



August 4, 2021

MEMORANDUM

Transmitted via e-mail

To: Christopher Alakel, City of Paso Robles

From: Iris Priestaf, PhD and Gus Yates, PG, CHG

Re: Proposal for Technical Support to Paso Robles Basin Cooperative Committee in Providing Corrective Actions

Background

The CA Department of Water Resources (DWR) completed an initial review of the Paso Basin GSP and provided a letter (dated June 3, 2021) to initiate consultation between DWR and the Paso Robles Subbasin GSAs. This DWR consultation letter identified two deficiencies that may preclude DWR's approval of the GSP and provided two potential corrective actions:

- Potential Corrective Action 1. Provide justification for, and effects associated with, the sustainable management criteria for groundwater levels
- Potential Corrective Action 2. Develop Sustainable Management Criteria for the Depletions of Interconnected Surface Water Based on Best Available Information and Science.

For Action 1, DWR requires that the GSAs provide detailed explanation regarding the selection of the sustainable management criteria for groundwater levels, particularly undesirable results and minimum thresholds (MTs), and the effects of those criteria on beneficial uses and users of groundwater. DWR recommendations are summarized below:

- Describe the specific undesirable results GSAs aim to avoid through implementing the GSP.
- Disclose the anticipated impact of operating the Subbasin at conditions protective against those effects on relatively shallow domestic wells and all other beneficial uses and users.
- Using best available information, analyze locations and number of wells/well infrastructure that could be impacted by Subbasin management.
- Explain how the existing minimum threshold groundwater levels are consistent with avoiding undesirable results or establish minimum thresholds at the representative monitoring wells that account for the specific undesirable results the GSAs aim to avoid.
- As needed, consider mitigation strategies for drinking water impacts that may occur with continued overdraft.

For Action 2, DWR requires that the GSAs provide more detailed information, as required in the GSP Regulations, regarding interconnected surface waters and depletions associated with groundwater use.

- Clarify and address the currently conflicting information in the GSP.
- If the GSAs cannot provide a sufficient, evidence-based justification for the absence of interconnected surface water, develop sustainable management criteria.
- Evaluate and disclose potential effects of the GSP's sustainable management criteria on beneficial uses of the interconnected surface water and on groundwater uses and users.

With regard to the second bullet, our working experience in the Paso Robles Subbasin has demonstrated to us that there are areas of interconnected surface water and there is available information to develop sustainable management criteria. Such criteria can be based on groundwater levels as a proxy, potentially using existing wells (if owner permission is obtained) and in the future, new shallow, near-stream monitoring wells identified as part of monitoring network improvements (discussed in GSP Appendix L).

The following sections outline our scope of work, staffing and brief qualifications, schedule, and budget to assist the Paso Robles Subbasin GSAs in resolving the deficiencies and providing corrective actions so that the GSP can secure DWR approval. The first task establishes the framework for meetings and communication. The second involves review of documents and discussion with the GSAs and DWR to develop an approach to providing corrective actions. The remaining tasks are outlined below in terms of likely technical content but are contingent on agreement on the approach.

Scope of Work

Task 1: Attend Meetings and Coordinate with GSAs and DWR

This task includes project management and coordination among Todd Groundwater, GSAs staff, and DWR staff; we assume that most communication will occur via virtual meetings and email. Included are regularly-schedule virtual update meetings with GSAs staff. For costing purposes, ten half-hour meetings are assumed. Additional virtual calls and meetings will occur as needed.

Five meetings of GSA/consultant staff with DWR are proposed including a kickoff meeting and meetings to discuss approach, progress, and deliverables. The kickoff meeting will address DWR requirements and expectations and the initial approach including available data, technical analyses, deliverables, and schedule. Data requests identified during the meeting will be addressed through emails and follow-up meetings among relevant staff and consultants.

Two illustrated virtual meetings with the Cooperative Committee are proposed to discuss the approach memorandum and the administrative draft of the GSP addendum.

Task 2: Review Documents and Refine Approach

In this task, we will review the GSP, Annual Reports, and public comments on the GSP. This review will provide context on GSP development decisions made at the time. Relevant inconsistencies in the GSP document will be marked for resolution. Additional documents and data sets (e.g., well inventory, NCCAG) will be requested/downloaded and reviewed.

Based on review of documents, discussion with the GSAs staff, and consultation with DWR staff, we will develop a technical approach to provide the corrective actions. This will be discussed in at least one meeting and then presented to the GSA staff as an administrative draft Technical Memorandum (TM) and subsequently to DWR as a draft TM.

Task 3: Analysis for Groundwater Level Sustainability Criteria

This task will provide explanation for, and effects associated with, the sustainable management criteria for groundwater levels. As indicated in the DWR consultation letter, the expectation is that the criteria have been established as intended but require additional explanation and documentation. However, DWR recognizes the possibility that the MTs are not consistent with avoidance of undesirable results and in that case, the MTs will need to be revised. This scope assumes that the criteria adequately represent GSA intent and that only minor revisions or recommendations, if any, would be needed.

The current groundwater level sustainability criteria (undesirable results, MTs, MOs, RMS wells) will be described as a starting point, followed by evaluation of specific undesirable results of chronic groundwater level decline. Specifically, the MT is set at 30 feet below 2017 water levels, which in most wells were the lowest water levels during the period of record. We will quantitatively evaluate whether an additional 30 feet of water level decline would produce undesirable results with respect to the other sustainability indicators.

The main analysis will address the anticipated impacts on domestic wells (and other beneficial uses/users) of operating the Subbasin with the sustainability criteria. This will include documentation of existing well locations and construction using available well inventory data/GIS (from GSP, County, or downloaded from DWR Online System for Well Completion Reports (OSWCR)). Using the GIS and databases, we will document the existing well locations relative to the 22 RMS Wells and provide a comparison of the construction of existing wells (including average depth) to the Groundwater Level MTs at the RMS Wells. This will disclose the impact on existing wells (including those with less-than-average depth), likely to be expressed as a percentage of wells. We will compare these results with the locations and timing of owner-reported well problems in DWR's Household Water Supply Shortage Reporting System.

This analysis will be the basis for assessing if the criteria are reasonable to protect existing wells. We will also discuss anticipated impacts of 30 feet of additional water level decline on storage, subsidence, water quality, and interconnected surface water.

Recognizing that the Subbasin needn't be operated to protect the shallowest wells, we anticipate that a certain percentage of wells will be adversely affected. Building on the projects and management actions in the GSP, we may recommend additional management actions to mitigate undesirable results.

Task 4: Analysis for Interconnected Surface Water Sustainability Criteria

The GSP lacks a thorough description of interconnected surface water and Groundwater Dependent Ecosystems (GDEs) in Section 5.5 ("Interconnected Surface Water") and lacks sustainability criteria in Section 8.9 ("Depletion of Interconnected Surface Water SMC"). We will replace these with sections that provide comprehensive description, reasonable criteria, and an evaluation of the criteria with respect to other sustainability indicators, beneficial uses and adjacent basin areas.

The GSP includes some descriptive information regarding interconnected surface water. For example, the water budget tables include groundwater discharge to streams, and Appendix C shows locations where riparian vegetation may use groundwater. We will bring that information into Section 5.5 and supplement it with additional information, such as:

- An evaluation of whether mapped springs and seeps in upland areas appear to be using groundwater (as opposed to seasonal rainfall) and whether groundwater in those locations is plausibly affected by groundwater pumping and levels in the valley floor areas.
- An evaluation of the types of vegetation mapped along stream channels (obligate versus facultative phreatophytes), trends in the extent and density of riparian vegetation over the past several decades and whether those trends relate to groundwater level trends. Information sources will include discussions with local riparian management groups such as the Upper Salinas-Las Tablas RCD.
- Animals that may depend on groundwater will also be evaluated, primarily steelhead trout that migrate up and down the Salinas River during periods when groundwater contributions to base flow are significant. Seasonal stream flow-duration characteristics and passage-day opportunity will be tabulated, and trends in those characteristics will be compared with trends in groundwater elevations. Information sources will include discussion with fisheries management agencies such as the National Marine Fisheries Service.

Sustainability criteria for interconnected surface water will focus on three categories of potential undesirable results: diminished supply to downstream surface water users, decreased extent or vigor of riparian vegetation due to root zone dewatering, and reduced passage opportunity for steelhead. The initial minimum threshold for downstream water users will be selected in the context of water rights and operation of the Salinas Valley Water Project. The minimum threshold for phreatophytic riparian vegetation will likely be defined as a depth to the water table that empirically correlates with the existing distribution of that type of

vegetation. The initial minimum threshold for fish passage will be based on the number of adult and smolt passage days, probably classified by year type.

The initial minimum threshold concepts may be re-defined in terms of water table depths in the riparian vegetation areas, because water levels are easy to measure whereas flow gains and losses are not.

A key addition to the GSP will be an analysis of potential impacts to water users, vegetation and fish of an additional 30-foot decline in groundwater levels, which is the proposed minimum threshold in the GSP. This analysis will be based on 1) empirical historical relationships between base flow or riparian water table depth and water levels in deeper water supply wells, and 2) previously modeled relationships between pumping reductions, groundwater levels and groundwater budgets presented in the GSP.

Task 5: Reporting

The format of reporting will be discussed and confirmed in the Kickoff Meeting with DWR. We assume that our reporting would be compiled in the form of a distinct Todd Groundwater addendum to the GSP. We have not included editing, revision, or re-submittal of the original 2020 GSP in this scope but intend to discuss this at the kickoff.

We will provide an Administrative Draft for internal review by GSA staff. Comments on the Administrative Draft will be incorporated, and the Draft Report will be provided to the Cooperative Committee. We will address comments on the Draft and subsequently submit a Final TM for submittal to DWR. For purposes of costing, we assume all submittals in electronic format.

Todd Groundwater Qualifications and Key Staff

Todd Groundwater has been intensively involved in SGMA-related projects including early organization efforts for Groundwater Sustainability Agencies (GSAs), development of Alternative Plans and Groundwater Sustainability Plans (GSPs), and preparation of Annual Reports for SGMA compliance. Our staff has been engaged in 12 GSPs/Alternative Plans for a variety of basins across California. In addition, we are familiar with the groundwater setting and management of the Paso Robles Subbasin, with projects in the basin over the past 20 years. Our proposed team brings direct and relevant experience to the Paso Robles GSP Corrective Actions project.

Iris Priestaf, PhD, President. Iris Priestaf has managed or served as principal in charge for numerous projects involving groundwater planning and management, including SGMA projects. She is familiar with the Paso Robles Subbasin, having conducted numerous projects for the City of Paso Robles and County of San Luis Obispo involving groundwater basin characterization, water balance studies, managed aquifer recharge studies, and water management planning.

Gus Yates, PG, CHG, Senior Hydrologist. Mr. Yates is an accomplished hydrogeologist with 30 years' experience, including work on Paso Robles Groundwater Basin water budget studies and modeling efforts. Mr. Yates has been engaged in several GSPs for basins across California, with particular focus on development and application of numerical modeling and on interconnected surface water and GDEs. He has served as the key consultant to the Arroyo Seco GSA (Salinas Valley) providing technical support, GSP development, and presentation service.

Other Todd Groundwater will contribute to the analysis as needed, including Chad Taylor, PG, CHG, Principal Hydrogeologist, who brings substantial experience with production wells and with establishment of groundwater levels sustainability criteria for multiple GSPs. Nicole Grimm, Staff Geologist, will assist with acquiring data and with GIS analysis.

Schedule

We are ready to start upon notice-to-proceed with plans to complete the work in 2021. We recognize that the best outcome would involve completion of the work in 2021 such that DWR approves the GSP by January 30, 2022. However, this schedule assumes some unknown factors, including time needed for DWR to agree on the approach and the time required for DWR to review the work and finalize its assessment as approved. We will proceed without delay with the best outcome in mind. Otherwise, by January 30, 2022, DWR will finalize its assessment of the GSP as approved, incomplete, or inadequate. If determined to be incomplete (with deficiencies that can be corrected in a timely manner), DWR and the GSAs can determine the time needed to address any deficiencies up to 180 days (July 2022).

Budget

Our proposed budget is \$82,186. This budget assumes progression from the planning Tasks 1 and 2 to the technical and reporting Tasks 3, 4, and 5 without major revision or expansion of scope. The budget also assumes that the above schedule is reasonable; major extension of the schedule would likely involve more communication, meetings, and presentations.

Todd Groundwater submits monthly invoices on a time and materials basis and we regard this as a not-to-exceed budget.

Task 1	\$ 21,795
Task 2	\$ 8,645
Task 3	\$ 16,123
Task 4	\$ 26,097
Task 5	<u>\$ 9,527</u>
Total:	\$ 82,186

We appreciate the opportunity to work with the City of Paso Robles and Cooperative Committee.