to bury the pipeline. The 420 backhoe will bury the pipe and compact to soil atop the buried pipe. A D4 dozer will support fine-tuned excavating and compactions. A grader will be used to grade, and prepared for longevity.

Lateral 58-3-2: Lateral 58-3-2 has an ideal grade for pressurized pipe, but currently is a source of heavy erosion and sediment transport. Lateral 58-3-2 cuts through sandy silt soil, leading to excessive sediment build up in landowner's ponds and drainages below (such as into Mud Springs and Trout Creek). In recent years, the District have maintained a routine of cleaning out the settling pond at the end of the lateral every other year. Routine maintenance for the average settling pond is every 10 years, indicating the 2 year-cycle a concerning source of sediment transport. Ponds that fill with sediment lose their storage capacity and are costly to clean out with little reprieve from federal or state funding. Piping this stretch will prevent seepage loss and erosion and provide the landowner with pressurized pipe and a sustainably clean pond. The piping of Lateral 58-3-2 will reduce sediment pesticide loading into Mud Springs and Trout Creek, while conserving 90 acre-feet water per year.

During the winter maintenance season between October and March of 2021 or 2022 (depending on funding allotment), this project will regrade lateral 58-3-2 in preparation to install and bury 1,900 ft of 12" PVC pipe. A lowboy will be used to transport equipment to the construction site. A 320 excavator will be used to clear existing structures, prepare the site, and excavate to the proper depth. A 420 backhoe will then be used to assemble the pipe, install. At either end, a 420 backhoe will excavate and prepare for the construction of a concrete headwall at either end of the pipeline. Concrete form will be constructed and formed. Once secure, a 10yd dump truck will bring backfill to bury the pipeline. The 420 backhoe will bury the pipe and compact to soil atop the buried pipe. A D4 dozer will support fine-tuned excavating and compactions. A grader will be used to grade, and prepared for longevity.

Evaluation Criteria

Evaluation Criteria A: Project Benefits

Describe the expected benefits and outcomes of implementing the proposed project: Water are the benefits to the applicant's water supply delivery system?

Any reduction in seepage loss or inefficient conveyance will shore up water for the District patrons. The District no longer has adequate access to a sustainable water supply, therefore any improvements in water efficiency supports the survival of this agricultural region. As described below in the *Extent to which the proposed project improves overall water supply reliability*, the District has struggled to finish an irrigation season without draining its reservoirs or shutting off the grower's water supply early in the season- leaving them without the opportunity to finish their planting or growing operations for the year. In 2020, the growers in Jefferson County learned how precious an additional 0.10 acre-foot of water per acre could be. After a sudden shut off in September, Wickiup Reservoir was drained and there was little hope the District would be able to turn on water again for the season. Many growers were not prepared for the shutdown; they feared they would be unable to plant for the following winter and spring. To the grace of these growers, an irrigation district with senior water rights chose to shut down early for construction, freeing up enough water for the District to turn back on and to provide 0.10 acre-foot of water to each patron the last week of the irrigation season. This small amount of water was the saving grace to many who just needed one quick watering to establish their fall planting for the winter and following year. Compounding multiple years of this has led to many growers endangered by bankruptcy. This project will provide 2,800 acres with an additional watering- potentially making or breaking a farmer's success.

If other benefits are expected explain those as well. Consider the following:

Extent to which the proposed project improves overall water supply reliability.

Water Quantity: North Unit Irrigation District is the junior water rights holder to the Deschutes River, a river overallocated since the start of the 20th century. In response to the obvious overallocation, North Unit Irrigation District with the Bureau of Reclamation constructed Wickiup

Reservoir to provide for the 58,000 acres planned within the North Unit Project. During an average year, 70% of the water diverted for the District comes from Wickiup Reservoir, identifying this reservoir as the District's primary lifeline. Most years this reservoir fills, providing 200,000 acre-feet for the District's 58,000 acres of irrigatable acres. In 2016, a lawsuit against North Unit Irrigation District and the other irrigation district who have storage in Wickiup Reservoir and Crane Prairie Reservoir changed the management of Wickiup Dam, significantly cutting into the supply stored in Wickiup Reservoir. The lawsuit focused on the impact Wickiup dam operations have had on the threatened Oregon spotted frog (OSF) habitat, overwintering and reproductive success. In response, the Deschutes Basin Habitat Conservation Plan (published December 2020) was proposed to adapt dam operations to reduce any impact on the endangered species of the Upper Deschutes River. Within this agreement, for the first 5-7 years Wickiup Dam dischargers 30,000 acre-feet of stored water (20% of the Wickiup Reservoir's capacity) throughout the winter to provide key overwinter and reproductive habitat for the OSF. Water released in the winter cannot be diverted for irrigation and considered unavailable to the District. As a result, the Wickiup Reservoir was completely drained by the end of the 2018 and 2020 irrigation season, leaving only the Deschutes River to pass through the reservoir. As a result of the record low season-end capacity, and increased winter releases, Wickiup Reservoir started 2019, 2020, and 2021 irrigation season with record low starting capacities, 137,000, 141,000 acre-feet, and 110,000, respectively. The District then started 2019, 2020, and 2021 irrigation seasons with tight allotments rarely seen throughout its history, limiting water usage to 50-75% of a water user's minimum water right. More specifically, allotments have dropped to 0.50 to 1.50 acre-feet per acre of land, an amount so low very little can be grown with it without precision drip irrigation or highly efficient center pivot irrigation. As a result, 30-40% of the District land has been left fallow or partially fallow to pool resources and endure the water shortage. Yet, even with the limiting allotments, the District has needed to shut down periodically because of drought and shortage. The shutdowns design to refill storage reservoirs so delivery at key times, such as fall "water back," can be achieved before winter.

Unfortunately, after another 5-10 years further (specifics still under discussion within the draft Deschutes Basin Habitat Conservation Plan), the winter discharge rate will increase to 40,000 acre-feet throughout the winter for the endangered OSF. The eventual goal being to release 60,000+ acre-feet of stored water throughout the winter, synonymous to returning the Upper Deschutes to its management prior to the construction of Wickiup Dam in the 1930's. It should go without saying that if 200,000 acre-feet of stored water makes up roughly 80% of District's diverted water, that removing 30,000, 40,000 and especially over 60,000 acre-feet of water will surely dry up this agricultural region within the next few decades.

Any effort to improve the water efficiency within any of the irrigation districts dependent on the Deschutes River supports the removed reliance on storage with Wickiup Reservoir and supports the survival of North Unit Irrigation District. This project is one of many focused on maximizing

the control and water efficiency of the District's open canal network and invaluable towards the District's survival.

The expected geographical scope benefits from the proposed project

The District spreads the water savings equally to all patrons, and as such it will benefit the 58,880 acres of irrigated land within Jefferson County.

Extent to which the proposed project will increase collaboration and information shared among water managers in the region.

The Deschutes River Basin Habitat Conservation Plan (HCP) was voluntarily started in 2008, though it has inspired lawsuits along the way and to further to come, it has also led to the creation of a collaborative network among diverse parties. The HCP has brought together the federal environmental agencies, non-profit agencies, irrigation districts, and local municipalities to create a working document that addresses shared goals. The need for collaboration further led to the creation of the Coalition for the Deschutes which focused to create a *Shared Vision* for the health of the Deschutes River that supports fish, families, and farms. The Coalition for the Deschutes brings together stakeholders in recreation, non-profits, government, environmental, industry and agriculture, food and beverage, and general community members abroad to support the increased efficiency of irrigation district distribution systems in exchange for flow in the Deschutes river for aquatic species like the OSF. North Unit Irrigation District holds a seat on the board, among others, of this collaborative group and supports their efforts to find shared resolution for this effective management of natural resources within the Deschutes Basin. North Unit Irrigation District operates at 60% water efficiency throughout its distribution system, this project has the potential to increase that efficiency and support the District through water shortages. By needing less water to make deliveries, the region can survive in light of the significant loss in its water supply.

Any anticipated positive impacts/benefits to local sectors and economies

Economic Impact: With the average 2.00 acre-feet per acre for Deschutes River and 1.00 acre-foot per acre for Crooked River allotments, the District supports a respectable agricultural community with a \$194 million economic impact, grossing over \$75 million in sales alone (Agricultural and Irrigation in Oregon's Deschutes and Jefferson County, 2017). However, with this large gross return, the wealth is not spread in a way that returns to the farmers because this region also pays the most per drop of water than any other irrigation district in the region. The region gives excessively to the economy, but the cost of water cuts deeply into operational costs, limiting each private farmers' and ranchers' financial stability. Operational costs are high because of the burdens placed on the District as a junior water right holder. They must pay to purchase additional water from Prineville Reservoir, pay to pump water from the Crooked River since there is not enough natural flow left in the Deschutes River, and pay for legal counsel to properly manage the influence irrigation water management has on endangered species and the greater watershed.

In response to the decreased allotment, farmers within the District struggle to switch between types of crops because a switch might require different equipment or more labor than available. Therefore, even if the opportunity arrives to grow a different crop on less water, if the farmer cannot afford the equipment or labor, the field will instead be left fallow. Most of the irrigated acres in the District are set up to grow wheat, hay, or grass seed; an important minority grow high value “cash crops” such as hybrid carrot seed, garlic, and peppermint oil. Many farmers who contribute to the over 55% of the nations’ and 40% of the world hybrid carrot seed (grossing over \$15 million in carrot seed alone); but not all will be able to carry that production demand and risk under such a small allotment. Normal or wet years provide for more water-thirsty wheat harvests, while dry years must limit to grass seed production of the least risk. Unlike popular belief, cash crops such as garlic, or carrot seed, do not increase significantly during dry years because of the risk involved in their production. The process requires high investment in drip tape and labor which are often covered by the high return. But the risk to reward does not make it a better drought resilience strategy over fallowing land. It is unknown how much is economically lost due to the choice in planted crop type and reduction in planted acres chosen to sustain operations through such a low allotment.

Extent to which the project will complement work done in coordination with NRCS in the area.

This project complements current and future NRCS work done through Conservation Implementation Strategies (CIS). Lateral 58-3-2 will address a sediment load issue in the headwaters of Trout Creek and benefit the NRCS CIS: Hydrological Restoration for Steelhead in Jefferson County. This CIS focuses improving watershed health, to both increase the water quality and quantity within the Trout Creek drainage. Local NRCS planning has identified the region surrounded the City of Culver as potentially the next CIS location to address problematic storm drainage, sediment loading into Lake Billy Chinook, and to align with planned District piping projects. Piping Lateral 41-9 proceeds that effort in the City of Culver area.

Evaluation Criteria B: Planning Efforts Supporting the Project

Describe how your project is supported by an existing planning effort: Does the proposed project implement a goal or address a need or problem identified in the existing planning effort? Explain how the proposed project has been determine as a priority in the existing planning effort as opposed to other potential projects/measures.

The District uses a combination of water efficiency, water quality, operational efficiency, and project cost to determine which piping projects should be considered. These two laterals have been identified because of their manageable length, the potential water savings, positive impact on water quality and potential to improve on-farm efficiency (through pond size, pressurized pipe for sprinkler, sustainable diversion rate, etc.). Choosing to pipe Laterals 41-9 and 58-3-2 comes from a long history of water efficiency planning and strategizing. As a result of many studies and collaborative planning, piping open canals, providing pressure to growers, and reducing pollutant transport aligns with on-going plans for decades.

After the shocking drought from 1991 to 1995, which devastated many farms within the Deschutes Basin, momentum gained to assess the hydraulic status of the Deschutes Basin and to identify where conservation measures could begin, and in what order. This led to the Bureau of Reclamation and Oregon Water Resources Department completing the Upper Deschutes River Basin Water Conservation Study published in April 1997. This study identified the opportunities for water and energy savings involved in replacing existing laterals with buried pipe within the irrigation districts, such as North Unit. The grade of the irrigation networks would provide gravity pressure to operate sprinkler irrigation without pumping. So began many piping projects funded by the Bureau of Reclamation within North Unit Irrigation District.

In 2012, North Unit Irrigation District, with engineering consultant Black Rock Consulting, developed its Water Management and Conservation Plan (OAR Chapter 690, Division 086) which outlined the status and objectives to continue to preserve and improve the efficient management of water by the District. Within this plan, the district outlines every aspect of its water right, and the potential sources for water savings both within the distribution system and on-farm. Emphasis is put on the multifaceted benefits that pressurized (piped) laterals provides for the District and surrounding community. Not only does it improve water efficiency by reducing seepage loss and operational spill, but it decreases public safety risk and the pumping cost and energy consumption required to operate a pressurized irrigation system.

In continuation of this effort, in 2017, North Unit Irrigation District, in conjunction with Black Rock Consulting and Farmers Conservation Alliance, completed and published its System Improvement Plan (SIP) which outlined the water savings, energy savings, pipe size and length necessary to replace the open earthen canal network completely with buried pipe. Using the SIP as a guide, the District identified Lateral 31, 32, 34, and 43 as its starting points to pipe its major laterals based on the cost versus water savings ratio. The projects with the greatest water savings per mile of pipe were chosen first. The District has held a public comment period to gain insight on what should be included in their Watershed Plan, which will be used for their application to NRCS PL-566 funding. As the District continue to work on its Watershed Plan, smaller piping projects have been identified and found more appropriate for smaller funding opportunities such as this and align with its Water Management and Conservation Plan.

Additionally, the District also considers regional resource management goals such as on-farm efficiency and water quality when determining priority for future piping projects. In partnership with the Oregon Department of Agriculture (ODA), the Jefferson County Soil and Water Conservation District (JSWCD), and the National Resource Conservation Service (NRCS), and local landowners, the District supports project that removes irrigation canals as a source of pollution and sediment transport. The District is a key member of many programs such as the ODA Middle Deschutes Agricultural Water Quality Management Area Plan, and the JSWCD Pesticide Stewardship Program. Additionally, over the past decade, the JSCWD and Middle Deschutes Watershed Council continue partner with the District to fund piping projects that would reduce sediment loading into natural drainages such as Mud Springs, Trout Creek, Campbell Creek, and

the Culver drain. In 2012, the District began piping of Lateral 58-11 which was the District's largest, shared project with the JSWCD focused on piping to improve water quality for Mud Springs and Trout Creek. With the project completing in 2020, the region faced a new type of challenge: fallowed fields.

With the reduction in available water, the number of acres fallowed increased from 3,000 to 13,000 acres. In 2020, nearly 25% of the District was left barren, weed covered, and dry. This quickly complicated on-going water quality and efficiency programs because there was an immediate need to prevent the soil loss, sediment loading, and washout occurring throughout the region. The City of Culver faced the greatest challenges as drainage network through the city overlapped irrigation canals, and many fields uphill were left dry without cover crop. Extreme storms caused washouts through the fields, flooding the city, and transporting a plumb of turbid runoff into Lake Billy Chinook. To the region's challenge, ODA, JSWCD and the District worked through identifying the sources and solutions for many washout events in violation of water quality goals. It became clear that strategic piping needed to occur around the Culver area, considering the City of Culver's storm drainage system in future projects.

With all this considered, the District identified piping Laterals 58-3-2 and 41-9 as aligning with ongoing water quality and quantity efforts, avoiding competition with ongoing regional planning, improving operational control, and fitting within the scope of this opportunity.

Evaluation Criteria C: Project Implementation

Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Following the completion of the Cultural and Environmental Assessment and approval to begin construction, all piping projects and canal maintenance will occur between October and March while the canal is dry and accessible. These projects have been designed in-house by our construction manager and are in line with district specifications and standardized requirements. If funded, the construction manager will order the pipe for this project a few weeks before the start of construction. The projects will be completed sequentially as conditions allow. Once pipe is ordered, district staff will deliver equipment to the first site and begin to clear the canal of vegetation and set the grade for the pipeline. The pipe will be delivered directly to the construction site and stored there until installed. The pipe will be installed into the canal and buried. The buried canal stretch will be packed and prepared for longevity. This process will be repeated for the second pipeline.

The project will be broken down into two parts: Lateral 41-9 and Lateral 58-3-2. However, these two projects can be completed simultaneously due to our available staff, equipment, and short timeline. The project will be completed during the winter months of October through February while the canal is drained of water and dry. The timeline presented below (Table 1) lists the

completion goals, assuming that frequent poor-weather conditions exist. It is likely that this timeline will be condensed to a two-month period if good-weather conditions exist.

Table 1. Project timeline and goals for completion.

Task	Sept 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022
Cultural and Environmental Assessment	X					
Lateral 41-9						
Order Supplies		X				
Clear Vegetation			X			
Grade Canal Slope				X		
Install Pipe					X	
Secure and Bury Pipe					X	
Pack and Grade Surface					X	
Lateral 58-3-2						
Order Supplies		X				
Clear Vegetation					X	
Grade Canal Slope for Pipe					X	
Install Pipe						X
Secure and Bury Pipe						X
Pack and Grade Surface						X

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

The District does not require any permits to pipe the Laterals 41-9 and 58-3-2 as they are working within their easements and have legal right to improve the conveyance efficiency of the North Unit canal network.

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

The general feasibility, engineering and design for this project is coarsely included in the System Improvement Plan published in 2017 which looks at piping the entire canal network of the district. The project was then designed in detail and modernized by our construction manager on staff.

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

There are no new policies or administrative actions required to implement this project.

Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for complete of environmental and cultural resource compliance discussed with the local Reclamation office?

The local Reclamation office has been informed of both the need for an environmental assessment and to follow up with an on-going cultural assessment that would cover this project. This project plans to pipe the open canal within the Federal Easement established by the Bureau of Reclamation. This project will require an environmental assessment (or an approved categorical exclusion) as directed by the Bureau of Reclamation. The Bureau of Reclamation and North Unit Irrigation District have already completed a cultural assessment on the entire North Unit canal network, which is captured by the project *Sage Brush to Clover: The U.S. Bureau of Reclamation's North Unit of the Deschutes Project Volume 1 and 2* (Volume 1 published in 2013, Volume 2 in review for final publication).

Evaluation Criteria D: Nexus to Reclamation

Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following: Does the applicant receive Reclamation project water? Is the project on Reclamation project lands or involving Reclamation facilities? Is the project in the same basin as a Reclamation project or activity? Will the proposed work contribute water to a basin where a Reclamation project is located? Will the project benefit any tribes?

This project improves the conveyance efficiency of the North Unit Irrigation District, also known as the North Unit of the Deschutes Project (a Bureau of Reclamation Project). The District receives and manages project water of Wickiup Reservoir and contractually manages the distribution system owned and constructed by the Bureau. The project proposed is within Reclamation project lands, involves Reclamation facilities, takes place in the same basin as other Reclamation projects, and contributes water to a basin where other Reclamation projects are located. This project will not benefit any tribes.

Project Budget

Cost-Share Requirements

This project will leverage \$74,690.99 of federal investments along with \$74,690.99 of non-federal investments to provide the maximum benefits to all funding partners. The District will provide the \$57,101.54 of in-kind, \$17,589.45 cash to match the 50:50 cost share.

Pre-Project Costs

North Unit Irrigation District anticipates that this project, as funded by Reclamation, will start April 2021 and no pre-project costs will be encored prior to said Reclamation funding.

Funding Partners

The District has no additional partners for this project.

Other Federal Funds

No federal funds have been requested or received from other sources.

Pending Funding Requests

No additional funding is pending.

Funding Summary

Table 2. Summary of non-federal and federal funding sources.

<u>Funding Sources</u>	<u>Funding Amount</u>
<u>Non-Federal Entities</u>	
1. <u>North Unit Irrigation District in-kind contributions</u>	<u>\$57,101.54</u>
2. <u>North Unit Irrigation District cash contribution</u>	<u>\$17,589.45</u>
<u>Non-Federal Subtotal</u>	<u>\$74,690.99</u>
<u>Requested Reclamation Funding</u>	<u>\$74,690.99</u>
<u>Total Project Funding</u>	<u>\$149,381.98</u>

Budget Narrative

Salaries and Wages: The salaries and wages listed in the budget are the in-kind/indirect contributions from the North Unit Irrigation District. District employees will provide the labor in the installation of the construction of the enclosing structure, guidance of the installation, and monitoring of the project logistically and financially. The price per hour set for District employees was based on their current wage as of January 1, 2022. Employee's wages will increase on January 1 of each year of the project and based on the Collective Bargaining Agreement will increase a minimum of 2.5% to 4% based on the CPI that year.

The Operations Manager Gary Calhoun will oversee the entire project. The Watermaster/ Construction Manager will manage the construction of the structure, the installation of the sliding gates and final furnishing details necessary for automation. The Special Projects Manager, Lisa Windom, will manage the implementation of the grant, reporting, and recording the work performed. All three will be involved in updating operational protocol to ensure the new equipment is operated to meet all regulations and water management goals. On the ground supervision will be performed by Maintenance Foreman, Lane Springer. The majority of the work will be performed by the maintenance staff, who will also be transporting and operating equipment. An estimate of hourly time is listed in the budget breakdown with an hourly rate based on current wages effective January 1, 2022. The personnel wages usually increase January 1 of each year based on the CPI.

Fringe benefits: Hourly fringe benefit rates were calculated based on individual employee benefits. These rates will change over the life of the grant based on current rates. Fringe benefits and rates include the following:

- 1) FICA/Medicare tax - 7.65%
- 2) Unemployment tax - 0.10%
- 3) Workers' Compensation – 3.74% project employees & 0.12% administrative and office employees
- 4) 401k retirement – 5.75%
- 5) Health insurance – 9.30 per hour
- 6) Life Insurance - \$0.09 per hour
- 7) Short Term Disability Insurance - \$.19 per hour
- 8) Health Reimbursement Arrangement - \$0.38
- 9) Employee Housing Benefits- \$0.93 per sq. ft.

Travel: Travel is not included in this proposal.

Equipment: This District will use equipment owned by North Unit Irrigation District and operated by internal staff to construct the enclosure building. All equipment will be transported from the District's central base to the gate structure by the Districts truck and lowboy. The 320 Excavator will be used to remove the existing gate structure and install the new one.

Materials and Supplies: This project requires materials to construct the pipe and the concrete backwalls.

Contractual: The District will not enter into any contracts to complete this project.

Environmental and Regulatory Compliance Costs: This project will need a completed environmental assessment per the Bureau's direction, the cost of which has been included in the budget.

Reporting: District staff will be responsible for the reports on the status of the project as per the grant guidelines. The hours spent on reporting are included in the in-kind hours reported in the budget. The office manager will prepare the financial reports and the special projects manager will provide the progress reports.

Other Expenses: None

Indirect Costs: None

Total Costs: \$149,382.94

Detailed Project Budget

Please refer to Table 3, which provides the detailed breakdown of all costs encountered during the project. The estimate for supplies is attached in Exhibit A.

Table 3. Proposed itemized budget for project Optimize Conveyance Efficiency and Control in North Unit Irrigation District Main Canal.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
SALARIES/WAGES				
Operations Manager - Calhoun	\$39.36	19	hrs	\$755.71
Watermaster - Bailey	\$34.22	67	hrs	\$2,299.58
Special Projects Manager - Windom	\$29.74	38	hrs	\$1,142.02
Maintenance Foreman - Springer	\$29.90	125	hrs	\$3,731.52
Maintenance Workers	\$26.00	576	hrs	\$14,976.00
Subtotal				\$22,904.83
FRINGE BENEFITS				
Operations Manager	\$25.31	19	hrs	\$485.95
Watermaster	\$28.62	67	hrs	\$1,923.26
Special Projects/Water Ops Coord	\$19.22	38	hrs	\$738.05
Maintenance Foreman	\$19.86	125	hrs	\$2,478.53
Maintenance Workers	\$22.21	576	hrs	\$12,792.96
Subtotal				\$18,418.75
EQUIPMENT USE				
320 Excavator	\$63.68	48	hrs	\$3,056.64
D4 Dozer	\$88.10	32	hrs	\$2,819.20
Grader	\$175.00	16	hrs	\$2,800.00
10yd Dump Truck	\$100.00	32	hrs	\$1,600.00
420 Backhoe with compactor	\$150.00	32	hrs	\$4,800.00
Tractor for pulling lowboy	\$49.60	12	hrs	\$595.20
Lowboy trailer - 2 axles, weight capacity of 70k	\$8.91	12	hrs	\$106.92
Subtotal				\$15,777.96

SUPPLIES AND MATERIALS				
Locating Wire 10Ga	\$0.13	4450	feet	\$578.50
15"x22' 125#PIP Pipe	\$18.60	4450	feet	\$82,770.00
Concrete	\$165.00	20	cu yd	\$3,300.00
4x8 paper backed plywood 3/4	\$48.05	8	ea	\$384.40
6" snap tie	\$0.57	32	ea	\$18.24
Form stake	\$34.77	2	dozen	\$69.54
12x2 saddle	\$45.00	2	ea	\$90.00
2" ARV	\$20.88	2	ea	\$41.76
2" SCH 40 PVC Pipe	\$3.50	8	feet	\$28.00
Subtotal				\$87,280.44
OTHER				
Environmental and Cultural Assessment				\$5,000.00
Subtotal				\$5,000.00
TOTAL DIRECT COSTS				\$149,381.98
TOTAL ESTIMATED PROJECT COSTS				\$149,381.98

Environmental Compliance

The project will complete any environmental compliance discovered in its assessment.

Funding Plan and Letters of Commitment

The District provides its commitment to funding this project.

Environmental and Cultural Resources Compliance

The project will complete any environmental compliance discovered in its assessment. There has also been an in-depth cultural assessment performed by the Bureau of Reclamation to capture the cultural resource of the canal network: *Sage Brush to Clover, The U.S. Bureau of Reclamation North Unit of the Deschutes Project, Volume I and Volume II.*

Required Permits or Approvals

There are no required permits for this project.

Letters of Support

Please see Exhibit B-1, B-2, and B-3 for attached letters of support.

Official Resolution

Signed during the March 9, 2021 meeting with the District's Board of Directors (See Exhibit C)



Consolidated Supply Co.

** Quotation **

EXHIBIT A

Bid #: S010174624
Page #: 1

Send P/O To:
CONSOLIDATED SUPPLY CO - BEND
20625 BRINSON BLVD
BEND, OR 97701

Phone # 541-382-1999

Bid To:
NORTH UNIT IRRIGATION
2024 NW BEECH STREET
MADRAS, OR 97741

Ship To:
NORTH UNIT IRRIGATION
2024 NW BEECH STREET
MADRAS, OR 97741

Phone # : 541-475-3625

JOB: PIP AND ADS QUOTE

Bid-Date-Expr-Date-Writer-Salesperson-Ship Via
02/25/21 03/27/21 Duane VanWert - Bend Jeff Cahill - Bend

Table with 4 columns: Quantity, Description, Unit Price, Ext. Includes shipping instructions, tax ID, and pipe specifications with handwritten corrections.

*** Continued on Next Page ***
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**** Quotation ****

Bid #: S010174624

Page #: 2

NORTH UNIT IRRIGATION

Quantity	Description	Unit Price	Ext
	** This is a special order item **		
	*		
	*		
4202'	24"X22' CL80 PIP SDR51 W/ GSMT PVC PIPE W/ RINGS	32.478ft	136472.56
	** This is a special order item **		
	Subtotal -----		198579.46
	*		
4200'	24"X20' ADS SER 65 MEGA-GREEN SOLID WATER-TIGHT N12 DBL WALL POLY PIPE W/GSKT BELL 24650020DW	35.114ft	147478.80
	** This is a special order item **		
	*		
4200'	30"X20' ADS SER 65 MEGA-GREEN SOLID WATERTITE N12 DBL WALL POLY PIPE W/GSKT BELL 30650020DW	46.852ft	196778.40
	** This is a special order item **		
	Subtotal -----		344257.20
	Bid Total		542836.66
	Bid Amount		542836.66

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Due to recent force majeure declarations by several resin manufacturers, products such as but not limited to PVC, DWV and HDPE are currently very volatile. UNTIL FURTHER NOTICE, PRICE AND AVAILABILITY WILL BE DETERMINED AT THE TIME OF SHIPMENT PENDING AVAILABILITY. PRICING FOR THESE ITEMS WITHIN THIS QUOTE ARE INTENDED FOR ESTIMATION PURPOSES ONLY.

Thank you for requesting a quotation from Consolidated Supply Co. ("Consolidated") for certain materials you need for the project identified in the attached or enclosed quotation document (the "Project"). The enclosed quotation to you is made subject to the following terms and conditions:

1. You must carefully review the quotation to confirm that it meets your requirements before using it for a bid. Unless you have provided Consolidated with a detailed bill of materials and specifications with your requirements (with any applicable addendums), this quotation is only a good-faith estimate and does not constitute an offer which can be accepted or relied on in any manner. Building plans alone do not constitute a detailed bill of materials or specifications, particularly if more than one supplier or subcontractor may be involved in supplying plumbing and/or waterworks materials. Unless the quotation is based on your detailed bill of materials and specifications, you agree that all risk of loss arising from the use of this quotation for bidding purposes-including any loss relating to errors in scope, quantity, price, time, and place of delivery-is on you. All quotations are conditioned upon availability of labor and materials at the time an order actually is placed. You are responsible to specify and select appropriate materials for your intended use. CSCO provides no design, engineering, or other professional services and cannot recommend or warrant goods to be fit for your particular purposes.

2. If you place an order with Consolidated for work or materials for the Project, the resulting contract will be subject to Consolidated's General Terms and Conditions of Sale. If credit is provided by Consolidated, then that credit is provided on Consolidated's general credit terms and conditions. These terms and conditions are available to you upon request and can be viewed on our website at www.consolidatedsupply.com.

3. Delivery under this quotation is FOB Consolidated's OR manufacturer's facility. If the quotation includes delivery to a jobsite, Consolidated may use a method and carrier of Consolidated's choice, unless otherwise stated in the quotation, and Consolidated assumes that the location is legally and physically accessible to interstate freight carriers operating under ICC regulations. Unloading labor will be provided by purchaser. Additional charges may apply if these assumptions are incorrect or if multiple deliveries are required. Consolidated will make a good faith effort to meet delivery dates agreed to in writing, but cannot guaranty delivery dates for goods not in stock or for which the terms of delivery are outside our control.

4. Pricing in this quotation is based on unit amounts and is firm and valid only if the goods are ordered within 30 calendar days from the date of the quotation. Consolidated may extend quoted prices on a case-by-case basis beyond the 30-day period. Consolidated reserves the right to correct or withdraw this quotation in the case of clerical error. Any change in quantities ordered or time for delivery may result in a change of the quoted prices, including unit prices, unless otherwise agreed to by Consolidated in writing. In the case of commodity items subject to dramatic price increases from the manufacturer such as PVC pipe, plastics, iron and copper, Consolidated reserves the right to modify prices in this quotation after the date that it is issued. This quotation is not a bid or a lump-sum

quote, unless specifically stated in the quotation.



**OREGON
DEPARTMENT OF
AGRICULTURE**

Protect. Promote. Prosper.

Agricultural Water Quality Program
635 Capitol St NE, Salem, OR 97301-2532
503.986.4700 | Oregon.gov/ODA

March 11, 2021

Department of Interior
Bureau of Reclamation
Water Resources and Planning Office

RE: Funding Opportunity Announcement No. R21AS000300
WaterSMART Grants: Small-Scale Water Efficiency Projects

To Whom It May Concern,

Oregon Department of Agriculture (ODA) would like to express support for the piping of Laterals 41-9 and 58-3-2 within North Unit Irrigation District, as proposed by the WaterSMART Grant: Small-Scale Water Efficiency Project submitted by the North Unit Irrigation District (NUID).

ODA has partnered with the NUID to support piping projects which reduce runoff of sediment and pollutants while improving water efficiency for NUID and its patrons. The ODA has worked with NUID on piping projects that benefit drainages such as Trout Creek and Mud Springs and plans to continue work addressing challenges in Campbell Creek and the Culver Drain.

This project fully supports the Middle Deschutes Agricultural Water Quality Management Area Plan, which promotes "cost-effective agricultural activities that improve and protect water quality." This is one of many projects needed to address the water quality and quantity challenges facing the region and to develop solutions unique to our geographical conditions and applicable to other drainages in the area.

In recent years, NUID has struggled to provide its full duty to their patrons due to drought and rapid changes to reservoir management to protect species of concern. The region has faced fallowed fields, dust storms, noxious weed encroachment, and heavy erosion through its drainages.

Through these challenges, NUID and a variety of other agencies, organizations, and stakeholders in the Deschutes Basin have strived to work together collaboratively to address water quality and quantity. This project proposal is yet another example of NUID's practical and collaborative approach to water supply and water quality issues.

ODA is pleased to be a partner in this effort, and we thank you for your support of this important work.

Sincerely,

A handwritten signature in black ink that reads "Stephanie Page". The signature is written in a cursive, flowing style.

Stephanie Page, Director
Natural Resources Program Area





EXHIBIT B-2

March 10, 2021

Department of Interior
Bureau of Reclamation
Water Resources and Planning Office

RE: Funding Opportunity Announcement No. R21AS000300
WaterSMART Grants: Small-Scale Water Efficiency Projects

To Whom It May Concern,

Jefferson County Soil and Water Conservation District (JCSWCD) would like to express support for the piping of Laterals 41-9 and 58-3-2 within North Unit Irrigation District as proposed by the WaterSMART Grant: Small-Scale Water Efficiency Project submitted by the North Unit Irrigation District (NUID).

JCSWCD has partnered with the NUID to complete piping projects which reduce the transport of sediment and pollutants, while improving water efficiency for NUID and its patrons. JCSWCD has worked with NUID on piping projects that benefit drainages such as Trout Creek and Mud Springs and plans to continue work addressing challenges in Campbell Creek and the Culver Drain.

In recent years, NUID has struggled to provide its full duty to their patrons due to drought and rapid changes to reservoir management in preservation to endangered species in the Upper Deschutes Watershed. The region has faced fallowed fields, dust storms, noxious weed encroachment and heavy erosion through its drainages. This project seeks to improve water efficiency for the region and reduce the negative impact from excessive sediment transport through drainages. This is one of many projects needed to address the water quality and quantity challenges facing our region and to develop solutions that are unique to our geographical conditions and applicable to other drainages in the area.

Sincerely,

Staci A. Merkt

Staci Merkt
District Manager, JCSWCD

EXHIBIT B-3

March 12, 2021

Department of Interior
Bureau of Reclamation
Water Resources and Planning Office

RE: Funding Opportunity Announcement No. R21AS000300
WaterSMART Grants: Small-Scale Water Efficiency Projects

To Whom It May Concern,

On behalf of the Middle Deschutes Watershed Council (MDWC), I am pleased to express support for the piping of Laterals 41-9 and 58-3-2 within North Unit Irrigation District, as proposed by the WaterSMART Grant: Small-Scale Water Efficiency Project submitted by the North Unit Irrigation District (NUID).

MDWC supports NUID in piping projects which reduce the transport of sediment and pollutants, while improving water efficiency for NUID and its patrons.

In recent years, NUID has struggled to provide its full duty to their patrons due to drought and rapid changes to reservoir management in preservation to endangered species in the Upper Deschutes Watershed. The region has faced fallowed fields, dust storms, noxious weed encroachment, and heavy erosion through its drainages. This project seeks to improve water efficiency for the region and reduce the negative impact from excessive sediment transport through drainages. This is one of many projects needed to address the water quality and quantity challenges facing our region, and to develop solutions unique to our geographical conditions and applicable to other drainages in the area.

Sincerely,

Jenna Keeton
Watershed Coordinator
Middle Deschutes Watershed Council

**NORTH UNIT IRRIGATION DISTRICT
RESOLUTION NO. 2021-04**

North Unit Irrigation District: Lateral 41-9 and 58-3-2 Piping Project


WHEREAS: The proposed project will install 4,300 ft of buried pipe across two separate canals, Lateral 41-9 and 58-3-2. These canals have been identified as being improperly sized for the demand, highly inefficient, and a source of excessive sediment transport. By improving conveyance efficiency, the District will improve its endurance through water shortages; and,

WHEREAS: The proposed project will strengthen the conveyance water, energy, and operational efficiency for the District by increasing control within lateral canals, whose benefits will cascade out to District patrons and reduce tail end flow.

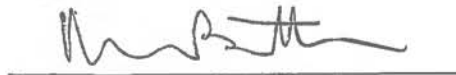
NOW THEREFORE, BE IT RESOLVED that the Board of Directors agrees and authorizes that:

1. Michael Britton is the district official with the legal authority to enter into an agreement for financial assistance under the WaterSMART Grant.
2. The Board or governing body has reviewed and supports the proposal submitted.
3. The applicant can provide the amount of funding and/or in-kind contributions, specified in the funding plan; and
4. If selected for a WaterSMART Grant, the applicant will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

DATED: 3/10/2021


Martin Richards
Chairman

ATTEST: .


Michael Britton
Secretary- Manager