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1. Technical Proposal and Evaluation Criteria

1.1 Executive Summary

This application is being submitted on 06/15/2022 by
Maricopa-Stanfield Irrigation & Drainage District – Category A Applicant
41630 W. Louis Johnson Dr., Maricopa, AZ 85138-5402 Pinal County

If NTP January 2023
Start January 2023
End June 2025

The proposed **MSIDD Drought Resiliency Water Augmentation Program (DRWA) Phase 2A Central Zone Project** is urgently needed to increase available water supply for the Maricopa-Stanfield Irrigation and Drainage District (MSIDD) to partially replace reduced surface water deliveries due to the first ever shortage declaration for the Colorado River (River), improve management of the Santa Rosa Canal (SRC) to reduce losses, and protect against complete water loss for some farms in the event water quality issues prevent or reduce the ability to utilize the SRC to convey existing groundwater resources. The proposed project is a high priority in the MSIDD Drought Resiliency Water Augmentation (DRWA) Program approved by the District's Board of Directors and would be the **third** Water SMART grant project for the MSIDD.

Pinal County agricultural water users, including MSIDD, are the first entities in the Colorado River Basin to face reduced water supplies due to the Tier 1 shortage declaration, with reductions of 70% of surface water in 2022 and up to 100% in 2023. This project will enable the District to partially mitigate the loss of its Colorado River surface water supplies, delivered through the Central Arizona Project (CAP), by accelerating the District's legal access to its groundwater supplies providing more flexibility to the District, while also improving water management by reducing system losses and developing conveyance to allow reliable delivery of groundwater supplies to District lands which currently do not have access to adequate groundwater. The project will benefit multiple Stakeholders as hydrologically, the District, Pinal County and the Lower Colorado River Basin are all interconnected and similarly affected by the severe drought. The District and the DRWA are in-line and will support Reclamation's basin wide approach to conserving the Colorado River Water. The DRWA is an on-going and expedited District plan for a future with substantial reductions in available surface water supplies due to the drought. The first major step in this path is the proposed project which is part of a phased strategic engineered plan for groundwater augmentation.

MSIDD is a participant in the Arizona Drought Contingency Plan (AZ DCP) and wants to ensure the preservation of existing agricultural economy in a sustainable manner. The AZ DCP is an example of the best of Arizona water management through collaboration, cooperation, and innovation. The 2019 AZ DCP enacted agreements that resulted in collective action by Arizona's water users to share resources and mitigate the impacts of storage, voluntary reductions, and increased conservation, and improved water management. As a result, non-Indian farmers in the Pinal Active Management Area (AMA) will once again be primarily reliant on groundwater pumping to meet their water needs. This project specifically addresses a step forward in the replacement of surface water supplies with new infrastructure development for groundwater supplies.

MSIDD was awarded a System Optimization Review (SOR) grant to increase water system efficiency and water supply reliability through the identification of cost-effective enhancements for the daily management of its complex water delivery network. The SOR provides the District management tools to identify and prioritize the improvements needed to modernize and better operate the complex network of canals,

laterals, pipelines, wells/pumps, and appurtenant features in the most efficient manner. A multi-phased approach will address the factors that contribute to the inefficiency and water losses present in the current conveyance system, and address groundwater augmentation and distribution. The SOR will provide a path for MSIDD moving forward with phased modernization effort to optimize overall water use, with a focus on groundwater and water management.

The project is part of a phased engineered plan including multiple new groundwater wells, several well modernization upgrades, and several miles of new well pipelines to provide alternative conveyance for groundwater that is currently conveyed via the SRC in an effort to mitigate water quality impacts and provide greater operational flexibility, including new state-of-art automated canal gates. The construction of these new infrastructure improvements is required to deliver new groundwater supplies in lieu of CAP water to District landowners. As part of our DRWA, the District, as a drought management action, has reduced allotments to growers by half to help MSIDD attain a sustainable water supply goal. In addition to water augmentation, this project will work to address the water quality issues carried within the United States Bureau of Reclamation (BOR, Reclamation) Santa Rosa Canal (SRC) and is also consistent with current Reclamation activities and objectives. The new and upgraded wells will allow de-coupling of 3 existing wells currently discharging into the SRC. This will reduce the salinity and other constituents in the SRC, improving the water quality in the SRC and that of the Ak-Chin Community. The MSIDD project will address BOR Adaptation and Mitigation strategies by improving flexibility to meet changes in agricultural practices with new on-farm technologies. MSIDD is making supply and infrastructure investments by developing groundwater supplies through new infrastructure modifications and modernization of existing infrastructure. The District plans to work closely with BOR to utilize the regional BOR groundwater model developed as part of the Eloy and Maricopa-Stanfield Basin Study to study BMP's and groundwater impact analysis.

This project will also accomplish the goals established for the WaterSMART Program and the Biden Administration's priorities and executive orders by leveraging funding to address drought resiliency, alleviate dire drought impacts, better manage MSIDD water resources, and increase efficiencies by developing groundwater infrastructure and implementing modernization technology. Stakeholders include farmers and customers in the District, the Central Arizona Irrigation and Drainage District (CAIDD), the Ak-Chin Indian Community (Ak-Chin), and Reclamation. In addition to Ak-Chin, the District borders the Gila River Indian Community (GRIC) to the northeast and the Tohono O'odham Nation (TON) to the south. MSIDD aims to work with both Native American Communities to be good neighbors and stewards of our natural resources protecting the natural environment shared along its borders. If awarded, MSIDD plan is to perform project activities between **January 2023 and June 2025**, depending upon NTP. Construction work will not start prior to March 2023.

1.2 Project Location

The project area runs from southeast to northwest of the town of Stanfield in Pinal County, Arizona. It is also the MSIDD Water Distribution Central Zone within the District service area.

The following is a project area map and more information such as shapefile, KMZ, and AutoCAD files can be provided as needed.

Figure 1: Project Location Map

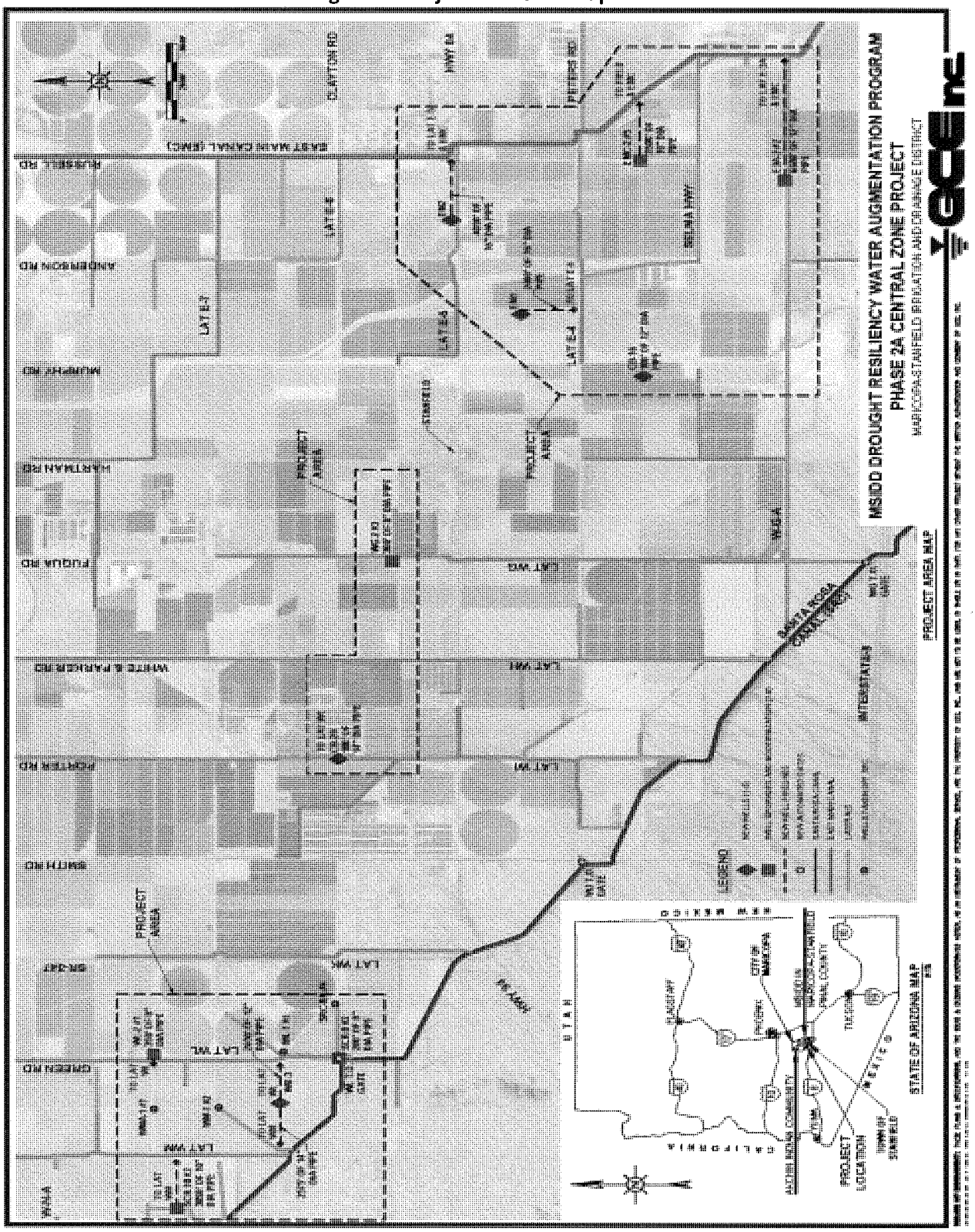

Table 1: Project Location Coordinates

New Wells	Latitude	Longitude	Wells Upgrades	Latitude	Longitude
EM1	32°52'16.73"N	111°56'14.80"W	E3A2-2	32°50'25.71"N	111°54'56.66"W
CB16	32°51'34.67"N	111°56'50.58"W	EMC2-5	32°51'27.75"N	111°54'44.73"W
CB20	32°53'37.66"N	112° 0'56.18"W	WL2-1	32°54'57.10"N	112° 3'57.46"W
WB3	32°54'4.82"N	112° 4'15.32"W	WG2#3	32°53'12.48"N	111°58'52.61"W
E5-2-2	32°52'47.71"N	111°55'20.62"W	SRC8#2	32°53'37.37"N	112° 3'59.67"W
			SRC10#2	32°54'48.43"N	112° 5'33.43"W
New Pipelines	**Beginning**	**End**	**New Gates**	**Latitude**	**Longitude**
Pipeline EM2	32°52'47.71"N, 111°55'20.62"W	32°52'47.40"N, 111°54'34.37"W	SRC Lat. WG TO	32°49'51.54"N	111°58'52.40"W
Pipeline EM1	32°52'16.73"N, 111°56'14.80"W	32°51'53.19"N, 111°56'15.29"W	SRC Lat. WL TO	32°53'33.71"N	112° 3'59.80"W
Pipeline CB16	32°51'34.67"N, 111°56'50.58"W	32°51'34.56"N, 111°56'51.75"W	SRC Lat. WJ TO	32°51'51.88"N	112° 1'59.56"W
Pipeline CB20	32°53'37.66"N, 112° 0'56.18"W	32°53'37.68"N, 112° 0'53.50"W			
Pipeline WB3	32°54'4.82"N, 112° 4'15.32"W	32°54'4.85"N, 112° 4'58.57"W			

1.3 Technical Project Description

The proposed **MSIDD Drought Resiliency Water Augmentation Program (DRWA) Phase 2A Central Zone Project** is urgently needed to increase available water supply for the Maricopa-Stanfield Irrigation and Drainage District (MSIDD). Pinal County agricultural water users, including MSIDD, are the first entities in the Colorado River Basin to face reduced water supplies due to the Tier 1 shortage declaration, with reductions of 70% of surface water in 2022 and up to 100% in 2023. This project will enable the District to partially mitigate the loss of its Colorado River surface water supplies, delivered through the Central Arizona Project (CAP), by accelerating the District's legal access to its groundwater supplies providing more flexibility to the District, while also improving water management by reducing system losses and developing conveyance to allow reliable delivery of groundwater supplies to District lands which currently do not have access to adequate groundwater. The project will benefit multiple Stakeholders as hydrologically, the District, Pinal County and the Lower Colorado River Basin are all interconnected and similarly affected by the severe drought. The District and the DRWA are in-line and will support Reclamation's basin wide approach to conserving the Colorado River Water. The DRWA is an on-going and expedited District plan for a future with substantial reductions in available surface water supplies due to the drought. The first major step in this path is the proposed project which is part of a phased strategic engineered plan for groundwater augmentation.

The proposed project is part of a phased engineered plan including multiple new groundwater wells, several well modernization upgrades, and several miles of new well pipelines to provide alternative conveyance for groundwater that is currently conveyed via the SRC in an effort to mitigate water quality impacts and provide greater operational flexibility, including new state-of-art automated canal gates. The construction of these new infrastructure improvements is required to deliver new groundwater supplies in lieu of CAP water to District landowners. As part of our DRWA, the District, as a drought management action, has reduced allotments to growers by half to help MSIDD attain a sustainable water supply goal. In addition to water augmentation, this project will work to address the water quality issues carried within the United States Bureau of Reclamation (BOR, Reclamation) Santa Rosa Canal (SRC) and is also consistent

with current Reclamation activities and objectives. The new and upgraded wells will allow de-coupling of 3 existing wells currently discharging into the SRC. This will reduce the salinity and other constituents in the SRC, improving the water quality in the SRC and that of the Ak-Chin Community. The MSIDD project will address BOR Adaptation and Mitigation strategies by improving flexibility to meet changes in agricultural practices with new on-farm technologies. MSIDD is making supply and infrastructure investments by developing groundwater supplies through new infrastructure modifications and modernization of existing infrastructure. The District plans to work closely with BOR to utilize the regional BOR groundwater model developed as part of the Eloy and Maricopa-Stanfield Basin Study to study BMP's and groundwater impact analysis.

This project will also accomplish the goals established for the WaterSMART Program and the Biden Administration's priorities and executive orders by leveraging funding to address drought resiliency, alleviate dire drought impacts, better manage MSIDD water resources, and increase efficiencies by developing groundwater infrastructure and implementing modernization technology. Stakeholders include farmers and customers in the District, the Central Arizona Irrigation and Drainage District (CAIDD), the Ak-Chin Indian Community (Ak-Chin), and Reclamation. In addition to Ak-Chin, the District borders the Gila River Indian Community (GRIC) to the northeast and the Tohono O'odham Nation (TON) to the south. MSIDD aims to work with both Native American Communities to be good neighbors and stewards of our natural resources protecting the natural environment shared along its borders. If awarded, MSIDD plan is to perform project activities between **January 2023 and June 2025**, depending upon NTP.

Detailed Project Description:

Priority New Wells and New Pipelines (up to 5 new wells):

- **Well CB20** is located along Lateral WI 2.8 miles north of the SRC, Lateral WI Headgate requires approximately 100 feet of 14-inch diameter pipe to deliver water to Lateral WI. New overhead power from the nearest powerlines half a mile to the north.
- **Well WB-3** is approximately half a mile north of the SRC between Lateral WL and WM with approximately 2,650 feet of 12-inch diameter pipe to Lateral WL and 2,575 feet of 14-inch diameter pipe to Lateral WM. There is power near the site for a new electrical service.
- **Well EM2** is along Lateral E-5 with approximately 4,050 feet of 16-inch diameter pipe to the EMC. This well will be within 600 feet of the capped well E5-2#1, there is power nearby for electrical service.
- **Well EM1** is between Lateral E-4 and E-5 with approximately 2,400 feet of 16-inch diameter pipe. New overhead power will be run from the nearest powerlines half a mile to the east.
- **Well CB16** is located in field WGA-2 with approximately 100 feet of 12-inch diameter pipe to serve the surrounding fields. New overhead power from powerlines to the east for electrical service.

Priority wells to be upgraded and new pipelines (up to 6 well improvements):

- **Well SRC-10#2** currently an inactive domestic well, upgrades and improvements to upgrade the flow rate of this well. Includes approximately 3,050 feet of 10-inch diameter pipe to serve Lateral WM.
- **Well EMC-2#5** currently inactive and capped, needs electrical service and transformer. Upgrades and improvements and approximately 3,500 feet of 10-inch diameter pipe to deliver water to the EMC.
- **Well E3A-2#2** currently inactive and capped and requires a new electrical service. Upgrades and improvements and approximately 6,600 feet of 12-inch diameter pipe to deliver water to the EMC.
- **Well SRC-8#2** currently an inactive domestic well, upgrades arerequired to increase flow rate of this well. Well requires upgrades and approximately 200 feet of 8-inch diameter pipe to serve Lateral WL.
- **Well WL-2#1** currently an inactive domestic well, requires upgrades and approximately 350 feet of 8-inch diameter pipe to deliver water to Lateral WL.

- **Well WG-2#3** currently an inactive domestic well, requires upgrades and approximately 300 feet of 8-inch diameter pipe to deliver water to Lateral WG.

Priority turnouts to be upgraded and automated (3 turnout gates):

- **Turnout WJ** on the SRC is estimated to leak about 0.2 CFS. To stop leaking and provide better flow management and monitoring, it is proposed to replace the existing 36-inch slide gate with a Rubicon Slipmeter Gate Model SMB-900-3000-C. A coffer dam is required to install the gate.
- **Turnout WG** on the SRC is estimated to be leaking approximately 0.75 CFS. The existing 60-inch diameter pipe with a Rubicon Slipmeter gate installation requires major structural modifications. Therefore, it is proposed to replace the existing slide gate with a new Fresno canal gate to stop the leaking. This turnout has a new actuator to be salvaged and used the for SCADA control of the gate.
- **Turnout WL** on the SRC is estimated to be leaking approximately 0.5 CFS. The existing pipe is 60-inch diameter to be replaced with a Fresno canal gate and a new SCADA ready actuator.

Approach to Complete Work: MSIDD will collaborate with BOR to complete the environmental requirements and no ground disturbance work will be performed until the required National Environmental Policy Act (NEPA) work is completed. MSIDD will secure all easement and water usage rights prior to contract execution. After Reclamation contract execution and receipt of the Notice to Proceed (NTP), an Action Plan will be developed that lists each task, scheduled interval, responsible party, comments/notes and when the task is to be completed. The District's Consultant, George Cairo Engineering, Inc. will work to finalize the design of the project elements, assist with the Arizona Department of Water Resources (ADWR) permitting work, and ROW work concurrently with NEPA work. MSIDD will obtain ADWR permits for wells registration, Pinal County Road crossings and dust control, and utility companies (power, gas, water, fiber optics, etc.). Once NEPA is completed and we are cleared for construction, the District will select a District Contractor and provide an NTP to mobilize to begin performing the project scope of work.

For new wells, Contractor will drill new holes, install video monitoring, new casings with associated materials, install new pumps and appurtenances, SCADA and above ground piping with flowmeters, construct well and electrical pads, electrical work to bring 3-phase power to the site, trenching for electrical conduits, install electrical panels, commissioning, test the pumps, and de-mobilize.

For well upgrades and modernization, existing well pumps will be removed, existing casing will be brushed and reperforated, complete swaging and patching work, gyro-caliper logging, liner and gravel pack, and apply chemical treatments, install new improved pumps and appurtenances, SCADA and flowmeters, construct well and electrical pads, electrical work to bring 3-phase power to the site, trenching for electrical conduits, install electrical panels, test the pumps, commissioning with startup procedures, and de-mobilize.

For pipeline installation, the Contractor will mobilize, pre-plan and purchase materials in advance of mobilization to site, survey to stake the pipeline alignment, site clearing, trenching, bedding material, lay pipeline inclusive of fittings, bends, and joints, tie-in to well site, pipe testing to assure that there's no leakage, backfill trench section with suitable materials, and de-mobilize.

For automated turnout gates, the Contractor will mobilize, pre-plan and purchase materials in advance. Install cofferdams on the SRC and pump out nuisance water, perform structure modifications for gate fitting and installation, install Rubicon SlipMeter gates, appurtenances, commissioning, and start-up of gates.

List of Materials and Equipment:

- **Well sites (up to 5 new wells and 6 new well upgrades):** Drill rig, sounding tube for video, casing, chemical treatments on existing wells, turbine pumps, column pipe, tube and shaft (inner column), discharge materials (heads, pipe, flanges, air vents, dressers, valving, spigots and pressure gauges,

electromagnetic flowmeter, SCADA for water levels, submersible pump, submersible motors with cable, soft start electrical panels, variable frequency drive's (VFDs), MCM wires, electrical conduits, electrical panels and controls, MCM wires, heavy equipment trencher, boom truck, front end loader, rubber tired excavator gradall, GPS Survey, water and dump trucks, Project Manager Trucks and Operator Trucks.

- **Well pipelines (several miles):** Plastic Irrigation Pipe (PIP) 125 PSI, Steel Pipe SCH 40, joints, bends, fittings, backfill materials, heavy equipment trencher, boom truck, front end loader, rubber-tired excavator gradall, GPS Survey, water and dump trucks, Project Manager Trucks and Operator Trucks.
- **New automated gates:**
  Install 1 Rubicon SlipMeter Gate:
  - The SlipMeter is a precision flow control and flow measurement gate that measures fully submerged flows (and partial-full flow in partial-full models) and mounts directly to a turnout headwall. Controls will include local controller software and live connect for mobile controls.

  Install 2 Fresno gates and Rotork Actuators:
  - Fresno Valves & Castings a primary gate manufacturer in the United States for over 70 years. Fresno fabricated slide gates are designed and fabricated from special shaped extrusions or structural angles, flats, and plates that are assembled by welding and bolting. Since there are no machined parts or wedging devices in the gate itself, the gate depends upon water pressure and seal design to seat the fabricated slide. With the fabricated slide in the fully closed position, watertightness of the gate improves as the head of water increases. Frame, Slide and Reinforcing are made out of stainless steel and carbon steel, Gate stem is made out of stainless steel and cold finish steel, Fasteners are made out of stainless steel and plated/galvanized, Rubber seals are made out of neoprene, and Guides are made out of ultra-high molecular weight polymer.
  - Rotork Actuators: Rotork actuators allows for precise gate operation providing accurate gate positions. Rotork guarantees actuator performance at +/-10% of nominal voltage, however in common with all DC motors of this type, speed will vary with load and voltage. Low inertia, high starting torque motor combined with the lost motion drive, allows the motor to reach full speed with maximum available torque before the drive. Maintenance free for the life of the actuator.
  - Data loggers will allow for flow measurement, well, and system operations data logging.

1.4 Performance Measures

Below are the proposed performance measures for each of the project's scope of work components once the project is implemented.

- **New Drilled Wells:** MSIDD will compare the existing flows, 0 cfs, versus new flows collected and recorded with new SCADA installation and electromagnetic flowmeters. This will document the net amount of new water the well has added. MSIDD will evaluate and determine the cost benefit per CFS of flow to track economic benefits.
- **Well Upgrades and Modernization:** MSIDD will compare the existing documented flow against the flows collected and recorded with the new SCADA installation and electromagnetic flowmeters. This will document the net amount of water that the newly upgraded wells have added. MSIDD will evaluate and determine the cost benefit per CFS of flow to track economic benefits.
- **New Well Pipelines:** MSIDD will utilize high accuracy handheld flowmeters to measure flows at the discharge locations from well sites and utilize flow data for planning and irrigation water management.
- **New Automated Turnout Gates:** The Rubicon automated turnout gates include high accuracy flow measurement data. MSIDD will compare new data to the leaking gate flow data and quantify amounts of water conserved. MSIDD will evaluate and determine economic factors for the cost benefit per CFS.

1.5 Evaluation Criteria

A. Project Benefits

Long-term resilience to drought? Years project provide benefits? This WaterSMART grant will help build long-term drought resilience by increasing access to groundwater, reducing system losses, improve water quality reducing leaching fractions and water delivered through the SRC and demands on Lake Mead. This will be accomplished by upgrading existing infrastructure and installing additional wells necessary to add new groundwater supplies that are critical to the sustenance of the farms and communities served by the MSIDD. The MSIDD multi-phased Drought Resiliency Water Augmentation Plan is a phased approach to improving the MSIDD capacity to cope with and respond to the impending drought. The proposed Phase 2A Central Zone project mitigation actions in this grant application will help MSIDD meet objectives in our drought contingency plan. The groundwater augmentation and flow distribution project will increase the reliability of water supplies during unprecedented drought that restricts the surface water distribution to our low priority water users, improve water management, and provide environmental benefits, help with water quality issues for the Ak-Chin Indian Community. The project lifecycle benefits are envisioned to be 25 to 50 years depending on the project element.

CAP, a 336-mile system of aqueducts, tunnels, pumping plants and pipelines delivers Colorado River water to Maricopa, Pinal, and Pima Counties. CAP serves more than 5 million people or 80% of the states' population including irrigated farmland and is the single largest provider to tribal communities in the Colorado River system. The SRC turnout, which services the MSIDD, is the largest turnout on the CAP.

Most of the Colorado River flow originates in the upper portions of the Colorado River Basin in the Rocky Mountains. The total Colorado River system storage is at 40% of capacity, down from 49% in 2020. As water districts continue to face vulnerabilities due to drought and climate change, diversification of water supplies is vital for water security. The augmentation of groundwater is an important water management tool is crucial to building drought resiliency, supporting public health, and facilitating long-term planning to support increased municipal and industrial water supplies, irrigation, and ecosystem restoration.

Arizona is a member of the Colorado River Compact governing the allocation of the river's water among the parties of this interstate compact. The compact covers the Colorado River basin which includes 7 states subdivided into upper and lower basins, with Arizona being a lower basin state with our surface water supplies stored in Lake Mead. Management of Lake Mead and other Federally Owned Facilities on the River are the responsibility of Reclamation. Climate change is hitting the River hard and in recent years, with an unprecedented 21-year drought in the Colorado River Basin leading to reduced water levels in Lake Mead and the first ever declared Tier 1 shortage, and potentially Tier 2 shortage in the next couple of years. The Tier 1 declaration on the River mandates reductions in allocations of river surface water supplies due to the Tier 1 declaration. The ongoing drought and these shortages impact central Arizona agricultural users first and foremost, as they have lower priority rights to River supplies. The hardest hit will be the agriculture industry particularly in Pinal County, Arizona including MSIDD.

MSIDD was formed in 1962 and is a political subdivision and municipal corporation of the State of Arizona. Its purpose is to provide irrigation water for agriculture. The District is located entirely within the boundaries of Pinal County, located in the southcentral portion of Arizona, and its sources of water comes from groundwater and surface water from the CAP. The District is rural in nature and, at present, consists of approximately 82,000 acres and generally delivers water to 65-75,000 acres each year. That number is being significantly reduced this year and even more so in 2023 due to Reclamation's Tier 1 Shortage Declaration on the Colorado River. This has resulted in a loss of approximately 70% of the District's CAP supply in 2022 and nearly 100% in 2023 and thereafter if the Declaration remains in effect. The fact is

MSIDD is in a dire situation with respect to water supplies, the District became a partner of the Federal and AZ DCP and continues to build upon our internal DRWA Program. This proposed priority project is part of the phased District DRWA to further meet the District water supply challenges due to the drought impacts.

The State of Arizona (AZ) created the Drought Contingency Plans (DCP) and Arizona Steering Committee in which the District participated. One of the goals of the DCP Committee was to help mitigate the loss of the 80,000 ac-ft of CAP water to MSIDD and others including Pinal County irrigation districts. It was determined that the desired mitigation would be limited to a total of 70,000 ac-ft of new groundwater production CAP wide (20,000-acre feet for MSIDD), which essentially was designed to replace the 250,000 ac-ft Ag Pool for the Pinal County districts. The cost of developing the new 70,000 ac-ft of groundwater was estimated to be $45 million and various forms of federal, state, and local funding were identified for this purpose. The new groundwater development was to be completed by January 1, 2023, because as of that date CAP "mitigation water" supplies would no longer be available to the districts. To date, most of the $45 million has been made available but some of it will trickle in through 2026. However, given the initial delays in this funding, escalated costs, limited well 2 drilling rigs and recent supply chain delays, the $45 million will not produce the targeted 70,000 ac-ft of groundwater by 2023. Nor does the District's 20,000 ac-ft of new groundwater production targeted under the AZ DCP come close to replacing the 80,000 ac-ft of lost CAP water now being retained in Lake Mead under the Lower Basin Drought Contingency Plan ("LBDCP"). For these reasons, the District is seeking federal funding through this WaterSMART Program. MSIDD wants to ensure the preservation our agricultural economy in a sustainable manner. The AZ DCP is an example of the best of Arizona water management through collaboration, cooperation, and innovation. The 2019 AZ DCP enacted agreements that resulted in collective action by Arizona's water users to share resources and mitigate the impacts of storage, voluntary reductions, and increased conservation, and improved water management. As a result, non-Indian farmers in the Pinal AMA will once again be primarily reliant on groundwater pumping. This project specifically addresses a step forward in the replacement of surface water supplies with new infrastructure development for groundwater supplies.

MSIDD was awarded a System Optimization Review (SOR) grant to increase water system efficiency and water supply reliability through the identification of cost-effective enhancements for the daily management of its complex water delivery network. The SOR provides the District management tools to identify and prioritize the improvements needed to modernize and better operate the complex network of canals, laterals, pipelines, wells/pumps, and appurtenant features in the most efficient manner. A multi-phased approach will address the factors that contribute to the inefficiency and water losses present in the current conveyance system, and address groundwater augmentation and distribution. The SOR will provide a path for MSIDD moving forward with a focus on groundwater and drought water management.

This project will also accomplish the goals established for the WaterSMART Program and the Biden Administration's priorities and executive orders by leveraging funding to address drought resiliency, alleviate dire drought impacts, better manage MSIDD water resources, and increase efficiencies by developing groundwater infrastructure and implementing modernization technology. Stakeholders include farmers and customers in the District, the Central Arizona Irrigation and Drainage District (CAIDD), the Ak-Chin Indian Community (Ak-Chin), and Reclamation. In addition to Ak-Chin, the District borders the Gila River Indian Community (GRIC) to the northeast and the Tohono O'odham Nation (TON) to the south. MSIDD aims to work with both Native American Communities to be good neighbors and stewards of our natural resources protecting the natural environment shared along its borders. If awarded, MSIDD plan is to perform project activities between **January 2023 and June 2025**, depending upon NTP.

Add'l water supplies available? Estimated quantity? Yes, it will provide additional new groundwater

supplies to augment or replace reduced Colorado River surface water deliveries. The new pipeline infrastructure will also increase water availability to farms at risk of losing all supply.

Total estimated water supply of this Project is **202,276 AF/10 yrs cycle**. Below is an example calculation:

Well CB16: Estimated Well Flow = 3.50 CFS = 6.93 AF/day. The well will be utilized 300 days/yr.
6.93 AF/day x 300 days/yr = 2,079 AF/yr; 10 year cycle = 2,079 AF/yr x 10 yrs = 20,790 AF/10 yrs

Lateral WG Turnout: Estimated Water Loss with Existing Gate = 0.56 CFS/day = 1.11 AF/day. The turnout leaks 365 days/yr. 1.11 AF/day x 365 days/yr = 405 AF/yr; 10 year cycle = 405 AF/yr x 10 yrs = 4,050 AF/10 yrs of leakage that can be saved with the new modernized technology automated gate.

Table 2 Water Production Summary

Well ID	CB20	WB3	EM2	EM1	CB16	SRC-10#2	EMC-2#5	E3A-2#2	SRC-8#2	WL-2#1	WG-2#3	Total
(AF/10yr)	23,790	26,700	22,080	26,700	20,790	11,898	11,898	14,872	11,898	11,880	11,880	**194,386**

Turnout ID	WJ	WG	WL	Total
(AF/10yr)	4,050	1,090	2,750	**7,890**

Total estimated water supply = **202,276 AF/10 yrs cycle**

Percentage total water supply does add'l water supply represent? Calculated? It is estimated to be 12 percent of the total water supply calculated by taking the total estimated new water supply created by this project (20,227.6 AF/YR) and dividing it by the total MSIDD water supply in 2023 with zero surface water and an estimate of groundwater (175,000 AF/yr).

Qualitative benefits associated w/ add'l water supplies. The project will potentially create approximately 32.5 CFS of new water. Based on the reduced design criteria of 1 CFS per 100 acres, project creates will serve approximately 3250 acres of land otherwise fallowed due to loss of surface water from the drought. Environmental impacts, such as fugitive dust, and health concerns will be reduced by maintaining the agricultural activities of these lands with the flows created by the project.

Improve management of water supplies? Yes. This project will improve management of water supplies. It will offset surface water supplies with local groundwater that reduces structural deficit conveyance losses from Lake Mead and leave water behind the dam for drought resiliency and possible supplies to others. It also improves flexibility by providing an alternate new source of water.

Increase efficiency of operational flexibility? By reducing conveyance travel times and losses in the CAP, SRC, and the new pipeline network, in addition to adding new water supplies to meet demands. This project will increase efficiency of existing and additional water supplies, with automated delivery control, and accurate flow measurement. With better flow control and measurement, the delivery to on-farm systems will be able to meet the advanced requirements of emerging technologies including drip, Rubicon Farm Connect, et al. Farmers will reduce their tailwater spills and improve operational efficiencies.

Est. quantity of water that will be better managed? Est. calculated? The total estimated quantity of water that will be better managed as a result of this project is 20,228 AF/yr. and 202,276 AF/10 yrs. cycle. See sample water calculation in previous question.

Percentage of total water supply water better managed represent? Est. calculated? The water better managed from this project equals the total water supply created by this project, the District will use

advance controls and automation, estimated to be 12 percent of the total water supply. This was calculated by taking the total estimated new water supply created by this project (20,227.6 AF/yr) and dividing it by the total MSIDD water supply in 2023 with no surface water and groundwater (175,000 AF/yr).

Qualitative description of anticipated water management benefits. Water management benefits created by the new 32.5 CFS of water includes serving approximately 3,250 acres of land otherwise fallowed due to loss of surface water. Environmental impacts, such as fugitive dust, and health concerns will be reduced. Wildlife will benefit maintaining agricultural with the flows created by the project.

New information available to water managers? How will it improve water management? The project will provide groundwater level data from new well sounding systems, new groundwater pumping flows, irrigation delivery flows, and SRC delivery flows. Data will be used by MSIDD operations staff to provide precise irrigation deliveries, use as part of our integrated groundwater management and drought mitigation plan, with planned SCADA integration. Data will also be used to support modeling activities, planning efforts, and drought mitigation planning by management.

Wells. What is the estimated capacity of the new well(s), estimate calculated? Estimated well capacity ranges from 2 CFS to 4.5 CFS. Based on the District's Well Consultant, historical data for each well site, long-term historical production performance, and groundwater level analysis.

Water extract through the well(s), how does this fit within local groundwater governance? The total estimated water from all of the new and upgraded wells is 32.5 CFS. MSIDD is within the Pinal AMA and will be working with the Arizona Department of Water Resources (ADWR), AZ DCP agreement and Tier I or Tier II conditions on the Colorado River. Further, each well will extract the amount of water in accordance with the associated ADWR permit. Due to the district having reduced CAP water delivery, the district is seeing an approximate 10% increase in groundwater deliveries.

Primary supply or supplemental supply when there is a lack of surface water supplies? The wells will be used as primary water supplies when there is a lack of surface water supplies.

Participate in an active recharge program contributing to groundwater sustainability? Yes. CAP water stored in the District over the years in lieu of pumping groundwater: the total long-term storage credits accrued at MSIDD through 12/31/2020: 1,253,515 acre-feet CAP water. In addition to natural recharge due to farming irrigation and drainage practices, MSIDD, as part of its phased DRWA, has tasked GCE to study available storm water harvesting concepts to improve recharge rates within the district boundaries, including flows in natural ephemeral washes, and urban drainage capture opportunities. This includes designing, building facilities, and metering flows. MSIDD is also evaluating the use of effluent from municipal sources as a potential source of recharge flows.

Proposed well(s) will not adversely impact the aquifer, provide project map and information. The District's hydrogeologist consultant analyzed the well area, historic as-built details in the ADWR Groundwater Site Inventory (GWSI) database for groundwater level, hydrogeologic conditions and production capacity. The well locations are provided in Section 1.2 Project Location. Refer to Table 2 Water Production Summary for the total amount of well capacity. The estimated well volume is 20,228 AF/yr. Additional information can be provided as needed. The District will also work closely with BOR to utilize the regional BOR groundwater model developed as part of the Eloy and Maricopa-Stanfield Basin Study to assist in best management practices including well location, water quality and quantity, and groundwater impact analysis. The District will also collaborate with other groundwater users (Ak-Chin, TON, GRIC, and Pinal County). The project is subject to the NEPA process where "impacts" will be determined as part of the final well locations, design and production. The District SOR will also address this concern.

Groundwater monitoring plan and mitigation actions to avoid significant adverse impacts. The District has representation on the Pinal County Water Augmentation Authority (PCWAA) which promotes the development of responsible, collaborative, and sustainable water planning and management in the Pinal AMA. Representatives include municipalities and agricultural districts including MSIDD. Groundwater information from PCWAA and ADWR are used by MSIDD to assess, monitor and evaluate the Maricopa-Stanfield groundwater basin. The Eloy and Maricopa-Stanfield Basin Study (EMSBS) is the most recent study to be awarded and is co-sponsored by Reclamation and the Pinal Partnership. The study area consists of Eloy and the Maricopa-Stanfield sub-basins. Strategies are being developed for municipal, industrial, and agricultural sectors. The study is close to being finalized and will be a useful asset for MSIDD. The District is completing a sounding tube initiative to install a vented pipe with an access hole and two-wire cable on active wells. Water levels measured throughout the year will be used in evaluating static levels and determining well pump efficiency. Sounding tube data along with historical pumping and static data will be used to manage groundwater resources. Routine operational data reviews are done on pumping rates, pumping levels, PH, salinity, and temperature. In addition, the ADWR annually tests approximately 30 well sites with MSIDD service territory as part of its monitoring activities.

Wells funded are to support communities facing water supply shortages due to drought.
The wells and new groundwater supplies will directly help support shortages of surface water due to drought and are not part of long-term planning to serve increased irrigation demands. MSIDD has re-programmed project water supply criteria and reduced water allotments to half the original project values as an action in its DRWA Plan. The new well supplies are part of a phased approach that will supplement reduced existing supplies as a source of water during drought to meet the new reduced allotments.

Metering/Water Measurement Projects. To what extent are the methods tested/proven? The new well sites and lateral turnout headings will have new state-of-the-art metering as part of this project. The water measurement technology selected for the project has been tested and proven. Refer to the Appendix for data related to electromagnetic flowmeters for wells and the Rubicon SlipMeter gates. When installed properly these devices have an accuracy of plus or minus 2.5 percent.

Improve the ability to predict the onset of drought earlier and/or with more certainty? Well and flow monitoring data assist management in observing trends and drought onset predictions.

Improve the ability to anticipate the severity and magnitude of drought? Dynamic groundwater levels and quality data and will improve modeling of aquifer conditions, for planning purposes and to manage the supplies with added certainty.

Improve the timing of detecting mitigation action triggers? Provides real time groundwater levels and quality data improving models of aquifer conditions, to manage groundwater with added certainty.

Necessary sub-component of another eligible Drought Resiliency Project in Tasks A, B, and C.
This project will help address drought conditions at the basin scale by:

1) Creating local supply resiliency and helping to support the water-related crisis reducing stress on Lake Mead (decreased surface water access due to drought and climate change).
2) Leveraging funding to conserve and better manage water resources and increase system efficiency, thus reducing surface water quantities delivered during drought.
3) Improving water conservation, efficiency, and effectiveness of water delivery system by accessing ground water to address reduced surface water quantities.
4) Increasing water supply reliability through investments in existing infrastructure.

5) Building long-term resilience to drought and reducing the need for emergency response action. (FEMA estimates that mitigation saves $4.00 for every $1.00 expended.)
6) Flow data information gathered project will drive other management tools and models as part of actions identified in MSIDD DRWA Plan. Flow measurement is key to operations and delivery to end users for efficient irrigation resulting in less pumping, protection of the groundwater aquifer to address drought.

Broader Benefits:
This project demonstrates collaboration between MSIDD, other water districts, BOR, the Ak-Chin Indian Community, and agricultural users. It can serve as an example to other water managers on how assessment, planning, usage, and need coupled with applied automation and innovative technology can be used by districts relying on multiple sources of water under various conditions (distance from source, source ground/surface, seasonal fluctuations in supply, drought, and climate change). By conserving water, we promote biodiversity for endangered species in this desert habitat that rely on the Lower Colorado River and its backwaters, riparian areas and natural lakes, and the marshy habitat it supports for nesting, spawning, and daily life. It is also part of the migration pathway for many bird and butterfly species. Their habitat was greatly affected by the dams constructed along the Colorado River and then by the increased demand for water by towns and farming. During drought conditions this is intensified.

B. Drought Planning and Preparedness

Provide link to drought plan and attach relevant sections of the plan. The District is a contributor to the State of Arizona DCP and has committed to the Ag Mitigation Agreement. Refer to Section 5 and the Appendix for the Ag Mitigation Agreement (Pg. 4-6 of DCP) among the "**Arizona Department of Water Resources, CAWCD, CAIDD, HIDD, HVIDD, MSIDD, and SCIDD for the Mitigation of Reduction to CAP Ag Pool Water Under the Drought Contingency Plan**" and link to the AZ DCP which is a complex and collaborative drought plan, relevant sections are included in Section 5 and the appendix.

Plan addresses drought. Does plan contain drought focused elements? Yes, the State of Arizona DCP clearly identifies a system for drought monitoring and prioritized mitigation and response action that correlate to the different stages of drought. These are identified in the plan as Tier 1 through Tier 3 levels. The AZ Drought Monitoring Technical Committee uses percentile values for precipitation and streamflow to determine drought status in each of Arizona's watersheds. Arizona's long-term drought status map, updated quarterly, incorporates 24-, 36- and 48-month precipitation and streamflow percentiles from multiple gages in each of Arizona's major watersheds. To arrive at these values, precipitation and/or streamflow totals for each period (24, 36, 48 months) are compared to a 40-year historical record.

Other activities that MSIDD is performing for drought resiliency and mitigation:

- A System Optimization Study to identify water savings and efficiency strategies for the district with a USBR funded grant (R22AP00376 under BOR-LC-21-F002 WCFSP) with matching funds from MSIDD.
- Automated Gates and SCADA to replace the existing aging SCADA system.
- Coordination with Electrical District No. 3 (ED-3) on several load management programs. These include a demand reduction program based on coincident peak demand billing and an interruptible rate rider to assist ED3 with load management. Including a preliminary land fallowing initiative to minimize groundwater pumping in certain areas is identified in the updated ED3 Integrated Resource Plan (IRP).
- From an education perspective, MSIDD has participated in irrigation technology workshops on topics including N-drip, asset management software, gate technologies, and BMP's for agricultural operations. The IMS is a program formed to help agricultural producers in the Pinal AMA determine the most effective techniques to achieve maximum irrigation efficiency on existing irrigation systems.

Was drought plan developed with input from stakeholders, collaborative process? Yes, The State of Arizona DCP was developed with input from multiple stakeholders including ADWR, CAWCD, CAIDD, HIDD, HVIDD, MSIDD, QCID, and SCIDD and represents the best of Arizona Water Management: collaboration, cooperation, and innovation. The 2019 DCP put agreements in place that resulted in collective action by Arizona's water users to share resources and mitigate the drought impacts with storage, voluntary reductions and increased conservation, and improved water management.

Plan include consideration of climate change impacts to water resources or drought? While the State of Arizona DCP does not specifically address climate change impacts, the DCP is adaptive to to worsening conditions, giving time to identify additional actions as needs dictate if the impact of poor hydrology continues. MSIDD and the proposed project are directly related to climate change impacts.

Proposed drought resiliency project is supported by an existing drought plan? Plan identifies the proposed project as a potential mitigation action? Yes, Through the DCP, the irrigation districts surrounding Ak-chin have agreed to forgo using CAP water to increase storage at Lake Mead and secure water delivery to the Ak-chin Indian community. As a result, non-Indian farmers in the AMA Pinal will once again be nearly solely reliant on groundwater pumping to meet their water needs through additional wells and modification and modernization of existing wells. The MSIDD proposed project in this grant is also further identified in our phased DRWA Plan.

Does the proposed project implement a goal or need identified in the drought plan? Yes, the proposed project will partially implement the goals established for the DCP which calls for groundwater development to offset surface water shortages due to drought. The Tier 1 shortage impacts, especially to the CAP agriculture pool have been reduced by Arizona's implementation of the DCP.

How is the proposed project prioritized in the drought plan? The State of Arizona (AZ) created the Drought Contingency Plan (DCP) and Arizona Steering Committee in which the District participated. One of the goals of the DCP Committee was to help mitigate the loss of the 80,000 ac-ft of CAP water to the District as well as lost CAP supplies to others, mostly Pinal County irrigation districts. After much debate, it was determined that the desired mitigation would need to be limited to a total of 70,000 ac-ft of new groundwater production CAP wide (20,000-acre feet for MSIDD), which essentially was designed to replace the 250,000 ac-ft Ag Pool for the Pinal County districts. The new groundwater development was to be completed by January 1, 2023, because as of that date CAP "mitigation water" supplies would no longer be available to the districts thereby making this project of exigent need and priority.

C. Sustainability and Supplemental Benefits

Climate Change:

Natural hazard risk reductions for hazards? Yes. Less reliance on surface water supplies improves watershed health, decreases wildfire risk, reduces flood damage due to soil erosion.

Project includes green/sustainable infrastructure to improve climate resilience? Yes. The project will include well remote monitoring and control via SCADA with remote shutoff. This reduces pumping energy consumption by providing the ability to shut off the wells or close canal gates quicker due to elimination of operator travel time, allowing the system to operate more efficiently and save on energy.

Project establish and use a renewable energy source? Not for this project, but our overall program will evaluate renewable energy development and green projects inclusive of solar covering of our canals and hydropower turbines in canals. ED3 has committed to allocating a portion of the Box Canyon and Raceway utility-scale solar projects to MSIDD to support the power supply goals of the district.

Project reduces greenhouse gas emissions? Yes. The proposed project creates new water for irrigation to maintain agricultural production helping to reduce greenhouse gas emissions by sequestering carbon in alfalfa, sudan grass, trees, and other vegetation. The automation and SCADA reduces pumping and energy consumption by providing the ability to shut off the wells or close canal gates quicker due to elimination of operator travel time, allowing the system to save on energy usage.

Project have a conservation or management component that promote healthy lands and soils or serve to protect water supplies? Yes. The project will help to prevent fallowing of approximately 3,250 acres maintaining healthy nutrient rich soils and prevent soil wind erosion. Soils in some areas of the District contain soils binder considered highly erodible per USDA NRCS classification. The proposed project will improve water management, water quality, reduce leaching of salts, improve soil conditions, improve on-farm irrigation efficiencies, reduce spills with automated equipment for better controls, therefore requiring less pumping leaving water in the groundwater aquifer for future generations.

Project contribute to climate change resiliency in other ways? Yes, indirectly. The project approach to climate change resiliency will serve as a demonstration to other Districts in Pinal County. It will be used as part of district, farmer, and regional education and training as a demonstration of direct and feasible drought resiliency action. It will also be used to continue dialogue with stakeholders including Ak-Chin, BOR, Municipalities, Tohono O'odham Nation, and the Gila River Indian Community for future collaboration on drought water issues and climate change.

Disadvantaged or Undeserved Communities:

Please describe how community is disadvantaged or undeserved: Native Americans are among the most at risk from climate change, often experiencing the worst effects because of higher exposure, higher sensitivity, and lower adaptive capacity for historical, socioeconomic, and ecological reasons. With one and a half million Native Americans, the Southwest has the largest population of Indigenous peoples in the country, including the Ak-Chin Indian Community. Maricopa-Stanfield is an underserved, rural, low-income, disadvantaged community (Stanfield and Ak-Chin Indian Tribe). The following table describes in detail how the community served by MSIDD is highly disadvantaged.

Table 3: Disadvantaged Community Variables

MSIDD Disadvantaged Community Variables		
Variable	**Maricopa - Stanfield**	**Ak-Chin Indian Community**
Population	558	884
Low income, high and/or persistent poverty	MHI[1] $22,230 39.3% Live in Poverty	MHI[1] $25,391 34.7% Live in Poverty
High unemployment Employment Rate	11% 39.2%	15.1% 40.4%
Racial and ethnic residential segregation, particularly where the segregation stems from discrimination by government entities	29% Native American 71% Hispanic	100% Native American or Family Members
Linguistic isolation (Speak a Language Other Than English)	Spanish-speaking 44.7%	Native Language (O'odham) 27.8%
High housing cost burden and substandard housing	Substandard	Substandard
High transportation cost burden and/or low transportation access	No Public Transportation	Limited Public/Tribal Transportation
Disproportionate environmental stressor burden and high cumulative impacts	Poverty Level Magnify	Poverty Level Magnify
Limited water and sanitation access and affordability	Archaic System	Archaic System – High Salinity
Disproportionate impacts from climate change	Poverty Level Magnify	Poverty Level Magnify

High energy cost burden and low energy access	Utility Rates High	Utility Rates High
Access to healthcare Medically Underserved	Limited, small clinic 12.9% Without Healthcare Coverage 19.8% Disabled	HIS for BIA registered 19.2% Without Healthcare Coverage 18.6% Disabled

[1]MHI = Median Household Income
Source: EPA EJ Screening and Mapping Tool; US Census, ACS 2016-2020.

As evident in Table 3 above, the population includes a majority of Hispanics and Native Americans within the MSIDD service area and surrounding community. This underserved and underrepresented community reside in a sparsely populated rural area, with little or no tax base to support their infrastructure. They are isolated historically considered less than equal as Native Americans and Hispanic agricultural workers.

Tribal Benefits:

Project supports tribal resilience to climate change and drought impacts or provide other tribal benefits? Yes. The proposed project createa new groundwater that offsets surface water from the Colorado River. This water augmentation and its associated water conservation measures support the Lower Colorado River Basin and tribal resilience to climate change. Ak-Chin, Gila River Indian Community, Tohono O'odham Nation are Native Communities benefiting in Arizona in Pinal County. The project will de-couple several wells on the SRC and thereby help address the Ak-Chin's water quality concerns related to its water delivered through the SRC. Ak-Chin feels that de-coupling the wells will help with cropping patterns allowing for higher value crops that utilize more labor resources creating tribal labor employment and the improved water quality will increase the reliability of the Ak-Chin public potable treatment system, eliminating the need to update treatment methods, and reduce O&M costs. Although this project will de-couple several wells in the SRC, the project provides resiliency for drought by maintaining hydraulic connections to the SRC for emergency use as agreed up on by Ak-chin and Reclamation.

Project support Reclamation's tribal trust responsibilities or a Reclamation activity? Yes. The Ak-Chin Indian Community is a Native American federally recognized tribe situated in the Santa Cruz Valley of Southern Arizona in the northwestern part of Pinal County within the MSIDD boundary. The Community has an enrollment of 1,100 tribal members and a land base just over 22,000 acres. Primarily a farming community, Ak-Chin Farms was incorporated in 1963 and now has 15,000 productive acres. With the reduction of surface water allotment to Pinal County due to drought, the MSIDD proposed project will support Reclamation's trust responsibilities to water supplies to Ak-Chin by augmenting surface water with wells protecting the Federal investment and responsibilities associated with the SRC during drought.

Environmental Benefits:

Project improve ecological climate change resiliency of a wetland, river, or stream to benefits to wildlife, fisheries, habitats, endangered or threatened species? Yes. This project will help to retain water in Lake Mead supporting ecological climate change resiliency for fisheries habitats, endangered species, and reduce wildfires. In MSIDD, the maintenance of agricultural lands with water generated from this project will help benefit multiple important species specific to Pinal County, such as the Arizona hedgehog cactus, the Acuña cactus, and the Mexican spotted owl. Other species, such as Alfalfa butterflies, Oleander trees, and Arizona's state bird, the Cactus Wren, will also benefit from this project.

Types and quantities of environmental benefits provided? Yes. The groundwater augmentation project will help maintain approximately 3,250 acres of fertile farmland within Pinal County. The area is calculated by multiplying the net acres that can be farmed with the total new water supplies using project allotment data. This helps the neighboring natural desert areas and pristine desert of the Tohono O'Odham Nation, and the Gila River Indian Community, as well as Ak-Chin.

Project reduce the likelihood of a species listing or improve the species status? Yes. By saving approximately 3,250 acres of fertile farmland within Pinal County, the species situated within the District will continue to thrive and utilize the local irrigated habitat.

Other Benefits: Will the project address water sustainability?

Project assist States and water users in complying with interstate compacts? Yes. The MSIDD groundwater augmentation and integrated water management project will help serve as a demonstration project to other entities in the basin helping other users. Further, new groundwater supplies will help reduce demands on the river helping Arizona and others comply with their interstate compacts.

Project benefits multiple sectors/users? Yes. Project benefits extend beyond the maintenance of agricultural lands, including Tribal Municipal needs of Ak-Chin, environmental, hunting and recreational, as well as the environmental benefits. According to the CDC, effects from Climate Change include increased incidence of respiratory and cardiovascular disease, injury, and death due to extreme weather events, heat wave, droughts and floods causing losses to property and crops and change in food distribution, water-borne illnesses, and mental health (CDC 2022). This is especially true in rural, underserved, low-income populations such as MSIDD. This project would improve air quality by reducing carbon emissions through the use of well automated controls, reducing O&M time of on-site vehicles and dust generated from dirt roads, and also reducing risk of biological contamination by the automated controls to reduce incidence of spills, overflows, and flooding.

Project benefit a larger initiative to address sustainability of water supplies? Yes. The MSIDD proposed project will strengthen water supply sustainability and contribute to the overall resiliency of communities that share these limited resources to survive and thrive by contributing to the overall well-being of the ecosystem, thus meeting DOI and Presidential Priorities EO 14008 – *Tackling Climate Crisis at Home and Abroad* and EO 13985 – *Advancing Racial Equity and Support for Underserved Communities through the Federal Government*. The Western US has been in the grip of an unrelenting drought since early 2000. As of January 2022, the U.S. Drought Monitor indicates that more than 87% of the land in nine of the Western states is in drought conditions, and nearly 64% of the area is experiencing severe to exceptional drought.

D. Severity of Actual or Potential Drought Impacts to be addressed by the Project

Potential drought impacts to various sectors in area? How severe are those impacts?
Agriculture – Agriculture within MSIDD, Pinal County is first to feel the major impact of the drought. Agriculture accounts for nearly 75% of the state's water use in Arizona. Based on 2015 USGS estimates of water use, agriculture accounted for 92.3% of Pinal County water withdrawals, half of the withdrawals were from surface water. Due to surface water reductions caused by drought and climate change, entities with low priority surface water including MSIDD need alternate, innovative water management to address the continuing effects of drought, climate change, and meet demands of its water users. Pinal County ranks in the top 2% of all US counties in total value of agricultural sales and top 1% in cotton and cottonseed sales, milk sales, and inventories of cattle and calves. Supporting large dairy and beef industries, Pinal County ranks in the top 4% of all counties in barley acreage, corn acreage, and forage crop acreage. Agriculture is a $2.3 billion (2016 numbers) industry in Pinal County which accounts for 7,500 jobs. Pinal County Agriculture provides 45% of Arizona's cattle and calf sales, 42% of Arizona's cotton and cottonseed sales and 39% of Arizona's milk and dairy sales. This is a direct result of lands in MSIDD having adequate irrigation water. If these lands are out of production, a "ripple" of economic activity is stimulated to meet the demands of ag producers for inputs (*indirect multiplier effects*) for consumer goods and services by units that derive income from agriculture (*induced multiplier effects*). These *multiplier effects* mean the total

economic contribution of on-farm agriculture is considerably greater than indicated by farm gate sales. Food costs will increase, supplies will decrease, in Arizona and nationwide at a time when world food production is at significant risk. MSIDD proposed project will provide important economic and environmental benefits by keeping lands in cultivation and food production in lieu of economic hardship.
Environmental – Less noxious/invasive weeds, less erosion, conservation support healthier ecosystem (Native plants, habitat, native species, and migratory birds). Fallowing of less lands due to improved water management reduces dust and pollution affecting human health in Greater Pinal County.
Recreational/Tourism – Gila River/Watershed, major washes (Santa Rosa Wash, Greene Wash, Vekol Wash, Santa Cruz Wash, etc.) – Improved camping/hiking/photography/bird watching.
Cultural – Preservation of native gathering sites (plants and clay), ancient trails, village, or ceremonial site.
Food Safety – Less danger of catastrophic crop disease or contamination due to better water elevation controls to prevent sedimentation in canals serving fields with food crops.
Public Safety – Less residual flooding from overflow and spillage resulting in unsafe driving conditions and erosion of road and ditch banks. Less dust pollution and airborne illnesses.

Whether there are public health concerns or social concerns? Public health concerns include:

- **Drinking Water Impact**: Water availability, reduced water quality, more people seek medical treatment. The SRC provides water to Ak-Chin, which it uses for agricultural and drinking water.
- **Air Quality Impact**: Environmental conditions of greatest concern for human health are ground level ozone air pollution, dust storms, particulate air pollution (from wildfires and dust storms), and aeroallergens (airborne proteins that trigger allergic reactions). The risk of onset or exacerbation of respiratory and cardiovascular disease is associated with a single or a combined exposure to ground-level ozone pollution, particulate air pollution, and respiratory allergens. May also lead to new cases or exacerbation of allergy and asthma. Drier conditions can also increase reproduction of fungus found in soils, potentially leading to the disease coccidioidomycosis, or Valley fever. Areas of Pinal County are non-attainment areas for EPA PM 10 (particulate matter 10 micron) standards. Fallowing of agricultural lands will increse PM10 levels, also causing periodic visibility and vehicle safety issues on Interstate 8. As such, irrigated acres within the District from the project will mitigate air quality impacts in the County.
- **Vector-Borne Diseases:** Infectious diseases like plague and hantavirus pulmonary syndrome disproportionately affect the Southwest region. Heat extremes, warming, changes in precipitation, and potentially an intensified El Niño-Southern Oscillation may influence the distribution and occurrence of vector-borne diseases like West Nile virus and may lead to the emergence of new disease.
- **Food Safety, Nutrition and Distribution:** Food production in the Southwest is vulnerable to water shortages. Increased drought, heat waves, and reduction of winter chill hours can harm crops and livestock; exacerbate competition for water among agriculture, energy generation, and municipal uses; and increase future food insecurity. Droughts and wildfire in the Southwest have contributed to declines in traditional Indigenous staple foods, including fish, wildlife, acorns, corn, and pine nuts.
- **Mental Health and Well-Being:** Climate change may weigh heavily on mental health in the general population and those struggling with mental health disorders. One impact of rising temperatures, especially in combination with environmental and socioeconomic stresses, is violence towards others and towards self. Slow-moving disasters, such as drought, may affect mental health over many years. Communities that rely especially on well-functioning natural and agricultural systems may be especially vulnerable to mental health effects when systems fail. In the Southwest, the loss of stability and certainty in natural systems may affect spiritual health of Indigenous peoples with close ties to the land.

Potential environmental impacts? The severe drought condition is continuing to impact the ecological system, fisheries, natural habitats, endangered species, and forest health. This proposed project will create less noxious/invasive weeds, less erosion, support a healthier ecosystem (Native plants, habitat, native

species, and migratory birds). Fallowing of less lands due to improved water management reduces dust and pollution affecting human health in Greater Pinal and Maricopa County.

Whether there are local or economic losses? Agriculture is a $2.3 billion (2016 numbers) industry in Pinal County which accounts for 7,500 jobs. Pinal County Agriculture provides 45% of Arizona's cattle and calf sales, 42% of Arizona's cotton and cottonseed sales and 39% of Arizona's milk and dairy sales. The sales are a direct result of lands within the District having adequate irrigation water. The economy of MSIDD is almost entirely agricultural. Principal crops produced are cotton, grains, alfalfa, feed grain for dairies, nursery trees, and vegetables. The consequences of insufficient water include catastrophic crop damage, serious illness or death, economic loss, lawsuits, increased costs to growers in the district. If these lands go largely out of production, food costs will increase and supplies will decrease in Arizona and nationwide at a time when world food production is at significant risk.

Other drought-related impacts (e.g. water-related crisis or conflict). Yes. There is significant risk of water-related conflict with the Ak-Chin Indian Community due to water quality concerns of existing groundwater comingled with surface water supplies. Previously, the SRC conveyed surface water to CAIDD, MSIDD, and Ak-Chin and the District was able to to introduce into the canal supplemental groundwater to downstream lateral headings for delivery. The project will help to relieve some of the water quality issue helping to prevent further conflict or expanded litigation. Also, a potential conflict can be avoided as this project can help with groundwater augmentation that avoids the restricted pump zone near the Tohono O'Odham Nation, and the Gila River Indian Community.

Describe recent, existing, or potential drought conditions in the project area.

Area currently suffering from drought? Describe the frequency, duration, and severity of current or recent droughts. Yes. Pinal County and the Western US has suffered from drought conditions since 2000. In Pinal County, 100% (375,770) of residents are affected by drought. April 2022 was the 13th driest on record over the past 128 years, while January – April 2022 is the 11th driest year to date over the past 128 years. It is predicted the drought may last through 2030.

Project increases to the severity or duration of drought resulting from changes to water supply availability and climate change. Water supply availability is crucial to MSIDD and Pinal County in the project area. 100% of Pinal County is currently classified as D1, Moderate Drought, where plants are stressed; hillsides are unusually brown; stock ponds and creeks are nearly dry; and some springs are dry. 45.34% of Pinal County is classified as D2, Severe Drought, where water and feed are inadequate for livestock; fire danger is high; little forage remains for wildlife; and pine trees are losing needles. For MSIDD and Ak-chin it is critical to respond to the effects of climate change and drought.

E. Project Implementation

- **Describe the implementation plan of the proposed project.** Upon receipt of the Reclamation letter of award, the District anticipates implementing the following schedule. Construction start date will not occur prior to March 2023. Please refer to the Section 1.3 for discussion on Project Approach and Section 2.3 Budget Narrative for the detailed project implementation and schedule.

Table 4 – Tentative Milestone/Task Schedule

Milestone/Task	Planned Start Date	Planned Completion Date
BOR Notice of Award	12/1/22	12/31/22
BOR Notice to Proceed & Contract Execution (Contract, PASS, ASAP, etc.)	1/1/23	1/31/23
BOR NEPA Review (Complete NEPA process (CE or a streamlined EA))	1/1/23	3/31/23
Permits (ADRW, Pinal County, Utilities Crossings)	1/1/23	5/1/23
Engineering Design and Consultation (Design, Hydrology, and Environmental)	1/1/23	6/30/25
Pre-Construction (Procurement, Bid Selection, Pre-construction Activities)	2/1/23	4/30/23
Construction & Installation (Year 1 Construction, Inspection, & Commissioning)	5/1/23	12/31/23
Project Report (Prepare report and submit to BOR)	12/1/23	12/31/23
Construction & Installation (Year 2 Construction, Inspection, & Commissioning)	1/1/24	12/31/24
Project Report (Prepare report and submit to BOR)	12/1/24	12/31/24
Construction & Installation (Year 2.5 Construction, Inspection, & Commissioning)	1/1/25	6/1/25
Project Report (Prepare report and submit to BOR)	5/1/25	6/1/25
Completion (Closeout activities and final report submittal to BOR)	6/1/25	8/1/25

Permits that will be required, along with the process for obtaining such permits. Permits include ADWR Well, "Notice of Intent (NOI) to Drill, Deepen, Replace or Modify a Well (DWR 55-40) and associated forms, permitted directly through ADWR. Pinal County roadway crossing permits coordinated through Pinal County Developmental Services. Easements will be identified, surveyed, and negotiated directly with landowners by the District as needed. Dust control permits will be required from Pinal County.

Identify and describe engineering or design work performed. MSIDD contracted George Cairo Engineering, Inc. a local irrigation water resource expert to develop collaboratively the phased approach plan and scope for this project. Work completed includes project coordination, field surveys, hydraulic analysis, iterative and economic analysis, schematic design, and cost estimating in support of the project.

New policies or administrative actions required to implement the project. The MSIDD Board of Directors were presented the proposed project plan and budget and approved the project and the subject grant application and requirements.

F. Nexus to Reclamation

Applicant has a water service, repayment, or O&M contract with Reclamation? Yes, the District has an O&M contract with Reclamation to maintain and operate the Santa Rosa Canal for delivery to Ak-Chin. Reclamation is responsible for approximately 30% of the O&M cost for the Santa Rosa Canal.

Applicant received Reclamation water through a Reclamation contractor? N/A. MSIDD is a Reclamation contractor.

Work benefit a Reclamation project area or activity? Yes. The project supports trust responsibilities for delivery of water supplies to Ak-Chin, and the Reclamation Basin Plan, the Arizona DCP, and MSIDD DRWA phased drought plan that will augment reduced surface water supply with wells, and also protects the Federal investment and trust responsibilities associated with the SRC system.

Is the applicant a Tribe? No, but the project supports the Lower Colorado River Basin and other tributaries (Gila River). The project will help directly conserve water that the Ak-Chin receives as well as improve their water quality, and indirectly the Gila River Indian Community and Tohono O'odham Nation.

2. Project Budget

2.1 Funding Plan and Letters of Commitment

The **Federal share** is **49%** and the **Non-Federal** share is **51%**.

MSIDD Labor Resources will be utilized for specific tasks during the approximate 2.5-year project duration. For In-Kind, MSIDD will utilize internal management and our labor resources and staff, equipment/vehicles. The construction and installation will be done by District pre-certified qualified Contractors and manufacturer representatives. The Engineering and Inspection will be done by the District's Engineer, George Cairo Engineering, Inc. and expert in irrigation modernization. MSIDD's responsibilities will include project management, site preparation, some demolition, metal works, support on well site work, pipeline installation, new turnout gate installation, dust control, support construction inspection, cleanup and removal of debris and material at completion. It is MSIDD goal to utilize as much in-kind internal staffing and resources as possible on this project. MSIDD Staff will also prepare the reporting and coordination with BOR. By using District staff costs will be reduced due to efficiencies, and District equipment will be used. In lieu of commitment letter, the District provided the Official Resolution to show MSIDD's commitment for the project and cost share commitment with the Board of Directors full approval.

MSIDD Staff will include 18 personnel to assist with the project, preconstruction, construction, and close out activities. The District responsibilities and duties are provided on the following page.

Costs incurred before start date: $0.00

2.2 Budget Proposal

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	$5,000,000.00
Costs to be paid by the Applicant	$5,138,836.50
Value of third-party contributions	$0.00
TOTAL PROJECT COSTS	**$10,138,836.50**

Project Costs Breakdown:

Federal Funding

BUDGET ITEM DESCRIPTION	AMOUNT
Materials	$3,301,321.00
Construction	$1,698,679.00
TOTAL FEDERAL FUNDING	**$5,000,000.00**

Non-Federal Funding – In Kind and Cash

BUDGET ITEM DESCRIPTION	AMOUNT
Salaries and Wages: *In Kind*	$642,893.92
Fringe: *In Kind*	$390,178.10
Travel: *In Kind or Cash if rented*	$158,400.00
Equipment: *In Kind or Cash* if rented	$803,678.98
Contractual/Construction: Engineering & Contractors (Partial)	$3,103,685.50
Environmental Compliance	$40,000.00
In Direct Costs – De Minimis In-Kind	$0.00
TOTAL NON-FEDERAL FUNDING	**$5,138,836.50**

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity TYPE	TOTAL COST
	$/Unit	Quantity		
SALARIES/WAGES				
Director of Water Operations	$78.94	1326	HR	$104,674.44
District Engineer	$72.12	900	HR	$64,908.00
Project Assistant	$31.52	1440	HR	$45,388.80
Irrigation Accountant	$26.52	960	HR	$25,459.20
Hydrology Specialist	$39.62	1000	HR	$39,620.00
GIS Specialist	$37.81	288	HR	$10,889.28
WaterMaster	$59.17	900	HR	$53,253.00
Operation/Maintenance Foreman	$33.60	3000	HR	$100,800.00
Pump Lead Operator	$48.34	920	HR	$44,472.80
Pump Operator Second Person	$29.77	680	HR	$20,243.60
Pump Operator Third Person	$25.34	460	HR	$11,656.40
Pump Operator Fourth Person	$21.19	340	HR	$7,204.60
System Operator I	$16.00	1100	HR	$17,600.00
System Operator II	$20.22	1460	HR	$29,521.20
System Operator III	$20.63	460	HR	$9,489.80
Equipment Operator I	$18.81	1100	HR	$20,691.00
Equipment Operator II	$19.16	1460	HR	$27,973.60
Equipment Operator II	$19.67	460	HR	$9,048.20
			Subtotal	$642,893.92
FRINGE BENEFITS				
Director of Water Operations	$35.75	1326	HR	$47,404.50
District Engineer	$30.19	900	HR	$27,171.00
Project Assistant	$19.95	1440	HR	$28,728.00
Irrigation Accountant	$18.60	960	HR	$17,856.00
Hydrology Specialist	$22.14	1000	HR	$22,140.00
GIS Specialist	$21.65	288	HR	$6,235.20
WaterMaster	$27.42	900	HR	$24,678.00
Operationa/Maintenance Foreman	$20.52	3000	HR	$61,560.00
Pump Lead Operator	$24.49	920	HR	$22,530.80
Pump Operator Second Person	$19.48	680	HR	$13,246.40
Pump Operator Third Person	$18.29	460	HR	$8,413.40
Pump Operator Second Person	$17.17	340	HR	$5,837.80
System Operator I	$15.77	1100	HR	$17,347.00
System Operator II	$19.90	1460	HR	$29,054.00
System Operator III	$17.02	460	HR	$7,829.20
Equipment Operator I	$16.52	1100	HR	$18,172.00
Equipment Operator II	$16.62	1460	HR	$24,265.20
Equipment Operator II	$16.76	460	HR	$7,709.60
			Subtotal	$390,178.10

TRAVEL				
Meetings with 1/2T Pickup Trucks	$0.88	16200	HR	$14,256.00
Site Evaluation with 1/2T Pickup Trucks	$0.88	37800	HR	$33,264.00
Construction with 3/4T Pickup Trucks	$0.88	126000	HR	$110,880.00
		180000	Subtotal	$158,400.00
EQUIPMENT (District Owned)				
Rubber Tired Loader/Backhoe	$63.12	720	HR	$45,442.80
Front End Loader	$142.00	720	HR	$102,239.28
Excavator	$164.84	1200	HR	$197,808.00
Crane Truck	$228.12	500	HR	$114,062.00
Boom Truck	$83.67	720	HR	$60,240.96
Water Tank	$133.59	880	HR	$117,557.44
Dump Truck	$143.88	440	HR	$63,308.96
Forklift	$42.35	960	HR	$40,659.84
Skid Steer Loader	$34.11	1000	HR	$34,112.00
Air Compressor	$50.39	244	HR	$12,294.67
Portable Generators	$11.60	600	HR	$6,957.60
Wood Chipper	$52.30	172	HR	$8,995.43
			Subtotal	$803,678.98
SUPPLIES AND MATERIALS				
Rubicon Slipmeter Gates and Controls	$33,440.00	1	LS	$33,440.00
Fresno Gate with Actuators and Controls	$66,514.00	2	LS	$133,028.00
Irrigation Pipe 125 PSI, 8" DIA	$86.99	850	LF	$73,941.50
Irrigation Pipe 125 PSI, 10" DIA	$37.35	6550	LF	$244,642.50
Irrigation Pipe 125 PSI, 12" DIA	$46.80	9350	LF	$437,580.00
Irrigation Pipe 125 PSI, 15" DIA	$84.44	2675	LF	$225,877.00
Irrigation Pipe 125 PSI, 18" DIA	$96.56	6450	LF	$622,812.00
New Well System	$250,000.00	3	LS	$750,000.00
Well System Upgrades	$195,000.00	4	LS	$780,000.00
			Subtotal	$3,301,321.00
CONTRACTUAL/CONSTRUCTION				
Engineering Design and Consultant	$625,000.00	1	LS	$625,000.00
Well Contractor	$2,500,000.00	1	LS	$2,500,000.00
Electrical Contractor	$400,000.00	1	LS	$400,000.00
Pipeline and Gate Contractor	$1,027,364.50	1	LS	$1,027,364.50
Construction Inspection	$210,000.00	1	LS	$210,000.00
Installation Supervision & Commissioning	$40,000.00	1	LS	$40,000.00
			Subtotal	$4,802,364.50
OTHER				
Reclamation environmental and cultural compliance costs	$40,000.00	1	LS	$40,000.00

			Subtotal	$40,000.00
TOTAL DIRECT COSTS				**$10,138,836.50**
INDIRECT COSTS				
De minimis	0%		base	$0.00
TOTAL ESTIMATED PROJECT COSTS				**$10,138,836.50**

2.3 Budget Narrative

Salaries and Wages (inclusive of Fringe Benefits)

MSIDD	FY 2023	FY 2024	FY 2025	Estimated Sub-Total
Director of Water Operations: Overall project management, coordination with BOR, stakeholders, engineers and consultants, and contractors.	6 hr day, 10 days per month, 12 months	4 hr day, 10 days per month, 12 months	3 hr day, 7 days per month, 6 months	1326 hrs
District Engineer: Project QA/QC, coordination with engineering consultant and contractors, obtain permitting	4 hr day, 10 days per month, 12 months	3 hr day, 10 days per month, 12 months	2 hr day, 5 days per month, 6 months	900 hrs
Project Assistant: Assist project manager, support on project schedule and budget, obtain permits, and prepare reports to BOR.	4 hr day, 12 days per month, 12 months	4 hr day, 12 days per month, 12 months	4 hr day, 12 days per month, 6 months	1140 hrs
Irrigation Accountant: Assist project manager, support project financials and reporting.	8 hr day, 4 days per month, 12 months	8 hr day, 4 days per month, 12 months	8 hr day, 4 days per month, 6 months	960 hrs
Hydrologist Specialist: Hydrology research, coordination with Well Consultant and Contractors, assist with ADWR permitting	8 hr day, 60 days	8 hr day, 45 days	8 hr day, 20 days	1000 hrs
GIS Specialist: Support project on system historic data, mapping, and alignments, assist with ADWR and Pinal County permitting	4 hr day, 2 days per month, 12 months	4 hr day, 2 days per month, 12 months	4 hr day, 2 days per month, 12 months	288 hrs
Water Master: Coordination with engineers, consultants and contractor, water delivery scheduling, construction phasing, and water users.	3 hr day, 10 days per month, 12 months	3 hr day, 10 days per month, 12 months	3 hr day, 10 days per month, 6 months	900 hrs
Operation/Maintenance Foreman: assist with construction work for new well installation, well upgrade, and pipe and gate installation, inspection	5 hr day, 20 day per month, 12 months	5 hr day, 20 day per month, 12 months	5 hr day, 20 day per month, 6 months	3000 hrs
Pump Lead Operator: assist in new well installation and well upgrades	8 hr day, 50 days	8 hr day, 45 days	8 hr day, 20 days	920 hrs

Pump Operator Second Person: assist in new well installation and well upgrades	8 hr day, 45 days	8 hr day, 30 days	8 hr day, 10 days	680 hrs
Pump Operator Third Person: assist in new well installation and well upgrades	4 hr day, 50 days	4 hr day, 45 days	4 hr day, 20 days	460 hrs
Pump Operator Fourth Person: assist in new well installation and well upgrades	4 hr day, 45 days	4 hr day, 30 days	4 hr day, 10 days	340 hrs
System Operator I: Support on construction activities, site initiation work, construction of new well, well upgrades, pipeline installation, and turnout gate installation.	4 hr day, 125 days	4 hr day, 100 days	4 hr day, 50 days	1100 hrs
System Operator II: Oversee construction activities, site initiation work, construction of new well, well upgrades, pipeline installation, and turnout gate installation, misc. metal fabrication.	4 hr day, 150 days	4 hr day, 125 days	4 hr day, 90 days	1460 hrs
System Operator III: Support on construction activities QA/QC, safety, site initiation work, construction of new well, well upgrades, pipeline installation, and turnout gate installation, misc. metal fabrication.	4 hr day, 50 days	4 hr day, 45 days	4 hr day, 20 days	460 hrs
Equipment Operator I: Support on construction activities and equipment, site initiation work, construction of new well, well upgrades, pipeline installation, and turnout gate installation.	4 hr day, 125 days	4 hr day, 100 days	4 hr day, 50 days	1100 hrs
Equipment Operator II: Oversee construction activities and responsible for all equipment, site initiation work, construction of new well, well upgrades, pipeline installation, and turnout gate installation.	4 hr day, 150 days	4 hr day, 125 days	4 hr day, 90 days	1460 hrs
Equipment Operator II: Support on construction activities QA/QC, equipment activities, safety, site initiation work, construction of new well, well upgrades, pipeline installation, and turnout gate installation.	4 hr day, 50 days	4 hr day, 45 days	4 hr day, 20 days	460 hrs

MSIDD certifies that the labor rates included in the budget proposal represent the actual labor rates of the identified personnel. The certification can be provided upon award of project.

Travel

IRS 2022 mileage is $0.585/mile. Due to the recent price increase in fuel and car value, the following assumption includes a 50% increase = $0.88/mile

Item	FY 2023	FY 2024	FY 2025	Estimated Sub-Total
Meetings: Travel to Engineers, Contractors, and Consultants Offices	Average 90 mi round trip, 2 meetings/month, 12 months, 3 vehicles	Average 90 mi round trip, 2 meetings/month, 12 months, 3 vehicles	Average 90 mi round trip, 2 meetings/month, 6 months, 3 vehicles	16200 miles
Site Visits: Travel to project sites for pre-construction work	Average 10 mi round trip, 10-18 locations, 3 visits/month, 12 months, 3 vehicles	Average 10 mi round trip, 10-18 locations, 3 visits/month, 12 months, 3 vehicles	Average 10 mi round trip, 10-18 locations, 3 visits/month, 6 months, 3 vehicles	37800 miles
Construction: Travel to construction sites during construction activities	Average 10 mi round trip, 6-11 locations, 10 visits/month, 12 months, 3 vehicles	Average 10 mi round trip, 6-11 locations, 10 visits/month, 12 months, 3 vehicles	Average 10 mi round trip, 6-11 locations, 10 visits/month, 6 months, 3 vehicles	126000 miles

Equipment
Used USACDOE equipment (EP 1110-1-8 30 November 2018)
Rate = (Average Hourly Rate + Fuel) * 30% → Multiple by 30% since USACE rates are from 2018

- Rubber Tired Loader/Backhoe: for trench excavation and backfill
- Front End Loader: for materials hauling
- Excavator: for excavation, pipe laying, and backfill
- Crane Truck: for erection and material hauling
- Flat Bed Truck/Boom Truck: Materials transport and light erection
- 4Mgal Water Tank: for dust control and compaction water
- Dump Truck: for materials hauling
- Forklift: for materials handling
- Skid Steer Loader: for materials handling
- Air Compressor: 150 psi compressor to compress air for tools
- Portable Generator: for portable power source and lighting
- Wood Chipper: for vegetation clearing

Materials and Supplies

- SlipMeter Gates and Controls – Quote from Rubicon
- Fresno Gates with Actuators and Controls – Quote from Fresno Gate and Rotork Actuator
- Irrigation Pipe 125 PSI, 8" DIA – Quote from Pipe Supplier
- Irrigation Pipe 125 PSI, 10" DIA – Quote from Pipe Supplier
- Irrigation Pipe 125 PSI, 12" DIA – Quote from Pipe Supplier
- Irrigation Pipe 125 PSI, 15" DIA – Quote from Pipe Supplier
- Irrigation Pipe 125 PSI, 18" DIA – Quote from Pipe Supplier
- New Well System – Estimated from recent costs
- Well System Upgrades – Estimated from recent costs

Rubicon SlipMeter Gate and Controls:

- The SlipMeter is a precision flow control and flow measurement gate that measures fully submerged flows (and partial-full flow in partial-full models) and mounts directly to a turnout headwall with no straight pipe requirements.
- The SlipMeter comes equipped with an internal and external frame complete with stainless steel anchor's, epoxy capsules, and polyurethane sealant.
- Each SlipMeter comes equipped with a separate standalone control pedestal which includes a display and keypad, solar panel power system and a 16-ft mast for mounting of communication antenna, RTUs, radio and antenna by others.
- The SlipMeter comes complete with an integrated power supply comprising of an 85W solar panel, a charge controller, and a 48Ah 12-volt deep cycling battery pack.
- Standard Rubicon local controller software, including automatic local/remote flow control mode, local/remote gate position mode and local manual mode.

Fresno gate and Rotork Actuator and Controls:

- Fresno Valves & Castings has been one of the primary gate designers and manufacturers in the United States for more than 20 years.
- Fresno fabricated slide gates are designed and fabricated from special shaped extrusions or structural angles, flats, and plates that are assembled by welding and bolting. Since there are no machined parts or wedging devices in the gate itself, the gate depends upon water pressure and seal design to seat the fabricated slide. With the fabricated slide in the fully closed position, watertightness of the gate improves as the head of water increases. Fabricated slide gate will also add rubber seals.
- Frame, Slide and Reinforcing are made out of stainless steel and carbon steel, Gate stem is made out of stainless steel and cold finish steel, Fasteners are made out of stainless steel and plated/galvanized, Anchors are made out of stainless steel, cold finish steel, and galvanized, Rubber seals are made out of neoprene, and Guides are made out of ultra-high molecular weight polymer.
- Rotork Actuators: Rotork actuators allows for proper gate operation and provide accurate opening and closing positions. High locked rotor torque in comparison with that required to operate and seat the valve. Rotork guarantee actuator performance at +/-10% of nominal voltage, however in common with all DC motors of this type, speed will vary with load and voltage. Low inertia, high starting torque motor combined with the lost motion drive, allows the motor to reach full speed with maximum available torque before the drive. Maintenance free for the life of the actuator. The motor will be de-energized

when the set torque is reached. Provides the motor and valve protection. Incorporate over temperature protection using thermostats that will de-energize the motor if the duty cycle exceeds actuator rating.
- Data logger will allow for flow measurement and flow data logging.

Contractual/Construction

Other than engineering, all construction work will go through the District procurement process. The District aims to follows the Arizona Statues Title 42 Special Taxing Districts, Chapter 19 Irrigation and Water Conservation Districts, Article 3 Administration, 48-2985 and 48-2986 that requires the preparation of plans, public advertisement, receiving bids, and awarding a contract. The District practice is to advertise the project, depending on the size and scope of a project, the normal time from advertisement to receipt of bids is generally 2 to 4 weeks, but may be extended on large multi-million dollar projects. The District may hold a pre-bid meeting, project site tour, and allow for questions from prospective bidders. Once bids are received, the District will evaluate and check the bid responses against the bid requirements and select the lowest qualified bidder. The District will issue a Notice of Award and then proceed with the project contract execution and issue a Notice to Proceed.

Engineering Design and Consultant:

Cost was estimated based on recent pricing.
- Project management activities including periodic project coordination meetings with MSIDD and Contractors, inclusive of a project kick-off meeting
- Data collection and field design and hydraulic survey work
- Permitting coordination and support activities
- Survey and prepare legal description and ROW maps
- Finalize design plans and submittal packages for construction
- Post design, services during construction activities, and installation and commissioning supervision
- USBR Environmental Compliance and support services

Well Contractor:

The following will be Contractor's work with the assistance of MSIDD Staff. Cost was estimated based on recent pricing. The cost is approximately for 3 new wells and 3 well upgrades. If budget becomes available to construct more wells, the District will adjust the cost at the time of contract execution.

For new wells and well upgrades:
- Mobilize and de-mobilize
- Drill rig for new holes, install sounding tube for video monitoring
- Install new casing and associated materials. New well casing will range from 14" to 18" in diameter. Well improvement casing will range from 10" to 16" in diameter.
- The well casing liner will be installed with a blank casing and perforated casing. Perforations should consist of 0.125" slots with a total of 24 to 32 slots per ft. The well annulus should be filled with Tacna gravel pack. The upper portion of the well can be filled with a local pea gravel mix. Casing centralizers should be placed at depth intervals. Once the liner and gravel pack are installed, the well should developed to settle and tighten the travel pack using a combination of swabbing and bailing for a period of about 40 hours.
- Chemical treatments on existing wells.

Electrical Contractor:
The following will be Electrical District No. 3 (ED-3) Contractor's work with the assistance of MSIDD Staff. Cost was estimated based on recent pricing. The cost is approximately for 3 new wells and 3 well upgrades. If budget becomes available to construct more wells, the District will adjust the cost at the time of contract execution.

For new wells and well upgrades:

- Mobilize and de-mobilize
- Bring 3-Phase power to well site, trenching for electrical conduits, install transformers and electrical panels and controls, MCM wires, etc.
- Conductors, down guy anchors, pole grounding, servicing, and other required appurtenances.

Pipeline and Gate Installation Contractor:
The following will be Contractor's work with the assistance of MSIDD Staff. Cost was estimated based on recent pricing.

For Well Site Yard piping Installation:

- Mobilize and de-mobilize
- Survey work to stake the pipeline alignment
- Staging of construction materials and pipe
- Site clearing, trenching, and bedding material
- Lay pipeline inclusive of fittings, bends, and joints, tie-in to well
- Install Flow Metering and appurtenant components
- Pipe testing to assure that there's no leakage
- Backfill trench section with approved suitable materials

For pipeline installation:

- Mobilize and de-mobilize
- Survey work to stake the work limits and pipeline alignment
- Staging of construction materials and pipe
- Site clearing, trenching, and bedding material
- Lay pipeline inclusive of fittings, bends, and joints, tie-in to well site
- Pipe testing to assure that there's no leakage
- Backfill trench section with approved suitable materials

For turnout gate upgrade:

- Lower water level in Santa Rosa Canal
- Install earthen berm around turnout structure and line with plastic on both sides to minimize water infiltration
- Add small pump to remove any nuisance water
- Remove existing gate from turnout structure
- Prep concrete surface for gate installation including any concrete repairs
- Install new gates with Rubicon On-Site Support
- Bolt new gates to the existing structure and adjust for proper sealing

- Test and commission gates
- Remove earthen berm form the Santa Rosa Canal
- Return to normal operating conditions in the Santa Rosa Canal while completing the remainder of the electrical and site work

Third-Party In-Kind Contribution
$0.00

Other Expenses
Environmental and Regulatory Compliance Costs
$40,000 for NEPA work.

Indirect Costs
0% de minimis of overall sub-total.

Implementation Plan and Schedule:

Tentative Milestone/Task Schedule (Expanded)

Milestone/Task	Planned Start Date	Planned Completion Date
BOR Notice of Award	12/1/22	12/31/22
BOR Notice to Proceed and Contract Execution Provide required information, review SOW, update PASS and ASAP account if needed, sign contract	1/1/23	1/31/23
BOR NEPA Review Coordination with BOR on NEPA review as soon as project award announcement Research, site survey, prepare cultural report and submit for NEPA review Complete NEPA process (CE or a streamlined EA)	1/1/23	3/31/23
Permits District to complete all required Permits: Registration with ADWR, Pinal County road crossings, Dust control permit with Pinal County, and utility permits (power, gas, water, fiber optic, etc.)	1/1/23	5/1/23
Engineering Design and Consultation George Cairo Engineering, Inc.: provide consultation throughout the duration of the project. Prepare civil design of well sites, design of pipelines, legal preparation, environmental coordination Well Consultant: Hydrology analysis	1/1/23	6/30/25
Pre-Construction District order long-lead items: gates and pipes District issue RFP, review of Contractors' proposal, award of contract, Contractor contract execution, pre-construction meeting, construction submittals	2/1/23	4/30/23
Construction and Installation Mobilization and demobilization Construct new wells and well upgrades Bring power to the site and construct electrical system Project inspection, testing, as-built Commissioning, project walk through, final clean up	5/1/23	12/31/23

Project Report Prepare report and submit to BOR	12/1/23	12/31/23
Construction and Installation Mobilization and demobilization Construct new wells and well upgrades Bring power to the site and construct electrical system Construction of turnout gates replacement Commissioning, project walk through, final clean up	1/1/24	12/31/24
Project Report Prepare report and submit to BOR	12/1/24	12/31/24
Construction and Installation Mobilization and demobilization Construct remaining items Commissioning, project walk through, final clean up	1/1/25	6/1/25
Project Report -Prepare report and submit to BOR	5/1/25	6/1/25
Completion Closeout activities and final report submittal to BOR	6/1/25	8/1/25

3. Environmental and Cultural Resources Compliance

Based on our preliminary coordination with BOR, it is our understanding that the District will have to complete work to obtain a categorical exclusion or a streamlined environmental assessment. MSIDD's proposed project will have no significant impact to the surrounding environment. As this area is greatly disturbed and has been in constant agricultural use, there are no threatened or endangered species or critical habitat present in the area of potential effect identified for construction. There are also no wetlands within the project boundary. MSIDD does not anticipate any National Register of Historic Places to be impacted. This project will not have disproportionally high or adverse effects on low income or minority populations, and the project will not limit access to any ceremonial use of sacred sites or impact Tribal lands. No archaeological sites are known to be within the project ground disturbance area.

- **Will the proposed project impact the surrounding environment? Describe all earth-disturbing work that will affect the air, water, or animal habitat. Impacts on the surrounding environment and any steps that could be taken to minimize the impacts.**

The project will involve ground disturbance to drill the new wells and install the new pipelines. These activities are consistent with work that has been done in the surrounding area. The final design will incorporate analysis to determine the least ground disturbance including depth of trenching for least impact. Dust control will be managed throughout construction and all work will be contained within the work limits.

- **Any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in area? No.** Based on the initial evaluation, there is no endangered species within the project limits and MSIDD boundary. No known burrowing owls are in the project area.

- **Wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" No.**

- **When was the water delivery system constructed?** The Santa Rosa Canal was constructed in 1987 and the laterals were constructed in the late 1980s/early 1990s.

- **Project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? Yes,** but minimal. The project will include new automated turnout gates with above grade solar pedestals, new well sites with above grade well pump, flow meter, and control panels, new well discharge gooseneck pipes to the existing headgate or laterals. These are all similar features to exiting components at MSIDD and surrounding districts.

- **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.** Not that we know of.

- **Are there any known archeological sites in the proposed project area?** None that have been identified.

- **Will the proposed project have a disproportionately high and adverse effect on low income or minority populations? NO.**

- **Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands? NO.**

- **Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native species known to occur in the area? NO.**

It is anticipated that his project will have the opposite effect, reducing noxious weeds and non-native invasive species, including aquatic vegetation by reducing spills.

4. Required Permits or Approvals

The following permits will need to be obtained as part of the project: ADWR Registration for new wells, Pinal County Road crossings permit, dust control permits from Pinal County, and potential permits from local utility entities. All permits will be obtained prior to construction and ground disturbance.

5. Relevant Sections of Existing Drought Contingency Plan

Please see attachments for the relevant sections of the existing DCP, specific Page 4, 5, and 6. The following is the link to the AZ DCP: https://www.cap-az.com/water/water-supply/protecting-cap-reliability/drought-contingency-plan/ and https://new.azwater.gov/lbdcp

6. Letters of Project Support

Please see attachment for Letters of Support on this project. Letters of support from:

- Congress of the United States
  - Kyrsten Sinema, U.S. Senator
  - Mark Kelly, U.S. Senator
  - Tom O'Halleran, Member of Congress
- Pinal County – Board of Supervisors
- Ak-Chin Indian Community
- Central Arizona Irrigation and Drainage District
- Multiple Water Users – Major Farmers

7. Official Resolution

Attached in the Appendix Section is an authorization and resolution approved by Board, no third-party financial support.

8. Overlap or Duplication of Efforts Statements

Maricopa-Stanfield Irrigation and Drainage District (MSIDD) does not have any projects which overlap between the proposed project nor any other active or anticipated proposal or projects in terms of activities, costs, or commitment of key personnel. The submitted proposal from MSIDD is not in any way duplicative of any proposal or project that has been or will be submitted for funding consideration to any other potential funding source.

9. Conflict of Interest Disclosure

Maricopa-Stanfield Irrigation and Drainage District (MSIDD) does not have any existing conflicts of interest nor do we anticipate to have any conflict of interest during the Federal award period.

10. Uniform Audit Reporting Statement

To date, the Maricopa-Stanfield Irrigation and Drainage District (MSIDD) has not received $750,000 in U.S. dollars or more in Federal award funds during the fiscal year.

11. Certification Regarding Lobbying

The Maricopa-Stanfield Irrigation and Drainage District (MSIDD) discloses that lobbying services have been obtained via Mr. Lane Dickson of The Ferguson Group. Please see the completed SF-LLL Form.

12. Appendices

Appendix A: Letters of Project Support
Appendix B: Official Resolution
Appendix C: DCP Ag Mitigation Agreement
Appendix D: MSIDD Summary, Description, Background and History
Appendix E: Photos and Maps of Project Area
Appendix F: Estimated Quotes

APPENDIX A: LETTERS OF PROJECT SUPPORT

Congress of the United States
Washington, DC 20515

June 7, 2022

The Honorable Camille Calimlim Touton
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240

Dear Commissioner Touton:

As you know, Pinal County farmers are the first water users in the Colorado River Basin to face reduced water deliveries due to the first ever Tier 1 shortage declaration for the Colorado River, resulting in reduced surface water deliveries to Pinal County agricultural water users by 70% this year and 100% next year. The impacts of these cuts are widespread and are already causing significant land following and associated economic hardship and job losses to many communities.

Unfortunately, without federal assistance to ensure groundwater resources can be utilized by the Maricopa-Stanfield Irrigation and Drainage District (MSIDD), while also reducing water quality impacts to the Ak-Chin Indian Community, this situation could grow much worse as additional lands could be unable access water for irrigation and be taken out of production. Without immediate action to construct new groundwater facilities and modernize gates on the Santa Rosa Canal, the scale of economic impacts to Pinal County and the State of Arizona, along with food security implications across the country, will increase dramatically and multiple cascading impacts will emerge, including significant reductions to air quality and transportation safety along Interstate 10 due to dust issues.

I write you today in support of the MSIDD application for a grant from the Bureau of Reclamation's WaterSMART Drought Resiliency program. The new and rehabilitated wells and gate modernization elements included in the application proposed by MSIDD, along with alternative conveyance facilities that will remove groundwater from the SRC to improve water quality for the Ak-Chin Indian Community, are critical to mitigate drought impacts and build resiliency in the region.

Thank you for your full and fair consideration of this application and your efforts to help Arizona during this extreme and prolonged drought.

Sincerely,

Kyrsten Sinema
U.S. Senator

Mark Kelly
U.S. Senator

Tom O'Halleran
Member of Congress

Stephen Q. Miller
Pinal County Board of Supervisors
Supervisor, District 3

PINAL COUNTY
WIDE OPEN OPPORTUNITY

The Honorable Camille Calimlim Touton
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240

June 6, 2022

Dear Commissioner Touton:

Please accept this letter supporting the applications of the Central Arizona Irrigation and Drainage District (CAIDD) and Maricopa-Stanfield Irrigation and Drainage District (MSIDD) for grants from the WaterSMART Drought Resiliency Program. As you know, the severe drought in the Colorado River Basin has led to the first ever Tier 1 shortage declaration, resulting in reduced water deliveries to Pinal County Agricultural water users. The impacts of these cuts are widespread, and failure to act quickly to develop reliable groundwater and conveyance infrastructure will result in further impacts for Pinal County and beyond.

The projects proposed in the CAIDD and MSIDD applications will prevent additional land fallowing by ensuring that facilities exist to provide groundwater to farms currently at risk of completely losing access to water for irrigation due to the loss of surface water, location of existing well, and/or efforts to phase out conveyance of groundwater through the Santa Rosa Canal (SRC). The grants would be used to construct alternative conveyance for groundwater currently conveyed through the Santa Rosa Canal, modernization of existing wells and drilling of new wells, and upgrading existing SRC gates to prevent losses.

The applications submitted by CAIDD and MSIDD are critical to ensure Pinal County can continue to produce food for our nation and reduce further economic dislocation in our County. I urge you to view these applications favorable.

Sincerely,

Stephen Q. Miller

Supervisor Stephen Q. Miller - District 3
820 E. Cottonwood Lane, Building A | Casa Grande, AZ 85122 | Office: 520-866-7401 | Cell: 520-858-4437
www.pinal.gov

May 24, 2022

RE: United States Bureau of Reclamation Funding No. R23AS00005
WaterSMART Drought Resiliency Projects for Fiscal Year 2023
Maricopa-Stanfield Irrigation & Drainage District Project Proposal

To Whom It May Concern,

This letter is provided to strongly endorse and provide support for the Maricopa-Stanfield Irrigation and Drainage District (MSIDD) Drought Resiliency Project application to the USBR for the Funding Opportunity No. R23AS00005 WaterSMART Drought Response Program.

As a farmer in the District, I support the District's application for this grant to obtain funding to install new automated gates, wells, and development of pipelines along the Santa Rosa Canal (SRC) area. This proposal supports groundwater augmentation and distribution system development to address drought conditions in Pinal County, Arizona which is ground-zero for the historic southwest drought. The Tier 1 shortage declaration and elimination of CAP water to Pinal County agriculture has only worsened the impacts of drought for Pinal County. This funding proposal will go a long way in helping the district stem part of the drought impacts to Pinal County which has an agricultural value of more than $1 billion and is one of the top producing counties in the United State for agricultural production.

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

Sincerely,

NAME Jason Howell
ADDRESS 42761 w Kendra Way
ADDRESS Maricopa, AZ 85138
PHONE 602-751-3248

May 24, 2022

RE: United States Bureau of Reclamation Funding No. R23AS00005
WaterSMART Drought Resiliency Projects for Fiscal Year 2023
Maricopa-Stanfield Irrigation & Drainage District Project Proposal

To Whom It May Concern,

This letter is provided to strongly endorse and provide support for the Maricopa-Stanfield Irrigation and Drainage District (MSIDD) Drought Resiliency Project application to the USBR for the Funding Opportunity No. R23AS00005 WaterSMART Drought Response Program.

As a farmer in the District, I support the District's application for this grant to obtain funding to install new automated gates, wells, and development of pipelines along the Santa Rosa Canal (SRC) area. This proposal supports groundwater augmentation and distribution system development to address drought conditions in Pinal County, Arizona which is ground-zero for the historic southwest drought. The Tier 1 shortage declaration and elimination of CAP water to Pinal County agriculture has only worsened the impacts of drought for Pinal County. This funding proposal will go a long way in helping the district stem part of the drought impacts to Pinal County which has an agricultural value of more than $1 billion and is one of the top producing counties in the United State for agricultural production.

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

Sincerely,

Donald Van Hofwegen

NAME Donald Van Hofwegen
ADDRESS 9801 W. B road way
ADDRESS Tolleson AZ
PHONE 85353
602-541-0687

APPENDIX B: OFFICIAL RESOLUTION

RESOLUTION 2022-002

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
MARICOPA-STANFIELD IRRIGATION & DRAINAGE DISTRICT
PINAL COUNTY, ARIZONA

IN SUPPORT OF AN APPLICATION TO THE WATERSMART DROUGHT RESPONSE PROGRAM: DROUGHT RESILIENCY PROJECTS FOR FISCAL YEAR 2023 OPPORTUNITY NUMBER R23AS00005

WHEREAS, the Maricopa-Stanfield Irrigation & Drainage District ("the District") desires to improve District facilities for the purpose of improved efficacy of water deliveries, sustainable water management, and for drought resiliency; and

WHEREAS, the District wishes to apply for grant funding opportunities to reduce the financial burden and aid in the sustainability of the District and its customers through these grant programs.

NOW, THEREFORE, IT IS HEREBY RESOLVED, by the Board of Directors (the "Board") of Maricopa-Stanfield Irrigation & Drainage District (the "District) as follows:

1. That the application for a United States Department of the Interior Bureau of Reclamation WaterSMART grant for Drought Resiliency Projects pursuant to Funding Opportunity Number R23AS00005 (the "Grant") by the District for the District to install new automated gates, wells, and development of pipelines within the District for groundwater augmentation to address drought conditions is hereby approved.

2. That Brian Yerges, General Manager, Tony Solano, Director of Water Operations, and / or Kenneth Bodle, Director of Financial Services, are hereby authorized to submit the application for the Grant and to execute any and all documents, instruments, and reports necessary or appropriate to apply for, obtain, use the Grant, and report on grant expenditures and programs.

3. That General Manager, Brian Yerges, is hereby authorized to expend up to $5,200,000 of District monies for the Project, which monies the Board finds are available for this purpose, and to apply the Grant to the costs of the Project.

4. That the District will work with the United States Bureau of Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

Adopted this 25th Day of May, 2022.

MARICOPA-STANFIELD IRRIGATION & DRAINAGE DISTRICT

BRYAN HARTMAN, PRESIDENT

CERTIFICATION

I, the undersigned, Secretary of the Maricopa-Stanfield Irrigation & Drainage District, Pinal County, Arizona, an irrigation district organized and existing under the laws of the State of Arizona, do hereby certify that the foregoing is a true and complete copy of a resolution duly adopted by the Board of Directors of said District at a meeting duly called and held on May 25th, 2022, at which a quorum of Directors was present; I do further certify that this resolution has not been altered, amended, repealed or rescinded and is in full force and effect.

Dated this 25th Day of May, 2022.

MARICOPA-STANFIELD IRRIGATION & DRAINAGE DISTRICT

KELLY ANDERSON, SECRETARY