

D.2.2.2. Title Page

Columbia Irrigation District Lateral 2 Canal 2.26 Mile Liner

Columbia Irrigation District Staff

2/7/2020

Columbia Irrigation District Lateral 2 Canal 1.94 Mile Liner Project proposal and related information for Grant application pursuant to: Funding Opportunity Announcement No. BOR-DO-20-F006.

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D.2.2.4. Technical Proposal and Evaluation Criteria

D.2.2.4.1 Executive summary

Date: 4 Mar 2020

Applicant Name: Columbia Irrigation District

City, County and State: Kennewick, Benton County, Washington

Project Summary: Columbia Irrigation District (CID) is proposing to line approximately 850 linear feet of its Lateral 2 canal. The proposal would remove an old concrete liner that covers one-third of the canal prism (the downslope bank of the canal). Then the canal will be excavated to subgrade. The excavation will provide space for fiber reinforced concrete lining to be installed over a membrane liner. Funds will be used to buy lining materials and equipment to accomplish the task of lining the canal. The majority of the balance remaining after the USBR funding will be provided as in-kind contributions from CID through labor, equipment, and fuel. All other costs exceeding USBR contributions will be provided by CID out of current annual budget or cash reserves held by CID. The proposed project helps the FOA meet its goal of conserving water (up to 13 AF), better manage the CID water (13 AF of loss) because the saved water can be put to beneficial use and this makes the CID more efficient in its delivery of water. This project is not located on federal facilities and will continue the lining work that CID began in partnership with USBR under Agreement #R19AP00199. The project could be finished within the calendar year the funds are awarded. The project work will be conducted during the four months water is off, giving a completion date no later than 10 March 2021 if started in the beginning of November.

D.2.2.4.2 Background data

Source of Water Supply

The source of the water supply comes from the CID 1891 gravity-flow, surface water rights from the Yakima River. The Yakima River system has changed much in the proceeding years since the CID first started pulling water. Many more irrigation districts have been developed, including several USBR projects that rely heavily on storage held in a system of five reservoirs.

The CID maintains one of the older water rights and its water is built into the established target flows the USBR operates the Yakima River under.

Water Rights Involved

The CID holds a surface water right from the Yakima River of 145 cfs to irrigate 9,574 acres and 60,389 AF annually within district boundaries under an 1891 priority date. As well as delivering and managing several surface water rights for the city of West Richland, totaling 10.3 cfs for 512 acres, 2,080 AF annually, and one ground water right for 2,000 GPM. The CID also wheels 15.04 cfs of Frank Tiegs Farms surface water right from the Yakima River, and 6 cfs of Kennewick Irrigation District (KID) surface water rights. In total the CID has a maximum diversion of 176.34 cfs.

Current Water Usage

The current water usage within the district is continually evolving toward more residential purposes with more than fifty percent of the district currently being divided into parcels of five acres or less. The water wheeled for Frank Tiegs Farms is all agricultural, the water wheeled for West Richland is a mix of residential/municipal, and the water Diverted for KID is residential. District acreage is approximately 24% commercial ag, 60% hobby farm/livestock operations and 16% residential.

Number of Users Served

Including wheeled water diverters CID serves 7161 users.

Current and Projected Water Demand

The total demand for water from the CID is projected to remain stagnant due to the finalized adjudicated Yakima water rights which set our total irrigated acreage and water for the same. However, the usages patterns are ever evolving into a residential ebb and flow which is proving itself a difficult challenge for CID.

Potential Shortfalls in Water Supply

The travel time from headgates to the end spillway is more than 24 hours meaning that CID cannot meet residential peak demands in early mornings and evenings without keeping the canals full 24 hours a day.

Major Crops and Total Acres Served

CID users' major crops are tree fruit, grapes, foliage grains and residential lawn and gardens.

Water Delivery System

The CID water canal system is 40.5 miles long and consists of 1.2 miles piped canals, 8.5 miles of lined canals and several hundred miles of piped steel and PVC lateral and distribution lines for residential service. The CID also has seven SCADA sites to automate canal levels and monitor waste waters.

Past Working Relationships with Bureau of Reclamation

The CID is currently working to complete projects under agreements #R18AP00251 for automated canal control gates and #R19AP00199 to line a section of Lateral #2 immediately downstream of the liner proposed in this application.

D.2.2.4.3 Project Location

The Lateral #2 2.26-Mile Liner Project is in Benton County Washington State approximately two miles SW of CID’s office at 10 E. Kennewick Ave. Kennewick, WA. The project latitude is 46°11’16.42” N and longitude is 119°05’05.20” W at roughly 382’ of elevation.



D.2.2.4.4 Technical Project Description and Milestones

Problems and Needs addressed

CID operates as one of the most senior water rights on the Yakima River System and as such hasn't historically viewed modernization as a pressing need. This lack of foresight has created a demanding challenge in ensuring water availability at peak demand times while minimizing operational wastes and system losses. By and large, CID's delivery system is still representative of a design that was implemented to service agricultural usages that would irrigate for long periods of time before ordering changes. The transition from this style of irrigation to a residential on-demand residential patterns has been long, painful and lacking foresight in planning efforts. The CID has begun aggressively seeking grants and other funds to conserve water and install re-regulation reservoirs to make our delivery system more flexible and efficient to meet the challenges of delivering water at peak residential demand times.

The project area has been identified as an area where modest water conservation may be achieved from lining and safety risks have been identified due to the canals elevated topography in this area. The liner was installed with an average concrete thickness of 3" and is now extremely cracked and leaves many places for water seepage. A canal failure in this area would be catastrophic to the surrounding area. Water users and infrastructure damage could be in the range of \$10 million dollars as assessed property values are \$3.9 million by themselves.

This project will line the canal with membrane liner with a concrete overlay which will give maximum life to the liner. This will eliminate seepage losses in the lined section and protect the banks from failure. The liner will thereby remove risk of damage and loss to nearby property and infrastructure. Additionally, CID has installed a canal level sensor with alarms for high water at the intersection of the canal and 25th avenue as added protection to the property and infrastructure near the project area.

Expected Outcomes

A conservative estimate for water savings/better managed water supply/ based upon the CID 1997 conservation plan for this 850' of lining is 13 AF/year. This reach of canal was left out of most of the seepage loss estimates from 1997 because it has an existing liner. However, the liner covers only 1/3 of the canal prism being located on the downslope canal bank only and not covering the bottom or the upslope bank of the prism.

We arrived at the estimated seepage loss by taking the average of the estimates for the reaches immediately upstream and downstream of the project area. Which is .023 AF per linear foot. We multiplied by 850' linear feet of the project area for 19.55 AF. We then multiplied it by 0.67 to account for the reduced seepage of the existing liner, as if this 1/3 of the canal has zero

seepage. This leaves a conservative estimate of 13 AF per year in water savings. Which is 0.03% of CID's total annual water allotment.

Beyond the estimated water savings, the project will provide added stability to the water supply because it protects an elevated reach of canal against catastrophic failure. If Lateral 2 were to fail in this reach of canal it would disrupt service to approximately 2,500 irrigated acres.

The project will also add protection against property damage that a canal failure would cause to the downslope properties, including the CID Shop and State Highway 397. The private property owners have a combined assessed value of \$3,800,000. This figure does not provide an estimate for the value of crops, vehicles, livestock or the state highway.

The project is only expected to have a geographic benefit to CID and the neighboring properties. The project is not expected to increase collaboration or the local sector economies in any way unrelated to the increased water availability for CID patrons. CID is unaware of any NRCS projects in the area that this lining would directly benefit.

D.2.2.4.5 Evaluation Criteria

E.1.1. Evaluation Criterion A—Project Benefits

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

CID estimates that 13 AF annually will be put to beneficial use within CID boundaries through this lining project. When this water is not needed for instantaneous demand for CID patrons it can be left in stream to benefit fish and other river purposes. This 13 AF is 0.03% of CID's total annual water allotment. Beyond the estimated water savings, the project will provide added stability to the water supply because it protects an elevated reach of canal against catastrophic failure. If Lateral 2 were to fail in this reach of canal it would disrupt service to approximately 2,500 irrigated acres. The project will also add protection against property damage that a canal failure would cause to the downslope properties, including the CID Shop and State Highway 397. The private property owners have a combined assessed value of \$3,800,000. This figure does not provide an estimate for the value of crops, vehicles, livestock or the state highway.

- The expected geographic scope benefits from the proposed project (e.g., local, subbasin, basin)

The project is only expected to have a geographic benefit to CID and the neighboring properties. The scope of this project, as it stands alone, is expected to be mostly localized to CID patrons. However, as CID continues this and other water conservation projects the effects will compound and reduce the instantaneous demand for CID patrons. This reduced

instantaneous demand will make greater quantities of water available downstream on the Yakima.

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

The project is not expected to increase collaboration and information sharing among water managers in ways unrelated to the increased water supply benefits to CID and its patronage.

- Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)

The project is not expected to have benefits to the local sector economies in ways unrelated to the increased water supply benefits to CID and its patronage.

- Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.

CID is unaware of any NRCS projects in the area that this lining would directly benefit.

E.1.2. Evaluation Criterion 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?

The CID is aggressively pursuing capital improvements and conservation efforts. CID has recently developed a capital improvement plan as part of a renewed enthusiasm for facility improvements. This project is consistent with the philosophy of the capital improvements planning which is geared toward solutions for high risk areas and water conservation.

The CID 1997 water conservation plan addressed the need for canal lining projects to reduce seepage and provide adequate supply to CID patrons. Membrane materials overlaid with concrete liners are an ideal way to achieve this goal and have an extremely long service life when compared to other lining materials. The concrete overlay will ensure easy cleaning, especially compared to other materials, without damaging the integrity of the liner.

- Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

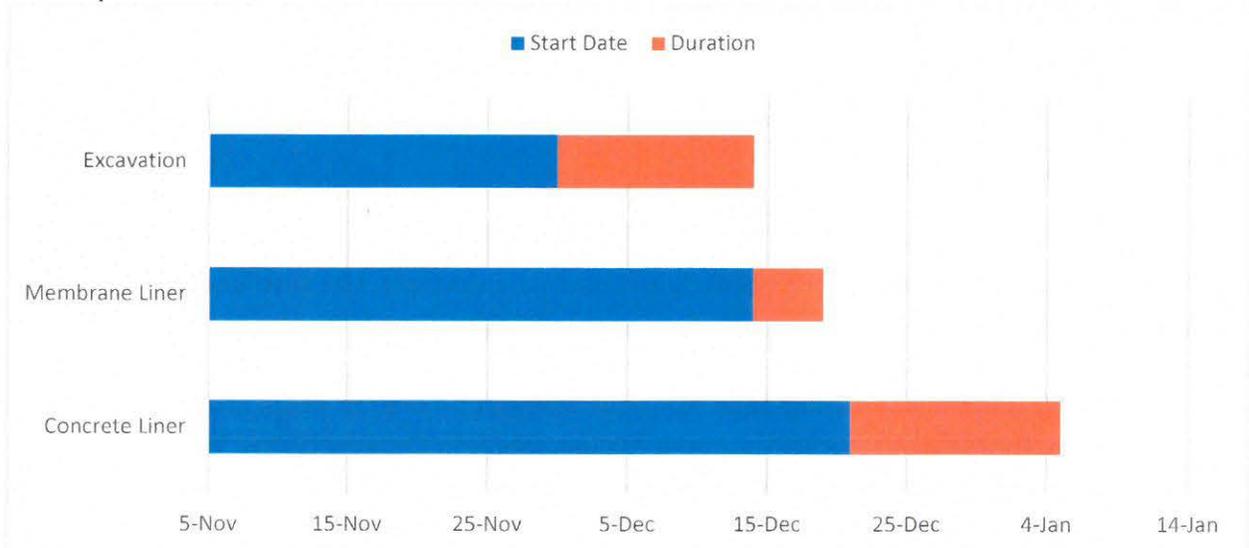
Although this section of canal was not specified as preferred location in the CID conservation plan it has become a high priority due to the deteriorated condition of the existing liner. The project location is in a reach of canal that is elevated above the surrounding area and is high risk for failure due to the condition of the liner. The scoring sheet from CID’s Capital Improvement Plan for this project is included as appendix “E”.

E.1.3. Evaluation Criterion C—Project Implementation (10 points)

- 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.

Implementation of this project will be done in one phase with three steps. The first step will be to excavate the canal prism to a subgrade of 4.5” below final grade and remove old concrete lining material while simultaneously bringing the canal prism back to design specifications for side slope and grade. When the excavation is finished the membrane liner will be installed. Then the concrete overlay will be installed and construction damage to the canal access roads will be repaired including replacing gravel on the road surface.

The implementation timeline with milestones and task is listed below:



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

No permit will be needed because the project will be done entirely within CID’s right-of-way.

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

There is no design work specifically for this project. CID will be relying on as-built information to achieve canal prism and sub-grade specifications.

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

No new policies were developed or needed for the implementation of this project because it is part of CID's Capital Improvements Plan.

- Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?

CID will be doing cultural compliance for a lining project immediately downstream of this project are in association with agreement #R19AP00199. We have obtained quotes from local firms for the cost of this and completion time. CID has discussed the cultural compliance for the agreement listed above with the local USBR office.

E.1.4. Evaluation Criterion D— Nexus to Reclamation (10 points)

- 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? **No.**
 - Is the project on Reclamation project lands or involving Reclamation facilities? **No.**
 - Is the project in the same basin as a Reclamation project or activity? **Yes.**
 - Will the proposed work contribute water to a basin where a Reclamation project is located? **Yes.**
- Will the project benefit any tribe(s)? **Not directly.**

CID is not directly connected to the USBR by a repayment contract. The District does have ties to USBR through the Yakima River Basin in several ways:

1. The CID is in the same river basin Kennewick Irrigation District (KID), Kittitas Reclamation District (KRD), Sunnyside Valley Irrigation District, (SVID), Yakima-Tieton Irrigation District (YTID), Wapato Irrigation Project (WIP), as well as several non-USBR irrigation districts.
2. CID carries 6CFS in its canal system for Kennewick Irrigation District (KID).
3. The USBR operates and maintains the fish screen at CID headworks.

E.1.5. Evaluation Criterion E— Department of the Interior and Bureau of Reclamation Priorities

Department Priorities

1. Creating a conservation stewardship legacy second only to Teddy Roosevelt
 - a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;

A membrane with concrete overlay lined canal in the project area would be a good step towards modernizing the water delivery system. It utilizes the best available lining option and latest science to produce a durable liner for the next 50+ years.

- b. Examine land use planning processes and land use designations that govern public use and access; **N/A**
- c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards. **N/A**
- d. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity; **N/A**
- e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands; **N/A**
- f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing; **N/A**
- g. Shift the balance towards providing greater public access to public lands over restrictions to access. **N/A**

2. Utilizing our natural resources

a. Ensure American Energy is available to meet our security and economic needs; **Through adoption of best practices, the District can adapt to future changes in the environment that will, without modernization, jeopardize the Districts ability to delivery water judiciously to all patrons. This project will save water and thereby utilize this precious natural resource to full potential. The water savings has the potential to aid CID in reducing some of its pumping needs, minor as they may be, because the water saved can be used for irrigation within the CID boundaries.**

- b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications; **N/A**
- c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle; **N/A**
- d. Manage competition for grazing resources. **N/A**

3. Restoring trust with local communities

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

The project will improve the safety of the surrounding area by lining an elevated canal and save water for the use of CID patrons. These project benefits will make CID a better neighbor to its water users and the surrounding communities.

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

4. Striking a regulatory balance

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

The lining of the canal system will reduce the potential administrative burden to CID patrons (i.e. the public) that a canal failure would impose. If canal failure were to happen the patrons and public would suffer property losses and experience water outage during the repairs. The water outages would result in crop losses, livestock and other valuable property losses that require irrigation water.

- b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis. **N/A**

5. Modernizing our infrastructure

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

The installation of membrane with concrete overlay liner will fit into CID's modernization of its infrastructure. As CID lines sections of its canal system yearly the District will in time have a modern liner over all the critical areas. Then the District can continue the lining and piping of the entire canal system. This will allow the District to conserve water and protect against canal failures that would deeply impact the patrons and surrounding areas. The saved water can be used on-farm or when not needed for irrigation be left in the river to benefit in-stream purposes.

- b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs; **N/A**

- c. Prioritize DOI infrastructure needs to highlight:

- 1. Construction of infrastructure; **N/A**

2. Cyclical maintenance; N/A
3. Deferred maintenance. N/A

Reclamation Priorities

1. Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities.
This project helps meet this goal of the Reclamation because it increases the reliability of the CID water source. A more reliable water source for the CID affects the community of the Tri-City area because it makes use of irrigation water for crops, livestock and lawns and saves domestic supplies for domestic purposes.

2. Streamline Regulatory Processes and Remove Unnecessary Burdens to Provide More Water and Power Supply Reliability.

This project will not directly remove unnecessary burdens from the regulatory process.

3. Leverage Science and Technology to Improve Water Supply Reliability to Communities

This project does leverage science and technology to improve water supply reliability to the community because it utilizes the latest in membrane liners and concrete reinforcement technologies and practices.

4. Address Ongoing Drought

This project does address the ongoing drought issues faced in the Yakima Basin because it conserves water and makes more efficient use of the available water to CID.

5. Improve the Value of Hydropower to Reclamation Power Customers

This project will not improve the value of hydropower.

6. Improve Water Supplies for Tribal and Rural Communities

This project will not improve the water supply for tribal communities but it will improve the water supply for rural Finley area of Kennewick.

7. Implementation of new Title Transfer authority pursuant to P.L. 116-9

This project will not implement any new title transfers.

D.2.2.5. Project Budget

Funding Plan and Letters of Commitment

Table 1.—Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	\$ 61,320.22
Costs to be paid by the applicant	\$ 61,320.23
Value of third-party contributions	\$ 0.00
TOTAL PROJECT COST	\$ 122,640.45

Budget Proposal

Table 2.—Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				
Project Manager	\$46.15	30	Hours	\$ 1,384.50
Supervisor	\$31.97	75	Hours	\$ 2,397.75
Operator	\$28.89	175	Hours	\$5,055.75
Crew Member	\$26.60	75	Hours	\$1,995.00
Crew Member	\$26.60	74	Hours	\$1,968.40
Crew Member	\$26.60	74	Hours	\$1,968.40
Crew Member	\$26.60	74	Hours	\$1,968.40
Fringe Benefits				
Full-Time Employees	Labor Costs	39%		\$6,527.90
Contractors				
Environmental Compliance	\$1,600.00	1	Invoice	\$ 1,600.00
CID EQUIPMENT				
318 Excavator	\$62.68	65	Hours	\$4,074.2
Mini Excavator	\$19.83	30	Hours	\$594.90
¾ Ton Truck	\$27.29	40	Hours	\$1,091.60
1-Ton Truck	\$27.86	102	Hours	\$2,841.72
½-Ton Truck	\$27.47	42	Hours	\$1,153.74
Truck Chassis & Dump Bed	\$57.17	81	Hours	\$4,630.77
Dresser Grader	\$81.45	4	Hours	\$325.80
Shotcrete Pump	\$26.30	70	Hours	\$1,841.00
Compressor	\$22.57	70	Hours	\$1,579.90
Supplies and Materials				
Lining Material	\$0.60	23,500	Ft2	\$ 14,100.00
Road Gravel	\$1.28	200	Yd3	\$ 256.00
Concrete	\$124.00	472	Yd3	\$58,528.00
Misc.	\$450.00	1		\$450.00
TOTAL DIRECT COSTS				\$ 116,333.73
Indirect Costs				
Sales Tax	8.6%	\$14,341.27		\$14,341.27
Admin/Clerical Staff	\$34.56	11	Hours	\$380.16
TOTAL ESTIMATED PROJECT COSTS				\$ 122,640.45

Budget Narrative

Salaries and Wages

The Project Manager will be Clancy Flynn and the Supervisors will be Bob Ingraham and Curt Strifert. The certified current rates of pay for these individuals and for the crew are the rates listed in the budget proposal. These salaries are applied consistently to all Federal and Non-Federal activities of CID and are contractually set to increase 3% effective January 2019. The compliance hours for reporting are estimated at 11 for Admin/Clerical staff and 20 for the project manager that are included in the total hours for the project manager.

Fringe Benefits

The fringe benefits are the District's portion of costs for health insurance, retirement, deferred compensation and employee taxes. These benefits equal an average of an additional 39% of wages paid for labor by the CID. The CID Fee Schedule included as Appendix D has the fringe benefits calculated into the charge for each hourly employee.

Travel

There is no travel authorized for this project nor included in the budget proposal.

Equipment

All equipment to be used on this project is owned by CID or will be purchased by CID. The equipment budget is therefore shown as in-kind contribution by CID as if it is owned by CID. The rates in the budget proposal are in accordance with the USACE equipment rates for region 8.

Materials and Supplies

The materials and supplies listed in the budget proposal are all for construction efforts related to lining the canal. The costs for materials were estimated from budgetary quotes obtained from distributors.

Other Expenses

The \$450.00 listed as miscellaneous is for unforeseen expenses that might arise such as needing a few extra yards of concrete, freight or small tools that might break.

Indirect Costs

The indirect cost represents WA state and local sales taxes and clerical staff time to prepare reports and track project expenses. The clerical staff hourly rate shown in the budget proposal include the fringe benefits.

D.2.2.6. Environmental and Cultural Resources Compliance

Please answer the questions from *Section 11.1. Environmental and Cultural Resource Considerations* in this section.

- *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.*

The project will include the removal of dilapidated concrete lining material and excavating to subgrade to shape the canal for the lining products. The excavation will be done with an excavator and hauled to the disposal site with CID dump trucks. The excavation will be done during the months Oct.-Dec. which will limit the impacts from dust on the air and surrounding environment. However, if dust movement is such that it could impact the environment the CID will deploy a truck and water the material to be excavated.

- *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?*

CID is not aware of any listed or potential list endangered or threatened species or designated critical habitat in the project 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.*

There are no known wetlands or other surface waters that could be considered "Waters of the United States".

- *When was the water delivery system constructed?*

The water delivery system was originally constructed in 1892 with improvements and rehabilitation at various time since then.

- *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.*

The project will have effects on the canal but not effectual to its functionality. The canal was lined in concrete at some point after 1892 but the CID has no record of when that lining was added.

- *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.

The District does not have any list but due to the age of the system we may have some eligible sites.

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

No.

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

No.

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

No.

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

No.

D.2.2.7. Required Permits or Approvals

There are no required permits because the work will be done within current District facilities and rights-of-way.

D.2.2.8. Official Resolution

**COLUMBIA IRRIGATION DISTRICT
2.26 Mile Lateral 2 Liner
Resolution 2020-3**

WHEREAS, the Columbia Irrigation District has identified the 2.26-mile mark of Lateral 2 a high-risk area of canal due to its elevation above the surrounding properties; and

WHEREAS, the District has already begun lining this area under a grant agreement with USBR for the lining project at the 2.10-mile mark on Lateral #2; and

WHEREAS, the concrete liner in this section only covers the downslope bank; and

WHEREAS, said concrete liner is also in poor condition due to its age; and

WHEREAS, the District can protect the integrity of the canal and conserve water by lining this section; and

WHEREAS, the Bureau of Reclamation has available WaterSmart grants to help with financing water and efficiency projects;

NOW THEREFORE, BE IT RESOLVED that the Columbia Irrigation District authorizes a project to line this area of Lateral 2 continuing upstream from the terminus of the 2.10 mile project for approximately another 850 linear feet.

BE IT FURTHER RESOLVED that the Columbia Irrigation District authorizes the pursuit of Reclamation WaterSmart, Water and Energy Efficiency monies to help cover the cost of said project.

Dated this 7th day of February 2020.

COLUMBIA IRRIGATION DISTRICT



Vincent Shawver, President

Appendices

A. 1997 Conservation Plan Excerpts

COLUMBIA IRRIGATION DISTRICT COMPREHENSIVE WATER CONSERVATION PLAN

CHAPTER 1 EXECUTIVE SUMMARY

Authorization and Objectives of the Plan

The purpose of the Comprehensive Water Conservation Plan is to evaluate an irrigation system and identify areas that could produce improved water savings. Under policies set forth in Chapter 173-170 WAC, Agricultural Water Supply Facilities, the Washington State Department of Ecology (DOE) has been given the authority to supply grants and loans to applicants to assist in improving their efficiency of water use beyond current levels. The first phase required for improvement funding under Chapter 173-170 is the acceptance of a Comprehensive Water Conservation Plan.

Columbia Irrigation District (CID) applied for and received a grant (No. G930260) from DOE. This grant outlined the preferred report structure and content as well as the responsibilities of the CID. Columbia Irrigation District in turn contracted with J-U-B Engineers, Inc. (J-U-B) to produce a detailed report evaluating current system operations and system improvements based on information provided by CID and gathered by J-U-B. This report's primary objective is for water savings, but another objective is to provide better delivery service to CID water users through improved water management practices.

CID and Facility History

Columbia Irrigation District is one of the oldest irrigation entities on the Yakima River System. Its water rights and beginning dates back to the end of the 19th century. Since the beginning, the CID has delivered water every year to its users. The CID is located along the Yakima and Columbia rivers stretching from West Richland to Finley and in between serves portions of City of Richland, City of Kennewick, and rural Benton County.

The system begins at Horn Rapids Dam where water is diverted from the Yakima River into the main canal. A recently completed main canal fish screen which routes small

*COLUMBIA IRRIGATION DISTRICT
COMPREHENSIVE WATER CONSERVATION PLAN*

juvenile fish from the canal back into the river through a by-pass system is located just below the headgates. A fish ladder also was constructed on each abutment of Horn Rapids Dam for adult fish passage.

The CID system consists primarily of open canals, both lined and unlined, which total approximately 41 miles in length. Some CID lateral pipelines, mostly gravity flow, also exist to distribute water from the canals. The CID operates and maintains a number Local Improvement Districts (LIDs) which provide pressurized water to each individual parcel within the LID.

In the 1980s, the CID completed a number of system rehabilitation projects on the primary canal system. Currently, a number of areas need improvement and CID will use this document to assist in prioritizing and funding future projects.

Water Balance

A water balance analysis of the CID delivery system was conducted as a part of this plan. Because the CID no longer measures water delivery to individual parcels and has not for many years, very limited data is available with which to conduct an analysis on system efficiency. A water balance analysis is a helpful tool to verify system efficiency and identify water savings potential when implementing an improvement project. The water balance compares the calculated water quantities required for irrigation of the land to the actual historic diversion records at the headworks. Water quantity calculations were prepared by inventorying the various types of crops and lands throughout the CID (using current aerial photographs) and applying crop water requirements using evapotranspiration rates for the year in question. Evapotranspiration was established from climatological data collected at a nearby weather station. Using assumed efficiencies for on-site irrigation, results from canal leakage tests, and climatological data for evaporation, a calculated volume of water required at the headworks was determined. This volume was approximately 11 percent less than the actual diversion for the year in question. This difference represents the margin of error in the analysis.

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COMPREHENSIVE WATER CONSERVATION PLAN*

Present Facilities and Operations

The CID's operation in recent years has been stable and water delivery reliable. Currently, the CID is rehabilitating a number of areas in the CID replacing old lines, installing lines once lost or abandoned, and installing new pressurized systems to a number of areas through the LID process. Since the major rehabilitation projects in the 1980s, more emphasis has been placed on the distribution system and less on the primary conveyance facility.

An ongoing trend within the CID, given its proximity to a growing metropolitan area, is the conversion of farm land to suburban and residential uses. In this transition, the CID has played an important role in providing a cost effective irrigation water source to the lots within the new housing developments to water landscaping. The CID has made this transition with little change in the requirements for water flow rates and quantities.

Summary of Plan Recommendations

The proposed projects to save water within the CID system have centered around the following primary concepts:

- Canal automation to reduce spillage,
- Equalizing reservoirs to reduce canal spillage,
- Piping of canals to eliminate losses, evaporation, and seepage,
- Lining of canals to stop seepage, and
- Construction of pumping stations to eliminate canals.

In addition to saving water, many of the proposals provide other benefits such as improved safety, reduced operation and maintenance expense, greater reliability, and environmental benefits. However, not all of the impacts are positive. Some of the alternatives require greater demands for electric energy while others, such as reducing seepage, may affect nearby wetlands. In general, the benefits seem to significantly outweigh the adverse impacts.

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The plan recommends automation of canals as the first priority project to implement. This recommendation is based on a very low capital cost per volume of water saved. The second priority recommendation is piping Lateral #1 and Lateral #2 canals to eliminate seepage, spillage, evaporation, vegetative, and tail water losses. There are other benefits in piping canals including improved safety and lower operation and maintenance costs.

The final plan recommendation is to construct a Columbia River pumping station and two accompanying stations to serve the CID and save the greatest quantity of water. In addition, this alternative would eliminate many miles of open canal and a number of major structures on the CID's primary delivery system. The alternative has a high capital cost and will require development of a major funding program.

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Canal Lining - Proposals 6, 7, & 8

Currently CID has over three miles of lined canal sections in their system. Concrete lining has the capability to reduce seepage and vegetative losses without sacrificing hydraulic performance limitations sometimes encountered when converting from an open canal system to a closed pipe system. The estimates listed in Table 10-14 include the costs associated with excavating and lining existing earthen sections in the main canal and Laterals No. 1 & No. 2. Figure 10-7 shows the location of the project site. Lining estimates are based on minimum project lengths of one mile. It should be noted that any project to line the main canal must also consider that the Horn Rapids Diversion Dam will need to be rehabilitated or replaced in the near future. This future diversion dam work and the related cost must be included when considering project costs for main canal lining.

As in piping projects, canal linings have the potential to impact wetlands by eliminating seepage out of the canals. As a result, all wetlands discussed with the other proposals will also be impacted by Proposals No. 6, 7, and 8. In addition, approximately 8 acres of wetlands may be impacted by the lining of the first three miles of Lateral No. 2. These wetlands are labeled as PEMIC (Palustrine, Emergent, Persistent, Seasonal) and are located in the vicinity of 10th Avenue and Chemical Drive.

Multiple wetlands (30± acres) border the last six miles of the main canal that may be impacted by the lining of the canal. However, from field observations it is apparent that the KID canal to the south also influences wetlands in the area. Some wetlands have been observed with water levels higher than in the CID canal. Therefore, the full impact of lining the canal in this area cannot be determined. The designation and location of the wetlands can be found in the maps in Appendix C.

Water savings associated with concrete lining projects are as follows:

- Lateral No. 1: 284 acre-feet per year
- Lateral No. 2: 509 acre-feet per year
- Main Canal: 5,292 acre-feet per year

COLUMBIA IRRIGATION DISTRICT CANAL LINING LOCATIONS

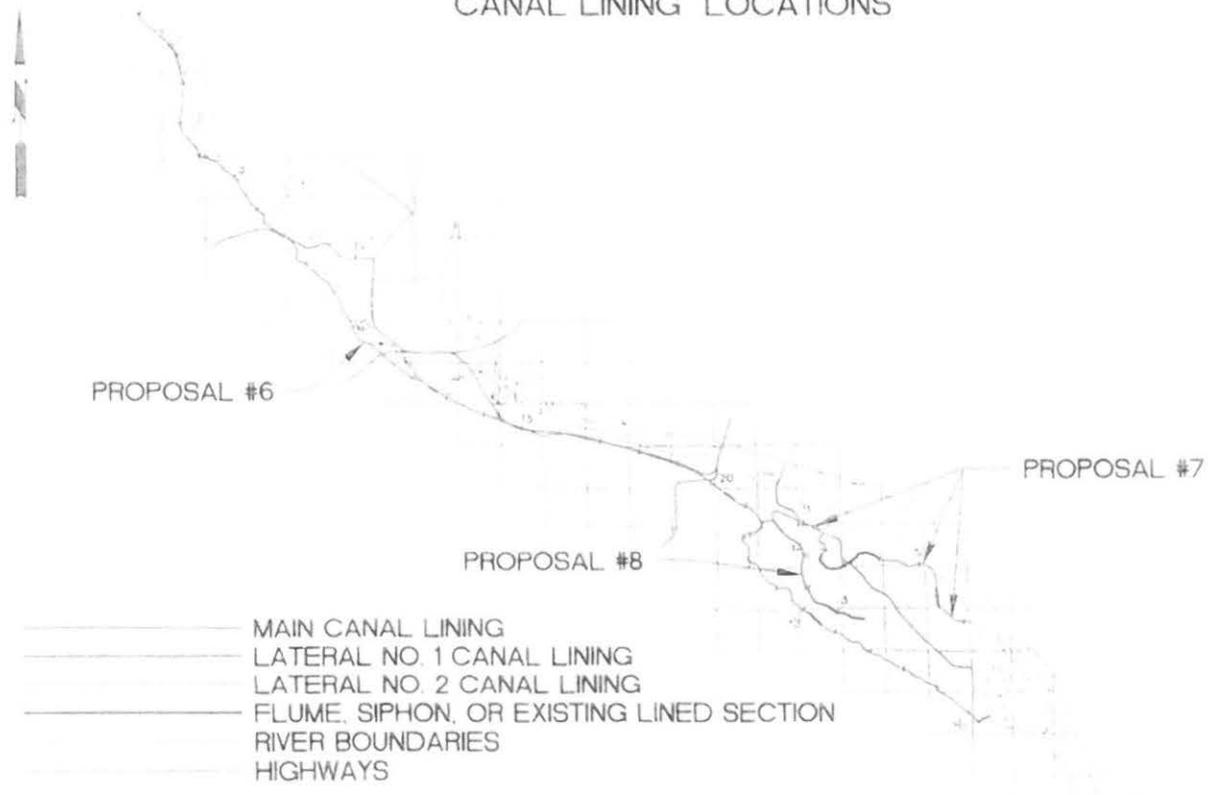


FIGURE
10 - 7

**COLUMBIA IRRIGATION DISTRICT
COMPREHENSIVE WATER CONSERVATION PLAN**

TABLE 10-13

Lateral: Number 2 (from Siphon off Chemical Drive)

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$10,000.00	\$10,000
<u>ROADWAY CROSSINGS</u>				
6" to 15" PIPE	0	EA	\$1,000.00	\$0
18" to 33" PIPE	4	EA	\$2,000.00	\$8,000
36" AND ABOVE	1	EA	\$4,000.00	\$4,000
<u>DELIVERY SERVICES</u>				
*PENNY (2-6.282-L-D): 16"	1	EA	\$4,900.00	\$4,900
*GAME FARM (2-6.885-L-D): 24"	1	EA	\$8,600.00	\$8,600
DELIVERIES	61	EA	\$1,565.00	\$95,465
<u>PIPE</u>				
42" RCP	1846	LF	\$90.00	\$166,140
39" RCP	3401	LF	\$82.00	\$278,882
36" RCP	5262	LF	\$75.00	\$394,650
33" RCP	2579	LF	\$67.00	\$172,793
30" RCP	1394	LF	\$60.00	\$83,640
27" PVC	1700	LF	\$51.80	\$88,060
21" PVC	1532	LF	\$36.20	\$55,458
18" PVC	2220	LF	\$29.00	\$64,380
TOTAL PIPE	19934	LF		
TOTAL ESTIMATED CONSTRUCTION COST:				\$1,434,968
CONT., ENG., ADMIN. & LEGAL			22%	\$315,693
SALES TAX			7.90%	\$113,363

**COLUMBIA IRRIGATION DISTRICT
COMPREHENSIVE WATER CONSERVATION PLAN**

TABLE 10-14

MAIN CANAL - Shotcrete Lining Estimate				
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
4" SHOTCRETE LINING	4,901,786	SF	\$2.50	\$12,254,465
TOTAL ESTIMATED CONSTRUCTION COST:				\$12,254,465
CONT., ENG., ADMIN. & LEGAL			22%	\$2,695,982
SALES TAX			7.90%	\$968,103
TOTAL ESTIMATED PROJECT COST:				\$15,918,550
LATERAL ONE - Shotcrete Lining Estimate				
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
4" SHOTCRETE LINING	210,453	SF	\$2.50	\$526,133
TOTAL ESTIMATED CONSTRUCTION COST:				\$526,133
CONT., ENG., ADMIN. & LEGAL			22%	\$115,749
SALES TAX			7.90%	\$41,564
TOTAL ESTIMATED PROJECT COST:				\$683,446
LATERAL TWO - Shotcrete Lining Estimate				
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
4" SHOTCRETE LINING	547,406	SF	\$2.50	\$1,368,515
TOTAL ESTIMATED CONSTRUCTION COST:				\$1,368,515
CONT., ENG., ADMIN. & LEGAL			22%	\$115,749
SALES TAX			7.90%	\$41,564
TOTAL ESTIMATED PROJECT COST:				\$1,525,829

**COLUMBIA IRRIGATION DISTRICT
COMPREHENSIVE WATER CONSERVATION PLAN**

Operations and Maintenance Costs

Table 10-15 lists the estimated operation and maintenance costs associated with the proposals listed in this chapter. Flow demand for pumping stations is calculated by multiplying the acres served by an average flow rate of 3.5 acre-feet/year per acre. Electrical costs are based on a unit price of \$ 0.04/KWH. The estimate assumes a 200-day irrigation season. The estimated O&M cost for alternatives, which involve pumping and pressurization, will be higher than the present annual O&M expense of the CID. For other alternatives, a reduction in annual O&M costs is anticipated primarily through a reduction in labor needs for operation. For projects involving pressurization, individual users with pumps will experience a personal savings in eliminating their private pump. It is anticipated that the CID will continue to pass on the added cost to pressurize the delivery of water to the users receiving the benefit through LIDs.

TABLE 10-15

Columbia Irrigation District - Comprehensive Water Conservation Plan
Yearly Operation and Maintenance Cost for Proposed Water Conservation Projects

Proposal #	PROJECT NAME	Total Estimated Project Cost Mat. & Installation	Electrical Cost \$ / Year	Pipeline & Liner Maintenance Costs \$ / Year	Pump & Valves Maintenance Costs \$ / Year	Total O & M Costs \$ / Year
4	Lateral NO. 1. Piping (Gravity)	\$893,555	\$0	\$2,681	\$0	\$2,681
4A	Lateral NO. 1. Piping (Pressurized)	\$930,573	\$37,358	\$2,792	\$27,917	\$68,067
2	Lateral NO. 1. Equalizing Reservoir	\$81,123	\$339	\$243	\$2,434	\$3,016
6	Lateral NO. 1. Concrete Lining	\$683,446	\$0	\$2,050	\$0	\$2,050
5	Lateral NO. 2. Piping (Gravity)	\$1,864,024	\$0	\$5,592	\$0	\$5,592
7	Lateral NO. 2. Concrete Lining	\$1,525,829	\$0	\$4,577	\$0	\$4,577
8	Main Canal. Concrete Lining	\$15,918,550	\$0	\$47,756	\$0	\$47,756
3	Columbia Park Pumping Station	\$2,618,784	\$129,032	\$7,856	\$78,564	\$215,451
3	Richland "Y" Pumping Station	\$188,196	\$13,080	\$565	\$5,646	\$19,290
3	West Richland Pumping Station	\$2,377,818	\$112,130	\$7,133	\$71,335	\$190,598
1	Canal Automation	\$360,187	\$2,320	\$0	\$3,080	\$5,400
2A	Col. Park Equalizing Reservoir	\$573,833	\$8,000	\$0	\$5,550	\$13,550

*COLUMBIA IRRIGATION DISTRICT
COMPREHENSIVE WATER CONSERVATION PLAN*

Socioeconomic Impacts

Each alternative considered will require capital to construct and implement. Funding for projects may be obtained from grants, however, the majority will likely need to be raised by the CID internally. The CID maintains a reserve fund which is small compared to the cost of the alternatives considered. Debit financing for implementation of all but the least cost projects will surely be required. Debit financing will require an increase in assessment rates. Current assessment rates in the CID are in the median of rates typically charged by other districts within the state. Increases of 50% or more will likely create a financial hardship on agricultural landowners in the district. Only the higher value crops, such as orchard, may be able to absorb an increase of this magnitude. For the residential users, there is the option to use potable water for irrigation instead of improving the irrigation facility if costs and assessments were to become too high. Currently, irrigation for single family residences with CID water is approximately \$65 per year. The cost to use municipal water is in the range of \$150 to \$200 per year depending on size of the lot and the municipality serving water. Residential users have the ability to pay some increase in CID assessments to improve the irrigation facility. However, outside funding sources, particularly grants, will likely be needed to maintain reasonable assessment rates.

Projects that provide a net financial savings and save water will be most attractive for implementation. Net financial savings will be possible if a reduction in annual operation and maintenance expense is greater than the debt service required for the project. The CID users would receive both a financial and saved water benefit. A project of this type will be quickly implemented. Any other project that requires a net increase in annual cost will need to return significant benefit from water saved to be favorably considered.

The implementation of all alternatives will have a short term benefit to the local economy through the construction period. Material will be purchased locally and jobs for construction created. Once construction is complete, it is anticipated that little change in the local economy will be felt.

*COLUMBIA IRRIGATION DISTRICT
COMPREHENSIVE WATER CONSERVATION PLAN*

The proposed projects will have little effect on the assessed land valuation and taxes for property within the CID except for alternatives which include pressurized irrigation. Availability of pressurized irrigation is attractive in the real estate market place and property values increase. Property taxes increase with assessed valuation relative to other areas. Offsetting an increase in property value when pressurized irrigation becomes available might be the scenario where a large assessment rate is needed to pay for and operate a project. If assessment rates become too high, property values and taxes for the land in the district could decrease relative to other areas.

Implementation of water conservation projects will make available water that can be used for other benefits. However, projects that line canals to reduce seepage and save water will have an impact to diminish adjoining wetlands. Reduction of wetlands will impact certain animal and bird species.

TABLE 11 - 1
Proposed Water Conservation Projects - Cost Comparisons per acre-ft saved

Proposal #	Description	Capital Cost	Water Savings Ac-ft	Capital Cost / ac-ft	O & M Costs \$ / Year	Net Present Value O & M Costs	Total Net Present Value Cost*	Total Present Value Cost / ac-ft
1	Canal Automation	\$360,187	3286	\$110	\$5,400	\$2,719,458	\$2,724,858	\$83
2	Sandwaste equalizing reservoir	\$81,123	420	\$193	\$3,016	\$612,486	\$615,502	\$147
2a	Col. Park equalizing reservoir	\$573,833	3542	\$162	\$13,550	\$4,332,518	\$4,346,068	\$123
3	Main Canal - Pumping Stations	\$5,184,798	9452	\$549	\$425,340	\$39,145,918	\$39,571,257	\$419
4	Lateral No. 1 - Pipeline (gravity)	\$893,555	920	\$971	\$2,681	\$6,746,458	\$6,749,138	\$734
4a	Lateral No. 1 - Pipeline (pressurized)	\$930,573	920	\$1,011	\$68,067	\$7,025,954	\$7,094,021	\$771
5	Lateral No. 2 - Pipeline (gravity)	\$1,864,024	3200	\$583	\$5,592	\$14,073,630	\$14,079,222	\$440
6	Lateral No. 1 - Shotcrete lining	\$683,446	284	\$2,407	\$2,050	\$5,160,110	\$5,162,160	\$1,818
7	Lateral No. 2 - Shotcrete lining	\$1,525,829	509	\$2,998	\$4,577	\$11,520,210	\$11,524,788	\$2,264
8	Main Canal - Shotcrete lining	\$15,918,550	5292	\$3,008	\$47,756	\$120,187,181	\$120,234,937	\$2,272

* Assumes a 10 year period, 3% annual cost calculations and a 8% discount rate.

C. Letters of Support



Benton Conservation District
10121 W. Clearwater, Suite 101
Kennewick, WA 99336
(509) 736-6000

February 18, 2020

TO: United States Bureau of Reclamation

FROM: Benton Conservation District
10121 W. Clearwater Ave., Suite 101
Kennewick, WA 99336

RE: Support for Columbia Irrigation District Canal Lining Project.

Dear Reclamation,

I write on behalf of Benton Conservation District in support of the Columbia Irrigation District's proposal to the Bureau of Reclamation for a grant to fund the lining of 2.26 miles of Lateral #2 to reduce seepage losses and protect this elevated canal in Kennewick. A sustainable water supply for Benton County is a priority of the Benton Conservation District. We often fund on-farm water conservation projects to stretch this valuable resource. Ensuring the reliability of Columbia Irrigation District's water supply and facilities plays an important role in that sustained water supply. We strongly support this grant application and the benefits it will provide to CID patronage and the water resources in our watershed.

We look forward to working with you in securing and sustaining the water supply in Benton County, Washington.

Sincerely,

Mark Nielson
District Manager
Benton Conservation District

Board of Supervisors

Jack Clark, Chair Danny Downs, Vice Chair
Mike Sackschewsky, Auditor
Michael Crowder, Member Nicole Berg, Member



Leading the Way

February 13, 2020

Mr. Clancy Flynn, District Manager
Columbia Irrigation District
10 E. Kennewick Avenue
Kennewick, WA 99336

Subject: **Letter of Support for Grant Proposal**

Dear Mr. Flynn,

The City of Kennewick is pleased to offer our support for Columbia Irrigation District's USBR grant application to fund the construction of a lined canal at Mile 2.26 of CID Lateral #2. We understand this will reduce seepage losses and protect this elevated section of canal.

A reliable functioning irrigation system greatly benefits the City of Kennewick, freeing up more of our treated water for domestic use during our high demand times each summer. We therefore strongly support this grant application for the benefits it will provide to CID users, who are also residents of Kennewick.

We look forward to hearing of your successful acquisition of this grant.

Sincerely,


Marie E. Mosley
City Manager
City of Kennewick

CITY MANAGER

210 W 6th Ave, Kennewick, WA 99336

D. CID Fee Schedule

	<h1 style="margin: 0;">COLUMBIA</h1> <h2 style="margin: 0;">IRRIGATION DISTRICT</h2> <p style="margin: 0;">"Fee Schedule"</p> <div style="border: 1px solid black; padding: 2px; display: flex; justify-content: space-between;"> Effective Date: 7 June 2019 Revision: 0 </div>	
Administrative Fees		
Returned Check fee (NSF):		\$35.00
Planning & Development		
Short Plats:		
Without water rights		\$100.00
With water rights + engineering costs		\$200.00
Field inspection		\$150.00
Preliminary Plats:		
Without water rights		\$175.00
With water rights + engineering costs		\$500.00
Field Inspection		\$250.00
Additional parcel over 25 lots		\$20.00/lot
Final Plats:		
Without water right		\$100.00
With water right + engineering costs		\$175.00
Misc. (lot line adjustment, ect.):		\$75.00
CID Standard Specification Packet:		\$15.00
Irrigation Service:		
Service Change application		\$200.00
Connection Admin. Fee		\$125.00
Labor and Materials		Varies
Inspection Fee		\$200.00
Crossing CID Facilities:		

Aerial	\$225.00
Buried Open Canal	\$550.00
Buried Pipeline	\$400.00
All engineering costs are extra	
Construction Water Withdrawal	\$100.00/day
Right-of-Way Use	
Encroachment permits:	
Application Fee	\$20.00
Temporary Access *trespassing on right-of-way \$250.00 fine per occurrence	No charge after application fee
Annually Renewed	\$125.00/year
Long-term permanent	\$700.00
*All Long-Term licenses may receive a prorated refund if encroachment is removed: \$700- \$125.00 for each year that the encroachment was in-place.	
Equipment	
	Per hour
2012 Ford F550	\$56.26
2017 Chevy Silverado	\$27.47
2012 Chevy Pickup	\$27.47
2013 Chevy P/U 250	\$27.29
1999 Clark Forklift	\$20.31
2003 Peterbilt 385 Tanker	\$63.11
2016 Chevy Silverado 1500	\$27.47
2011 - Case 865 Motor Grader	\$81.45
2018 - Chevrolet Silverado	\$27.47
Saw	\$2.62
Generator	\$1.16
2109 Chevy Silverado 3500	\$27.86
Case Loader 621D	\$69.92
Mixer	\$2.39
1997 Kenworth Dump Truck	\$57.17
2016 Case 560SN Backhoe	\$63.51
1983 185 GPQ Sullair Compressor	\$10.12
Tilt Deck Trail-Eze Trailer	\$2.78
1998 Case Backhoe	\$63.51

1987 International Dump Truck	\$57.17
2000 1-Ton Chevy w/dump	\$26.69
1993 Ford Crane Truck	\$57.35
2001 Chevy 1-Ton Spot Sprayer	\$26.69
1996 Cat Trackhoe	\$62.68
1999 Cat Backhoe	\$39.67
Vacuum Trailer	\$31.95
2004 Chevy C10 Pickup	\$26.12
2004 Chevy Service Truck (Kyle)	\$27.47
9020B Case Excavator	\$62.68
2006 K10 Chevy Pickup	\$29.22
Shop Welder	\$0.39
1991 Volvo Semi	\$55.07
Lowboy Equipment Trailer	\$8.54
2019 14' Dump Trailer	\$6.07
2007 Ford F150 Pickup	\$27.47
New Holland 5060 Tractor w/Mower	\$30.75
1997 International Dump Truck	\$57.17
2008 CX36B Case Excavator	\$19.83
2007 Butler Flatbed Trailer	\$2.79
2009 FORD F-150 4x4 (Burn Truck)	\$29.22
2006 Case 240LR Excavator	\$83.58
2010 K10 Chevy Pickup	\$27.47
2006 850K Case Dozer	\$56.35
2008 John Deere 5603 tractor w/mower	\$30.75
2011 Ford F150 PICKUP	\$27.47
2006 Sullair 375 Air Compressor	\$22.57
2" trash pump	\$1.04
Lincoln 250 Welder	\$5.67
Personnel (including benefits and overhead)	
Operations Foreman	\$44.44
Project Lead	\$41.55
Operator	\$40.15
Maintenance 1	\$36.97
Maintenance 2	\$38.13
Laborer	\$25.19

E. CID CIP Score Sheet Lat #2 2.10 Mile liner

Project Name:	Lateral #2 2.1 mile liner
Priority Ranking:	27.16
Project Type:	Membrane with drainage and concrete overlay
Useful Life:	50+ Years
Department:	Field Ops

Project Description and Justification:												
The project location is with the 2nd to lowest seepage loss are of the canal. The land downslope from the canal is 16' to 39' lower in elevation making it susceptible to damage from canal failure. The present liner has been patched some but is in poor condition.												
Expenditures	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	
	147	147	32								326	
Funding Sources	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total	
CID CIP Budget	74	74	16								164	
CID Reserves	73	73	16								162	
USBR											0	
Operational Impact/Other Comments											Total	326
Replacing the liner would conserve approximately 13AF annually and protect over \$4 million in assessed property values.												

Priority Ranking Criteria	Weighting Factor	Priority Factor	Score
Safety	1.50	3.33	5.00
Regulatory Mandate	1.50	0	0.00
Mission Statement Alignment	1.35	3	4.05
Conservation	1.25	1.67	2.09
Ongoing Operational Costs	1.00	2.33	2.33
Frequent Problems	1.25	2.33	2.91
Conservation Plan Alignment	1.05	2	2.10
Ability to Finance	1.00	1	1.00
Age or Condition of Existing	1.00	3.67	3.67
Cost of Project	1.00	1.67	1.67
Generates Savings or Revenue	1.50	1.33	2.00
Patron Demand	1.05	0.33	0.35
Total			27.16

