Project Information Submittal Form

Project Submitter/Owner: Borrego Springs Watermaster, Technical Advisory Committee

Project Name: Water Supply Augmentation

Contact Information

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Project Summary

Please provide a summary of the Project description. Use as much space as you need.

The Project will investigate alternatives for supply augmentation of Borrego Springs Groundwater Subbasin (Subbasin) and their feasibility. Previously considered methods for supply augmentation of the Subbasin include but are not limited to: importing supply from adjacent areas, production of recycled water for groundwater recharge, enhanced stormwater retention and infiltration methods, desalination of Salton Sea or its inflow from agricultural return flows. The Project will fill out data gaps from these previously studied alternatives for water supply augmentation, which were not developed or continued due to incomplete information or lack of funds. The Project will also evaluate the amount of available water supply and its quality, the cost and feasibility of the alternative, and potential treatment costs (if necessary).

In addition, the Project will investigate methods to improve efficiency of the existing artificial groundwater recharge to the Subbasin, and their feasibility. The Project will benefit the community of Borrego Springs. Plan Implementation Timeline is provided in the Schedule. Minimum thresholds and feasibility are not applicable given that the project is entirely conducting research.

Summary of alternatives previously proposed for water supply augmentation

Previous studies for groundwater augmentation that have been considered for Borrego Springs are summarized below:

• Importation of groundwater from non-local sources. Replenishment of groundwater extractions

were studied in the past, however the feasibility of the options considered were not conclusively determined due to lack of funding necessary to determine yield.

- The Borrego Water District (BWD) studied projects for importing water from nearby groundwater basins: Clark Dry Lake¹, Ocotillo Wells Subbasin, and Allegretti Farms (Ocotillo-Clark Valley Groundwater Basin). However, some of the results from these studies were inconclusive, and further studies were judged to be infeasible at the time due to lack of funding.
- The U.S. Bureau of Reclamation evaluated structural alternatives for water imports from external sources (Lake Henshaw, Coachella Canal, Carter Reservoir, and West Side Canal) but were not considered cost effective at the time given the lack of information about project yield.
- *Wastewater Treatment Plant Upgrades:* Water recycling was evaluated by BWD and determined not to be feasible at the time.
- Stormwater Capture and Infiltration. Due to the infrequent occurrence of rainfall in the area, capturing and infiltrating flood events was previously considered. However, projects related to stormwater retention are very limited and further investigation will be needed.
- *Desalination*. Desalination of Salton Sea water or the agricultural return flows before they enter the Sea are potential water supply sources. This alternative strategy was not developed, but may warrant further analysis.

Describe the project location, current conditions, and the benefitting areas. Please attach, separately, a regional and Project map depicting the site(s) location, current conditions, and benefitting areas.

Borrego Springs is located in the northeastern corner of San Diego County, about 20 miles west of the Salton Sea. The groundwater basin underneath Borrego Springs is identified in Bulletin 118 as the Borrego Springs Groundwater Subbasin (Subbasin), which has a surface area of approximately 98 square miles. Exhibit B1 shows the Project Location, regional map, current conditions, and benefitting areas.

The Borrego Springs Watermaster (Watermaster) is implementing a Physical Solution for the Subbasin consisting of the court Judgment entered April 8, 2021 and the Groundwater Management Plan (GMP) attached as Exhibit 1 to the Judgment. According to the GMP (Section 2.2.1.4), there are currently no water inputs to the Subbasin from external sources, and surface water imports are not available for managed recharge. In addition, there are currently no stormwater recharge facilities in Borrego Springs. Therefore, natural recharge is limited to infiltration of stormwater, and in a lesser degree, irrigation return flows, septic recharge and subsurface inflow. There are no major diversions to storage in the Subbasin other than irrigation ponds such as those located at golf courses (Section 2.1.6).

The GMP explains that perennial streams in the Subbasin are predominantly disconnected from the underlying groundwater table. Stream flows of moderate and short duration (when occurring) do not tend to percolate deeply enough into the aquifer to act as a source of recharge. Instead, flows within the saturated alluvium beneath the stream bed are subject to evaporation or transpiration losses (see

¹ Watermaster is submitting a separate proposal to study feasibility of water importation from wells near Clark Dry Lake. This "Water Augmentation Project" is submitted as a separate project and should be considered independent from the Clark Dry Lake.

Section 2.2.2.6). This serves as an example of the benefits that the Project will provide, in particular related to investigation of methods to improve stormwater capture and infiltration.

The Borrego Springs community is entirely dependent on groundwater supply. Historically, the Subbasin has been in an overdraft condition, where groundwater extraction exceeds the amount of groundwater being recharged. A USGS groundwater study (Faunt et. al., 2014) of the area indicates the aquifer is in an overdraft of 17,000 acre-feet per year (AFY) and estimates that the upper aquifer may be depleted within the next 50 years in the absence of the Physical Solution currently being implemented by the Borrego Springs Watermaster.

Quantifiable benefits to the basin include but are not limited to (1) increased groundwater levels within the Subbasin, (2) increased groundwater storage and recharge rate, (3) support to achieve sustainable yield of the Subbasin (currently estimated as 5,700 AFY in the absence of groundwater augmentation). These benefits will be quantified via existing monitoring tasks performed by the Watermaster, and evaluated via the annual reports.

Evaluation and investigation of alternatives for groundwater augmentation in the Subbasin will increase water supply for the community of Borrego Springs. The Project is being proposed by the Agricultural Alliance for Water and Resource Education ("AAWARE"), an unincorporated Center of the San Diego County Farm Bureau for the Borrego area, a non-profit organization.

What is the nexus of the Project to the Sustainability Goal of the Borrego Springs Subbasin Groundwater Management Plan (GMP)? Is the Project listed in the GMP? How does the Project help achieve the goals of the GMP?

As described in the GMP, undesirable results within the Borrego Springs Subbasin are occurring with respect to chronic lowering of groundwater levels and significant and unreasonable reduction of groundwater storage.² Groundwater levels have been declining for decades as a result of overdraft condition. A community-wide groundwater use reduction program has been established to address these undesirable results.

The GMP states that supply augmentation through local and/or imported surface water was not a feasible option at that time; the only way to achieve groundwater sustainability is through demand reduction.

The Physical Solution for the Borrego Springs Subbasin is comprised of the GMP and the Judgement. The Physical Solution is intended to meet the overarching sustainability goal of SGMA to operate the Borrego Springs Subbasin within sustainable yield without causing an undesirable result.

The Judgment recently entered in the adjudication of the Basin under SGMA acknowledges that there likely exists in the Basin a substantial amount of available groundwater storage capacity that can be utilized for storage and conjunctive use of water that may in the future be imported to the Basin. The Judgment assigns to Watermaster the authority to control and regulate use of the Basin's storage

² Undesirable results include chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply, significant and unreasonable reduction of groundwater storage, significant and unreasonable degraded water quality, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water (CWC Section 10721(x)).

capacity to protect the integrity of the Basin, its groundwater and any water imported to the Basin. Therefore, investigating proposed and new alternatives for groundwater recharge (and evaluating their feasibility) will be another step to support the intent of the GMP and the Judgment to achieve long-term groundwater sustainability within the Borrego Springs Subbasin by 2040 as required by SGMA.

According to the IRWM Plan, evaluation of alternatives and costs for augmenting water resources by importing non-local supplies has been considered in the past, however the BWD did not receive funding for the projects contemplated in the IRWM Plan.

It is noteworthy that the Watermaster will support small distributed projects such as rain water harvesting, reuse and/or surface water capture, and recharge projects (see page 2-36 of the GMP).

What are the specific goals and needs for the Project, and how will the project achieve the goals and meet the needs?

The goal of the Project is to investigate techniques for augmentation of groundwater supply in the Subbasin and fill data gaps identified in previous studies regarding groundwater recharge.

Historically, annual natural recharge to the Subbasin has been exceeded by the annual groundwater extraction from the Subbasin. According to the GMP, the USGS (2015) reported that natural recharge that reaches the saturated zone is on average 5,700 AFY, which is approximately 5,000 AFY less than the average groundwater extracted as estimated by the Borrego Valley Hydrologic Model (10,750 AFY).

Given the limited quantity and means for groundwater recharge, the Project will study methods for artificial recharge to augment the amount of available groundwater in the Subbasin without causing undesirable results an in accordance with the Physical Solution and the Judgment.

The Project will provide the opportunity to supplement the water supply of the Borrego Springs community. To achieve the goals, the Project will:

- 1. Conduct research on the variety of methods for groundwater augmentation.
- 2. Evaluate previously considered methods and alternatives and fill data gaps or information that is currently unknown/incomplete from these alternatives.
- 3. Investigate methods to improve efficiency of the existing artificial groundwater recharge to the Subbasin, including their feasibility.

What are the quantifiable benefits of the Project (e.g., protect or enhance water quality, water conservation, enhanced understanding of the groundwater basin, etc.)? How will those benefits be quantified and evaluated?

Investigating recharge alternatives for water supply augmentation of the Borrego Springs aquifer will initially provide information that is currently unknown, missing or incomplete from previous studies. In addition, the Project will evaluate strategies (and their feasibility, if possible) to improve efficiency of the existing artificial groundwater recharge to the Subbasin (e.g., stormwater retention and infiltration, irrigation return flows, infiltration of recycled water, etc).

The main goal of the project is to generate the missing data identified in previous studies needed to determine the economic and technical feasibility of groundwater augmentation alternatives. Quantifiable benefits include potential improvements to recharge to the basin to offset long-term loss of groundwater in storage.

Please describe the communities served by the Project. Will the Project benefit an Underrepresented Community, a Disadvantaged Community (DAC), and/or a Severely Disadvantaged Community (SDAC)? If so, please provide a map.

Borrego Springs is a small unincorporated community located on the western edge of the Sonoran Desert. The Borrego Springs community relies on local groundwater resources as the sole source of municipal drinking water, domestic supply, and agricultural irrigation. Recreational water use in the Subbasin is entirely supported by groundwater. According to the GMP (Section 3.1.2), the continued overdraft of the basin at its then-present rate of pumping could cause severe economic hardship for the community. Accordingly, a community-wide groundwater use reduction program has been established.

This Project will aim to increase the Basin's water supply and thereby reduce the pumping cutbacks necessary to achieve sustainability. The Project is proposed by the Agricultural Alliance for Water and Resource Education ("AAWARE"), an unincorporated Center of the San Diego County Farm Bureau for the Borrego area, a non-profit organization.

The SDAC Impact/Vulnerability Analysis prepared for the BWD in 2019 indicated that the community of Borrego Springs is considered a SDAC.³ The community is particularly susceptible and vulnerable to the changes that will occur as a result of severe water use reductions under SGMA. The Project will also benefit any Underrepresented Community in Borrego Springs by providing the opportunity to increase water supply and provide a more reliable and . The amount of funding that will benefit the SDAC of Borrego Springs and any Underrepresented Community is about \$536,000 (see Budget).

A map showing the location of the Borrego Springs community that will benefit from the Project is given in Exhibit B2.

Will the Project or Component positively impact issues associated with small water systems or private shallow domestic wells (e.g., groundwater contamination vulnerability, drawdown, etc.)? If so, please provide justification such as water system maps or domestic well census results.

As mentioned earlier herein, the Project will support the goal of the GMP to achieve and maintain sustainability within the Subbasin without undesirable results as required by SGMA. The Project will reduce risks for groundwater depletion and decrease community-wide pumping cutbacks necessary to achieve sustainability.

The 5-year groundwater production summary prepared by Dudek in 2019 indicated a total of 49 domestic wells in the Subbasin. Besides BWD's public water system, there is one private water system in Borrego and its service area map is included as the last page of Exhibit 4 of the Judgment (also provided herein for reference).

³ As defined by SGM Grant Program 2021 Guidelines, a DAC is defined as an area with an average household income (AHI) of <80% the state average. A Severely Disadvantaged Community (SDAC) is defined as an area with an AHI of <60% the state average.

The Project will have a positive impact on private domestic wells within the Borrego Springs subbasin and the small water system. This positive impact is attributed to determining methods to increase the overall rate of groundwater recharge, and the water supply and yield over the long-term. The feasibility of increasing water supply will support the sustainable goals described in the GMP.

Does the Project address the needs of the State Water Board's SAFER Program, designed to ensure Californians who lack safe, adequate, and affordable drinking water receive it as quickly as possible, and that the water systems serving them establish sustainable solutions?

The Project will study and provide possible techniques for water supply augmentation. If the result(s) from this Project are determined to be a viable, cost-effective solution, the Borrego Springs community will be ensured with a safer, more diverse, and more sustainable water supply.

According to the Judgment, the Physical Solution charges the Watermaster with establishing and implementing groundwater monitoring which is critical to achieve the sustainable goal and to avoid undesirable results. The Watermaster will determine if changes in the water levels or water quality of the Basin are significant and unreasonable.

How does the Project address the Human Right to Water (AB 685 Section 106.3) which states that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes?

As of 2019, BWD calculated Borrego Springs's total human right to water (AB 685, section 106.3) at under 400 afy (see ENSI draft 4/15/19 SDAC Impact/Vulnerability Analysis, and BWD's 7/9/19 Board agenda package). The community-wide ramp down program would maintain BWD's water supplies in excess of the municipal Human Right to Water amount. Additionally, domestic well owners are De Minimis Pumpers exempt from the ramp down.⁴ The Project would supplement the native groundwater resources further protecting the Human Right to Water.

Please describe how the project contributes to addressing the risks in the region to water supply and water infrastructure arising from climate change. If possible, please provide the amount of greenhouse gas emissions reduced and carbon sequestered resulting from the project.

Historic climate research and current climate modeling efforts indicate dry conditions may be more frequent and of longer duration than those that have occurred over the past 100 years. Climate change-related impacts may also decrease precipitation, snowpack, and water supply availability (USBR, 2015).

The GMP states that future recharge from the unsaturated zone will likely be less than historical conditions due to diminishing of irrigation return flows (due to less pumping following Physical Solution) and/or the potential effects of climate change on recharge of the Subbasin (Section 2.2.3.6). This supports the need to investigate alternatives that could increase water supply available for use in the community of Borrego Springs. The Project will study, evaluate and propose methods for groundwater recharge or to improve the efficiency of current recharge rate of the Subbasin. Thus, the Project will support the implementation of the Physical Solution in regards to reducing groundwater

⁴ De Minimis Pumper is defined by the Judgment as any Party who pumps two acre-feet or less per year for use on real property underlying the Basin.

overdraft, reducing community-wide cutbacks, reducing the need to fallow agricultural crops and will also support the Subbasin in the water supply challenges associated with climate change.

Work Plan

The Work Plan must contain descriptions of the anticipated tasks necessary to complete the project. Tasks should be organized by the five budget categories, as applicable: (a) Project Administration, (b) Planning/Design/Environmental, (c) Construction/Implementation, (d) Monitoring/Assessment, and (e) Interested Parties Outreach/Education. The Work Plan should also identify the anticipated deliverables for each task.

Add additional tasks and subtasks as needed to provide a detailed work plan. Some examples and suggested language have been provided.

Budget Category (a): Project Administration

1. Task 1 - Project Management

1.1. Provide grant management services as needed for Project completion; monitor, supervise, and review all work performed; and coordinate budgeting and scheduling to ensure the Project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations. Prepare invoices including relevant supporting documentation for submittal to DWR via Borrego Water District. This task also includes administrative responsibilities associated with the project such as coordinating with partnering agencies and managing consultants/contractors.

Deliverables: Invoices and necessary documentation

Budget Category (b): Planning/Design/Environmental

2. Task 2 - Planning

- 2.1. Conduct a literature review of methods for groundwater recharge in arid desert environments and where natural recharge is limited such as in Borrego Springs (e.g., stormwater capture and infiltration, recharge using recycled water).
- 2.2. Compile and review reports and information from previously proposed projects regarding groundwater augmentation in the Borrego Springs Groundwater Subbasin (Subbasin); compile documentation, engineering plans, studies and other sources of information of existing recharge methods of the Subbasin including but not limited to irrigation return flows, percolation ponds at the Rams Hill WWTP, upgrades to existing wastewater treatment facilities.
- 2.3. Conduct a data gap analysis of information that was left incomplete or unknown from the projects or studies reviewed in item 2.2.
- 2.4. Prepare a summary report with the results of the data gap analysis.

Deliverables:

- Data gap analysis from task 2.3.
- Summary report documenting the results from task 2.1
- Copies of the technical reports, documents, plans, studies and all sources of information compiled in task 2.2.

Budget Category (c): Implementation

- 3. Task 3. Evaluation of alternatives for groundwater recharge
 - 3.1. Determine the methods from task 2.1 that could be appropriate/viable to fill the data gaps identified in item 2.3 and determine methods to improve efficiency of existing recharge of the Subbasin. Identify constraints and opportunities to be considered in the development of these methods and alternatives.
 - 3.2. Develop a quantitative estimate of the amount of groundwater available for recharge from the alternatives identified in task 3.1 and the amount of water augmentation in Borrego Springs as the result of implementing the alternatives identified in task 3.1.
 - 3.3. Develop a technical memorandum and a summary table of potential benefits and limitations, technical and environmental constraints of each alternative identified in task 3.1, and for alternatives that have not been considered but were identified in task 3.1. Include the quantities estimated in task 3.2.

Deliverables: Technical memorandum and summary table describing the planning objectives, benefits, limitations, constraints and opportunities for each alternative evaluated in this task.

4. Task 4. - Feasibility Study

- 4.1. Conduct a constraint analysis for each groundwater recharge alternatives identified in task 3.
- 4.2. Prepare a cost estimate for implementation and construction of each alternative identified in task 3.
- 4.3. Conduct a feasibility study to assess institutional, regulatory, technical, and financial opportunities and challenges associated with the groundwater recharge alternatives identified in task 3. The opportunities and challenges will be studied in sufficient detail to determine if the proposed alternatives identified in item 3 are practical and feasible. Include a cost-benefit analysis. The feasibility report shall contain at the minimum: introduction, Criteria/Constraints, methodology, Overview of Alternative Options, Evaluation, Conclusions and Recommended Plan.

Deliverables: Final Feasibility Report

5. Task 5. - Environmental Impacts

- 5.1. Develop CEQA evaluation to determine the need for consideration of environmental impacts.
- 5.2. Complete documentation required under the California Environmental Quality Act (CEQA) for the recommended alternative from Task 4. Take all required steps to prepare, circulate, and certify the required CEQA document(s).

Deliverables: Required CEQA documents: Initial Study/Negative Declaration and/or Environmental Impact Report.

Budget Category (d): Monitoring/Assessment

Monitoring/Assessment is not applicable to the SOW because the Project consists of planning and investigating.

Budget Category (e): Interested Parties Outreach/Education

Task 6. - Outreach with Interested Parties and Stakeholders

The Watermaster will provide updates of project analysis to any interested party and not only limited to the pumpers, but the broader community. The Watermaster will also provide the opportunity to engaged interested parties in their regular public meetings and also through the community representative that is part of the five Watermaster board members.

The public outreach will be based on the findings and progress of the technical memorandum and feasibility study obtained in tasks 3 and 4. The public outreach will inform interested parties of recommendations for future decisions and opportunities for groundwater management.

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DWR required budget categories have been included below. Add tasks as applicable; additional rows must be added under the applicable categories to present the cost of each task described in the Work Plan.

		(a)	(b)	(C)	(d)
	Category	Requested Grant Amount	Local Cost Share: Non-State Fund Source*	Total Cost	% Local Cost Share (Col(b))/(Col(c))
(a)	Project Administration				
	Task 1 – Project Management				
	1.1 Grant Management Services	16,000		16,000	
(b)	Planning/Design/Environmental				
	Task 2 – Planning				
	2.1 Literature review	15,000		15,000	
	2.2 Compilation of data sources, reports and documentation	20,000		20,000	
	2.3 Data gap analysis	20,000		20,000	
	2.4 Summary report	30,000		30,000	
(c)	Implementation				
	Task 3. – Evaluation of alternatives for groundwater recharge				
	3.1 Methods for groundwater recharge	25,000		25,000	
	3.2 Quantitative estimate of water available and water augmentation	50,000		50,000	
	3.3 Technical memorandum	50,000		50,000	
	Task 4. – Feasibility Study				
	4.1 Constraint analysis	25,000		25,000	
	4.2. Cost estimate	10,000		10,000	
	4.2 Feasibility study report	50,000		50,000	
	Task 5. – Environmental Impacts				

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	5.1 CEQA Evaluation	25,000		25,000	
	5.2 CEQA documentation	200,000		200,000	
(d)	Monitoring/Assessment				
	Not Applicable				
(e)	Interested Parties Outreach/Public Education				
	Task 6. – Outreach with Interested Parties and Stakeholders		25,000	25,000	100%
(f)	Grand Total (Sum rows (a) through (d) for each column)	536,000		536,000	

* List sources of Local Cost Share funding: Approved Watermaster budget

2021 SGMA Implementation Grant Proposition 68 Schedule

The Schedule must be organized in a manner that is consistent with the Work Plan and Budget that will be contained in the Grant Agreement. The Schedule Table presented below is a template that must be completed for each project in the proposal. The required budget categories have been included below. Add additional rows for each task as described in the Work Plan and Budget.

	Categories	Start Date	End Date
		(Earliest Start Date)	(Latest End Date)
(a)	Project Administration	01/01/2023	12/31/2024
	Task 1 – Project Management	01/01/2023	12/31/2024
	1.1 Grant Management Services		
(b)	Planning/Design/Environmental	01/01/2023	06/30/2023
	Task 2 – Planning	01/01/2023	06/30/2023
	2.1. Literature review	01/01/2023	02/28/2023
	2.2. Compilation of data sources, reports and documentation	01/01/2023	02/28/2023
	2.3. Data gap analysis	03/01/2023	04/30/2023
	2.4. Summary report	05/01/2023	06/30/2023
(c)	Implementation	07/01/2023	12/31/2024
	Task 3. – Evaluation of alternatives for groundwater recharge		
	3.1 Methods for groundwater recharge	07/01/2023	08/31/2023
	3.2 Quantitative estimate of water available and water augmentation	09/01/2023	11/15/2023
	3.3 Technical memorandum	09/01/2023	12/31/2023
	Task 4. – Feasibility Study		
	4.1 Constraint analysis	01/01/2024	02/29/2024
	4.2. Cost estimate	02/01/2024	02/29/2024
	4.2 Feasibility study report	03/01/2024	06/30/2024
	Task 5. – Environmental Impacts		
	5.1 CEQA Evaluation	07/01/2024	08/15/2024
	5.2 CEQA documentation	09/01/2024	12/31/2024

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Borrego Springs Subbasin

rioposiu	Donego Springs Subbasin		
(d)	Monitoring/Assessment		
_	Not Applicable		
(e)	Interested Parties Outreach/Public Education	01/01/2023	12/31/2024
	Task 6. – Outreach with Interested Parties and Stakeholders	01/01/2023	12/31/2024





Regional Map

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

Wagner Bonsignore Consulting Civil Engineers, A Corporation



A CONTRACTOR OF THE OWNER	Borrego Springs Community	Exhibit B2		
Murrieta	Project Name: Water supply augmentation	N		
Oceanside	Earthstar Geographics, County of Riverside, California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, Esri, USGS	0 <u>1.25 2.5</u> Miles		
Regional Map	Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet	Wagner Bonsignore		