BUREAU OF RECLAMATION

WaterSMART
PLANNING AND PROJECT DESIGN GRANT APPLICATION FUNDING YEAR 2025

NOTICE OF FUNDING OPPORTUNITY NO. R23AS00109

MAY 2024

GRAVELLY FORD WATER DISTRICT AUTOMATED SCADA WATER CONTROL GATE DESIGN PROJECT

Prepared for:

Bureau of Reclamation
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SECTION 1 - TECHNICAL PROPOSAL AND EVALUATION CRITERIA

1.1 - Executive Summary

Applicant Name: Gravelly Ford Water District
County, State: Madera, CA
Applicant Category: Category A (water district with USBR water contract)

Summary: The Gravelly Ford Water District (GFWD, District) is submitting a proposal for funding from the United States Bureau of Reclamation (USBR, Bureau) for the GFWD Automated SCADA Water Control Gate Design Project. The District currently has a contract with USBR for Central Valley Project (CVP) Class II water from the Friant Dam. It is the purpose of this project to complete the design for six (6) sites with existing weirs to be retrofitted with SCADA-capable radial gates (Rubicon Gates), which will allow GFWD to utilize surface water deliveries more efficiently.

GFWD was formed in 1961. The District serves approximately 8,705 acres of unincorporated Madera County territory. Grape vineyards, nut tree groves, and on-farm rural residences are the only land uses in GFWD. The San Joaquin River borders a portion of the District to the south, and Cottonwood Creek flows west through the northern portion of the District.

District formation was necessary to be eligible to receive federal water contracts through the United States Bureau of Reclamation. A contract for Class 2 USBR water was finalized, and the first water deliveries were completed in March of 1982. To utilize the USBR deliveries, the District developed a delivery system that connected the San Joaquin River, the Gravelly Ford Canal, and Cottonwood Creek, making the system well over 40 years old.

Irrigation water is supplied by both groundwater and surface water, with the preference being surface water to protect groundwater resources. However, factors beyond the control of the District, such as climate change and associated droughts and subsequent flooding have limited the availability of surface water. The purpose of this project is to optimize surface water use during wet years while also recharging groundwater within the District. The radial gates will allow for targeted recharge and combat the effects of drought such as groundwater overdraft, repair imbalances, and reduce flooding. The project would install automated gates that will provide for more efficient and accurate water management of surface water flows during both irrigation season and flood control. These gates will enhance the water management of the District conveyance system to allow controlled movement of surface waters for both irrigation and targeted groundwater recharge.

This project will develop 100% construction-ready plans, specifications, and a cost estimate for the six (6) sites. The design and cost estimates will allow the District to seek further funding for the construction of the radial gates. It will also allow the District to set funding goals and phasing timelines for their Groundwater Management Plan implementation.

This Planning and Project Design grant application for the Automated SCADA Water Control Gate Design Project is a priority for GFWD. The request for funding was approved by the

Board in hopes of leveraging funding from the USBR WaterSMART program to complete the design phase. This project satisfies President Biden's and the Department of the Interior's goals to combat climate pollution as well as increase resilience to the impacts of climate change; the protection of public health; and conservation of lands, waters, and biodiversity. GFWD has already met with and gained support from stakeholders, including farmers and land owners, residents, Upper San Joaquin Flood Management, Madera Regional Integrated Water Management Group, and multiple Madera Groundwater Subbasin Areas (GSAs), among others, to work together and preserve one of the region's most precious natural resources. The District plans to begin design between April 2025 – June 2026, depending on the issuance of a Notice to Proceed.

1.2 - Project Location

The Automated SCADA Water Control Gate Design Project will install six (6) radial gates with SCADA controls at six (6) existing water control structures (weirs) in Gravelly Ford Water District (GFWD) which is located in western Madera County, California.

Automation and SCADA sites are proposed at the following weir locations (see Figure 1-1):

1. Road 20 and Cottonwood Creek
   (36°52'3.25"N, 120°11'2.91"W)
2. Road 19 and Cottonwood Creek, ½ mile north of Avenue 7
   (36°51'44.68"N, 120°12'4.65"W
3. Road 18 ½ and Cottonwood Creek, ½ mile north of Avenue 7
   (36°51'27.63"N, 120°12'36.68"W
4. Avenue 7 and Cottonwood Creek 1 ½ miles east of Road 16
   (36°51'4.25"N, 120°13'33.13"W)
5. Cottonwood Creek, ½ mile south of Avenue 7 and 1 ½ miles east of Road 16
   (36°50'37.58"N, 120°13'41.82"W)
6. Cottonwood Creek, ½ mile south of Avenue 7 and 1 mile east of Road 16
   (36°50'37.33"N, 120°14'13.57"W)

See Figure 1-1 for a map of the proposed Automated SCADA Water Control Gate Design Project locations.

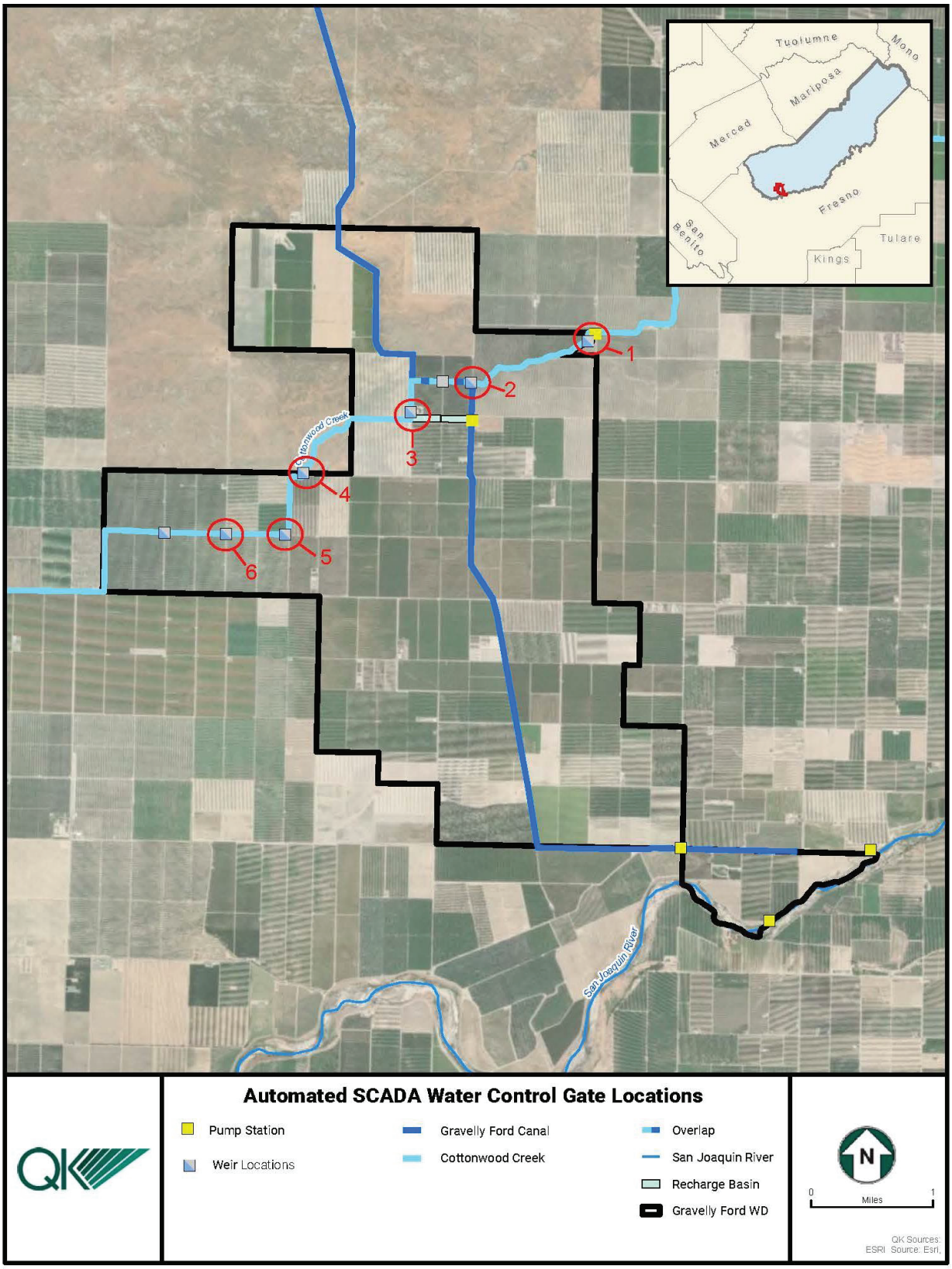

Figure 1-1
Project Location

1.3 - Technical Project Description

The Automated SCADA Water Control Gate Design Project will produce a full set of construction documents for six (6) radial, Rubicon-style gates with SCADA controls at six (6) existing water control structures (weirs). The installation of the automated gates will allow more efficient management of surface water flows through the District conveyance system. A major benefit of this project will be targeted groundwater recharge. This will allow the District to combat the effects of climate change and drought by protecting and improving groundwater availability and quality within the District and the Madera Groundwater Subbasin as a whole.

The Gravelly Ford Water District is a political subdivision of Madera County created with the intent of providing irrigation water for agricultural use from the United States Bureau of Reclamation's Central Vally Project (CVP). The District was formed in 1962 and resides entirely within Madera County. District formation was necessary to be eligible to receive federal water contracts through USBR. The District serves approximately 8,705 acres of rural, unincorporated Madera County territory generally situated between Avenue 4 and Road 20. The San Joaquin River borders a portion of the District to the south, and Cottonwood Creek flows west through the northern portion of the District.

Land use within GFWD is almost entirely agricultural with the primary crops being grapes and nut trees. Irrigation water delivered within the District comes from two sources: groundwater pumped from privately owned and operated wells and surface water conveyed from the Central Valley Project. The District also receives flood flows from both the San Joaquin River and Cottonwood Creek during wet years. The surface water is delivered through a system of canals, pipelines, and appurtenances, with the first CVP deliveries made in 1982, making the conveyance system more than 40 years old. The aging infrastructure is manually operated, and flows are estimated. The proposed upgrades to the system will add precision to delivery estimates and allow the District to monitor and manage surface water more accurately and efficiently.

In 2018, GFWD selected QK as their engineering consultant to conduct a Scoping Study to optimize and modernize aging infrastructure. This Scoping Study was in direct response to the implementation of the Sustainable Groundwater Management Act (SGMA) in 2014. SGMA was enacted to manage critical groundwater resources more effectively and to provide a path toward groundwater sustainability in basins around the State of California using localized coordinated structures for capital projects that enhance groundwater supply.

The District and the larger Madera Groundwater Subbasin, as part of their Groundwater Sustainability Plans (GSPs), have analyzed the existing infrastructure and water needs of the Madera Subbasin and concluded that capital projects that enhance the efficiency of surface water use during times when surface water is available should be prioritized and implemented to stabilize groundwater for the Subbasin. Because irrigation projects are costly, GFWD has prioritized projects that will produce the most overall benefit to the Groundwater Subbasin and stakeholders as well as factoring in other categories such as cost,

scope, and feasibility. This project was determined to provide the largest benefit to all parties for the cost.

This project will enhance surface water management for irrigation. However, a large benefit will also be the management of flood flows during wet years with higher rainfall. The District intends to use the radial gates to impound flood water during wet years to target groundwater recharge areas identified in their Groundwater Sustainability Plan. The GSP and associated Hydrogeological Conceptual Model analyzed groundwater levels and ground subsidence to determine that groundwater levels are falling more significantly in the northern portion of the District.

Flood flow diversions from the San Joaquin River or Cottonwood Creek will be routed to address irrigation needs for growers or to provide recharge in specific areas of the District. This project will also assist in mitigating impacts to domestic wells within the area as required by the Madera Subbasin Domestic Well Program as part of the adopted GSP for the Madera Subbasin, which aims to prevent or provide corrective actions for domestic wells in the event that they become damaged or inoperable due critical lowering of groundwater levels from drought caused by climate change. The SCADA will allow remote gate control and flow measurements to provide more efficient water management within the District distribution system. This will provide the ability to fill a data gap in the Groundwater Sustainability Plan (GSP) for the quantity of water flowing through the District's delivery system and allow for the tracking of water either for crop irrigation or recharge.

The District is currently working with the local flood control authority, integrated regional water management group, adjacent water/irrigation districts, landowners, residents, and groundwater sustainability agencies to implement projects and programs that protect the natural environment while also protecting the District's economy and private property. The District's economy is primarily agricultural. This project will help to preserve agriculture in the District and increase localized groundwater resources for future use. These goals will be achieved with the assistance of the WaterSMART program grant.

This project satisfies all of President Biden's and the Department of the Interior's goals to combat climate pollution as well as increase resilience to the impacts of climate change; the protection of public health; and conservation of lands, waters, and biodiversity by creating a shovel-ready project for the construction of an integrated network of automated radial (Rubicon) gates to increase efficiency of the delivery system and protect natural resources. The District plans to begin design between April 2025 – June 2026, depending on the Notice to Proceed.

The project will include the following components:

Survey – GFWD will work with QK to conduct a survey and site analysis of each of the six (6) radial gate sites. This will allow the preparation of site plans and provide a snapshot of existing site features. Measurements taken during the site survey will be used for modification of the structure to fit the new radial gate.

Plans, Specifications, and Engineering Estimate – Based on the site survey and any identified site restrictions, the engineering consultant will produce 30%, 60%, 90%, and final construction documents for bid. This phase will address capacity and any upgrades that will need to be made to the existing infrastructure prior to gate installation.

Environmental/Compliance Documentation – Based on the determination by USBR, GFWD will coordinate the preparation of environmental documents, cultural/historical consultations, and a Biological Assessment. It is anticipated that this project will receive a Categorical Exclusion (CE).

Permits and Land Use Easement/Agreements – Permits, easements, and land use agreements will be drafted for each site as needed.

1.4 - Evaluation Criteria

1.4.1 - PROJECT BENEFITS

Identify the threats to water supply, water quality, and river-based ecosystem or watershed health within the geographic area of the planning or design project. This could include threats from drought conditions, climate change vulnerabilities, changes to stream conditions or water quality, significant water shortages, or other threats to the environment or watershed health.

GFWD and the Madera Groundwater Subbasin face significant challenges with regard to water supply reliability due to climate change, which causes several secondary issues that affect the District. The District and the greater Groundwater Subbasin have experienced extended periods of extreme drought, most notably between 2012-2016, which resulted in reductions of CVP surface water allocations, often resulting in zero surface water allocation, and increased dependence on groundwater. While groundwater is an available resource, reliance on groundwater has resulted in overdraft conditions in much of California.

The Madera Groundwater Subbasin has been designated a critically overdrafted Subbasin. Overdraft conditions in the District and the Subbasin at large have caused secondary issues, including subsidence of the ground surface, changes in water quality, and effects to interconnected surface waters and groundwater-dependent ecosystems.

How do the threats identified in your response to the preceding bullet impact specific water uses or sectors in the geographic area of the planning or design project?

The main use of water in the District is agricultural. The largest threat to agricultural water supply is a zero allocation of surface water during drought years. This, as stated previously, results in increased reliance on the already critically overdrafted groundwater Subbasin. If not addressed, this may result in the State requiring land to be fallowed within the Subbasin and likely in the District.

Groundwater levels have been monitored by the Department of Water Resources in California; it is clearly shown that groundwater levels have been declining for decades, resulting in increased pumping costs and the need for deeper wells. This impacts both

agricultural and residential water users. The Madera Subbasin has been determined to be in critical overdraft (2019).

Subsidence is monitored by the United States Bureau of Reclamation as part of the San Joaquin River Restoration Project, and local continuous GPS stations are monitored by UNAVCO as part of the Plate Boundary Observatory (PBO) Project. The GFWD has established a subsidence network within the District at existing agricultural wells with connection to Madera Subbasin control points. This allows the District to monitor localized subsidence and helps to expand the existing monitoring network for the entire Subbasin. The largest impact from continued subsidence would be to domestic and agricultural wells.

The San Joaquin River Restoration Project monitors the effects on aquatic and riparian ecosystems and interconnected surface waters in the San Joaquin River (adjacent to the District). While these impacts are more difficult to quantify, it has been noted that drought and lowering of groundwater levels can foster conditions that support invasive species and can lead to unnatural groundwater flow. The District plans to explore the ecological effects of groundwater overdraft in the San Joaquin River with the next iteration of the Groundwater Sustainability Plan in 2025.

CV-SALTS was tasked with developing a Salt and Nitrate Management Plan (SNMP) for the entirety of the Central Valley Regional Water Quality Control Board's jurisdictional area. While there have yet to be significant impacts to water quality in the District, increases in groundwater overdraft have the potential to cause impacts to water quality. These impacts could include the need to drill new wells or the inability to irrigate with groundwater. For more detailed information, see the Madera Groundwater Subbasin Groundwater Sustainability Plan.

How will the planning or design project help address the threats to water supplies and water uses identified?

Because of the effects mentioned above, it is imperative that GFWD manage and protect groundwater resources. This project will enhance water supply reliability. It will increase resiliency to drought and flooding caused by climate change. It will help sustain the agricultural economy that is predominant in the District. It will also protect water quality, improve the reliability of drinking water for residents, and modernize water delivery infrastructure. The following are specific benefits to the groundwater system:

- Prevent groundwater overdraft by utilizing floodwater for recharge.
- Reduce the effects of downstream flooding by impounding floodwaters and utilizing floodwater for on-farm groundwater recharge.
- Prevent subsidence by reducing reliance on pumping groundwater from the confined aquifer.
- Prevent significant lowering of groundwater levels that impact irrigation and residential wells.
- Reduce pumping costs.
- Increase irrigation efficiency.

- Protect groundwater quality and prevent costly treatments or groundwater blending.
- Prevent impacts to nearby water bodies and ecosystems.
- Close data gaps in the monitoring network.
- Assist in implementing the District's Groundwater Sustainability Plan and the Upper San Joaquin River Regional Flood Management Plan.

Provide supporting documentation for your response, including referenced statistical data, excerpts or citations from studies or analyses regarding the results of similar projects, or other references.

A comprehensive list of existing groundwater recharge programs and benefits can be found on the following websites from the California Groundwater Exchange and the California Department of Water Resources, respectively:

Groundwater Recharge – Groundwater Exchange

Groundwater Recharge (ca.gov)

Is the planning or design effort for the purpose of providing domestic water supplies to a Tribe, insular area, or disadvantaged community(ies) that do not have reliable access to water supplies?

The project does not specifically provide domestic water supplies for a tribe or insular area. However, the District is within the SB 535 Disadvantaged Communities (DAC) 2022 Update for the State of California. There are less than 20 residences in the District which rely on groundwater. The District currently participates in a Domestic Well Protection Program to protect residential groundwater users. The goal of the program is to protect domestic wells first, but the program will perform replacement/repair if necessary. This project will help mitigate the impacts of groundwater pumping and protect groundwater for these water users.

Does the planning or design effort involve the improvement of nature-based features? If so, please describe. Is the project for the purpose of meeting existing environmental mitigation or compliance obligations under federal or State law?

No nature-based features will be affected as a result of this project. However, the purpose of this project is to meet the compliance requirements of the State of California Sustainable Groundwater Management Act (SGMA). SGMA was adopted by the State Legislature in 2014, and it is now part of the California State Water Code (Part 2.74 of Division 6, beginning with Section 10720). SGMA was enacted to manage critical groundwater resources more effectively in basins around the State and provide a localized coordinated structure for capital projects that enhance groundwater supply.

1.4.2 - STAKEHOLDER INCLUSION AND SUPPORT

If the project(s) being designed is/are supported by an existing water planning effort, please describe that effort. Was the referenced plan developed or updated using a collaborative process with input from multiple and diverse stakeholders?

The proposed project design is listed as a water management action in the Projects and Management Actions to Achieve Sustainability Goal section of the GWFD Groundwater Sustainability Plan (GSP). Projects were not prioritized in the plan but only identified. Since the submission of the GSP, the District has prioritized projects based on direct benefit, cost, and feasibility. This project was selected for funding as it was determined to be the most feasible project that provided the largest benefit to all water users.

GFWD and Madera Subbasin GSPs were developed through extensive outreach and engagement with local agencies, agricultural water users, municipal water users, Disadvantaged Community (DAC) members, and other stakeholders in the Subbasin. The planning group considered all feedback and comments from the outreach events to finalize the GSPs. Public meetings and workshops were hosted throughout GSP development, including monthly Groundwater Sustainability Agency (GSA) meetings, Coordination Committee meetings, County Advisory Committee meetings, Madera Irrigation District Groundwater Committee meetings, Madera County Farm Bureau Water Forum meetings, and Madera County Regional Water Management Group meetings. Additionally, the District conducted public meetings for their individual GSP and brought information from the coordinated planning group to the District's interested parties.

The District will continue working with the land users, agencies, and committees listed above as they prepare the 2025 GSP Update. This update will address project and management plan implementation, which will include this project. The District will continue to receive and implement comments from interested parties. They will also continue to hold monthly District meetings, open to the public, to engage the local community.

While there have been comments and requests to add additional information to the GSP, there has been no opposition to this specific project. In fact, this project supports many of the goals identified by other agencies, such as combating subsidence, flooding, and degradation of water quality. See Appendix A for letters of support.

1.4.3 - Ability to Meet Program Requirements

Describe how the project will address the program-specific requirements described in the appropriate program-specific appendix.

Evaluation of Site Alternatives and Selection of Project Site

GFWD has already conducted a significant portion of predesign and outreach for the proposed project as a part of the GFWD Groundwater Sustainability Plan (GSP). The District has worked with QK to compile a list of projects and alternatives to manage surface water and groundwater. The District, along with stakeholders, in a series of public meetings, analyzed the list of projects developed for the GSP and prioritized them generally by feasibility and cost-benefit. The stakeholders in the District identified the Automated SCADA Water Control Gate Design Project as one of the priority projects.

As a part of the predesign process, the groundwater levels were analyzed, and areas where groundwater levels were found to be declining were identified. Locations where gates could be installed to allow the targeted recharge of these areas were then identified as well. As a part of this grant application, the District will be working with QK to conduct site and field surveys of each of the radial gate locations to direct the site-specific engineering and design.

- **Task 1.1** – Kick off meeting with all parties.
- **Task 1.2** – Project/Grant management.
- **Task 1.3** – Field survey of improvement locations.
- **Task 1.4** – Development of base map from the field data and control network established for the project and connected to the Regional Water Model for the Madera Subbasin.
-

Deliverables: Base map of project locations to be used for design.

Preparation of Final Design Drawings, Specifications, and Engineer's Estimate for Construction

As stated previously, much of the predesign was conducted as part of the GSP development process. The District worked with Kenneth D. Schmidt and Associates (KDSA) to analyze the hydrogeological conditions of the proposed project locations. The District will continue to use the results of the KDSA report throughout the design phase of the project to determine the capacities and recharge rates of the areas to be targeted for recharge.

GFWD will work with their engineering consultant, QK, to develop final design plans, specifications, and a detailed engineering estimate. QK will consult with KDSA and local distributors of radial and Rubicon gates to develop a full set of construction plans and specifications that conform to each site's unique needs.

- **Task 2.1** – Review of historical groundwater levels and the hydrogeological conceptual model for capacity and recharge rates of each recharge segment. Gate selection and operating range of opening for flow management. Preliminary design of improvements to 30% to finalize capacity and preliminary costing for improvements.

Deliverables: Technical Memo on the findings from review and 30% improvement plans, table of contents for specifications, and preliminary cost estimate.

- **Task 2.2** – Preliminary design of improvements for 60% submittal; construction plans, specifications, and cost estimate.

Deliverables: 60% improvement plans, hydraulic calculations and channel flows, preliminary specifications, both front-end documents and technical sections, preliminary cost estimate at 60%.

- **Task 2.3** – Construction documents for 90% submittal.

Deliverables: 90% improvement plans, bid documents (front ends and technical specifications), preliminary cost estimate at 90%.

- **Task 2.4** – Agency Review

Deliverables: Comments for 90% improvement plans, bid documents (front ends and technical specifications), preliminary cost estimate at 90% from Agency.

- **Task 2.5** – Construction documents for bidding 100% submittal.

Deliverables: 100% improvement plans, bid documents (front ends and technical specifications), and cost estimate for bidding.

- **Task 2.6** – Project Management of design.

Deliverables: Grant progress reports as required by USBR.

Evaluation of Economic Conditions, Preparation of Project Cost Estimate, Development of Project Implementation Plan

The District has levied a per-acre tax for the purpose of generating additional revenue. This has allowed them to implement capital projects such as the Automated SCADA Water Control Gate Design Project. This revenue will be used to pay the District's cost-sharing requirements for funding opportunities.

This project will produce final construction documents, including a detailed cost estimate as described above in **Tasks 2.1-2.6**. The detailed cost estimate will be developed based on consultations with local agricultural irrigation suppliers and costs of similar projects designed by the engineer. Additionally, the final construction documents will determine implementation costs and timelines for the construction of the gates and appurtenant structures. This implementation plan will include project phasing for construction, costs for each phase of construction, and milestones for implementation.

Legal and Institutional Requirements Research

The District will work closely with USBR and other State and local agencies to determine environmental compliance and permitting needs. As a part of the survey and site assessment, all easements, liens, and deed restrictions will be identified. Any additional easement or land use needs will be determined at that time. As stated, the District will work closely with the

appropriate agencies to ensure that all legal requirements with regard to land use, construction, and operations are fulfilled.

- Task 3 – Environmental Documentation
  Work with USBR to determine NEPA requirements for the project. Determine any additional environmental needs prior to construction.

Deliverables: USBR NEPA Decision Documentation.

- Task 4.1 – Permitting
  Prepare applications for and obtain required permits to construct the project, County encroachment permit for road crossings, and Fish & Wildlife for work in Cottonwood Creek if required.

Deliverables: Permit applications and copies of approved permits to USBR Grant Manager.

- Task 4.2 – Easements/Agreements
  Prepare necessary easements or land use agreements and record with the County, if necessary.

Deliverables: Recorded grants of easement and use agreements between land owners and GFWD.

Describe the approach that will be undertaken to meet the applicable program components and requirements.

The District implemented a per-acre tax in 2018 to provide annual revenue for project implementation as determined in the 2020 GFWD Groundwater Sustainability Plan. This revenue provides funds for the District to hire consultants and contractors to perform the design and construction of the projects necessary to implement the Groundwater Sustainability Plan. This is the revenue that will be utilized for the design of the Automated SCADA Water Control Gate Design Project.

Include a preliminary project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

For each task and milestone, indicate who will have the primary responsibility for completion.

Table 1-1
Tentative Milestone/Task Schedule

Tasks/ Milestones	Subtasks	Milestone/Deliverable	Responsible Party	Planned Start and Completion Dates
USBR Notice of Award	-	USBR Notice of Award	USBR	4/1/2025
USBR Notice to Proceed	-	USBR Notice to Proceed	USBR	4/1/2025-5/1/2025
Task 1	Task 1.1	Kick Off Meeting	All	5/12/2025
	Task 1.2	Project Management	QK	5/1/2025-8/31/2025
	Task 1.3	Field Survey	QK	5/12/2025-6/30/2025
	Task 1.4	Research/Base map	QK	6/30/2025-8/31/2025
Task 2	Task 2.1	Hydrogeological Conceptual Model Review, Tech Memo, and 30% Plans, Specifications, Estimate	KDSA, QK	6/30/2025-9/30/2025
	Task 2.2	60% Plans, Specifications, Estimate	QK	10/1/2025-12/1/2025
	Task 2.3	90% Plans, Bid Documents (contractual and technical specs), and 90% Cost Estimate	QK	12/1/2025-2/1/2026
	Task 2.4	Agency Review	USBR/QK	2/1/2026-4/1/2026
	Task 2.5	Final Construction Documents for Bidding (100%)	QK	4/1/2026-6/1/2026
	Task 2.6	Project/Grant Management	QK	6/30/2025-6/1/2026
Task 3	-	NEPA Consulting and Documentation with USBR	USBR, QK	4/1/2025-6/1/2026
Task 4	Task 4.1	County Construction and Encroachment Permits	Madera Co., QK	12/1/2025-6/1/2026
	Task 4.2	Easement and Land Use Agreements	GFWD, QK, Madera Co.	6/30/2025-6/1/2026

If prior planning work will be relied on to meet any of the required program components, please explain and describe the work that will be relied on.

The Groundwater Sustainability Plan, which contains the Hydrogeological Conceptual Model and historic and current groundwater conditions, will be used for the project design. Sites have already been chosen as a part of the plan implementation for the GSP. The location of the gates is reflected on the maps in the GSP and annual reports developed by KDSA as having lower groundwater elevations. These sites are unlikely to change as they already have existing weirs for the installation of radial gates and are within the areas identified for targeted recharge.

Describe the availability and quality of existing data and models applicable to the proposed plan or design.

As stated, the Groundwater Sustainability Plan contains the Hydrogeological Conceptual Model, which identifies groundwater conditions in the District. This Hydrogeological Conceptual Model was prepared by Kenneth D. Schmidt & Associates (KDSA). KDSA has over 50 years of experience in groundwater modeling in Madera County. This information, along

with current groundwater conditions, will be used to determine capacities and recharge rates.

Identify staff with appropriate technical expertise and describe their qualifications.

Table 1-2
QK Staff and Qualifications

Staff	Role	Qualifications	Years
Garth Pecchenino	District Engineer, Principal in Charge	Professional Engineer Professional Land Surveyor	35
Spencer Supinger	Project Manager	Professional Engineer	17
Antonio Westerlund	Lead Surveyor	Professional Land Surveyor	13

See Appendix C for technical resumes for QK staff.

Describe any plans to request additional technical assistance from Reclamation or by contract.

The District Engineer, QK, has been in direct contact with Reclamation regarding environmental compliance, existing Reclamation projects and facilities, and other technical needs for the application. They will continue to utilize USBR's expertise if awarded. The District has also contracted with QK and KDSA for technical support. See the attached budget in Table 2-1 and Table 2-2 for information on specific technical assistance planned.

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

The California Sustainable Groundwater Management Act (SGMA) has necessitated the implementation of projects to conserve and replenish groundwater for the Madera Groundwater Subbasin. The Madera Groundwater Subbasin has been declared critically overdrafted, and Districts are required to implement mitigation measures by 2040.

1.4.4 - Presidential and Department of Interior

Climate Change

Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

GFWD has seen a dramatic decrease in surface water deliveries during the irrigation season, resulting in increased dependence on groundwater due to climate change and changes in the quantity and timing of runoff. This project will specifically address the impacts of climate change as they relate to the hydrology in GFWD in the following ways:

WATER DELIVERIES

Installation of radial gates at weir locations combat the effects of these water management challenges without adversely impacting groundwater supplies by allowing the District to strategically recharge groundwater in the north and northwestern parts of the District (see Figure 1-1). These areas are the most susceptible to drought and groundwater overdraft as they are furthest away from the natural groundwater inflow from the San Joaquin River and also experience groundwater outflow to neighboring Districts. Targeted groundwater recharge will increase groundwater supply during drought to offset the unavailability of surface water and protect domestic wells from impacts due to groundwater overdraft.

WATER QUALITY

This project will also protect the water quality of groundwater in the area. The Central Valley is susceptible to several groundwater contaminants. Many of these occur naturally and lie within specific strata of the soil, and others are the result of industrial/commercial contaminants. As groundwater levels decline, it can cause contaminant plumes to migrate and/or contaminates to be concentrated. Groundwater recharge can help to prevent plume migration and dilute existing contaminants.

FLOOD CONTROL

Because of the changes in seasonal runoff and unseasonal warming due to climate change, the District accepts flood flows from the San Joaquin River and Cottonwood Creek. The District works with the Upper San Joaquin River Regional Flood Management Planning Group and USBR to accept flood flows in excess of the flows required to satisfy the San Joaquin River Restoration Project, which works with USBR to provide fish flows for salmon population restoration.

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?

Yes, this project strengthens water supply sustainability by recharging surface water into the ground for later use. Diversion of storm runoff will be used for recharge and distribution into the District's conveyance system for on farm application for a wider area impact of winter/spring flows to increase agricultural production, which will reduce the annual pumping demand for crop growth. This project also contributes to climate change resiliency by reducing the energy needed for pumping. This reduces the reliance of the District on fossil fuels and electricity.

Underserved Communities

Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool, available online at Explore the Map – Climate & Economic Justice Screening

Tool (https://screeningtool.geoplatform.gov) to identify any disadvantaged communities that will benefit from your project.

If applicable, describe how the project benefits those disadvantaged or underserved communities identified using the tool. For example, does the project increase reliability of water supplies, improve water quality, provide economic growth opportunities, improve or expand public access to natural areas or recreation, or provide other benefits in a disadvantaged or underserved community?

The project area has been identified as a Disadvantaged Community (DAC) in the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool. The proposed design project lies within Tract 06039000400, Madera County, California, population of 1,279. The DAC is vulnerable to building losses from natural hazards, flooding, and economic issues such as low-income households and unemployment. This project will also protect the agricultural economy in the area, preventing job losses and reductions in farmed acreage.

This project will provide drinking water stability to the Madera County residents who reside within the GFWD boundary and beyond by recharging groundwater, which is the primary source of water for residents in the rural parts of the County. All Central Valley communities have struggled with drinking water insecurities related to water availability and water quality. This project will improve access to clean drinking water for those at risk residents.

Tribes

There are no tribes in the area; however, the San Joaquin River may have cultural significance. This project will not adversely affect any cultural practices or tribes and will support all beneficial uses of surface water.

1.4.5 - NEXUS TO RECLAMATION

Up to 5 points may be awarded based on the extent to which the proposal demonstrates a nexus between the proposed project and a Reclamation project, activity, and priority. Describe this nexus:

Is there a Reclamation project, facility, or activity within the planning area?

Yes, the District diverts Reclamation water from the San Joaquin River. Reclamation water used for both groundwater recharge and irrigation is part of the Central Valley Project, which releases water from the Friant Dam.

Is the planning area in the same basin as a Reclamation project, facility, or activity?

Yes, there are many activities and facilities in the vicinity. One example is the Bifurcation, where flood waters are diverted into the Chowchilla Bypass. The District is also adjacent to the San Joaquin River Restoration Project.

In what way will the proposed project benefit a basin where a Reclamation project, facility, or activity is located? For example, will the project improve watershed health in a river basin that is adversely impacted by a Reclamation water project?

Yes, this project will protect Reclamation facilities by diverting flood flows during wet years, and it will increase water reliability during times of drought, allowing the District to recharge excess surface water for later use. It will also help regulate interconnected surface waters that affect the San Joaquin River Restoration Project and will assist in preventing subsidence that threatens Reclamation facilities.

Does the applicant have a water service, repayment, or O&M contract with Reclamation?

Yes, The District has a Central Valley Project (CVP), Class II water contract with the Bureau of Reclamation for water from the San Joaquin River. They also have the ability to purchase flood water from the Bureau.

If the applicant does not hold a type of contract named above, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?

N/A

SECTION 2 - BUDGET

2.1 - Funding Plan/Letters of Commitment

The members of the District approved a per acre tax through the Proposition 218 election process in 2018. This has established a source of revenue for the implementation of the Groundwater Sustainability Plan. These funds will be used to finance the District's portion of the Automated SCADA Water Control Gate Design Project. The District is requesting a **50%** cost share with the United States Bureau of Reclamation, with the Bureau covering $105,400 of the cost and the District covering $105,400 of the total cost. See the Budget Proposal and Budget Narrative below for additional details on costs.

2.2 - Budget Proposal

Table 2-1
Budget Proposal

Summary			
Budget Object Category	**Total Cost**	**Federal Estimated Amount**	**Non-Federal Estimated Amount**
a. Personnel	$0		
b. Fringe Benefits	$0		
c. Travel	$0		
d. Equipment	$0		
e. Supplies	$0		
f. Contractual	$26,800		
g. Construction	$184,000		
h. Other Direct Costs	$0		
i. Total Direct Costs	$210,800		
i. Indirect Charges	$0		
Total Costs	$210,800	$105,400	$105,400
Cost Share Percentage		50%	50%

2.3 - Budget Narrative

2.3.1 - PERSONNEL

The District does not have any employees and operations and maintenance are performed by contract.

2.3.2 - FRINGE BENEFITS

Because there are no employees of the District, there are also no fringe benefits being paid.

2.3.3 - TRAVEL

There is no travel listed in the budget. All work will be performed by contract, and travel will be factored into the proposals by consultants.

2.3.4 - EQUIPMENT

This project is for design only. There will be no equipment purchased or rented as a result of this project. Any equipment used (surveying or engineering equipment) will be provided by the consultant.

2.3.5 - SUPPLIES

This project is for design only. No supplies will be purchased as a result of this project.

2.3.6 - CONTRACTUAL

All services are contracted by the District. The District has a current contract with Don Roberts Civil Engineering as the District Manager. Don Roberts Civil Engineering is responsible for stakeholder outreach, management of the District, including contracts with other consultants, and management of District data collection for irrigation, water use, and groundwater conditions. This project is estimated to require approximately 8 hours per month for 7 months at the standard consultant rate of $300/hour.

Kenneth D. Schmidt & Associates is contracted to analyze groundwater conditions in the District. Based on similar projects, an analysis of the projects sites is expected to cost $10,000. This includes travel to the site, research and documentation of existing groundwater conditions, and recommendation for site development.

2.3.7 - CONSTRUCTION

As mentioned, this project is design only. However, this project will develop 100% construction documents, permits, and land use agreements necessary to create a shovel-ready project.

The District has retained QK as their District Engineer for the design of projects related to the implementation of their Groundwater Management Plan. QK has institutional knowledge of the District and its needs, as they relate to irrigation and groundwater recharge. QK developed the current Groundwater Management Plan and subcontracted the development of the Hydrogeological Conceptual Model that will drive the design of this project. QK has provided an estimate for the design of the six (6) radial gates (see Table 2-2). This estimate includes funding for work done by others (USBR NEPA documents) for a full set of 100%

bid-ready construction documents and associated environmental, permitting, and land use documents.

Table 2-2 shows the budget for the work to be done to develop a full set of construction documents for all six (6) radial gates. The estimate is broken into two categories, total labor expenses and total non-labor expenses. The total labor expenses include QK's cost for performing the survey, drafting 100% construction plans, specifications, and estimate, and drafting documents for permits and land use agreements. Total non-labor expenses include additional costs related to the development of the 100% construction documents. These expenses include travel for the survey crew, funds for the Bureau to produce NEPA documents, funds for a permit from Madera County, and funds to purchase and record any necessary easements or land use agreements.

Table 2-2
QK Cost Estimate

Task Description	TOTAL HOURS	TOTAL LABOR EXPENSES	TOTAL NON-LABOR EXPENSES	TOTALS
Task 1.0 - Site Evaluation (6 Sites)				
1.1 - Project Management	4	$860	-	$7,290
1.2 - Kick Off Meeting	8	$1,110	-	$3,630
1.3 Field Survey	27	$7,290	-	$1,660
1.4 Research & Basemap	27	$3,900	-	$860
Subtotals	64	$13,160	$280	$13,440
Task 2.0 – Construction Documents (6 Sites)				
2.1 - Preliminary 30% Design	130	$23,750	-	$23,750
2.2 - 60% Plans, Hydraulic Calculations, Specifications, Cost Estimate	286	$55,130	-	$55,130
2.3 - 90% Plans, Specifications, Cost Estimate	130	$23,750	-	$23,750
2.4 - Agency Review	24	$5,640	-	$5,610
2.5 100% Construction Documents for Bidding	144	$27,600	-	$27,880
2.6 Project Management	16	$2,220	-	$2,770
Subtotals	730	$138,090	$0	$138,090
Task 3.0 – Environmental Documentation				
3.1 - NEPA Documents (USBR task)	-	-	$2,500	$2,500
Subtotals	$0	$0	$2,500	$2,500
Task 4.0 – Permits / Agreements				
4.1 - County Construction Permits	30	$5,580	$3,000	$8,580
4.2 - Easements and Land Use Agreements	60	$9,390	$12,000	$21,390
Subtotals	90	$14,970	$15,000	$29,970
TOTALS	886	$166,220	$17,780	$184,000

2.3.8 - OTHER DIRECT COSTS

There are no other direct costs associated with this project. All project management, technical consultation, survey, design, permitting, and easement/land use agreement activities are reflected in the contractual and construction budget line items above.

2.3.9 - INDIRECT COSTS

There are no indirect costs associated with this project.

SECTION 3 - ENVIRONMENTAL AND CULTURAL 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.

  This project is for design only. There is no ground disturbance or geotechnical work planned.

- 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?

  Unknown, however, there will be no ground disturbance resulting from this project.

- 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.

  If there are wetlands or surface waters that fall under Waters of the United States, they will not be affected by this project as it is design only.

- When was the water delivery system constructed?

  The water delivery system was existing and owned by the Bureau of Reclamation prior to the executed Class II water contract. The Bureau agreed to deed the water delivery system to the District upon finalization of the agreement. It is unknown by the District when the canals were constructed; however, they existed prior to the 1961 District formation and have been expanded and maintained by GFWD since that time.

- 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.

  This project is design only, but the design plans to add radial gates to existing weirs to deliver and recharge water more efficiently. It is unknown when these structures were constructed.

- 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.

No

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

  No

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

  No, if there is any effect from the construction it will benefit low-income/minority populations in the area by increasing domestic well reliability.

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

  No

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

  No

APPENDIX B
GFWD RESOLUTION

GRAVELLY FORD WATER DISTRICT
RESOLUTION NO. 2024-02

RESOLUTION OF THE BOARD OF DIRECTORS OF GRAVELLY FORD WATER DISTRICT APPROVING THE WATER SMART PLANNING AND PROJECT DESIGN GRANT APPLICATION AND FINANCIAL SUPPORT FOR THE GFWD AUTOMATED SCADA WATER CONTROL GATE DESIGN FOR FUNDING IN FISCAL YEAR 2025.

WHEREAS, the Gravelly Ford Water District and its member land owners must optimize the use of the limited surface water resources allocated by United States Bureau of Reclamation; and

WHEREAS, the Gravelly Ford Water District and its member land owners seek to install automated radial gate on the existing weirs in order to maximize water use efficiency, target groundwater recharge, and maximize both irrigation and flood surface water supplies from the Central Valley Project (CVP); and

WHEREAS, the Central Valley Project is a United States Bureau of Reclamation associated multi-purpose water project; and

NOW, THEREFORE, THE BOARD OF DIRECTORS OF GRAVELLY FORD WATER DISTRICT DOES HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:

1. Gravelly Ford Water District has authorized that an application be submitted pursuant to the Bureau of Reclamation's **WaterSMART Grants: Planning and Project Design Grant Funding Opportunity Number R23AS00109** for the design of the GFWD Automated SCADA Water Control Gate Design Project for the purpose of maximizing water use efficiency, targeting groundwater recharge, and maximizing both irrigation and flood surface water supplies from the Central Valley Project (CVP).

2. If selected for said grant, the Gravelly Ford Water District is financially capable and agrees to provide in-kind and cash funding towards this project as detailed in the grant application and will work closely with the Bureau of Reclamation to successfully complete the design of the project.

3. This Resolution shall be effective upon its adoption.

The foregoing Resolution 2024-02 was duly and regularly adopted by the Board of Directors of the Gravelly Ford Water District at the meeting of April 15, 2024 upon motion of Director N. Davis, seconded by Director M. Naito upon the following vote:

AYES:	Directors N. Davis, M. Naito, P. Stewart, S. Kirk
NOES:	None
ABSTAIN:	None
ABSENT:	D. Kirk

Seth Kirk, President

Diane Kirk s/
Diane Kirk, Secretary
by Don Roberts, Deputy Secretary

GRAVELLY FORD WATER DISTRICT
ORGANIZED
AUG 21 1961

CERTIFICATION

I do hereby certify that I am the duly appointed, qualified Deputy Secretary of the Board of Directors of the Gravelly Ford Water District; that the foregoing is a full, true and correct copy of Resolution No. 2024-02, duly and regularly adopted at the regular meeting of the Board of Directors of the Gravelly Ford Water District duly and regularly called and held at the offices of the District on the 15th day of April, 2024 at which a quorum of said Board of Directors was present and acting; that said Resolution as so adopted was duly entered in the minute book of said District and the same has not since been revoked, rescinded, altered, amended, modified or changed and is now in full force and effect.

Date: 04/15/2024

Don Roberts, Deputy Secretary

APPENDIX A
LETTERS OF SUPPORT

Gravelly Ford Water District
1625 Howard Road, Suite 324
Madera, CA 93637

May 7, 2024

Re: USBR Funding No. R23AS00109 WaterSmart Planning and Design Grants- GFWD Automatic SCADA Water Control Gate Design Project

To Whom It May Concern,

This letter is provided to strongly endorse and provide support for the Gravelly Ford Water District (GFWD or District) Automatic SCADA Water Control Gate Design Project to the USBR for the Funding Opportunity No R23AS00109 WaterSMART Small-Scale Water Efficiency Projects. The City of Madera supports the District's application for this grant to obtain funding to install automated gates and the existing weir sites to increase water use efficiency. This is a great step toward the District's water conservation goals to increase access to groundwater, lower pumping costs, and help prevent groundwater overdraft. As the District is able to optimize and modernize their system, they will be able to provide more reliable water supplies while protecting natural resources.

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

Sincerely,

Arnoldo Rodriguez
City Manager
City of Madera

Don Roberts
General Manager
Gravelly Ford Water District
1625 Howard Road #324
Madera, CA 93637

April 30, 2024

RE: USBR Funding No. R23AS00109 WaterSMART Planning and Design Grants - GFWD Automatic SCADA Water Control Gate Design Project

To Whom It May Concern,

This letter is provided to strongly endorse and provide support for the Gravelly Ford Water District (GFWD) Automatic SCADA Water Control Gate Design Project to the USBR for the Funding Opportunity No R23AS00109 WaterSMART Small-Scale Water Efficiency Projects., I support the District's application for this grant to obtain funding to install automated gates at the existing weir sites to increase water use efficiency. This is a great step toward the District's water conservation goals to increase access to groundwater, lower pumping costs, and help prevent groundwater overdraft. As the District is able to optimize and modernize their system, they will be able to provide more reliable water supplies while protecting natural resources.

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

Sincerely,

Stephanie Anagnoson
Director of Water and Natural Resources

ROOT CREEK
Water District

MANAGING RESOURCES FOR A BETTER FUTURE

May 2, 2024

RE: USBR Funding No. R23AS00109 WaterSMART Planning and Design Grants - GFWD Automatic SCADA Water Control Gate Design Project

To Whom It May Concern,

This letter is provided to strongly endorse and provide support for the Gravelly Ford Water District (GFWD) Automatic SCADA Water Control Gate Design Project to the USBR for the Funding Opportunity No R23AS00109 WaterSMART Small-Scale Water Efficiency Projects As a farmer in the District, I support the District's application for this grant to obtain funding to install automated gates at the existing weir sites to increase water use efficiency. This is a great step toward the District's water conservation goals to increase access to groundwater, lower pumping costs, and help prevent groundwater overdraft. As the District is able to optimize and modernize their system, they will be able to provide more reliable water supplies while protecting natural resources.

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

Sincerely,

Julia D. Stornetta

JULIA D. STORNETTA
General Manager