



**WATER & POWER**  
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**LATERAL 6**  
**WATER CONTROL STRUCTURE PROJECT**

**WaterSMART: Small-Scale Water Efficiency Projects for  
FY2022  
No. R22AS00195**

***Prepared For:***

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## SECTION 1: TECHNICAL PROPOSAL AND EVALUATION CRITERIA

### *Executive Summary*

**Date:** April 28, 2022

**City:** Hilmar

**County:** Stanislaus

**State:** California

**Located on a Federal Facility:** No

**Applicant Name:** Turlock Irrigation District

**Category:** A

**Project Length of Time:** 2 months

**Estimated Completion Date:** December 31, 2023

The Lateral 6 Water Control Structure Project will modify the existing water control structure at the end of the Lateral 6 (L6) Canal at Drop 26. The existing facility is more than 80 years old and while it is fully functional, it is utilizing technology from that time period. The existing system utilizes buoyancy and a counterweight system to open a gate when water in the canal rises above a certain level. While these devices were pioneering, the gates were designed to prioritize canal water levels and irrigation service over water conservation. Due to this fact and a lack of remote monitoring or operational capability, the current system is not water efficient and therefore an outdated system. The Lateral 6 structure currently loses significant amounts of water from the canal system, which passes unused into the Turlock Irrigation District's (TID or District) Nielson Drain. The District is proposing to modernize the existing facility by installing a contemporary Rubicon Flume Gate system. Rubicon Flume Gates are mechanized overshot gates that can be remotely monitored and adjusted through the District's existing Supervisory Control and Data Acquisition (SCADA) control network, allowing the canal operator to quickly respond to changing conditions at the end of the canal. These Rubicon Gates have already been installed in other areas of the District and have been found to significantly improve water conservation and provide superior methods for managing water. Based on measured water losses through the existing structure during operation, the District anticipates that the new Rubicon facility will save at least **150 acre-feet of irrigation water per year**.

### *Project Location*

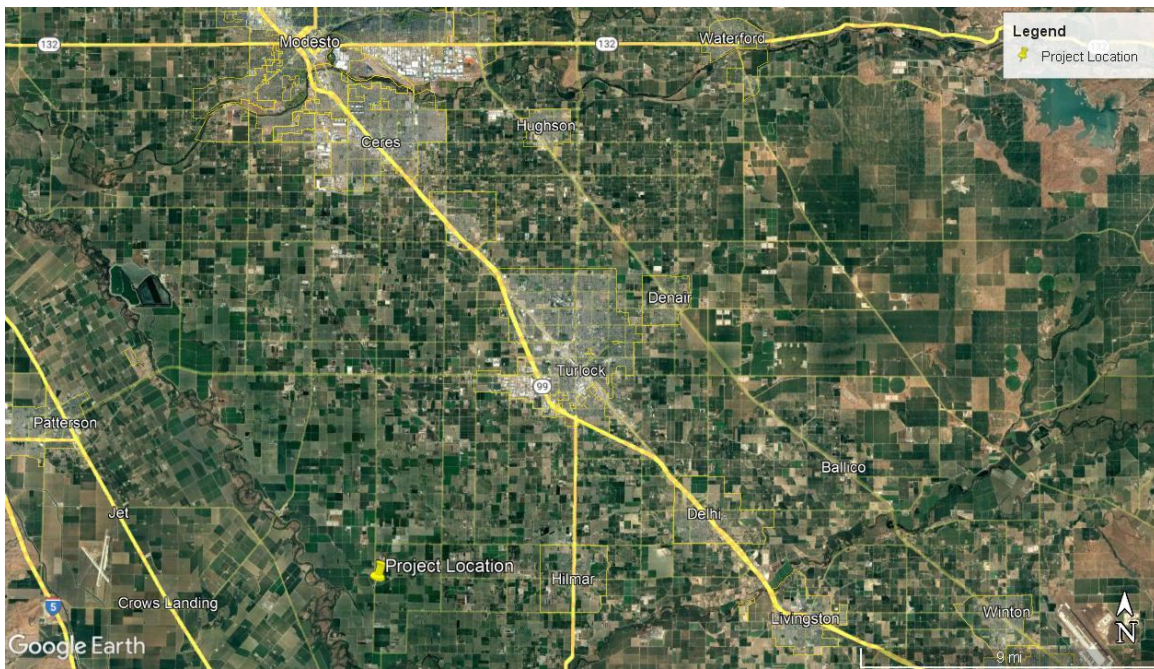
TID provides irrigation water to agricultural lands in Stanislaus and Merced counties in the Central Valley of California.

The Lateral 6 Water Control Structure Project will take place at the end of the District's Lateral 6 Canal at Drop 26; located off Central Avenue between American Avenue and Williams Avenue in Hilmar Unified, California. The Project's coordinates are 37.4004453, -120.9566464.

Figure 1. Project Location Map



Figure 2. Project Vicinity Map



### Technical Project Description

TID has utilized automated canal control structures for one hundred years or more. The existing water control structure at the end of the L6 Canal is more than 80 years old. The facility still utilizes technology from that time period in the form of wooden weir boards and a Meikle Automatic Radial Gate. Meikle Automatic Gates, a type of hydraulic automatic gate was invented and patented by a former District engineer and were once an extremely innovative



device. They utilized buoyancy and a counterweight system to open a gate when water in the canal rose above a certain level. While these devices were pioneering, the gates were designed to prioritize canal water levels and irrigation service over water conservation. Due to this fact and a lack of remote monitoring or operational capability, they have become an outdated system. The L6 structure currently loses significant amounts of water from the canal system, which passes unused into the District's Nielson Drain. The Project will modernize the existing facility by installing a contemporary Rubicon Flume Gate system. Rubicon Flume Gates are mechanized overshot gates that can be remotely monitored and adjusted through the District's existing SCADA control network, allowing the canal operator to quickly respond to changing conditions at the end of the canal.

The Project will include the construction of the following components necessary to upgrade the existing structure:

1. Reinforced concrete structure modifications: the existing structure will need to be modified to accommodate the new flume gate.
2. Rubicon Flume Gate Model FGB-2268-1587-80: The Flume Gate is a combined flow measurement and control gate designed for open canal applications. The device has flow measurement, motor control and radio telecommunications integrated into it. The Flume Gate automatically controls the flow of water by varying the gate position based on a preset-point or on irrigation demand.
3. Installation of Aluminum undershot slide gates
4. Installation of steel walkway
5. Integration of the new Gate to the SCADA system that will facilitate reporting water levels through the SCADA system to Water Distribution Operators (WDOs) on their tablets, providing real time water level and flow monitoring to support optimal operation of the system.

TID has completed the Project plans for the above-described work and will construct the project using District forces upon notice of award of this grant request.

## **Evaluation Criteria**

### **Evaluation Criterion A-Project Benefits (35 points)**

#### *Benefits to the Category A Applicant's Water Delivery System*

- *Clearly explain the anticipated water management benefits to the Category A applicant's water supply delivery system and water customers.*

TID is a category A applicant that provides irrigation water to agricultural lands in Stanislaus and Merced counties in the Central Valley of California. TID presently covers a service area of 197,261 gross acres, with 157,800 acres that can currently be irrigated with surface water. The Tuolumne River located to the north of the service area, provides the principal water supply for TID. Don Pedro Reservoir is located on the Tuolumne River and is TID's principal storage

reservoir. TID's irrigation system includes several other dams that release water into the Main Canal for distribution to downstream growers for irrigation purposes. TID's conveyance and distribution system consists of approximately 241 miles of canals. Water in the canals not utilized for irrigation purposes flows through the canals and is released into drains.

The existing water control structure at the end of the L6 Canal is more than 80 years old and still utilizes technology from that time period. Using actual observations and field measurements, the structure wastes approximately 150 acre-feet per year (AFY) of irrigation water that could otherwise remain in the canal and used when needed. The structure is also incapable of remote monitoring and control through the District's SCADA system. Implementation of the Project will modernize the current infrastructure to take advantage of the latest technology with the following benefits:

1. The Project will save 150 AFY of water in the canal system. The Western United States and California are currently in the state drought that appears to be persisting. This is occurring only a few years after the end of the 2012-2017 drought, which has seen two of the driest years on record. With the effects of climate change becoming evident, droughts are anticipated to be more intense and longer in duration. Therefore, water agencies must take all steps towards a more responsible management and use of the water resource. Projects that are relatively inexpensive and simple to implement such as the Lateral 6 Canal Water Control Structure Project are crucial to securing our water future.
2. The Project uses modern technology which allows for remote control. This remote operation will save District staff time, which can then be utilized for other water management tasks, thereby resulting in improved water efficiencies in the canal system.
3. The Project uses a low maintenance device, which saves District labor and driving time that will result in lower greenhouse gas (GHG) generation and has monetary benefits in replacement parts.
4. Aggressively increase water use efficiency
5. Improve operational efficiency
6. Increase water supply reliability
7. Practice resource stewardship: agricultural lands, aquatic life and habitat, and surface water supplies, and
8. Expand water storage capabilities

The Project is expected to continue to provide this benefit every year of its expected life.

- *Explain the significance of the anticipated water management benefits for the Category A applicant's water delivery system and customers. Consider:*
- *Are customers not currently getting their full water right at certain times of year?*

The TID's main source of water is through surface water diversions from the Tuolumne River. TID and the Modesto Irrigation District (which operates outside of the Turlock Subbasin) jointly operate the Don Pedro Reservoir on the Tuolumne River to store winter and spring runoff for

agricultural and municipal uses. The surface water available to growers within TID is based on the runoff each year coupled with its share of carry-over storage from Don Pedro.

As it currently stands, the Tuolumne River Watershed is experiencing the fourth driest two-year period on record – dating back to 1897. The watershed has only received 50.5% of average precipitation (18.22 inches) as of June 19, 2021. The 2020-2021 Water Year was the sixth driest year on record for the Tuolumne River.

In response to dry conditions, California Governor Gavin Newsom issued Emergency Drought Proclamations for all 58 counties of the state. While the state's action put the current drought into the spotlight, TID had already been taking proactive actions to preserve our water supply. The TID Board of Directors reduced the amount of water available to TID growers in 2020 from the normal 48 inches to 42 inches and then to 34 inches for the 2021 Irrigation Season. In response to its third year of being in drought, TID is now allocating approximately 60% of normal water supplies to its farmers, which started on March 29, 2022, and will continue at least until the end of the irrigation season, in October 2022. TID requires a firm water supply to meet crop irrigation demand. The primary crop grown in TID is almonds requiring a large initial investment and a reliable water supply. The second most dominant cropping group is forage crops required as a food supply to sustain dairy herds in the District. Trees, vines and dairy related acreages (i.e. corn, oats, alfalfa, etc.) combined account for over 110,000 acres of irrigated crops within TID. In addition to supplies themselves, water supply reliability is dependent upon the ability to transport the water to where it is used for irrigation. TID owns and maintains its distribution system, up to and including the sidegate, which is the customer delivery point.

This firm irrigation demand drives TID to proactively improve its water delivery system to prevent water loss. TID regularly inspects the distribution system, with an emphasis on identifying and fixing potential problems before they occur. The majority of the canal maintenance and system improvements are performed in the non-irrigation season (typically November through February) to avoid impacts to irrigation deliveries.

- *Does this project have the potential to prevent lawsuits or water calls?*

As a result of extreme drought conditions present in California and particularly along the San Joaquin River's tributaries, the State Water Resources Control Board (SWRCB) issued a curtailment order to various water agencies and water districts restricting the amount of water diverted from the Tuolumne and other San Joaquin river tributaries. This curtailment order severely impacts many water users throughout the State (from Turlock to San Francisco).

With the complex rules and regulations of water rights, lawsuits can be commonplace for some areas. Drought conditions and reduced water allocations could be a further catalyst for legal action. Therefore, projects such as the Lateral 6 Canal Water Control Structure Project that save



wasted water make it possible to preserve this water for customer's use and lessening the need for drastic water reduction measures that may trigger lawsuits.

- *What are the consequences of not making the improvement?*

Based on actual observations and measurements, the existing structure at the end of the L6 Canal wastes approximately 150 AFY of irrigation water. Therefore, not making the improvements of the Lateral 6 Canal Water Control Structure Project will result in the continuous waste of 150 acre-feet of water every year.

- *Are customer water restrictions currently required?*

The current drought conditions in the state of California have been making it necessary to implement water restrictions to varying degrees by almost every water agency. The TID Board of Directors reduced the amount of water available to TID growers in 2020 from the normal 48 inches to 42 inches. Then, for the 2021 Irrigation Season, allocations were reduced to only 34 inches of available water – nearly a 30 percent reduction from normal. In response to its third year of being in drought, TID is now allocating approximately 60% of normal water supplies to its farmers, which started on March 29, 2022, and will continue at least until the end of the irrigation season in October 2022.

- *Other significant concerns that support the need for the project.*

As discussed in TID's 2020 Agricultural Water Management Plan (AWMP), and based on the USBR publication, West-Wide Climate Risk Assessment: Irrigation Demand and Reservoir Evaporation Projections, showed crop evapotranspiration is expected to increase, due to effects of climate change, such as temperature increase and other climate factors (USBR 2015). Several strategies for agricultural water providers and other water resources entities to mitigate climate change impacts have been identified (DWR 2008, CDM 2011). The proposed project is in direct alignment with the strategies identified in Table 5.1 of AWMP to Mitigate Climate Change Impacts.

#### *Broader Benefits:*

- *Will the project improve broader water supply reliability at sub-basin or basin scale?*

TID overlies the San Joaquin Valley Basin which is identified as a High-Priority Basin by the California Department of Water Resources' Sustainable Groundwater Management Basin Prioritization Model. This means that groundwater resources are being rapidly depleted in the San Joaquin Valley Basin and irrigation districts that overlie the basin must reduce groundwater pumping to reduce subsidence that is currently threatening local aquifers.

The District serves growers and operates facilities within the Turlock subbasin from the Tuolumne River. Therefore, the water that is currently going to waste affects the District's overall operational flexibility and water reliability. The growers supplement the lack of surface

water supplies by use of local groundwater wells. The surface water savings from this project will offset the need for additional surface water diversions and will reduce groundwater pumping.

As noted in TID's 2020 AWMP (Appendix D), TID practices resource stewardship as one of many strategies to mitigate climate change impacts such as drought. TID supports stewardship of surface water and groundwater supplies, as evidenced through its comprehensive conjunctive management program, watershed monitoring programs, development of the Tuolumne River Management Plan, and active engagement in Groundwater Sustainability Plan (GSP) development for the Turlock Subbasin, among other efforts. The proposed Project in direct alignment with the listed strategies to support the goals and efficient water management practices described in the AWMP.

- *Will the proposed project increase collaboration and information sharing among water managers in the region? Please explain.*

TID holds joint water rights and ownership of Don Pedro Reservoir with the Modesto Irrigation District (MID). As such, the districts (TID and MID) continuously work together to coordinate and manage the shared resource. Additionally, TID maintains close relationships with irrigation districts on other tributaries of the San Joaquin River and, through those relationships, is able to share information regarding successes and challenges to help shape effective regional water management programs. TID works and coordinates with the City and County of San Francisco, San Joaquin Tributaries Authority (SJTA), the East San Joaquin Water Quality Coalition (ESJWQC), as well as various water committees and groups forming at the county and state levels. Each authority and association are involved in activities that relate to different aspects of TID's water management activities. Also, TID's Drought Management Plan (DMP) was developed through a collaborative process which is detailed on page G-16 of the DMP. As demonstrated by the support letters (Appendix A), the need for this Project is well recognized in the region.

The proposed Flume Gate device has integrated equipment that allows for accurate flow measurements in the canal. This is valuable information that can be shared with water managers to accurately manage current, future, and emergency water levels to limit any unnecessary water loss caused by lack of monitoring.

- *Will the proposed project positively impacts/benefit various sectors and economies within the applicable geographic area (e.g., impacts to agriculture, environment, recreation, and tourism)? Please explain.*

The TID service area climate and soils are suitable for a wide variety of crops (more than 40 different crops were grown during the 24 years from 1991 through 2014). TID provides irrigation water to agricultural lands in Stanislaus and Merced counties in the Central Valley of California. TID presently covers a service area of 197,261 gross acres, with 157,800 acres that

can currently be irrigated with surface water. Therefore, the Projects supports the critical economic sector of agriculture. The Project, along with other District water efficiency projects, serves to ensure a sustainable water future for agriculture, which an integral part of California's economy and the biggest supplier of agricultural products for the United States as a whole. According to the California Department of Food and Agriculture, over a third of the country's vegetables and two-thirds of the country's fruits and nuts are grown in California. In 2019, California agricultural exports totaled \$21.7 billion in receipts for growers.

In addition, the Tuolumne River and Turlock Lake provide an ideal setting for water-oriented outdoor activities. The recreation area features the lake with its 26 miles of shoreline and the foothill country leased from the TID in 1950. The City of Turlock Economic Development Strategic Plan states that there is no natural local attraction to draw visitors, other than the Turlock Lake. These recreational opportunities have been providing ideal destinations for visitors that has been an economic vehicle for the disadvantaged community of TID. Drought impacts on water levels and consequent management of the lake will result in reduction of recreational and tourism activities with a direct economic impact on the local community that this Project will help mitigate. Water savings from this Project is an incremental step to help keep the water at the source.

- *Will the project complement work being done in coordination with NRCS in the area (e.g., the area with a direct connection to the district's water supply)?*

TID is implementing the Lateral 6 Water Control Structure Project independently.

- *Will the project help address drought conditions at the sub-basin or basin scale? Please explain.*

As noted above, TID overlies the San Joaquin Valley Basin which is identified as a High-Priority Basin by the California Department of Water Resources' Sustainable Groundwater Management Basin Prioritization Model. This means that groundwater resources are being rapidly depleted in the San Joaquin Valley Basin and irrigation districts that overlie the basin must reduce groundwater pumping to reduce subsidence that is currently threatening local aquifers.

TID's drought resilience is further impacted by increased groundwater pumping in neighboring areas, including Eastside Water District, that has led to a decline in groundwater levels along TID's eastern boundary over the last few decades. As part of local groundwater sustainability planning, the Eastside Water District is looking to TID to supply much needed groundwater recharge to stabilize their portion of the local groundwater basin. Every drop of surface water that can be saved and used for direct or in-lieu groundwater recharge is important to achieving and maintaining groundwater sustainability and supporting local drought resilience.

The Project is expected to provide multiple benefits that support TID's long-term drought resilience by (1) capturing and conserving wasted surface water for beneficial uses in TID, including irrigation and recharge, and (2) enhancing the operation of TID's canal system,

thereby enhancing irrigation service and promoting surface water use by TID's irrigation customers. These benefits are each expected to support direct and in-lieu groundwater recharge and sustainable operation of the underlying groundwater subbasin.

Therefore, the 150 AFY saved by the Project provides a benefit to the subbasin as a whole.

### **Evaluation Criterion B-Planning Efforts Supporting the Project (30 points)**

*Plan Development: Describe how your project is supported by an existing planning effort. Identify the planning effort and who developed it.* TID was the first irrigation district formed in California under the Wright Act in June 1887. Although the current Agricultural Water Management Planning requirements were recently established, water management planning has always been the guiding foundation for the District's operational and capital project implementation activities. The District continually evaluates and implements new cost-effective approaches and technologies as they become available, to ensure the District's water resources are managed to meet local water supply needs and environmental stewardship requirements now and in the future. TID's first Agricultural Water Management was adopted in July 1999 and approved by the Agricultural Water Management Council in May 2001. TID was also one of the first agencies in California to comply with California Senate Bill SBx7-7 and submit their plan to the California Department of Water Resources in 2012. The latest planning effort resulted in the 2015 AWMP.

*Support for the Project: Describe to what extent the proposed project is supported by the identified plan. Address the following:*

- *Is the project identified specifically in the planning effort?*

As mentioned above, the most recent District's planning effort is the 2015 AWMP. At the top of the list of priorities in this Plan is automation of canal control structures. The Project is in direct alignment with several of the strategies identified in AWMP to mitigate climate change impacts (Table 5.1) to improve operational efficiency and transfers, aggressively increase water use efficiency, practice resource stewardship, preserve, upgrade, and increase monitoring, data analysis, and management.

In addition, DMP identifies long-term approach to improving the conditions by improving infrastructure and instituting updated operational strategies to further improve operational efficiency.

TID has a 5-year capital improvement plan that focuses on improving water delivery flexibility and water conservation. This project was previously identified and included in that long term plan.

- *Explain whether the proposed project implement a goal or address a need or problem identified in the existing planning effort?*

As noted in above sections, the most recent District's planning effort is the 2015 AWMP. At the top of the list of priorities in this Plan is automation of canal control structures. The Project is in

direct alignment with several of the strategies identified in AWMP to mitigate climate change impacts (Table 5.1) to improve operational efficiency and transfers, aggressively increase water use efficiency, practice resource stewardship, preserve, upgrade, and increase monitoring, data analysis, and management. The Project is also consistent the Drought Management Plan (DMP) (Appendix E) for improving infrastructure as a systematic approach to improving drought conditions. In addition, in August 2016, TID initiated work on the Irrigation Facilities Master Plan (IFMP) (Appendix B) to identify and evaluate various modernization projects for the District's water distribution infrastructure below Turlock Lake with the general objective of improving service to TID's irrigation customers. The improved service gained from implementing the infrastructure improvements proposed in the IFMP would allow TID growers to adopt more efficient and productive on-farm irrigation systems, leading to increased water conservation over time as well as increased farm profitability. To guide development of the IFMP, TID has established the overarching goal of:

***“Maintaining and improving the level of irrigation service provided to its growers through comprehensive, strategic and cost-effective rehabilitation and modernization of TID irrigation facilities”***

Additionally, California Water Code (CWC) §10608.48.c requires agricultural water suppliers to implement 14 additional Efficient Water Management Practices (EWMPs) “if the measures are locally cost effective and technically feasible.” the Project satisfies one of these required EWMP measures); i.e. **“Automate Canal Control Structures.”** (CWC 10608.48 c (9)).

TID and has developed and is following a SCADA master plan to upgrade and expand its SCADA and automation opportunities. The proposed Project supports the following goal of this Plan: *“Expand SCADA capabilities to incorporate cost effective water operations and water delivery efficiency improvements.”*

- *Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.* As noted in the above section, implementation of the proposed Project fulfills goals of various planning documents governing TID's operations and management of water supplies by providing a reliable, high quality, affordable water supply for its irrigation customers.

The Lateral 6 Canal Water Control Structure Project is a relatively very low-cost efficiency improvement. The Project is also straightforward which will allow for simple implementation. The 150 AFY of irrigation water that the Project saves translates into a great value with a high benefit to cost ratio. Therefore, the District has determined that the Project is a priority for implementation.

#### **Evaluation Criterion C-Implementation and Results (20 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.* **The Lateral 6 Canal Water Control Structure Project is shovel ready** as TID has completed the construction documents. The Project also completed the state environmental process and is categorically exempt from CEQA. While not required to do so, the District filed a Notice of Exemption with the State. The State Clearinghouse number for this project is 2022040423. All work will take place on District properties and no approvals or permits are required outside of the District. TID has completed three similar projects recently and is confident that can deliver the project within the proposed timeframe. This project involves in-canal work, which needs to happen outside of the irrigation season or November through February. Since the grant requirement is to implement the Project after March 2023, construction start date has been set for November 2023 and will be completed based on the below schedule:

Table 1. Project Schedule

Estimated Project Schedule			
No.	Task/Milestone	Start Date	Completion Date
1	Environmental Review		Completed
2	Plans/ Specs Complete (shovel ready)		Completed
3	Funding Award Announcement		October 2022
4	Process NEPA Environmental	October 2022	March 2023
5	Construction Period (2 months)	November 2023	December 2023
6	Complete Project		December 2023

- *Describe any permits that will be required, along with the process for obtaining such permits.* The Project will take place on TID owned land, and the Project is categorically exempt from CEQA. Also, no permits will need to be obtained in order to implement the Project.
- *Identify and describe any engineering or design work performed specifically in support of the proposed project.* TID operates more than 390 canal control structures and has been successfully designing and constructing similar structures for many years. Experience gained from design, construction and management of these structures has been utilized to develop the plans and specifications for implementation of this Project. This project is shovel ready.
- *Describe any new policies or administrative actions required to implement the project.* Prior to project Implementation, the TID Board of Directors are required to approve the project and adopt the CEQA Notice of Exemption (NOE) that has been completed.
- *Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for completion of environmental and cultural resource compliance discussed with the local Reclamation office?* TID has been a recipient of other Reclamation grants and has been working directly with the local Reclamation office. TID will start the NEPA environmental process upon notice of award and anticipates completion by February 2023.

**Evaluation Criterion D-Nexus to Reclamation (5 points)**

Not applicable.



## Evaluation Criterion E-Presidential and Department of the Interior Priorities (10 points)

### Sub-Criterion No. E1. Climate Change

#### *Combating the Climate Crisis*

- *Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.* The Western United States and California are currently in a state of drought that appears to be persisting. With the effects of climate change becoming evident, droughts are anticipated to be more intense, more frequent and longer in duration. Therefore, water agencies must take all steps towards a more responsible management and use of the water resource.

According to the [U.S. Drought Monitor](#), Stanislaus County (TID's service area) is currently experiencing a category D3 "Extreme Drought", the second highest category on the Drought Monitor. This current drought started as a D2 drought in November 2020; only three years after California's historic 2012-2016 drought (which included the driest period in California's recorded history) and has continued in progressive severity since that time. "Extreme Drought" is characterized by decreasing levels in wells and aquifers, nearly dry surface water, and inadequate water for agriculture, wildlife, and urban needs. The severity of Stanislaus County's Extreme Drought is being seen in the necessary mitigation measures being taken as seen on [NDMC's Drought Impact Reporter Dashboard](#). In response to its third year of being in drought, TID is now allocating approximately 60% of normal water supplies to its farmers which started on March 29, 2022 and will continue at least until the end of the irrigation season, in October 2022.

The Lateral 6 Canal Water Control Structure Project will result in water savings of approximately **150 AFY**. As droughts are impacting the health and livelihood of the population, projects with high conservation benefits are essential for a sustainable water future in the face of the changing climate. The Project provides an incremental benefit in water savings to effectively combat the effects of climate change.

- *Does this proposed project strengthen water supply sustainability to increase resilience to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above?* Climate change has been the driving force in eroding the reliability of water supplies in California and the Western United States. All scientific research and modeling points to a worsening climate crisis. Water agencies including TID have to reduce their water allocations to their customers consistently over the past decade or so. By the 2021 Irrigation Season, TID has reduced the irrigation water supplies to its growers to 34 inches of available water, nearly a 30 percent reduction from normal. This is only expected to continue and likely to worsen long term. In these dire times of low snow and rainfall brought on by climate change, water efficiency projects must be implemented at a fast pace to ensure sustainability of the water supply before conditions worsen. One of the main reasons for implementation of the proposed Project, is to take advantage of the

latest technology to reduce water loss. With its water savings, the Lateral 6 Canal Water Control Structure Project supports resiliency to climate change.

**Sub-Criterion No. E2. Disadvantaged or Underserved Communities**

- *Will the proposed project serve or benefit a disadvantaged or historically underserved community?* The Project will provide significant benefits resulting from an estimated water savings of at least 150 AFY of irrigation water per year. The project will positively impact all customers of the TID, including those that are considered a disadvantaged community, which is approximately 92% of the population within TID’s service area.
- *Please describe in detail how the community is disadvantaged based on a combination of variables:* The State of California has 11.5% of its population living in persistent poverty based on the U.S. Census Quickfact Tool. TID serves the communities of Turlock, Denair, Hughson, Modesto, Ceres, Keyes, Delhi, Ballico and Hilmar/Irwin. The community’s poverty rates are 15%, 14.3%, 8.8%, 12.4%, 14.5%, 29.8%, 17.1%, 21.2%, and 14.6% respectively. All of the communities in TID’s service area, excluding Hughson, have a greater percent of their population living in poverty than the State average.

Table 2. TID Service Area Poverty Rates and Population in Poverty

<b>CITY</b>	<b>MHI</b>	<b>Population</b>	<b>Poverty Rate</b>	<b>Population in Poverty</b>
Turlock	\$60,799	72,740	15.0%	10,911
Denair	\$71,277	5,101	14.3%	729
Hughson	\$83,231	7,481	8.8%	658
Modesto	\$62,182	218,464	12.4%	27,090
Ceres	\$59,247	49,302	14.5%	7,149
Keyes	\$46,250	5,672	29.8%	1,690
Delhi	\$63,475	10,656	17.1%	1,822
Ballico	\$62,500	538	21.2%	114
Hilmar/Irwin	\$72,054	5,164	14.6%	754
<b>Total</b>		<b>375,118</b>	<b>13.6%</b>	<b>50,918</b>

Additionally, the TID service area suffers from high unemployment rates which are demonstrated through the California Office of Environmental Health Hazard Assessment’s online mapping tool; CalEnviroScreen 4.0. This mapping tool can be used to analyze various economic, social, and environmental factors for each census tract, including unemployment. As seen in the CalEnviroScreen map below, the majority of the census tracts within TID’s service area suffer from unemployment rates significantly higher than the rest of California. The average unemployment rate for TID’s service area is approximately 70% higher than the rest of California census tracts.

Figure 3. TID CalEnviroScreen 4.0 Map

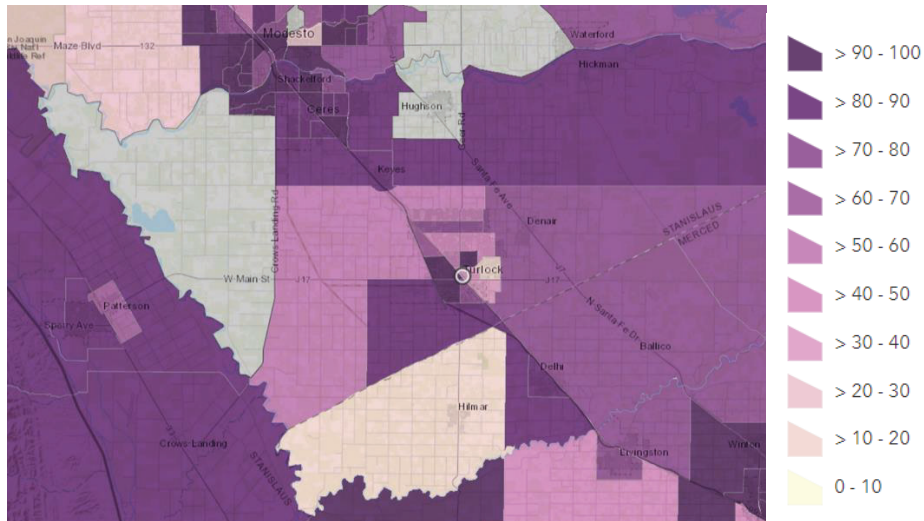


Table 3. TID Service Area Census Tracts Relative Unemployment Rates

Census Tract	% Higher than the rest of California	Census Tract	% Higher than the rest of California
6099003100	N/A	6099003606	57
6099002301	96	6099003605	78
6099002402	99	6099003805	62
6099002401	91	6099003909	46
6099002302	87	6099003908	58
6099002702	93	6099003906	92
6099002701	74	6099003804	92
6099002501	88	6099003802	96
6099002504	88	6099003803	78
6099002604	99	6099003905	20
6099002503	82	6099003904	39
6099002602	98	6099003604	73
6099003001	87	6090003700	89
6099002902	N/A	6047000201	79
6099002901	81	6047000203	88
6099003002	87	6047000202	88
6099003603	58	6047000402	14

As shown above, TID's service area suffers from significant unemployment as compared to the rest of the State of California already. TID's service area is mostly rural, and agriculture is the primary industry. Without reliable water sources, agriculture production will be significantly impacted, and more jobs will be lost. The water conserved through the implementation of the Project will provide job security for agricultural workers and potentially stimulate the agricultural industry, creating more jobs in the future.

- o *If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985.* In 2020; the annual median household income (MHI) for the State of California was \$78,672 as per the U.S. Census Quickfact Tool. To be deemed as a disadvantaged community, the MHI of the community must be less than or equal to 80% of the State MHI; \$62,937.60 in 2020 dollars. TID serves the communities of Turlock, Denair, Hughson,

Modesto, Ceres, Keyes, Delhi, Ballico and Hilmar/Irwin. The MHI in 2020 dollars for the communities in the TID service area can be seen in the table below.

Table 4. TID Disadvantaged Communities Determination

CITY	MHI	Population	DAC Population
Turlock	\$60,799	72,740	72,740
Denair	\$71,277	5,101	0
Hughson	\$83,231	7,481	0
Modesto	\$62,182	218,464	218,464
Ceres	\$59,247	49,302	49,302
Keyes	\$46,250	5,672	5,672
Delhi	\$63,475	10,656	0
Ballico	\$62,500	538	538
Hilmar/Irwin	\$72,054	5,164	0
	<b>Total</b>	<b>375,118</b>	<b>346,717</b>

*\*Note only south Modesto is served by TID, but for convenience, the entire Modesto population is included in MHI related calculations.*

As seen in the above table, Turlock, Ceres, Keyes, Ballico, and Modesto are denoted by red font meaning that the MHI for those communities are equal to or less than the \$62,937.60 disadvantaged community threshold. This means that approximately 92% of TID’s service area is comprised of DACs.

**Sub-Criterion No. E3. Tribal Benefits**

- o *Does the proposed project directly serve and/or benefit a Tribe? Will the project improve water management for a Tribe?* While there are no tribal communities in the immediate vicinity of the project site, water conservation of this Project will benefit the entirety of the Central Valley, including Tribes in this region. TID is the Central Valley’s major agricultural water provider which provides farmers with water necessary to successfully grow crops. The Central Valley produces 40% of the United States fruits, nuts, and other table foods. The water conserved by this Project will allow TID to continue to provide its agricultural customers with the necessary water to maintain food production for the Central Valley, including Tribal communities.
- o *Does the proposed project support Tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety by addressing water quality, new water supplies, or economic growth opportunities?* There are no tribal communities in the immediate area of the project site. However, the proposed Project will promote water conservation and improved water management for the Central Valley. The Central Valley has several federally recognized Tribes that will indirectly benefit from the 150 AFY of irrigation water the Project will save.

## SECTION 2: OVERLAP OR DUPLICATION OF EFFORT STATEMENT

TID certifies that there is no overlap between the proposed project or any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. TID also certifies that this proposal does not duplicate any proposal or project that has been submitted for funding consideration to any other potential funding sources.

## SECTION 3: PROJECT BUDGET

### *Funding Plan and Letters of Commitment*

This Project is a key project for TID as its implementation will result in significant water savings for the region. There has been substantial expenditure to date to complete the Project plans and TID is eager and committed to start and complete the construction of this project upon award of this grant funding.

As shown in the TID Board Resolution approved on April 26, 2022, TID is committed to providing the remaining matching fund of \$50,000 towards construction and staff time necessary to complete this project immediately.

TID will be providing the match funding with its own fiscal resources and no third-party funding will be required.

### *Budget Proposal*

*Table 5. Summary of Non-Federal and Federal Funding Sources*

FUNDING SOURCES	AMOUNT
<b>Non-Federal Entities</b>	
TID	\$ 57,752.50
<b>Non-Federal Subtotal</b>	\$57,752.50
<b>REQUESTED RECLAMATION FUNDING</b>	<b>\$57,752.50</b>

*Table 6. Total Project Cost Table*

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal Funding	\$57,752.50
Costs to be paid by the applicant	\$57,752.50
Value of third-party contributions	\$0
<b>TOTAL PROJECT COST</b>	<b>\$115,505</b>

Table 7. Project Budget

Budget Item	Computation		Quantity Type	Total Costs
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
Project Manager (Matt Hazen)	\$ 81.62	92		\$ 7,509
<b>Fringe Benefits</b>				
Project Manager (Matt Hazen)	\$ 79.85	92		\$ 7,346
<b>Travel</b>				
N/A				
<b>Equipment</b>				
N/A				
<b>Supplies/Materials</b>				
N/A				
<b>Contractual</b>				
Reinforced Concrete Structure Modifications	\$ 30,000	1	LS	\$ 30,000
Rubicon Flume Gate Model FGB-2268-1587-80	\$ 50,000	1	LS	\$ 50,000
Aluminum Undershot Slide Gates	\$ 7,500	2	LS	\$ 15,000
Steel Walkway	\$ 5,000	1	LS	\$ 5,000
<b>Third-Party In-Kind Contributions</b>				
N/A				
<b>Other</b>				
N/A				
<b>TOTAL DIRECT COSTS</b>				<b>\$ 114,855</b>
<b>Indirect Costs</b>				
Reclamation Environmental Review				\$ 650
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$ 115,505</b>

## Budget Narrative

### Salaries and Wages

The Project Manager will be Matthew Hazen, PE who is a Civil Engineer at TID. His hourly salary is \$81.62/hour, and it is anticipated that he will spend an estimated 96 hours.

### Fringe Benefits

The only fringe benefits associated with the Project are the fringe benefits received by the Project Manager, Matthew Hazen, PE. His fringe benefits are \$79.89/hour, and it is assumed that he will spend a total of 96 hours on various tasks for the duration of the Project.

### Travel



Not applicable.

### *Equipment*

All equipment purchases are included under the Contractual/Construction section.

### *Materials and Supplies*

All consultant material and supplies expenses are covered within their contract which is listed in the “Contractual” section below.

### *Contractual*

As noted previously, TID self-performed construction of three similar structures and will self-perform construction of the proposed Project. The total costs associated with the construction of the water control system will be \$100,000. Procurement of all equipment, materials, supplies, goods, and services will be done in accordance with District procedures.

### *Third-Party In-Kind Contributions*

Not applicable.

### *Environmental and Regulatory Compliance Costs*

TID has an estimated \$650 for Reclamation to complete its environmental review of the Project which is represented under “Indirect Cost” in the table above.

## **SECTION 4: 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 Project involves removing the current outdated Meikle Automatic Radial Gate and replacing it with a more water efficient Rubicon Flume Gate System. The installation of this new system is not anticipated to produce any significant impact on dust, air quality, or the surrounding animal habitat.

*• 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?*

The Project is categorically exempt from CEQA meaning that the project site is not seen as a habitat for endangered species nor is a critical habitat.

- *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 wetlands in the project boundaries. The Project will involve work done on a canal owned by TID. Waters of the United States are any water deemed as “navigable”, which some canals fall into this category. However, this man-made canal is not used to transport interstate commerce and is therefore not considered to be a navigable water of the United States according to Section 329.8 of 33 CFR Part 329 Definition of Navigable Waters of the US.

- *When was the water delivery system constructed?*

The existing water control structure at Lateral 6 canal is more than 80 years old and still utilizes technology from that time period.

- *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.*

Yes, the Project involves the modification of the water control structure at the end of TID’s Lateral 6 Canal. The system currently consists of wooden weir boards and a Meikle Automatic Radial Gate. The Project will replace the Meikle Automatic Radial Gate with a Rubicon Flume Gate System, which have been found to promote water conservation and provide superior water management compared to the existing system.

- *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 Project is categorically exempt from CEQA meaning that no impact on historical or cultural resources will occur. Additionally, the [National Register of Historic Places](#) tool provided by the National Park Service does not show any Historic Places at or within a ½ mile radius of the Project site.

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

There are no prehistoric or historic-archaeological resources that have been previously recorded within or near the Project site.

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

The Project is expected to affect all populations equally. Further, it is not anticipated to have adverse effects on any populations, including low income and minority populations.

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

According to the United States Environmental Protection Agency, [California Tribal Lands and Reservations Map](#), there are no Tribal lands within or near the Project site. Therefore, no access to Tribal lands will be negatively impacted by the Project.

- *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 Project will consist of the removal of the existing Meikle Automatic Gates and installation of a Rubicon Flume Gate System. No vegetation will be removed or introduced at the Project site and therefore no noxious weeds or non-native invasive species will be spread.

## **SECTION 5: REQUIRED PERMITS OR APPROVALS**

No approvals or permits are required for the implementation of this project as all work will take place of TID owned property, and the project is categorically exempt from CEQA.

## **SECTION 6: LETTERS OF SUPPORT AND LETTERS OF PARTNERSHIP**

Please refer to Appendix A for the Project Letters of Support.

## SECTION 7: OFFICIAL RESOLUTION

### RESOLUTION NO. 2022 - 18

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE TURLOCK IRRIGATION DISTRICT AUTHORIZING AN APPLICATION FOR GRANT FUNDING BY THE BUREAU OF RECLAMATION'S WATERSMART SMALL SCALE WATER EFFICENCY GRANT PROGRAM FOR THE LATERAL 6 WATER CONTROL STRUCTURE PROJECT**

WHEREAS, the Turlock Irrigation District (the "District") proposes to implement the Lateral 6 Water Control Structure Project (the "Project"); and

WHEREAS, the District has the legal authority and is authorized to enter into a funding agreement with the United States Department of the Interior Bureau of Reclamation; and

WHEREAS, the District completed Plans and Specifications for the Project; and

WHEREAS, the District has determined the Project to be CEQA exempt per Section 15302; and

WHEREAS, the Project will reduce water loss in Lateral 6 and will provide for remote control and monitoring of the facility; and

WHEREAS, the United States Department of the Interior offers financial assistance in the form of grant funding through its Bureau of Reclamation's WaterSMART (Sustain and Manage America's Resources for Tomorrow) Small-Scale Water Efficiency Program Grants (SWEP) for this type of project. This program provides up to \$100,000 in funding for projects that provide small-scale water efficiency; and

WHEREAS, the District desires to fund part of the cost of the Project with grant funding from the WaterSMART SWEP Program.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Turlock Irrigation District hereby finds, determines, declares and resolves as follows:

1. The Board hereby supports a grant application to the WaterSMART SWEP Program for the Project.
2. The Board hereby authorizes and directs the District's General Manager, or his or her designee, to complete, review, sign and submit, for and on behalf of the District, a grant application for the Bureau of Reclamation's WaterSMART SWEP for the Project up to the amount of \$50,000, and to take such other actions as necessary or appropriate to obtain this grant funding.
3. The District's General Manager, or his or her designee, is hereby authorized and directed to execute a grant agreement with the United States Department of the Interior Bureau of Reclamation and amendments thereto, and is designated to represent the District in carrying out the District's responsibilities under such grant agreement, including certifying disbursement requests on behalf of the District and compliance with applicable state and federal laws.

4. If a grant award is made by the Bureau of Reclamation, the District commits to providing a minimum of 100% in matching funds (\$50,000) for the Project, and up to the balance of funds needed to complete the construction of the Project.
5. This Resolution shall take effect immediately.

Moved by Director Fernandes, seconded by Director Macedo, that the foregoing resolution be adopted.

Upon roll call the following vote was had:

Ayes:	Directors Fernandes, Alamo, Macedo, Frantz
Noes:	Directors - None
Absent:	Directors - None
Not Participating:	Director Santos ( <i>Director Santos attended the meeting via Zoom, but did not participate as a voting member.</i> )

The President declared the resolution adopted.

I, Jennifer Land, Deputy Secretary to the Board of Directors of the TURLOCK IRRIGATION DISTRICT, do hereby CERTIFY that the foregoing is a full, true and correct copy of a resolution duly adopted at a regular meeting of said Board of Directors held the 26<sup>th</sup> day of April, 2022.



Deputy Secretary to the Board of  
Directors of the Turlock Irrigation District

## APPENDIX A: LETTERS OF SUPPORT



West Turlock Subbasin  
Groundwater Sustainability Agency

April 21, 2022

Brenda Burman  
Commissioner, Bureau of Reclamation  
1849 C Street NW  
Washington, DC 20240-0001

RE: WaterSMART Grant: Small-Scale Water Efficiency Program  
Lateral 6 Water Control Structure Project  
Turlock Irrigation District, Turlock, California

Dear Ms. Burman,

The Turlock Irrigation District (TID) is applying for the Small-Scale Water Efficiency Program (SWEP) grant, a WaterSMART Grant offered by the Bureau of Reclamation, for its Lateral 6 Water Control Structure Project (Project). The Project will improve TID's water management capabilities and promote water conservation for California Senate Bill 535 identified Disadvantaged Communities (DACs) within TID's service area. Funding received from the SWEP will allow TID to install a more water efficient irrigation infrastructure, which will result in quantifiable water savings for TID.

The existing facility of TID's Lateral 6 Canal is more than 80 years old and still utilizes wooden weir boards and Mickle Automatic Radial Gates. While these devices were once considered extremely innovative, they have since become outdated, as they cannot be remotely monitored or operated. In addition, they were not designed to be watertight and therefore lose a significant amount of water from the canal system to one of the District's drains. The Project will replace the existing Mickle Automatic Radial Gates with a Rubicon Flume Gate System. This new system, which includes mechanized overshot gates, is watertight and will be remotely monitored and controlled through the District's existing Supervisory Control and Data Acquisition (SCADA) control network.

TID has been one of the Central Valley's major agricultural water suppliers since 1887. TID water management practices have turned a once seasonably dry landscape into the fertile agricultural area it is today. However, droughts fueled by climate change are affecting the Central Valley and are significantly impacting water supply. It is important to implement the Project so that water currently being lost and unused can be kept within the irrigation system and delivered to agricultural customers. We estimated that over 150 acre-feet per year of irrigation water will be saved by the installation of the new water control system.





West Turlock Subbasin  
Groundwater Sustainability Agency

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I strongly support TID's proposed Lateral 6 Water Control Structure Project and ask that the Bureau of Reclamation recognize its beneficial use to the community, the region, and the state of California.

Sincerely,

 Recoverable Signature

A handwritten signature in black ink, appearing to read "Karen Morgan", is written over a horizontal line.

Karen Morgan

Signed by: a9aa8f6a-10e3-4eca-9df9-e822d7cca20f

Karen Morgan  
West Turlock GSA  
Vice Chair, Technical Advisory Committee  
209-538-5697  
[Karen.Morgan@ci.ceres.ca.us](mailto:Karen.Morgan@ci.ceres.ca.us)



JOSH HARDER  
10TH DISTRICT, CALIFORNIA  
COMMITTEE ON APPROPRIATIONS  
LABOR, HEALTH AND HUMAN SERVICES,  
EDUCATION, AND RELATED AGENCIES  
INTERIOR, ENVIRONMENT, AND RELATED AGENCIES  
COMMITTEE ON AGRICULTURE  
BIOTECHNOLOGY, HORTICULTURE, AND RESEARCH  
LIVESTOCK AND FOREIGN AGRICULTURE

Congress of the United States  
House of Representatives  
Washington, DC 20515

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4701 SISK ROAD, SUITE 202  
MODESTO, CA 95356  
(209) 579-5458-PHONE  
(209) 702-8589-FAX  
harder.house.gov

April 18, 2022

Brenda Burman  
Commissioner, Bureau of Reclamation  
1849 C Street NW  
Washington DC 20240-0001

**RE: WaterSMART Grant: Small-Scale Water Efficiency Program- Lateral 6 Water Control Structure Project, Turlock Irrigation District, Turlock, California**

Dear Commissioner Burman,

I write to express my support of the Turlock Irrigation District’s (TID) application for the Small-Scale Water Efficiency Program (SWEP) grant, a WaterSMART Grant offered by the Bureau of Reclamation. The grant award will be used to fund the Lateral 6 Water Control Structure Project (Project). The Project will improve TID’s water management capabilities and promote water conservation for California Senate Bill 535 identified Disadvantaged Communities (DACs) within TID’s service area. Funding received from the SWEP will allow TID to install a more water efficient irrigation infrastructure, which will result in quantifiable water savings for TID.

The existing facility of TID’s Lateral 6 Canal is more than 80 years old and still utilizes wooden weir boards and Mickle Automatic Radial Gates. While these devices were once considered extremely innovative, they have since become outdated, as they cannot be remotely monitored or operated. In addition, they were not designed to be watertight and therefore lose a significant amount of water from the canal system to one of the District’s drains. The Project will replace the existing Mickle Automatic Radial Gates with a Rubicon Flume Gate System. This new system, which includes mechanized overshot gates, is watertight and will be remotely monitored and controlled through the District’s existing Supervisory Control and Data Acquisition (SCADA) control network.

TID has been one of the Central Valley’s major agricultural water suppliers since 1887. TID water management practices have turned a once seasonably dry landscape into the fertile agricultural area it is today. However, droughts fueled by climate change are affecting the Central Valley and are significantly impacting water supply. It is important to implement the Project so that water currently being lost and unused can be kept within the irrigation system and be delivered to agricultural customers. We estimate that over **150 acre-feet per year** of irrigation water will be saved by the installation of the new water control system.



Turlock Irrigation District  
WaterSMART: Small-scale Water Efficiency Projects FY 2022

I thank you for your full and fair consideration of Turlock Irrigation District's application to the Bureau of Reclamation WaterSMART Grant: Small Scale Water Efficiency Program. If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Josh Harder". The signature is written in a cursive, slightly slanted style.

Josh Harder  
United States Representative CA-10