SEEPAGE LOSS PREVENTION : HIGHWAY 20 DITCH

The Bureau of Reclamation

WaterSMART Grants Program:

Water and Energy Efficiency Grants for Fiscal Year 2024

DATE:
February 22, 2024

APPLICANT:
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Applicant Information

Application Date: February 22, 2024
Applicant Name: Hallwood Irrigation Company
City, County, State: Unincorporated Yuba County, CA
Applicant Category: Category A Funding Group II
Project Manager: Karl Brustad, PE

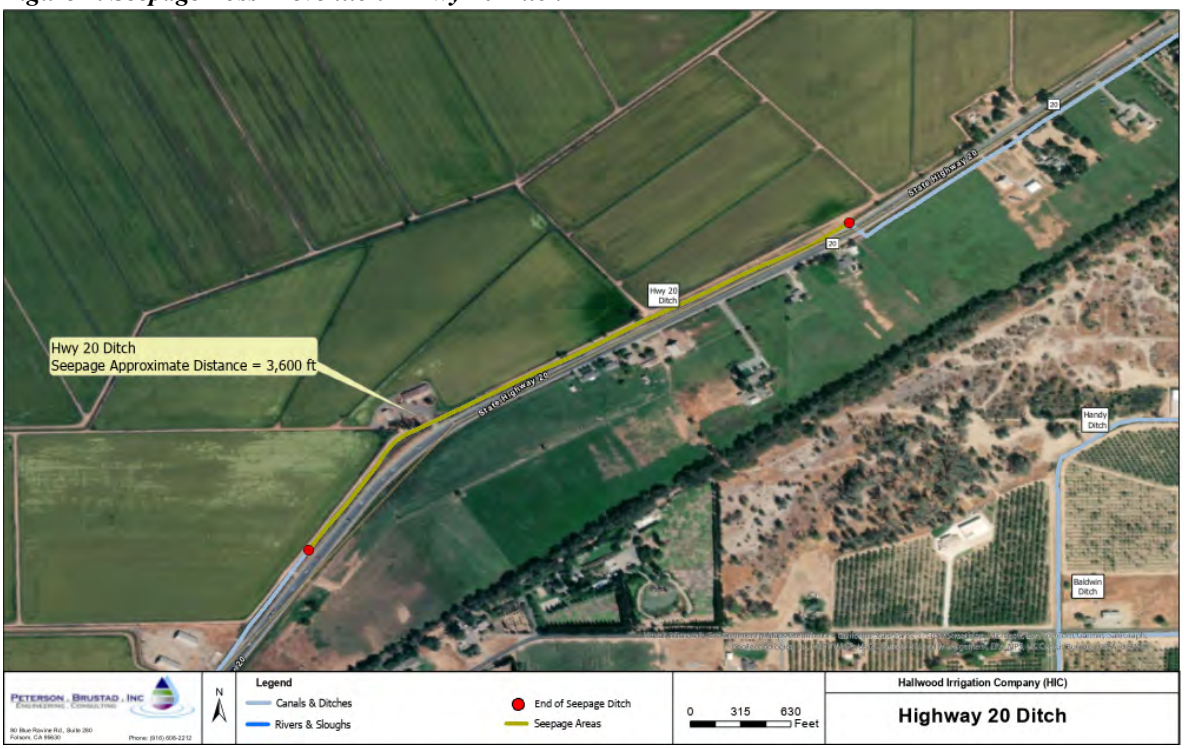
This application to the WaterSmart Water and Energy Grant Program for the project, "Seepage Loss Prevention – Highway 20 Ditch," is submitted by the Hallwood Irrigation Company (HIC). HIC serves the community of Hallwood, located in unincorporated Yuba County, California. HIC is an eligible Category A applicant for as a tax-exempt non-profit corporation providing irrigation water to approximately 9,200 acres of farmland in California's Central Valley of the Yuba River. The Seepage Loss Prevention – Highway 20 Ditch Project is intended to eliminate historical seepage losses that will directly benefit the communities and customers that rely on HIC for Irrigation Water. The identified portion of the Highway 20 Ditch is approximately 3,600 feet in length, earthen-lined and experiences excessive seepage losses. Field measurements were performed and estimated the annual seepage losses to be approximately 2,700 ac-ft/year. The proposed project, will install either a Geosynthetic Cementitious Composite Mat (GCCM) Lining or a geomembrane liner with shotcrete along the identified portion of the existing Highway 20 Ditch that runs parallel to California State Highway 20. An alternatives analysis was performed and it was recommended to use either a geomembrane liner with shotcrete layered on top, or a Geosynthetic Cementitious Composite Mat (GCCM) Lining. The benefits of lining the ditch include eliminating water loss, improving water quality, and increasing the reliability of the system. These benefits will be realized in an area that experiences severe drought, highly variable wet weather seasons, and has been designated as a Medium Priority for Groundwater Sustainability Planning. The proposed project has been approved for 50% cost-share funding ($613,700) from Yuba Water Agency (see attached funding agreement). The project duration is less than one (1) year. Final design is expected to be initiated in July 2024 during the URBS pre-award phase, and construction is expected to be completed by April 30, 2025. The Seepage Loss Prevention – Highway 20 Ditch Project is not located on a Federal Facility.

2. Project Location

The Seepage Loss Prevention – Highway 20 Ditch project is located in Yuba County, California approximately 9.2 miles northeast of the City of Marysville. The project runs approximately from 39.194999° N, 121.528475° W to 39.189050° N, 121.537982° W. The project location is shown in Figure 1 and Figure 2.

Figure 1. Seepage Loss Prevention – Highway 20 Ditch – Vicinity Map

Figure 2. Seepage Loss Prevention – Hwy 20 Ditch



3. Technical Project Description

In 2022, HIC received a Community Impact Grant from Yuba Water Agency (Yuba Water) to complete a System Renovation Plan. The first phase of the Renovation Plan included the development of an irrigation system condition assessment, which Peterson Brustad, Inc (PBI) completed in December 2022. The condition assessment resulted in the identification and prioritization of several needed improvements. The project proposed in this application, the Seepage Loss Prevention – Highway 20 Ditch Project, was identified as the 5th highest priority out of the 12 improvement projects recommended. The 1st, 2nd, and 3rd priority projects are proposed in separate applications; the 4th priority project was placed on hold.

The proposed project consists of lining approximately 3,600 linear feet of the existing Highway 20 Ditch. PBI performed an alternatives analysis and recommended using either a geomembrane liner with shotcrete layered on top, or a Geosynthetic Cementitious Composite Mat (GCCM) Lining. It is recommended to bid the project for both GCCM and geomembrane to keep the bidding results competitive and provide the most cost effective solution.

A GCCM lining consists of a geotextile fabric layer, a dry concrete mix with reinforcing fibers in the center, and a waterproof PVC layer on the bottom. This liner is delivered in rolls and can be rolled out in the ditch and anchored in place. The GCCM lining is then hydrated after it is installed which creates a reinforced concrete layer after 24 hours. A geomembrane liner would be installed in a similar manner to the GCCM lining by rolling the lining along the exposed ditch banks to create an impervious layer and then covered with 3" shotcrete to provide protection from ultraviolet (UV) radiation. Both alternatives will effectively eliminate seepage losses and increase water conservation.

4. Evaluation Criteria

A. Evaluation Criterion A – Quantifiable Water Savings

1. Describe the amount of es mated water savings.

The estimated amount of water expected to be conserved through the Seepage Loss Prevention Project – Highway 20 Ditch (based on field measurements) is 2,700 ac-ft/yr. This volume represents 28% of the ditch's total flow.

2. Describe current losses.

Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:
Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

Current water losses on the Hwy 20 Ditch are seeping into the ground. HIC staff have observed lost water surfacing in adjacent agricultural fields when the fields are drained for harvesting, which is undesirable as it complicates harvesting operations.

If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?

There is no known current use for the water loss that will be conserved. All water loss in the unlined canal seeps into the ground and becomes unusable.

Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?

There are no known benefits associated with the current losses. Neither PBI nor HIC have observed fish or animal species benefiting from water losses.

3. *Describe the support/documentation of the estimated water savings.*

Water savings were estimated from field test results. HIC estimates that the water savings as a result of this project will be equal to the current water loss, which is estimated to be 2,700 ac-ft/yr. Please see below for detailed calculations and methodology for determining the current water loss and estimated water savings.

4. *Please address the following questions according to the type of infrastructure improvement you are proposing for funding.*
    a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

HIC expects that the amount of water saved through the lining of the canal will equal the amount of water currently being lost through the ditch. The amount of water lost to seepage has been estimated by field measurements.

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

In conjunction with Yuba Water, PBI measured the flow in upstream and downstream locations in two segments of the Highway 20 ditch in December of 2023. PBI and Yuba Water staff collected flow measurements at the two locations using Yuba Water's FlowTracker2 instrument. The FlowTracker2 is a handheld acoustic doppler velocimeter (ADV) that uses acoustic technology to measure flow velocity at each measurement point. Following industry standards, the ADV probe was placed at 60% of the water depth. Measurements were taken at intervals of

0.5 feet across the width of the ditch. At each measurement point, the instrument takes 80 velocity measurements and reports an average velocity for the point. Measurements were taken in accordance with USGS standards, with an uncertainty of less than 5%.
Table 1 shows a summary of the Hwy 20 Ditch flow data that was collected. The measured flow at Hwy 20 upstream was 8.1 cfs while the measured flow downstream was 5.8 cfs. Since all diversions between measuring points were closed at the time of testing, all the decrease in flow between the upstream and downstream locations was attributed to seepage. As shown in Table 1, the seepage loss was calculated by taking the difference between the Hwy 20 Ditch upstream and downstream flows:

Seepage Loss = Upstream Flow – Downstream Flow = 8.1 cfs – 5.8 cfs = 2.3 cfs

Using this information, percent loss due to seepage was calculated to be roughly 28%:
Percent Loss (%) = (Seepage Loss/Upstream Flow) X 100 = (2.3 cfs/8.1 cfs) X 100 = 28 %

Though the actual flows vary with daily operations and seasonal demands, the proportion of water lost due to seepage is expected to remain relatively consistent. With the estimated annual flow of 9,700 acre-feet per year (based on information from field staff and the available SCADA data), and a measured seepage loss rate of 28%, the Highway 20 Ditch is losing approximately2,700 acre-feet per year due to seepage:

Total Loss Due to Seepage per Year = Percent Loss X Total Flow per Year
= 0.28 x 9,700 ac-ft/year ≈ 2,700 ac-ft/year

Table 1. Summary of Flow Monitoring for Highway 20 Ditch

Highway 20 Measurement Location	Measured Flow (cfs)	% Change
1: Project Segment Upstream	8.1	
2: Project Segment Downstream	5.8	
Entire Project Segment		*28%*

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

Post-project seepage losses are expected to be minimal. The recommended liners for this project are either geomembrane liner with shotcrete, or geosynthetic cementitious composite mat (GCCM) lining. Data from a USBR post construction ponding tests on a Naches Selah Irrigation District lining project demonstrated that the geomembrane liner with shotcrete had a long-term effectiveness of 95%. Similarly, GCCM provides an impervious layer to eliminate water loss due to seepage.

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

The annual transit loss reduction is expected to be approximately 4,030 acre-feet per mile for the overall project:

2,700 acre-feet loss reduction/0.67 miles of ditch = 4,030 acre-feet per mile

e. How will actual canal loss seepage reductions be verified?

Actual seepage reductions will be verified by field measurements of the volumetric flow rate upstream and downstream of the lined ditch. These measurements will be taken using the same technology and procedures used to measure seepage losses.

f. Include a detailed description of the materials being used.

The Seepage Loss Prevention Project will be bid for both geomembrane and GCCM. A geomembrane liner would be laid across the exposed surface of the ditch and provide an impervious layer. Shotcrete would then be poured over the geomembrane liner to protect the geomembrane from ultraviolet (UV) radiation, which would otherwise jeopardize the integrity of the liner. Figure 3 provides a schematic of the geomembrane liner with shotcrete.

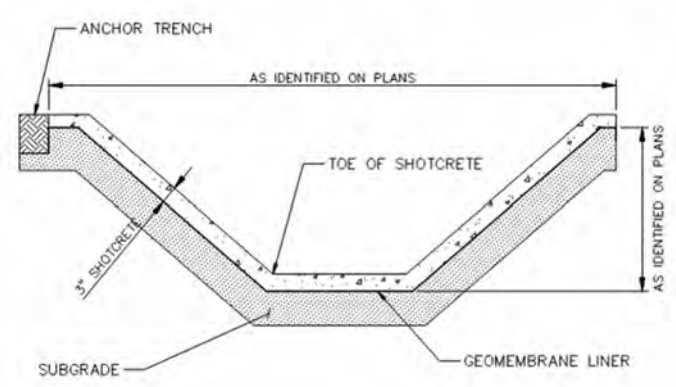


Figure 3. Geomembrane Liner with Shotcrete Schematic

A geotextile would be placed on top of the exposed surface of the ditch with a laminated geomembrane on top. The geomembrane liner can be installed by a manufacturer, such as Western Environmental Liners, or prefabricated by the manufacturer and installed using local labor. The prefabricated geomembrane, which includes the geotextile and laminated geomembrane, would be provided on rolls that best fit the shape of the irrigation system, and unrolled on one side of the ditch. The width of the prefabricated roll will vary based on the manufacturer and irrigation system dimensions. The geomembrane would then be pulled across the width of the ditch and accordion-folded at the seams. The seams would be welded together using a hot wedge welder.

Unreinforced shotcrete would then be applied over the laminated geomembrane and would adhere to the fibers of the geomembrane. The geotextile would be held in place by the weight

being applied by the geomembrane and shotcrete. An anchor trenches will be installed along the north bank to secure the geomembrane liner.

A GCCM liner consists of a geotextile fabric top layer, a dry concrete mix with reinforcing fibers in the center, and a waterproof PVC layer on the bottom. Figure 4 provides a schematic of the GCCM layering.

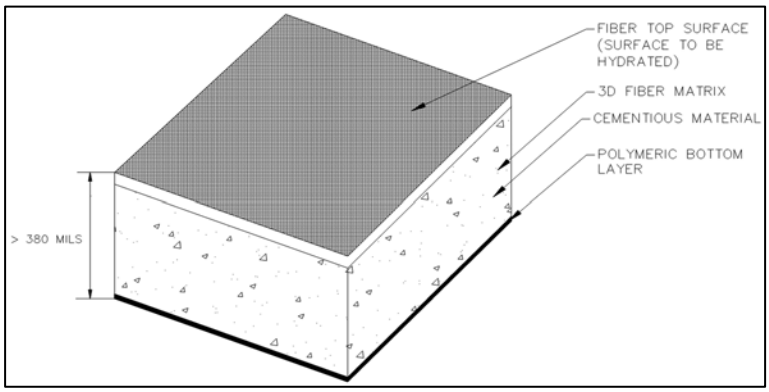


Figure 4. Schematic of GCCM Cross Section

The GCCM liner would be placed in a similar fashion to the geomembrane liner, covering the entirety of the channel as well as a foot past the top of each bank.

Once the GCCM has been laid, the sections of overlap are seamed together using one of three methods: 1) screwed overlap joints, 2) screwed and sealed overlap joints, or 3) thermal bonding. It is recommended to seam overlap using thermal bonding, which can be achieved by using an automated hot-air welder or hand-held heat gun. Screws may also be installed for weed growth suppression and to prevent edge curling when there are high temperature drying conditions. Screws help hold the GCCM in place once the curing process has finished. See Figure 5 provides a cross-section of the GCCM-lined ditch.

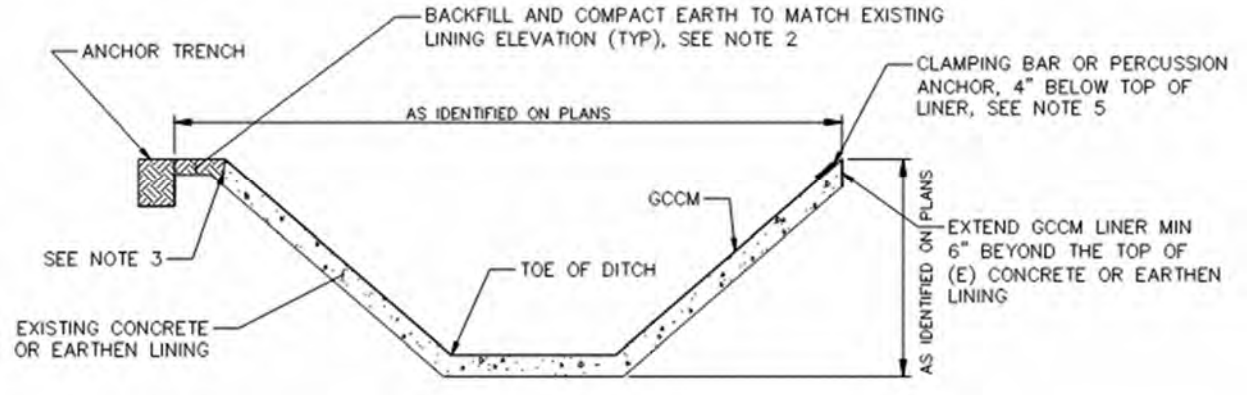


Figure 5. Cross Section of GCCM-lined Ditch

After installation, the GCCM liner must be hydrated. Water may be sent through the lined section to fully hydrate the GCCM and create a reinforced concrete layer after 24 hours. The more

hydrated the GCCM lining is during initial installation, the stronger it becomes following the initial curing process.

B. Evaluation Criterion B – Renewable Energy

This project does not include a renewable energy component.

B.2: Increasing Energy Efficiencies in Water management

If quantifiable energy savings are expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.

Customers within the HIC service area, supplement their water consumption by pumping from groundwater wells to make up for surface water lost due to seepage. To estimate the approximate energy savings, it is assumed that any loss of water due to seepage is pumped from local wells. The expected water savings will equal the current water loss, which is estimated to be 2,700 ac-ft/yr. The average depth to water in the area from September 2022 through October 2023 was approximately 29 ft. This information was taken from the California Department of Water Resources (DWR) Groundwater Live portal. The well used as reference was Well No. 391917N1215111W00. This well belongs to Yuba Water and is located about 2 miles from the project location. According to a 2007 Yuba Water document for the Proposed Lower Yuba River Accord, well surveys for Yuba County indicate the range of pump efficiencies to be between 58.5% and 71.5%. The power savings based on water savings is estimated to be between 112,139 and 137,058 kWh (See Table 2).

Table 2: Estimated Water Savings

Volume (V-Acre feet)	Lift (H - Feet)	Assumed Efficiency (E)	Power (kWh) (kWh = 1.024*V*H/E)
2,700	29	58.5%	137,058
2,700	29	71.5%	112,139

The estimated average commercial energy rate from energy providers in Yuba County is approximately $0.27/Kwh. The energy savings will range from $30,277 to $37,006 per year. See calculations below:

Table 3: Estimated Energy Savings

Assumed Efficiency	Energy Savings from Seepage Reduction (kWh)	Current Energy Rate ($/kWh)	Annual Energy Savings ($)
58.5%	137,058	0.27	$ 37,006
71.5%	112,139	0.27	$ 30,277

This project will also contribute to emission reduction by eliminating the need for maintenance fires along the ditch banks. Currently, HIC staff burn the ditch banks for maintenance once per year. This results in a savings of roughly 5 to 9 gallons of propane per year used to burn the ditch

banks. Additionally, pesticides and other chemicals used to treat the ditches will not be applied, reducing the amount of chemicals released into the environment.

How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions?

Water savings resulting from the lining of the Hwy 20 Ditch will limit the well operations in the area. Decreasing the use of wells to supplement surface water shortages also decreases the demands on the electrical grid and air emissions related to energy creation.
In addition, current ditch maintenance procedures include burning the banks of the ditch to clear the area of sediment, vegetation, and other debris that conflicts with the water flow. The maintenance fires release carbon dioxide emissions and other greenhouse gases that contribute to climate change.

If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps currently being used. How would the proposed project impact the current pumping requirements and energy usage?

During dry seasons, farmers within the Hallwood Irrigation Company supplement their water needs by pumping groundwater. The existing pumping equipment includes groundwater supply wells equipped with vertical turbine pumps. Groundwater pumping may be reduced or eliminated due to the water savings resulting from this project. The estimated power savings due to seepage reductions is estimated to be between 112,139 and 137,058 kWh. This was based on pump efficiencies ranging from 58.5% to 71.5%.

Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.

The energy savings estimates are not associated with HIC's point of diversion and are based upon an alternate site of origin associated with the groundwater supply wells. The groundwater supply wells outlined above are specific to the service area of the Seepage Loss Prevention: Highway 20 Ditch Project.

Does the calculation include any energy required to treat the water, if applicable?

Not Applicable

Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.

Lining the Hwy 20 Ditch will decrease the level of effort required from HIC staff to maintain the ditch in working conditions. Ditch tenders are required to make trips to the site to assess and manage vegetation growth associated with the earthen lined ditch. Annual maintenance includes utilizing an excavator to clean the ditch of vegetation growth. Lining the ditch will eliminate vegetation growth and eliminate the need for routine site visits to monitor vegetation growth and will eliminate the need for annual maintenance to remove the vegetation growth. The

elimination of vegetation growth and associated site visits and annual maintenance activities will drastically reduce greenhouse gas emissions.

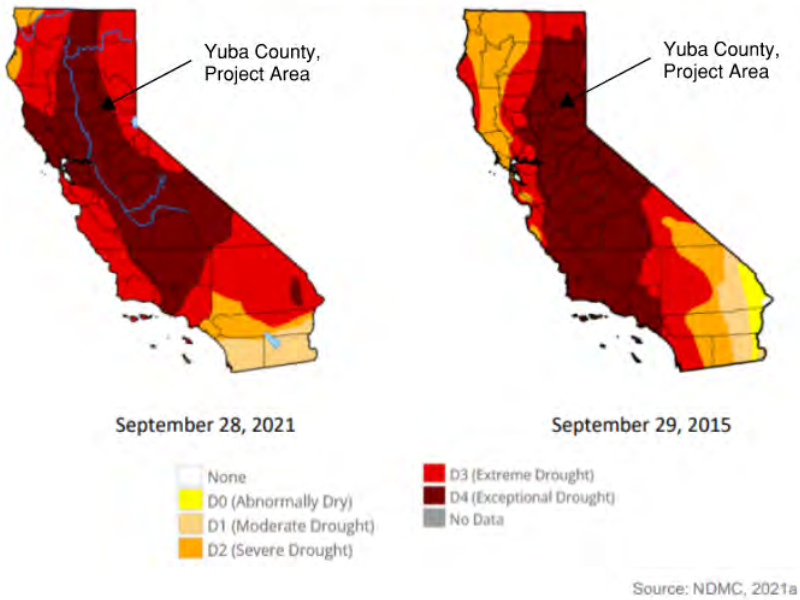
Describe any renewable energy components that will result in minimal energy savings/production

Not Applicable

C. Evaluation Criterion C – Other Project Benefits

Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:
Describe recent, existing, or potential drought or water scarcity conditions in the project area.
A significant portion of California experienced severe drought conditions during the 5-year period from 2012 to 2016. Most recently, a large portion of California experienced similar drought conditions during the 2021 water year. According to a report produced by the California Office of Environmental Health Hazard Assessment, in September 2021, 88 percent of California experienced extreme to exceptional drought. As shown in Figure 6, the project area (Yuba County) was categorized as experiencing "Exceptional Drought" during both of the most recent drought events. At the start of the 2023 water year, California was still experiencing drought conditions.

Figure 6: Drought Intensity in California
Comparison of conditions at the end of the Water Year, 2021 vs. 2015



Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?

The Seepage Loss Prevention: Highway 20 Ditch Project is in an area that has recently experienced severe drought conditions. As illustrated above, Yuba County experienced conditions classified as D4 (Exceptional Drought) in recent years.

Diversions are restricted during periods of drought causing a deficit in the supply to the HIC customers. During these dry periods, farmers must pump groundwater to fulfill their irrigation water supply needs. Recent curtailment periods occurred in 2021 and 2022. Information provided by Yuba Water for the 2022 period of curtailment shows that Hallwood's ability to divert water from Yuba River under their water rights was limited.

Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate informed analysis, if available)

Currently, there are no indications of continued drought conditions in the project area within the near future.

Explain and provide detail of specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service. Please describe how the project will directly address the concern(s) stated above.

This project addresses pollution concerns by eliminating the need for maintenance chemicals released into the ditch bank for weed control, and maintenance fires along the length of the ditch. This project will also help reduce air emissions from energy creation by reducing the need for groundwater pumping when water supply is short.

Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

This project will maintain and enhance a reliable groundwater supply for users within the North Yuba and South Yuba subbasins through the effective management of conjunctive water use. By increasing the efficiency of surface water use, through the reduction of seepage losses, the project maximizes the benefits of limited surface water supplies and reduces the demand on groundwater basins. Such water savings will allow for continued avoidance of "deficit pumping." Furthermore, the water savings from the project will improve water supply conditions that allow Yuba Subbasin water suppliers to implement their groundwater substitution transfer program, which provides benefits during dry years to water suppliers throughout the state under Yuba County's Groundwater Sustainability Plan. This ensures that the project will maintain and enhance the benefits for Yuba County by maintaining mutually beneficial relationships with existing Yuba Accord (a multi-agency settlement agreement that provides benefits for fish and wildlife purposes, and water supply reliability for irrigation, hydropower generation and recreation) transfer buyers.

Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortage that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

The water that is conserved is equal to the current losses due to seepage in the Hwy 20 Ditch of 2,700 ac-ft/year. Lining the length of the ditch will enable the water to stay in the system and be delivered to the HIC customers within the service area. When more water stays in the system, less ground water pumping and water diversion from the Yuba river is required to sustain the operations. As mentioned above, water savings from the project would allow Yuba Subbasin water suppliers to implement their groundwater substitution transfer program during dry years.

Will the project assist States and water users in complying with the interstate compacts?

Not applicable for this project

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

Historically, Yuba River has been the subject of water-related tension between environmentalists and fish organizations and the Yuba Water. The main subject of the controversy was establishing instream flow schedules to provide adequate flows to both sustain the fish population in the rivers and allow Yuba Water to operate the New Bullards Dam and reservoir to meet local water demands and transfer water to other areas of California. The conflict over these issues led to a series of lawsuits and resulted in a multi-agency settlement agreement that provides benefits for fish and wildlife purposes, and water supply reliability for irrigation, hydropower generation and recreation. This settlement is known as the Yuba River Accord. HIC has been a substantial partner in the Yuba River Accord.

This project supports the tension-reducing goals of the Yuba Accord by improving water supply conditions that allow Yuba Water and the other environmental agencies to meet their flow and water demand goals. This ensures that the project will maintain and enhance the benefits for Yuba County by maintaining mutually beneficial relationships with existing Yuba Accord transfer buyers and participating agencies.

Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to recovery plan or conservation plan under the Endangered Species Act (ESA).

The Yuba River is home to both steelhead trout and spring-run Chinook salmon. Spring-run Chinook salmon is designated as a threatened species under both the federal Endangered Species Act (ESA), and the California ESA (CESA). Steelhead trout is considered a threatened species under the federal ESA. The Yuba Integrated Regional Water Management Plan (IRWMP)—a water-focused planning document and process that involves all water purveyors and many other entities within Yuba County—states that changes or reductions to the flow of the stream can cause dewatering of salmonid redds and stranding of fry and juvenile fish. To protect the salmon and steelhead trout habitat, the Lower Yuba Accord manages the stream flows. Minimizing the water supply losses and operational inefficiencies provides an opportunity to divert less surface

water from the Yuba River and keep more consistent and predictable flows in the system, which will benefit the habitat for these species.

Will the water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g. maintaining water temperatures or water levels, recreational benefits, etc.)

This project will allow the water savings of 2,700 ac-ft/year to stay in the system throughout the 10-months period of running water in the HIC system. As a result, the water flowing through the project area will continue to flow downstream instead of being lost due to seepage, which provide more water availability for the farmers in HIC's service area. This improvement will increase the efficiency and reliability of HIC's water supply. As stated above, minimizing water loss also provides the opportunity to divert less surface water from the Yuba River allowing more water to remain in the river and thereby providing recreational and environmental benefits downstream of the diversion.

Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?

As stated above, the Yuba River is home to both steelhead trout and spring-run Chinook salmon. Both species are listed as endangered species. The proposed Seepage Loss Prevention: Highway 20 Ditch Project will help improve the status of these species by providing water savings that could allow HIC to reduce the amount of water that is diverted from their native habitat, the Yuba River. However, there is no formal agreement or guarantee in place to ensure that the water will remain in the river or that diversions will be reduced.

Please describe any other ecosystem benefits as a direct result of the project.

Lining the Hwy 20 Ditch will reduce and potentially eliminate the need for herbicides to maintain the ditch bank. Lining the ditch would reduce the number of chemicals that are added to the environment and reduce the exposure of these chemicals to local animals, fish, birds, insects, and humans. Additionally, lining the ditch would eliminate the need to burn the ditch banks for maintenance purposes, reducing the harmful emissions released into the environment.

Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience.

This project will contribute to water conservation and resiliency by improving efficiency of water distribution and delivery by minimizing surface water losses due to seepage. Increasing the efficiency of surface water use maximizes the benefits of limited surface water supplies and reduces the demand on groundwater basins. The project will improve water conservation by providing recharge benefits and decreasing demand on groundwater basins.

This project improves the water supply and management by minimizing excess diversions. By eliminating seepage losses, this project allows less water to be diverted from the Yuba River,

thereby increasing the water supply available within the river. System reliability will be enhanced with this project by better protecting the water delivery system.

Does the project seek to improve ecological resiliency to climate change?

Yes, the project seeks to provide water savings that will help offset the effects of climate change. The Yuba IRWMP has identified a list of climate change impacts in the Yuba County Region. These impacts include reduced streamflow and water supply, reduced water quality, increased flooding, infrastructure failure during winter peak flows, increased wildfire potential, and effects on the region's recreation industries from lower summer flows. The proposed project will help offset the effects of climate change by aiding in water conservation through eliminating water loss due to seepage along Highway 20. The water that is conserved because of this project will stay in the system longer, potentially reducing the amount of water that needs to be diverted from the Yuba River.

Does the proposed project seek to reduce or mitigate the climate pollutions such as air or water pollution?

Yes, lining the Hwy 20 Ditch with a non-permeable liner will help to reduce both air pollution in the project area. As previously mentioned, part of the maintenance procedures for HIC-operated ditches include burning the ditch banks. This releases emissions that can be harmful to the environment. Lining the ditch eliminates the need for these routine fires, reducing the amount of air pollution being added. Similarly, less maintenance visits will be required for new liner, reducing the pollution produced by vehicles driving to and from the maintenance sites.

Does the proposed project include green or sustainable infrastructure to improve community climate resilience?

Not applicable for this project

Does the proposed project contribute to climate change resiliency in other ways not described above?

Not applicable for this project

D. Evaluation Criterion D – Disadvantaged Communities, Insular Areas, and Tribal Benefits

D.1. Disadvantaged Communities

If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?

According to the Climate and Economic Justice Screening tool, Marysville, California, is identified as a disadvantaged group. Marysville is in the 99th percentile for expected economic loss to agricultural value resulting from natural hazards each year, the 91st percentile for

projected flood risk, the 95th percentile for the level of inhalable particles 2.5 mm or smaller, and the 95th percentile for projected wildfire risk. Marysville also falls in the 77th percentile for low income, where income is less than or equal to twice the federal poverty level.
The State of California defines a Disadvantaged Community (DAC) as a community with an annual median household income (MHI) less than 80% of the statewide annual MHI. Based on the 2010 census, six communities in the project area were identified as DACs.

The proposed project will provide economic opportunities in the construction sector, services sector, and agricultural sector. The more reliable delivery of water to the irrigators within HIC's system will increase economic opportunities in the area. This project will also increase water delivery system efficiency by minimizing water. The avoided water loss from the project will create additional economic opportunities for Yuba Subbasin water suppliers by allowing more participation in the previously described groundwater substitution transfer program. This project will produce and sustain good-paying jobs in the community for years to come.

D.2. Tribal Benefits

Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe? Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety through water quality improvements, new water supplies, increased renewable energy, or economic growth opportunities? Does the proposed project support Reclamation's Tribal trust responsibilities or a Reclamation activity with a Tribe?

Improving the efficiency of the whole system by lining the Hwy 20 Ditch will benefit the local tribes by providing water savings that will help reduce demands on ground water through deficit pumping, thereby improving the conditions in the Basin from which the tribal communities draw their water supply.

Does the proposed project support Tribal led conservation and restoration priorities, and/or incorporate or benefit indigenous traditional knowledge and practices?

No, this project is not applicable to Tribal-led conservation and restoration and will not incorporate indigenous traditional knowledge and practices.

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

USBR funding approval for the proposed project will provide new opportunities for HIC's customers to enhance on-farm water use efficiency. PBI has coordinated with the NRCS Yuba/Sutter Service Center to inform them of the proposed project and seek opportunities for complementing on-farm improvements. The sole use of HIC's water deliveries is for agricultural irrigation, so improvements in water efficiency support the on-farm conservation objectives of NRCS. The NCRS staff provided PBI with the Environmental Quality Incentives Program WaterSMART Initiative (EQIP-WSI) application with the instruction to complete it after receiving WaterSMART funding from USBR. As part of an NRCS focus area in California, the

project would be eligible to participate in EQIP-WSI to support water conservation among farmers in the community of Hallwood.

F. Evaluation Criterion F – Readiness to Proceed

The 90% design for this project submitted along with this application. 100% design efforts will begin upon receipt of notice of award.

Identify and provide a summary description of the major tasks necessary to complete the project.

Task 1: Project Administration

Prepare reports detailing work completed during reporting period for inclusion in Quarterly Progress Reports. Monthly invoices will be accompanied with Monthly Progress Reports summarizing services provided by task including any backup documentation.

Milestones/Deliverables: Quarterly Progress Reports and Invoices

Task 2: Environmental Permitting

Prepare the appropriate CEQA documentation and file the document(s) with the County Clerk's Office and State Clearinghouse as required. Prepare and submit a Categorical Exemption. Complete the required CEQA documentation. Prepare the appropriate NEPA supporting documentation and provide it to USBR.

Milestones/Deliverables:

- CEQA documentation (Categorical Exemption)
- NEPA supporting documentation (USBR to obtain Categorical Exclusion or Environmental Assessment/Finding of No Significant Impact)

Task 3: Final Design

Develop the 100% design plans and specifications in accordance with requirements for public bidding for construction.

Milestones/Deliverables: 100% design plans and specifications

Task 4: Contract Services

Develop all necessary pre-bid and bid documents to secure a contractor. Award the contract and submit the Notice of Award followed by the Notice to Proceed.

Milestones/Deliverables:

- Proof of bid advertisement & bid documentation
- Notice of Award & Notice to Proceed

Task 5: Construction Administration

Photo-document pre-construction conditions and daily construction activities. Prepare any change orders, address contractor's onsite questions, review/update construction schedule, review contractor submittals and pay requests, and notify contractor if work is not acceptable. Finalize record drawings and submit the as-built drawings.

Milestones/Deliverables:

- Photo-documentation of pre-, during, and post-construction activities included

within the appropriate Quarterly Progress Reports
- As-built drawings

Task 6: Construction

Construct project per the final design plans and specifications and as outlined in the awarded contract. Conduct an inspection of the completed project by a licensed professional and submit a Certification of Completion letter from the licensed professional to ensure that the component was constructed per the 100% design plans and specifications. Construction will consist of the following:

1) Mobilization and De-mobilization: Setting up and cleaning up required construction equipment and materials at various locations of work.
2) Site Preparation: This task will include excavation, grading, and erosion best management measures, as needed.
3) Liner Installation: The chosen liner will be installed per industry standard and manufacturer specifications.

Milestones/Deliverables: Certification of Completion

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

CEQA and NEPA permitting will be required for the completion of this project. These will be acquired per "Task 2" cited above. Appropriate CEQA documentation will be prepared and filed with the County Clerk's Office and State Clearinghouse as required. Categorical Exemption will be prepared and submitted. Required CEQA documentation will be prepared. Appropriate NEPA supporting documentation will be prepared and provided to USBR.

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

Design work of the Seepage Loss Prevention: Highway 20 Ditch Project has been performed by PBI in collaboration with HIC. PBI has developed both 60% and 90% level design documents in support of the application. The design was taken to the 90% level to improve the project's readiness to proceed to construction following award. The 90% design documents are provided to support this application. 100% plans and specifications will be initiated in July 2024, pending notification of the funding award.

Please also include an estimated project schedule that shows that stages and duration of the proposed work, including major tasks, milestones, and dates. Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?

Table 4: Estimated Project Schedule

	2024								2025			
Task	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Task 1 - Project Administration												
Task 2 - Environmental Permitting												
Task 3 - Final Design												
Task 4 - Contract Services												
Task 5 - Construction Administration												
Task 6 - Construction												

PBI has coordinated with the local Reclamation office (Interior Region 10) to discuss the potential environmental and cultural resource compliance requirements on behalf of HIC. In September 2023, PBI met with staff from the local Reclamation office, including environmental and cultural resources specialists. Based on the project details, USBR prepared cost estimates for compliance, which were less than $20,000 to be covered by USBR. PBI's environmental sub-consultant will prepare the biological and cultural surveys and reports necessary for consultation with the US Fish and Wildlife Service and State Historic Preservation Office, as well as provide draft NEPA documents to assist USBR in the process. PBI's team will also prepare the CEQA documents for California compliance. These costs have been included in the project budget. PBI has coordinated with our local USBR office for their environmental cost. PBI was informed that USBR will cover the cost of resource compliance up to $20,000. A separate line item will be included for the Reclamation's costs and the sub-consultant's costs.

G. Evaluation Criterion G – Collaboration

Is there widespread support for the projects? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

HIC has led collaborative relationship-building efforts within Yuba County and across the state for years. HIC has participated in Yuba County's transfer pumping program, which has provided much-needed water to drought-stricken farm and ranch lands throughout California. HIC works diligently with federal and state agencies to conserve and protect wildlife and fisheries. This project is the result of robust agency relationships and long-term collaboration between member (consisting of eight local water districts) units and Yuba Water Agency.

What is the significance of the collaboration/support?

HIC shares their diversion from the Yuba River with Cordua Irrigation District and Ramirez Water District. The proposed project will eliminate water loss due to seepage. This water provides collaboration opportunities for the beneficial use of this surface water with Cordua Irrigation District and Ramirez Water District. Minimizing water loss and increased water efficiency allows more surface water to be diverted to Cordua Irrigation District and Ramirez Water District.

Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

This project will be completed in partnership with Yuba Water Agency. If USBR grant funding is secured, the other half of required funds will come from Yuba Water Agency. The completion of this project will improve the infrastructure and water reliability of the HIC service area. Upon the completion of these improvements, Yuba Water Agency will be able to look to support other irrigation districts in need of improvements.

Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

The proposed project will provide economic opportunities in the construction sector, services sector, and agricultural sector. The economic benefit will come as the result of a more cost-effective and reliable delivery of water to the irrigators within HIC's system. This project will also increase water delivery system efficiency by minimizing water, benefiting Yuba County residents that also utilize the water within the Yuba River downstream of the diversion point. This project will produce and sustain well-paying jobs in the community for years to come.

Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

See attached letters of support.

H. Evaluation Criterion H – Nexus to Reclamation

The Hallwood Side Channel and Floodplain Restoration Project is funded by Yuba Water and the USBR California-Great Basin through the Central Valley Project Improvement Act. This restoration project seeks to improve local fish habitat in the Yuba River and reduce flood risk, and the project area is located directly downstream of HIC's diversion point. The proposed project in this application will reduce water loss adjacent to the Yuba River, which is nearby the Reclamation-funded Hallwood Side Channel and Floodplain Restoration Project.

II. Performance Measures

The current annual seepage loss for the Hwy 20 Ditch was estimated using the field measurements gathered by PBI using methods outlined on the Evaluation Criteria section of this document on page 5. Similar flow measurements will be taken upstream and downstream of the lined ditch. The results of the inflow/outflow tests after the construction will be compared to the field measurements taken during the condition assessment. At this time, the actual water savings will be determined.

III. Budget Narrative

1. Funding Plan

HIC is requesting $613,700 in federal grant funds. The funding provided by the Yuba Water Agency cost share program will be $613,700. The total project cost is $1,249,350.
In the event that federal funding is secured, Yuba Water will provide a cost share of 50% of the total cost of the project amounting to $1,277,400. HIC has received the necessary funding to support the project through 90% design, which will be provided as support documentation for this application. These preliminary costs are not shown in the budget, and are not included as part of the non-federal match.

2. Budget Proposal

Table 5: Summary of Non-Federal and Federal Funding Sources

Funding Source	Amount	Percent of Total Project Cost
Requested USBR Funding	$613,700	50%
Yuba Water Cost Share	$613,700	50%
Total	**$1,227,400**	**100%**

Table 6. Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	$613,700
Costs to be paid by the applicant	$0
Value of third-party contributions	$613,700
TOTAL PROJECT COST	**$1,227,400**

Table 7. Budget Proposal

Personnel					
Position Title	**Time (Hrs or %)**	**Rate (Hr or Salary)**	**Total Cost**	**Rate Basis**	**Comments** (as needed)
Not Applicable for this Project	0	$0	**$0**	N/A	Due to HIC's limited staff, the project will be implemented with the use of consultants and contractors.
		Total	**$0**		

Fringe Benefits				
Position Title	**Compensation**	**Quantity**	**Total Cost**	**Comments** (as needed)
Not Applicable for this Project	0	0.00	**$0**	Due to HIC's limited staff, the project will be implemented with the use of consultants and contractors.
		Total	**$0**	

Travel								
Purpose	**From/To**	**# of Days**	**# of Travelers**	**Lodging per Traveler**	**Flight per Traveler**	**Vehicle per Traveler**	**Per Diem per**	**Basis for Estimate**
Not Applicable Project	N/A	0	0	$0	$0	$0	$0	No travel
							Total	

Equipment					
Equipment Item	**Quantity**	**Unit Cost**	**Total Cost**	**Basis of Cost**	**Purpose**
No Equipment Needed			**$0**	**N/A**	**N/A**

Supplies					
Supply Item	**Quantity**	**Unit Cost**	**Total Cost**	**Basis of Cost**	**Purpose**
No Equipment Needed					
		Total	**$0**		

Contractual: Subawards				
Subrecipient Name	**Description of Activites**	**Total Cost**	**Description of budgeted costs**	**Basis of Cost**
Environmental Subconsultant to Peterson Brustad Inc. (PBI)	**Provide environmental compliance services to support CEQA and NEPA permitting**	**$20,000**		
	Subtotal	**$20,000**		

Construction: Recipient-Owned Equipment Use Costs					
Equipment Item	**Hours**	**Rate**	**Total Cost**	**Basis of Cost**	**Purpose**
No Recipient-Owned Equipment Use Costs					
		Subtotal	**$0**		

Construction: Materials					
Item	**Quantity**	**Unit Cost**	**Total Cost**	**Basis of Cost**	**Comments** (as needed)
Ditch Liner	3580	$192	**$687,360**	Quote Received from Vendor	Cost is per Linear Foot
Anchor Trench	3580	$23	**$82,340**	Quote Received from Vendor	Cost is per Linear Foot
		Subtotal	**$769,700**		

Table 7. Budget Proposal

Construction: Contractual					
Contractor Name	**Description of Services**		**Total Cost**	**Description of cost estimate**	**Basis of Cost**
Peterson Brustad Inc.	Engineering consultant design, construction management, grant administration		**$145,000**	See attached estimate prepared by PBI	Quoted amount based on PBI 2024 rate schedule
TBD (based on public bid)	Construction contractor mobilization/demobilization, worker safety/shoring, erosion control measures		**$55,505**		Standard percentage of construction costs
TBD (based on public bid)	Construction contractor labor including private property restoration, removal of existing concrete liner, reshaping/compaction of ditch		**$98,650**		R.S. Means
		Subtotal	**$299,155**		
Other Direct Costs					
Item Description	**Quantity**	**Unit Cost**	**Total Cost**	**Basis of Cost**	**Purpose**
Contingency	15%	$923,855	**$138,578**	90% Design	Contingency applied to construction-related costs and equipment not including PBI services
		Total	**$138,578**		
j. Indirect Costs					
Rate Type	**Current Federal NICRA**	**Base Description**		**Base Total**	**Rate** / **Total Cost**
Not Applicable for this project					**$0**
				TOTAL PROJECT COST	**$1,227,400**

3. Budget Narrative

Salaries and Wages
There are no Salaries and Wages costs associated with this project.
Fringe Benefits
There are no Fringe Benefits or costs associated with this project.

Travel
There are no travel costs associated with this project.

Equipment
There are no equipment costs associated with this project.

Materials and Supplies
There are no materials and supplies costs associated with this project.

Contractual
An environmental subconsultant to PBI will be contracted to perform environmental permitting services for this project. The subconsultants will prepare CEQA documentation and NEPA supporting documentation as required. The total estimate for the environmental costs was based on a quote received for a previous project. Based on an average hourly rate of $186, the estimated time spent on the project is 108 hours. The estimated cost breakdown by task is shown below:

Task	**Cost**	
Categorical Exemption	$	14,560
Board of Directors Staff Report	$	2,720
Board of Directors Resolution	$	2,720
Total	$	20,000

PBI will be contracted to provide engineering and administrative services, including final design and construction management services through the duration of the project. The cost estimate is based on costs to perform other similar projects. Based on an average hourly rate of $215, the estimated PBI time spent on the project is 674 hours. The estimated cost breakdown by task is shown below:

Task	**Project Budget**	
Project Administration	$	50,000
Final Design	$	30,000
Contract Services	$	15,000
Construction Administration	$	50,000
Total	$	145,000

Construction
Construction costs include mobilization/demobilization, worker protection and safety, equipment rental and operations, excavation and cleaning, and private property restoration. These will be purchased by the construction contractor and installed at the specified project locations. Costs for construction are based on received quotes and RS Means data.

Description	Unit Cost	Qty	Unit	Subtotal
Mobilization/Demobilization	$43,418	1	LS	$43,418
Worker Protection and Safety/Shoring	$6,044	1	LS	$6,044
Erosion Control Measures	$6,044	1	LS	$6,044
Private Property Restoration	$30,000	1	LS	$30,000
Removal of Existing Concrete Liner	$61,600	1	LS	$61,600
Reshaping of Ditch	$2	3580	LF	$7,050
Ditch Liner	$192	3580	LF	$687,360
Anchor Trench	$23	3580	LF	$82,340
Total				**$923,855**

Other Direct Costs
The proposed project is currently at 90% design and is subject to 15% contingency. The contingency is applied to construction and material-related costs. The total cost for contingency is $138,578. The total cost of the project, including the 15% contingency, is estimated to be $1,227,400.

Indirect Cost
There are no indirect costs associated with this project.

IV. Environmental and Cultural Resources Compliance

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

The proposed project will not have any significant impact to the surrounding environment. The diversions are downstream of the fish screen in an existing concrete structure, so it is not a habitat area. The active construction period will be short-term (not to exceed two months) and potential temporary impacts will be managed with environmental controls. The work will be conducted during the irrigation system outage when the water levels are low, and pollution control BMPs will be implemented to prevent any water quality impacts. Once constructed, the Proposed Project would not likely have any adverse long-term or operational impacts. In fact, the Proposed Project would result in approximately 2,700 ac-ft/yr of water savings which would be considered a Beneficial Environmental Impact.

• 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?

Based on State and Federal biological database searches (summary provided below), there were no critical habitats identified within the project area. Additionally, there were no known locations of Federal threatened or endangered species within the project area. The project construction activities will take place along an existing irrigation ditch that is regularly maintained, so there will not be any habitat impacts associated with the proposed project.

Table H 1
List of Federally Listed Special Status Species with Potential to Occur in the Project Area

Name	Status	Designated Critical Habitat in Project Area?	Potential to Occur	Recommendations
Birds				
Yellow-billed Cukoo *(Coccyzus americanus)*	Threatened	There is Final Habitat for this species, but Does Not Overlap with Project Study Area.	Low to Moderate	Conduct Biological Assessment and/or Pre-construction Site Surveys
Reptiles				
Giant Garter Snake *(Thamnophis gigas)*	Threatened	No Critical habitat has been designated for this Species.	Moderate	Conduct Biological Assessment and/or Pre-construction Site Surveys
Insects				
Monarch Butterfly *(Danaus plexippus)*	Candidate	No Critical habitat has been designated for this Species.	Low to Moderate	Conduct Biological Assessment and/or Pre-construction Site Surveys
Valley Elderberry Longhorn Beetle	Threatened	There is Final Critical Habitat for this species, but	Low to Moderate	Conduct Biological Assessment and/or

Table H 1 List of Federally Listed Special Status Species with Potential to Occur in the Project Area				
Name	**Status**	**Designated Critical Habitat in Project Area?**	**Potential to Occur**	**Recommendations**
(Desmocerus californicus dimorphus)		Does Not Overlap with Project Study Area.		Pre-construction Site Surveys
Crustaceans				
Conservancy Fairy Shrimp *(Branchinecta conservation)*	Endangered	There is Final Critical Habitat for this species, but Does Not Overlap with Project Study Area.	Low to Moderate	Conduct Biological Assessment and/or Pre-construction Site Surveys
Vernal Pool Fairy Shrimp *(Branchinecta lynchi)*	Threatened	There is Final Critical Habitat for this species, but Does Not Overlap with Project Study Area.	Low to Moderate	Conduct Biological Assessment and/or Pre-construction Site Surveys
Vernal Pool Tadpole Shrimp *(Lepidurus packardi)*	Endangered	There is Final Critical Habitat for this species, but Does Not Overlap with Project Study Area.	Low to Moderate	Conduct Biological Assessment and/or Pre-construction Site Surveys
Flowering Plants				
Hartweg's Golden Sunburst *(Pseudobahia bahiifolia)*	Endangered	There is Final Critical Habitat for this species, but Does Not Overlap with Project Study Area.	Low to Moderate	Conduct Biological Assessment and/or Pre-construction Site Surveys
Notes: 1) There are no known critical habitats with 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 inside the project boundaries that potentially fall under the Clean Water Act (CWA) jurisdiction as "Waters of the United States" and therefore would not have any impacts on these resources.

• When was the water delivery system constructed?

HIC was incorporated in 1910. As part of this Application, SMB performed a cultural resources database search of the North Central Information Center's archive for previously recorded cultural resources in the vicinity of the Proposed Project area(s). Based on this research, it appears that some of the diches may have been constructed as far back as the late 1860's with numerous and continuous reconstruction and repairs throughout the years. However, most, if not all, of the original ditch system has been modified and sometimes covered or entirely replaced by later reconstruction. Based on the numerous modifications throughout the years, it is unlikely that any

of these facilities would be eligible for the National Register of Historical Places (NRHP). Specifically, one (1) prehistoric isolated resource and ten (10) built environment resources have been previously recorded within and within 1/4 mile of the project areas. However, none of these resources would likely be affected by the Proposed Project and are and have been considered not eligible for the NRHP or the California Register of Historical Places. Further, the Proposed Project alignments area is on Holocene flood plains, basin floors, and stream terraces associated with the movement of the Yuba River at the eastern side of the project area locations and Jack Slough near the western side of the project area locations (USDA 2022). In the early historic era, the Region was mainly marshy wetlands associated with slow-moving waterways, sometimes bordered by sparse oak groves. Therefore, the Proposed Project and surrounding area appears to have a low sensitivity to adversely affect prehistoric resources, built environmental resources, historic resources, and/or Native American archaeological and cultural resources.

• 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 Proposed Project will not likely result in any modifications of or effects to individual features of an irrigation system or a system of importance as known by the NRHP.

• Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?

There are no known buildings, structures, or features that would likely be affected by the Project area that is eligible for listing on the NRHP.

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

There are no known archeological sites that would likely be affected by the Proposed Project. Reclamation would be required to reach out to known Native American Tribes in and around the Project Area to confirm that and complete and satisfy Section 106 process. Similarly, HIC/YWA will need to follow a similar process under California's Assembly Bill 52 (AB52) process to complete the State's AB52 requirements.

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

The Proposed Project will not have a disproportionately high and adverse effect on low income or minority populations.

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

The Proposed Project would not limit access to and ceremonial use of any known Indian sacred sites or result in other impacts on known tribal lands.

• 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?

The Proposed Project would not likely contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

V. Required Permits or Approvals

Based on a preliminary environmental review, it is expected that this project will be eligible for a Categorical Exclusion and Exemption through NEPA and CEQA, respectively. CEQA documentation will be processed through Yuba Water based on class 1 (existing facilities), 2 (replacement or reconstruction), and 4 (minor alterations to land) exemptions. The timeframe for this process is expected to be completed during the Pre-Award Phase (July 2024 – September 2024). No other permits or approvals are required.

VI. Overlap Duplication of Effort Statement

The Seepage Loss Prevention Project is part of the HIC System Renovation Plan. This project was identified as the 5th highest priority out of the 12 improvement projects recommended. HIC intends to submit a separate application for the Water SMART grant program under a different funding group for a related project including larger scope. This submission will take place on February 22, 2024. This additional application includes the 1st and 2nd priority projects as well as the Seepage Loss Prevention project proposed in this application. The WEEG awards are expected to be announced by July 2024. If the Seepage Loss Prevention Project is selected for WEEG funding under both applications, HIC will notify the WEEG coordinator immediately to decline this application.

VII. Conflict of Interest Disclosure Statement

As of the date of the submission of this application, HIC is unaware of any actual or potential conflicts of interest that exist with respect to Federal financial assistance agreements.

VIII. Uniform Audit Reporting Statement

Not applicable for this project.

IX. Certification Regarding Lobbying

See attached form

X. Disclosure of Lobbying Activities

Not applicable for this project.

XI. Letters of Support

A letter of support is included as an attachment.

XII. Letters of Partnership

Not applicable (only for Category B applicants).

XIII. Official Resolution

The executed agreement between YWA and HIC (signed by HIC's Board President) is included as an attachment. If selected, HIC will provide an official resolution from the Board of Directors.

XIV. Letters of Funding Commitment

The executed funding commitment agreement between YWA and HIC is attached.

Mike Filice
2124 Woodruff Ln
Marysville, CA 95901

US Bureau of Reclamation

Subject: Letter of Support for Hallwood Irrigation Company's Grant Application

To whom it may concern,

I am writing to express my full support for Hallwood Irrigation Company (HIC) and their application for Funding Opportunity No. R24AS00052 WaterSMART Water and Energy Efficiency Grants. Specifically, I endorse their project aimed at preventing seepage losses along the Hallwood Irrigation Companies canals and ditches, a critical initiative for our local agricultural community.

As a lifelong resident of Hallwood and an active rice and tree fruit farmer, I understand the paramount importance of efficient water management in sustaining our agricultural livelihoods and preserving our natural resources. HIC's proposal to line a 3,600 linear foot section of the existing ditch with Geosynthetic Cementitious Composite Mat (GCCM) or a geomembrane liner with shotcrete is a commendable effort to address seepage losses and enhance water conservation.

The implementation of this project will not only prevent water losses due to seepage but also contribute to overall water efficiency, benefiting both the environment and stakeholders in our local area. By conserving water resources and maximizing the effectiveness of irrigation practices, HIC's initiative aligns perfectly with the criteria outlined in the WaterSMART program, particularly in the domain of water and energy efficiency.

Furthermore, the success of this project will have far-reaching positive implications for our agricultural community, promoting sustainable water use practices and ensuring the long-term viability of our farming operations. As a farmer directly impacted by water availability and conservation efforts, I wholeheartedly endorse HIC's grant application and urge the United States Bureau of Reclamation to consider it favorably.

Thank you for your attention to this matter. Should you require any further information or clarification regarding HIC's project or its potential impact, please do not hesitate to contact me.

Sincerely,

Mike Filice

530.741.5000
info@yubawater.org
yubawater.org

YUBA WATER AGENCY

February 22, 2024

Subject: United States Bureau of Reclamation Funding Opportunity No. R24AS00052
WaterSMART Water and Energy Efficiency Grants
Hallwood Irrigation Company – Seepage Loss Prevention: Highway 20 Ditch

To Whom It May Concern:

I am pleased to provide this letter of support for Hallwood Irrigation Company (HIC) in their application for Funding Opportunity No. R24AS00052 WaterSMART Water and Energy Efficiency Grants. This project will line an approximately 3,600 linear foot section of HIC's existing ditch with Geosynthetic Cementitious Composite Mat (GCCM) or a geomembrane liner with shotcrete. Installing a new lining will improve efficiency and conservation through elimination of water losses due to seepage. By increasing the efficiency of HIC's water usage, the project improves water supply management of the Yuba River and North Yuba Subbasin.

Thank you for accepting this letter of support for the grant consideration.

Sincerely,

Kyle Morgado, PE
Water Resources Manager
Yuba Water Agency