



CALIFORNIA DEPARTMENT OF WATER RESOURCES

SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

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June 20, 2023

Blaine Reely
County of San Luis Obispo GSA - San Luis Obispo Valley
1055 Monterey Street, Suite D430
San Luis Obispo, CA 93408
805-781-4206
breely@co.slo.ca.us

RE: Approved Determination of the Revised Groundwater Sustainability Plan Submitted for the Salinas Valley – Paso Robles Area Subbasin

Dear Blaine Reely,

The Department of Water Resources (Department) has evaluated the revised groundwater sustainability plan (GSP) for the Salinas Valley - Paso Robles Area Subbasin in response to the Department's incomplete determination on January 21, 2022 and has determined the GSP is approved. The approval is based on recommendations from the Staff Report, included as an exhibit to the attached Statement of Findings, which describes that the Paso Robles Area Subbasin GSP has taken sufficient action to correct deficiencies identified by the department and satisfies the objectives of the Sustainable Groundwater Management Act (SGMA) and substantially complies with the GSP Regulations. The Staff Report also proposes recommended corrective actions that the Department believes will enhance the GSP and facilitate future evaluation by the Department. The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes to the GSP in future updates.

Recognizing SGMA sets a long-term horizon for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals, monitoring progress is fundamental for successful implementation. GSAs are required to evaluate their GSPs at least every five years and whenever the Plan is amended, and to provide a written assessment to the Department. Accordingly, the Department will evaluate approved GSPs and issue an assessment at least every five years. The Department will initiate the first periodic review of the Paso Robles Area Subbasin GSP no later than January 30, 2025.

Please contact Sustainable Groundwater Management staff by emailing sgmps@water.ca.gov if you have any questions related to the Department's assessment or implementation of your GSP.

Thank You,

Paul Gosselin

Paul Gosselin
Deputy Director
Sustainable Groundwater Management

Attachment:

1. Statement of Findings Regarding the Determination of Approval of the Salinas Valley - Paso Robles Area Subbasin Groundwater Sustainability Plan (June 20, 2023)

**STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES**

**STATEMENT OF FINDINGS REGARDING THE
APPROVAL OF THE
SALINAS VALLEY – PASO ROBLES AREA SUBBASIN
GROUNDWATER SUSTAINABILITY PLAN**

The Department of Water Resources (Department) is required to evaluate whether a submitted groundwater sustainability plan (GSP or Plan) conforms to specific requirements of the Sustainable Groundwater Management Act (SGMA or Act), is likely to achieve the sustainability goal for the basin covered by the Plan, and whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) The Department is directed to issue an assessment of the Plan within two years of its submission. (Water Code § 10733.4.) If a Plan is determined to be Incomplete, the Department identifies deficiencies that preclude approval of the Plan and identifies corrective actions required to make the Plan compliant with SGMA and the GSP Regulations. The GSA has up to 180 days from the date the Department issues its assessment to make the necessary corrections and submit a revised Plan. (23 CCR § 355.2(e)(2)). This Statement of Findings explains the Department's decision regarding the revised June 2022 Plan submitted by the City of Paso Robles Groundwater Sustainability Agency, Paso Basin - County of San Luis Obispo Groundwater Sustainability Agency, San Miguel Community Services District Groundwater Sustainability Agency, Shandon - San Juan Groundwater Sustainability Agency (GSA(s) or Agencies) for the Salinas Valley – Paso Robles Area Subbasin (Basin No. 3-004.06).

Department management has discussed the Plan with staff and has reviewed the Department Staff Report, entitled Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report, attached as Exhibit A, recommending approval of the GSP. Department management is satisfied that staff have conducted a thorough evaluation and assessment of the Plan and concurs with staff's recommendation and all the recommended corrective actions. The Department therefore **APPROVES** the Plan and makes the following findings:

- A. The initial Plan for the basin submitted by the GSA for the Department's evaluation satisfied the required conditions as outlined in § 355.4(a) of the GSP Regulations (23 CCR § 350 et seq.), and Department Staff therefore evaluated the initial Plan.
- B. On January 21, 2022, the Department issued a Staff Report and Statement of Findings determining the initial GSP submitted by the Agencies for the basin to be incomplete, because the GSP did not satisfy the requirements of SGMA, nor did it substantially comply with the GSP Regulations. At that time,

the Department provided corrective actions in the Staff Report that were intended to address the deficiencies that precluded approval. Consistent with the GSP Regulations, the Department provided the Agencies with up to 180 days to address the deficiencies detailed in the Staff Report. On July 19, 2022, within 180 days of the Staff Report related to the Department's initial incomplete determination, the Agencies submitted a revised 2022 GSP to the Department for evaluation. When evaluating a revised GSP that was initially determined to be incomplete, the Department reviews the materials (e.g., revised or amended GSP) that were submitted within the 180-day deadline and does not review or rely on materials that were submitted to the Department by the GSA after the resubmission deadline. Part of the Department's review, focuses on how the Agency has addressed the previously identified deficiencies that precluded approval of the initially submitted Plan. The Department shall find a Plan previously determined to be incomplete to be inadequate if, after consultation with the State Water Resources Control Board, the Department determines that the Agency has not taken sufficient actions to correct the deficiencies previously identified by the Department. (23 CCR § 355.2(e)(3)(C).) The Department shall approve a Plan previously found to be incomplete if the Department determines the Agency has sufficiently addressed the deficiencies that precluded approval. The Department may evaluate other components of the Plan, particularly to assess whether revisions to address deficiencies may have affected other components of a Plan or its likelihood of achieving sustainable groundwater management and may offer recommended corrective actions to deal with any issues of concern.

C. The Department's Staff Report, dated January 21, 2022, identified the deficiencies that precluded approval of the initially submitted Plan. After thorough evaluation of the revised Plan, the Department makes the following findings regarding the sufficiency of the actions taken by the Agencies to correct those deficiencies:

1. Deficiency 1: The corrective action advised the Agencies to address several aspects of the Plan's disclosure, discussion, and analyses of groundwater level sustainable management criteria and potential impacts to groundwater users and uses. The initially submitted GSP did not provide detailed information explaining or justifying groundwater level sustainable management criteria, specifically undesirable results and minimum thresholds and the impacts of these on beneficial uses and users of groundwater.

The 2023 Staff Report associated with the revised 2022 Plan indicates that the Agencies have taken sufficient actions to correct this deficiency such that, at this time, although the Staff Report

includes recommended corrective actions to further align this aspect of the Plan with the GSP Regulations, the Department finds Plan approval is not precluded, and further finds that the Agencies have the ability to achieve the sustainability goal for the basin on SGMA timelines, and that the Department will be able to periodically monitor and evaluate the likelihood of Plan implementation to achieve sustainability.

Deficiency 2: The corrective action advised the Agencies to address several aspects of the Plan's disclosure, discussion, and analyses of interconnected surface water sustainable management criteria and potential impacts to groundwater users and uses. The initially submitted GSP did not sufficiently demonstrate that depletions of interconnected surface water were present or not likely to occur in the Subbasin. As a result, the GSP did not establish sustainable management criteria for interconnected surface water.

The 2023 Staff Report indicates that the Agencies have taken sufficient actions to correct this deficiency such that, at this time, although the Staff Report includes recommended corrective actions to further align this aspect of the Plan with the GSP Regulations, the Department finds Plan approval is not precluded, that the Agencies have the ability to achieve the sustainability goal for the basin on SGMA timelines, and that the Department will be able to periodically monitor and evaluate the likelihood of Plan implementation to achieve sustainability.

D. The Plan satisfies the relevant conditions in § 355.4(a) of the GSP Regulations (23 CCR § 350 et seq.):

1. The Plan was complete, meaning it generally appeared to include the information required by the Act and the GSP Regulations sufficient to warrant a thorough evaluation and issuance of an assessment by the Department. (23 CCR § 355.4(a)(2).)
2. The Plan, either on its own or in coordination with other Plans, appears to cover the entire Basin sufficient to warrant a thorough evaluation. (23 CCR § 355.4(a)(3).)

E. The general standards the Department applied in its evaluation and assessment of the Plan are: (1) "conformance" with the specified statutory requirements, (2) "substantial compliance" with the GSP Regulations, (3) whether the Plan is likely to achieve the sustainability goal for the Basin within 20 years of the implementation of the Plan, and (4) whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of

sustainability goals in an adjacent basin. (Water Code § 10733.) Application of these standards requires exercise of the Department's expertise, judgment, and discretion when making its determination of whether a Plan should be deemed "approved," "incomplete," or "inadequate."

The statutes and GSP Regulations require Plans to include and address a multitude and wide range of informational and technical components. The Department has observed a diverse array of approaches to addressing these technical and informational components being used by GSAs in different basins throughout the state. The Department does not apply a set formula or criterion that would require a particular outcome based on how a Plan addresses any one of SGMA's numerous informational and technical components. The Department finds that affording flexibility and discretion to local GSAs is consistent with the standards identified above, the state policy that sustainable groundwater management is best achieved locally through the development, implementation, and updating of local plans and programs (Water Code § 113), and the Legislature's express intent under SGMA that groundwater basins be managed through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner. (Water Code § 10720.1(h).) The Department's final determination of a Plan's status is made based on the entirety of the Plan's contents on a case-by-case basis, considering and weighing factors relevant to the particular Plan and Basin under review.

- F. In making these findings and Plan determination, the Department also recognized that: (1) it maintains continuing oversight and jurisdiction to ensure the Plan is adequately implemented; (2) the Legislature intended SGMA to be implemented over many years; (3) SGMA provides Plans 20 years of implementation to achieve the sustainability goal in a Subbasin (with the possibility that the Department may grant GSAs an additional five years upon request if the GSA has made satisfactory progress toward sustainability); and, (4) local agencies acting as GSAs are authorized, but not required, to address undesirable results that occurred prior to enactment of SGMA. (Water Code §§ 10721(r); 10727.2(b); 10733(a); 10733.8.)
- G. The Plan conforms with Water Code §§ 10727.2 and 10727.4, substantially complies with 23 CCR § 355.4, and appears likely to achieve the sustainability goal for the Subbasin.
1. The sustainable management criteria and goal to maintain groundwater conditions at elevations that allow for reasonable operation flexibility are sufficiently justified and explained. The Plan relies on credible information and science to quantify the groundwater conditions that the Plan seeks to avoid and provides an objective way to determine whether the Subbasin

- is being managed sustainably in accordance with SGMA. (23 CCR § 355.4(b)(1).)
2. The Plan demonstrates a thorough understanding of where data gaps exist and demonstrates a commitment to eliminate those data gaps. The GSP establishes a monitoring network and data collection methods to fill data gaps related to adequately characterizing groundwater levels and identifying interconnected surface water bodies. Filling these known data gaps, and others described in the Plan, should lead to the refinement of the GSAs' monitoring networks, the Subbasin's GSP model, and sustainable management criteria and help inform and guide future adaptive management strategies (23 CCR § 355.4(b)(2).)
 3. The projects and management actions proposed are designed to provide new water supplies, improve groundwater monitoring, and reduce groundwater use. The projects and management actions are reasonable and commensurate with the level of understanding of the Subbasin setting. The projects and management actions described in the Plan provide a feasible approach to achieving the Subbasin's sustainability goal and should provide the GSAs with greater versatility to adapt and respond to changing conditions and future challenges during GSP implementation. (23 CCR § 355.4(b)(3).)
 4. The Plan provides a detailed explanation of how the various interests of groundwater uses and users in the Subbasin were considered in developing the sustainable management criteria and how those interests, including domestic wells, would be impacted by the chosen minimum thresholds. (23 CCR § 355.4(b)(4).)
 5. The Plan's projects and management actions appear feasible at this time and appear likely to prevent undesirable results and ensure that the Subbasin is operated within its sustainable yield within 20 years. The Department will continue to monitor Plan implementation and reserves the right to change its determination if projects and management actions are not implemented or appear unlikely to prevent undesirable results or achieve sustainability within SGMA timeframes. (23 CCR § 355.4(b)(5).)
 6. The Plan includes a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present. (23 CCR § 355.4(b)(6).)
 7. At this time, it does not appear that the Plan will adversely affect the ability of an adjacent basin to implement its GSP or impede achievement of sustainability goals in an adjacent basin. The Plan states that GSP implementation will be coordinated with the neighboring groundwater

sustainability agencies in the Salina Valley Basin and Atascadero Subbasin. The Plan includes an analysis of potential impacts to adjacent basins related to the established minimum thresholds for each sustainability indicator. The Plan does not anticipate any impacts to adjacent basins resulting from the minimum thresholds defined in the Plan. (23 CCR § 355.4(b)(7).)

8. If required, a satisfactory coordination agreement has been adopted by all relevant parties. (23 CCR § 355.4(b)(8).)
9. The GSAs' member agencies, the City of Paso Robles, County of San Luis Obispo, San Miguel Community Services District, and the Shandon-San Juan Water District have historically taken action to address problematic groundwater conditions in the Subbasin, such as offsetting water demand by regulating land use dependent on groundwater, monitoring and managing water quality, and preventing groundwater export from the Subbasin. The GSAs' member agencies and their history of groundwater management provide a reasonable level of confidence that the GSAs has the legal authority and financial resources necessary to implement the Plan. (23 CCR § 355.4(b)(9).)
10. Through review of the Plan and consideration of public comments, the Department determines that the GSAs adequately responded to comments that raised credible technical or policy issues with the Plan, sufficient to warrant approval of the Plan at this time. The Department also notes that the recommended corrective actions included in the Staff Report are important to addressing certain technical or policy issues that were raised and, if not addressed before future, subsequent plan evaluations, may preclude approval of the Plan in those future evaluations. (23 CCR § 355.4(b)(10).)

H. In addition to the grounds listed above, DWR also finds that:

1. The Plan considers potential impacts on existing well users in establishing minimum thresholds for chronic lowering of groundwater levels that take into consideration the sustainable groundwater supply needed for the well users. Minimum thresholds were established through analyses of historical groundwater level data that allow reasonable operational flexibility while accounting for seasonal and anticipated climatic variations. The Plan's compliance with the requirements of SGMA and substantial compliance with the GSP Regulations supports the state policy regarding the human right to water (Water Code § 106.3). The Department developed its GSP Regulations consistent with and intending to further the policy through implementation of SGMA and the Regulations, primarily by achieving sustainable groundwater management in a basin. By ensuring

substantial compliance with the GSP Regulations, the Department has considered the state policy regarding the human right to water in its evaluation of the Plan. (23 CCR § 350.4(g).)

2. The Plan acknowledges and identifies interconnected surface waters within the Subbasin. The GSAs proposes initial sustainable management criteria to manage this sustainability indicator and measures to improve understanding and management of interconnected surface water. The GSAs acknowledge, and the Department agrees, data gaps related to interconnected surface water exist. The GSAs should continue filling data gaps, collecting additional monitoring data, and coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping. Future updates to the Plan should aim to improve the initial sustainable management criteria as more information and improved methodology becomes available.
3. The California Environmental Quality Act (Public Resources Code § 21000 *et seq.*) does not apply to the Department's evaluation and assessment of the Plan.

Accordingly, the revised GSP submitted by the Agencies for the Salinas Valley – Paso Robles Area Subbasin is hereby **APPROVED**. The recommended corrective actions identified in the Staff Report will assist the Department's future review of the Plan's implementation for consistency with SGMA and the Department therefore recommends the Agencies address them by the time of the Department's first periodic review, which is set to begin on January 30, 2025, as required by Water Code § 10733.8. Failure to address the Department's Recommended Corrective Actions before future, subsequent plan evaluations, may lead to a Plan being determined incomplete or inadequate.

Signed:



Karla Nemeth, Director

Date: June 20, 2023

Exhibit A: Groundwater Sustainability Plan Assessment Staff Report – Salinas Valley – Paso Robles Area Subbasin (June 20, 2023)

State of California
Department of Water Resources
Sustainable Groundwater Management Program
Groundwater Sustainability Plan Assessment
Staff Report

Groundwater Basin Name: Salinas Valley - Paso Robles Area Subbasin (No. 3-004.06)

Submitting Agencies: City of Paso Robles Groundwater Sustainability Agency; Paso Basin - County of San Luis Obispo Groundwater Sustainability Agency; San Miguel Community Services District Groundwater Sustainability Agency; Shandon - San Juan Groundwater Sustainability Agency

Submittal Type: Revised Plan in Response to Incomplete Determination

Submittal Date: July 20, 2022

Recommendation: Approve

Date: June 20, 2023

On July 20, 2022, the City of Paso Robles Groundwater Sustainability Agency (GSA), the Paso Basin - County of San Luis Obispo GSA, the San Miguel Community Services District GSA, and the Shandon - San Juan GSA (collectively, the GSAs or Agencies) submitted the revised Paso Robles Area Subbasin Groundwater Sustainability Plan – June 2022 (Paso Robles GSP, GSP, or Plan) for the Salinas Valley Groundwater Basin Paso Robles Area Subbasin (Paso Robles Subbasin or Subbasin) to the Department of Water Resources (Department) in response to the Department’s incomplete determination on January 21, 2022,¹ for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA)² and GSP Regulations.³ After evaluation and assessment, Department staff conclude the GSAs have taken sufficient actions to correct deficiencies identified by the Department and recommend approval of the Plan; however, Department staff have recommended additional corrective actions, which staff recommend the GSAs address by the Plan’s first periodic evaluation.

Overall, Department staff believe the Plan contains the required components of a GSP, demonstrates a thorough understanding of the Subbasin based on what appears to be the best available science and information, sets well explained, supported, and reasonable sustainable management criteria to prevent undesirable results as defined in the Plan, and proposes a set of projects and management actions that, if successfully

¹ Water Code § 10733.4(b); 23 CCR § 355.4(a)(4); <https://sgma.water.ca.gov/portal/gsp/assessments/35>.

² Water Code § 10720 *et seq.*

³ 23 CCR § 350 *et seq.*

implemented, are likely to achieve the sustainability goal defined for the Subbasin.⁴ Department staff will continue to monitor and evaluate the Subbasin's progress toward achieving the sustainability goal through annual reporting, periodic evaluations of the GSP, and GSP implementation.

This assessment includes six sections:

- **Section 1 – Summary**: Provides an overview of the Department Staff's assessment and recommendations.
- **Section 2 – Evaluation Criteria**: Describes the legislative requirements and the Department's evaluation criteria.
- **Section 3 – Required Conditions**: Describes the submission requirements of a response to an incomplete determination to be evaluated by the Department.
- **Section 4 – Deficiency Evaluation**: Provides an assessment of whether and how the contents included in the GSP submittal addressed the deficiencies identified by the Department in the initial incomplete determination.
- **Section 5 – Plan Evaluation**: Provides a detailed assessment of the contents included in the GSP organized by each Subarticle outlined in the GSP Regulations.
- **Section 6 – Staff Recommendation**: Includes the staff recommendation for the Plan and any recommended corrective actions.

⁴ 23 CCR § 354.24.

1 SUMMARY

Department staff conclude the GSA took sufficient action to correct the deficiencies previously identified. Accordingly, Department staff recommend **approval** of the Groundwater Sustainability Plan for the Salinas Valley – Paso Robles Area Subbasin, along with recommended corrective actions described in this Staff Report which Department staff recommend be addressed by the next periodic evaluation to further improve Plan implementation and achievement of basin sustainability in accordance with SGMA timelines.

The GSAs have identified areas for improvement of its Plan (e.g., addressing data gaps, expanding monitoring networks, refining the groundwater model, developing the structure for area specific mandatory pumping limitations). Department staff concur those items are important and recommend the GSAs address them as soon as possible. Department staff have also identified additional recommended corrective actions that the GSAs should consider for the first periodic evaluation of the Plan (see [Section 6](#)). Addressing these recommended corrective actions will be important to demonstrate, on an ongoing basis, that implementation of the Plan is likely to achieve the sustainability goal. The recommended corrective actions generally focus on the following:

- (1) elaborating on the definition of undesirable results;
- (2) re-evaluating the well impact analysis and filling related data gaps;
- (3) considering mitigation strategies;
- (4) further explaining connections with the Alluvial Aquifer, Estrella River, and San Juan Creek;
- (5) continuing to fill data gaps, collect additional monitoring data, and coordinate with agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping;
- (6) explaining the monitoring network for interconnected surface water;
- (7) refining sustainable management criteria to include the Alluvial Aquifer; and
- (8) reconciling Monitoring Network Module and the GSP monitoring network.

Addressing the recommended corrective actions identified in Section 6 of this Staff Report will be important to demonstrate, on an ongoing basis, that implementation of the Plan is likely to achieve the sustainability goal.

2 EVALUATION CRITERIA

The Department evaluates whether a Plan conforms to the statutory requirements of SGMA⁵ and is likely to achieve the basin's sustainability goal,⁶ whether evaluating a basin's first Plan,⁷ a Plan previously determined incomplete,⁸ an amended Plan,⁹ or a GSA's periodic evaluation to an approved Plan.¹⁰ To achieve the sustainability goal, each version of the Plan must demonstrate that implementation will lead to sustainable groundwater management, which means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.¹¹ The Department is also required to evaluate, on an ongoing basis, whether the Plan will adversely affect the ability of an adjacent basin to implement its groundwater sustainability program or achieve its sustainability goal.¹²

The Plan evaluated in this Staff Report was previously determined to be incomplete. An incomplete Plan is one which Department staff identified one or more deficiencies that preclude its initial approval. Deficiencies may include a lack of supporting information that is sufficiently detailed or analyses that are sufficiently thorough and reasonable, or where Department staff determine it is unlikely the GSA(s) in the basin/subbasin could achieve the sustainability goal under the proposed Plan. After GSAs have been afforded up to 180 days to address the deficiencies and based on the GSAs' efforts, the Department can either approve¹³ the Plan or determine the Plan inadequate.¹⁴

The Department's evaluation and assessment of a Plan previously determined to be incomplete, as presented in this Staff Report, continues to follow Article 6 of the GSP Regulations¹⁵ to determine whether the Plan, with revisions or additions prepared by the GSA, complies with SGMA and substantially complies with the GSP Regulations.¹⁶ As stated in the GSP Regulations, "substantial compliance means that the supporting information is sufficiently detailed and the analyses sufficiently thorough and reasonable, in the judgment of the Department, to evaluate the Plan, and the Department determines that any discrepancy would not materially affect the ability of the Agency to achieve the sustainability goal for the basin, or the ability of the Department to evaluate the likelihood of the Plan to attain that goal."¹⁷

⁵ Water Code §§ 10727.2, 10727.4, 10727.6.

⁶ Water Code § 10733; 23 CCR § 354.24.

⁷ Water Code § 10720.7.

⁸ 23 CCR § 355.2(e)(2).

⁹ 23 CCR § 355.10.

¹⁰ 23 CCR § 355.6.

¹¹ Water Code § 10721(v).

¹² Water Code § 10733(c).

¹³ 23 CCR §§ 355.2(e)(1).

¹⁴ 23 CCR §§ 355.2(e)(3).

¹⁵ 23 CCR § 355 *et seq.*

¹⁶ 23 CCR § 350 *et seq.*

¹⁷ 23 CCR § 355.4(b).

When reviewing a Plan that has previously been determined to be incomplete, Department staff primarily assess whether the GSA(s) have taken sufficient actions to correct any deficiencies identified by the Department.¹⁸ A Plan approval does not signify that Department staff, were they to exercise the professional judgment required to develop a Plan for the basin, would make the same assumptions and interpretations as those contained in the revised Plan, but simply that Department staff have determined that the modified assumptions and interpretations relied upon by the submitting GSA(s) are supported by adequate, credible evidence, and are scientifically reasonable. The reassessment of a Plan previously determined to be incomplete may involve the review of new information presented by the GSA(s), including models and assumptions, and a reevaluation of that information based on scientific reasonableness. In conducting its reassessment, Department staff does not recalculate or reevaluate technical information or perform its own geologic or engineering analysis of that information.

The recommendation to approve a Plan previously determined to be incomplete is based on a determination that the GSA(s) have taken sufficient actions (e.g., amended or revised the Plan) to correct the deficiencies previously identified by the Department that precluded earlier approval.

3 REQUIRED CONDITIONS

For a Plan that the Department determined to be incomplete, the Department identifies corrective actions to address those deficiencies that preclude approval of the Plan as initially submitted. The GSAs in a basin, whether developing a single GSP covering the basin or multiple GSPs, must attempt to sufficiently address those corrective actions within the time provided, not to exceed 180 days, for the Plan to be evaluated by the Department.

3.1 INCOMPLETE RESUBMITTAL

GSP Regulations specify that the Department shall evaluate a revised GSP in which the GSAs have taken corrective actions within 180 days from the date the Department issued an incomplete determination to address deficiencies.¹⁹

The Department issued the incomplete determination on January 21, 2022. The GSAs submitted a revised GSP on July 19, 2022, in compliance with the 180-day deadline.

¹⁸ 23 CCR §§ 355.2(e)(3)(C).

¹⁹ 23 CCR § 355.4(a)(4).

4 DEFICIENCY EVALUATION

As stated in Section 355.4 of the GSP Regulations, a basin “shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act.” The Department’s assessment is based on a number of related factors including whether the elements of a GSP were developed in the manner required by the GSP Regulations, whether the GSP was developed using appropriate data and methodologies and whether its conclusions are scientifically reasonable, and whether the GSP, through the implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the basin.

In its initial incomplete determination, the Department identified two deficiencies in the Plan related to chronic lowering of groundwater levels and interconnected surface water, which precluded the Plan’s approval in January 2022.²⁰ The GSAs were given 180 days to take corrective actions to remedy the identified deficiencies. Consistent with the GSP Regulations, Department staff are providing a reevaluation of the resubmitted Plan to determine if the GSAs have taken sufficient actions to correct the deficiencies.

This section describes the corrective actions recommended by the Department related to each deficiency, followed by Department staff’s evaluation on the actions taken by the GSAs to address the deficiency.

4.1 DEFICIENCY 1. THE GSP LACKS JUSTIFICATION FOR, AND EFFECTS ASSOCIATED WITH, THE SUSTAINABLE MANAGEMENT CRITERIA FOR GROUNDWATER LEVELS.

4.1.1 Corrective Action

To address Deficiency 1—as identified in the January 21, 2022, Incomplete Determination—staff stated “the GSAs must provide more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly the undesirable results and minimum thresholds, and the effects of those criteria on the interests of beneficial uses and users of groundwater. Department staff recommend the GSAs consider and address the following:

1. The GSAs should describe the specific undesirable results they aim to avoid through implementing the Plan. If, for example, significant and unreasonable impacts to domestic wells of average depth are a primary management concern for the Subbasin, then the GSAs should sufficiently explain why that effect was selected and what they consider to be a significant and unreasonable level of impact for those average wells. In support of its explanation, the Paso Robles GSP should also clearly discuss and disclose the anticipated impact of operating the

²⁰ *Incomplete Determination of the 2020 Groundwater Sustainability Plans Submitted for the Salinas Valley – Paso Robles Area Subbasin*, California Department of Water Resources, January 21, 2022. <https://sgma.water.ca.gov/portal/gsp/assessments/35>.

Subbasin at conditions protective against those effects on users of domestic wells with less-than-average depth and all other beneficial uses and users of groundwater in the Subbasin. The discussion should be supported using best available information such as using State or county information on well completion reports to analyze the locations and quantities of domestic wells and other types of well infrastructure that could be impacted by groundwater management when implementing the Plan.

2. The GSAs should either explain how the existing minimum threshold groundwater levels are consistent with avoiding undesirable results or they should establish minimum thresholds at the representative monitoring wells that account for the specific undesirable results the GSAs aim to avoid.

Information from DWR's Household Water Supply Shortage Reporting System²¹ indicates some domestic groundwater wells in the Subbasin have reported impacts from lowering of groundwater levels. If, after considering the deficiency described above, the GSAs retain minimum thresholds that allow for continued lowering of groundwater levels, then it is reasonable to assume that additional wells may be impacted during implementation of the Plan. While SGMA does not require all impacts to groundwater uses and users be mitigated, the GSAs should consider including mitigation strategies describing how drinking water impacts that may occur due to continued overdraft during the period between the start of Plan implementation and achievement of the Subbasin's sustainability goal will be addressed. If mitigation strategies are not included, the Paso Robles GSP should contain a thorough discussion, with supporting facts and rationale, explaining how and why the GSAs determined not to include specific actions or programs to monitor and mitigate drinking water impacts from continued groundwater lowering below 2015 levels.

Information is available to the GSAs to support their explanation and justification for the criteria established in their Plan. For example, the Department's well completion report dataset,²² or other similar data, can be used to estimate the number and kinds of wells expected to be impacted at the proposed minimum thresholds. Additionally, public water system well locations and water quality data can currently be obtained using the State Water Board's Geotracker website.²³ Administrative contact information for public water systems, and well locations and contacts for state small water systems and domestic wells, can be obtained by contacting the State Water Board's Needs Analysis staff. The

²¹ Department of Water Resources, *California Household Water Shortage Data* [website], <https://mydrywatersupply.water.ca.gov/report/publicpage>, (accessed 21 May 2021).

²² Department of Water Resources, *Well Completion Reports* [website], <https://water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports>, (accessed 21 May 2021).

²³ State Water Resources Control Board, *GeoTracker* [website], <https://geotracker.waterboards.ca.gov/>, (accessed 21 May 2021).

State Water Board is currently developing a database to allow for more streamlined access to this data in the future.

Based on the above information and other local information, and by the first periodic evaluation, the GSAs should continue to better define the location of active wells in the Subbasin. The GSAs should document known impacts to drinking water users caused by groundwater management, should they occur, in annual reports and subsequent periodic [evaluations].”²⁴

4.1.2 Evaluation

The preceding GSP for the Paso Robles Area Subbasin, submitted in 2020 to the Department, defined “significant and unreasonable groundwater levels in the Subbasin” as those that:

1. Impact the ability of existing domestic wells of average depth to produce adequate water for domestic purposes.
2. Cause significant financial burden to those who rely on the groundwater basin.
3. Interfere with other SGMA sustainability indicators.²⁵

The description was not supported with additional detail describing, for example, what is defined as “average depth” or “adequate water”. Similarly in the 2020 submission of the GSP, minimum thresholds descriptions were insufficiently detailed and largely qualitative in explaining effects to beneficial users such as domestic wells. For example, in selecting minimum thresholds, the GSP had stated that the “groundwater elevation minimum thresholds for each monitoring well were set to an elevation 30 feet below the measurable objective” without sufficient detail discussing how selected thresholds are consistent with avoiding undesirable results.

To address the identified deficiency, the GSAs have supplemented portions of the Plan related to the sustainable management criteria for chronic lowering of groundwater levels. Specifically, descriptions supporting the undesirable result and minimum threshold definitions have been further detailed and/or revised, and an evaluation of existing well records (as of 2021) is incorporated to describe effects on beneficial uses and users of groundwater from management criteria.

4.1.2.1 Undesirable Results for Chronic Lowering of Groundwater Levels

In the revised Plan, the GSAs modified the 2020 GSP’s definition of significant and unreasonable effects from chronic lowering of groundwater to include evaluations of all wells with known total depth information, and by no longer evaluating financial burdens²⁶

²⁴ *Incomplete Determination of the 2020 Groundwater Sustainability Plans Submitted for the Salinas Valley – Paso Robles Area Subbasin*, California Department of Water Resources, January 21, 2022. <https://sgma.water.ca.gov/portal/gsp/assessments/35>.

²⁵ 2022 Redlined Paso Robles GSP, Table 7-4, pp. 219-222.

²⁶ Note: The GSP states that the issue is more appropriately addressed as part of the projects and management actions and implementation plan; staff do not see changes made to those sections of the GSP.

to establish management criteria. The Plan added specificity in defining significant and unreasonable effects from groundwater levels as:

1. A significant number (defined by GSAs as 10 percent²⁷) of all wells going dry (defined as when the total depth of the well is unsaturated²⁸) throughout the Subbasin
2. Chronic groundwater level declines that interfere with other SGMA sustainability indicators.

In updating the definition of significant and unreasonable effects, as required by the corrective action, the GSAs no longer use average well depth which eliminates the vague aspect of the original definition. Overall, the GSAs have sufficiently explained how significant and unreasonable impacts were identified. The analysis of management criteria effects on wells is conducted using available well construction information from the Departments Online System of Well Completion Reports, Paso Robles Subbasin Data Management System, and information from model development. While these datasets include substantial information, the Plan states there are limitations such as absence of information on pumping equipment, limited screen interval information, and potential inclusion of older (typically shallower) wells that have since been replaced or destroyed. Therefore, due to the incompleteness of available well construction information, the GSP established management criteria in terms of a well “going dry” which means the entire length to the bottom of the well is unsaturated.²⁹

The Plan explains there is a range of increasingly severe conditions that may affect wells (e.g., groundwater level declines that may be resolved by lowering the pump, declines that drop below the top of the well screen, declines that leave the entire well depth unsaturated, and reduced capacity of a well causing it to not meet the intended water supply purpose). The Plan also emphasizes that a “reasonable expectation exists for well owners to construct, maintain, and operate a well to provide expected yield” and so the range of potential impacts of groundwater decline on wells includes effects that “are noticed and reasonably handled by the well owner”.³⁰ Though not plainly stated in the revised GSP, this approach effectively shifts financial burden due to declining groundwater levels from the realm of consideration of GSAs, to the responsibility of the well owner; as evident in the updated definition of significant and unreasonable effects.

The GSP describes the specific level of impact they consider significant and unreasonable (i.e., 10 percent of all wells of all wells in the Subbasin going dry); however, the GSP does not explain how the 10 percent value was selected. As discussed below (section 4.1.2.2), minimum thresholds are established at elevations 30 feet below 2017 levels and are calculated to cause only 3.9 percent of all analyzed wells in the Subbasin

²⁷ Represented by wells of known location and construction information, and wells that did not already go dry prior to 2017. 2020 Redlined Paso Robles GSP, pp. 270-271.

²⁸ 2022 Redlined Paso Robles GSP, Section 8.4.2, p. 268.

²⁹ 2022 Redlined Paso Robles GSP, Section 8.4.2.1, p. 268.

³⁰ 2022 Redlined Paso Robles GSP, Section 8.4.2.3, pp. 269-270.

to go dry when all minimum thresholds are encountered. The GSP explains generally that the process for establishing sustainable management criteria included public input received in public surveys, public meetings, and comment forms.³¹ Initial minimum thresholds were presented at public meetings where they received additional public input before being finalized. While not precluding approval, Department staff recommend the GSAs explain why 10 percent was selected in the upcoming periodic evaluation (see [Recommended Corrective Action 1](#)).

4.1.2.2 Minimum Thresholds for Chronic Lowering of Groundwater Levels

To explain how the minimum thresholds for groundwater levels are consistent with avoiding undesirable results, in the revised Plan, the GSAs have supplemented the discussion to include a well impact analysis of the originally established minimum thresholds on wells with known well construction information.

The analysis conducted to track all wells that would go dry when groundwater levels are at minimum thresholds simultaneously throughout the Subbasin, utilizes 1,593 wells with total depth information³² to represent “5,164 wells documented in the Subbasin, most [of which] are domestic wells.”³³ The revised GSP details the sources of the datasets used to conduct the analysis and the limitations of the dataset (e.g., lack of total well depth) which resulted in the use of the subset of wells.³⁴ The analysis grouped the 1,593 wells to the nearest of 22 representative monitoring sites (RMS) and evaluated the effect of groundwater elevations reaching minimum thresholds at RMS in terms of the well going dry (i.e., the entire length of the well depth is unsaturated). As discussed in Section 4.1.2.1 of this Staff Report, the analysis focused on dewatering of the entire well depth instead of the increasingly severe potential effects on wells prior to “going dry” due to the unavailability of complete well construction information. Based on available data, the analysis indicates 62 (or 3.9 percent)³⁵ wells would go dry if minimum thresholds were reached simultaneously at all RMS throughout the Subbasin. The GSP notes that the undesirable result quantitative criteria include geographic and temporal components that prevent all monitoring sites reaching minimum thresholds simultaneously in the entire Subbasin.³⁶

Department staff believe the GSA has taken meaningful steps to identify and describe the impacts at this time; however, there is a data gap in the analysis which the GSAs need to fill. There is concern that the wells not included in the analysis could go dry and cause significant and unreasonable effects in the Subbasin as defined by the GSAs. For this reason, by the next periodic evaluation (due in January 2025), staff recommend the GSAs pursue activities so that limitations of accurate and complete well construction information are overcome, and further refine the GSP’s criteria, assumptions, analysis, and objectives

³¹ 2020 Redlined Paso Robles GSP, Section 8.3, p. 266.

³² 2022 Redlined Paso Robles GSP, Section 8.4.4.1.1, p. 278.

³³ 2022 Redlined Paso Robles GSP, Section 3.5, p. 62.

³⁴ 2022 Redlined Paso Robles GSP, Section 8.4.4.1.1, pp. 278-279.

³⁵ Note: Percent of wells dry at minimum thresholds are not dry at average 2017 levels.

³⁶ 2022 Redlined Paso Robles GSP, Section 8.4.6.1, p. 291.

in defining significant and unreasonable effects based on best available information ([Recommended Corrective Action 2](#)).

A component of the corrective action stated “SGMA does not require all impacts to groundwater uses and users be mitigated, the GSAs should consider including mitigation strategies describing how drinking water impacts that may occur due to continued overdraft during the period between the start of Plan implementation and achievement of the Subbasin’s sustainability goal will be addressed. If mitigation strategies are not included, the Paso Robles GSP should contain a thorough discussion, with supporting facts and rationale, explaining how and why the GSAs determined not to include specific actions or programs to monitor and mitigate drinking water impacts from continued groundwater lowering below 2015 levels.” The revised GSP does not include mitigation strategies and does not explicitly provide a discussion, with supporting facts and rationale, explaining how and why the GSAs determined not to include specific actions or programs to monitor and potentially mitigate drinking water impacts from continued groundwater lowering below 2015 levels as indicated by the corrective action. The revised GSP maintains the same, unchanged, discussion stating that three public meetings were held to discuss minimum thresholds and measurable objectives and claims to have received public input.³⁷ The GSP provides the general assumption that the “[r]esponsibility for wells in a SGMA managed groundwater basin is shared between GSAs that manage groundwater levels to protect against significant and unreasonable conditions and well owners who have responsibility for their respective wells,” and the states it is “reasonable expectation exists that a well owner would construct, maintain, and operate the well to provide its expected yield over the well’s life span, including droughts, and with some anticipation that neighbors also might construct wells (consistent with land use and well permitting policies).”³⁸

While this does not preclude approval of the Plan at this time, Department staff believe the GSA should respond to this component of the corrective action by the next periodic evaluation. The GSA may wish to review the Department’s April 2023 guidance document titled *Considerations for Identifying and Addressing Drinking Water Well Impacts* guidance to assist its adaptive management efforts.³⁹ (See [Recommended Corrective Action 3](#))

4.1.3 Conclusion

Overall, Department staff believe the GSAs have taken significant action to address deficiencies identified. Staff conclude that the sustainable management criteria for groundwater levels is commensurate with the understanding of current conditions, responsive to interested party feedback. The Plan provides a credible and sufficient assessment of the effects the minimum thresholds would have on all wells—including domestic wells—by evaluating wells with known construction information and the established minimum thresholds at monitoring sites. However, as highlighted in the

³⁷ 2022 Redlined Paso Robles GSP, Section 8.3, p. 266.

³⁸ 2022 Redlined Paso Robles GSP, Section 8.4.2.2, p. 269.

³⁹ <https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well>

recommended corrective actions, the GSP should include additional supporting technical details and clarifications by the next periodic evaluation.

4.2 DEFICIENCY 2. THE GSP DOES NOT DEVELOP SUSTAINABLE MANAGEMENT CRITERIA FOR THE DEPLETIONS OF INTERCONNECTED SURFACE WATER BASED ON BEST AVAILABLE INFORMATION AND SCIENCE

4.2.1 Corrective Action

To address Deficiency 2—as identified in the 2020 Incomplete Determination—staff stated “the GSAs must provide more detailed information, as required in the GSP Regulations, regarding interconnected surface waters and depletions associated with groundwater use. Department staff provided the following corrective actions for the GSAs to consider and address:

1. Clarify and address the currently conflicting information in the Paso Robles GSP regarding what is known, qualified by the level of associated uncertainty, about the existence of interconnected surface water and, if applicable, the depletion of that interconnected surface water by groundwater use, including quantities, timing, and locations.⁴⁰
2. If the GSAs cannot provide a sufficient, evidence-based justification for the absence of interconnected surface water, then they should develop sustainable management criteria, as required in the GSP Regulations,⁴¹ based on best available information and science. Evaluate and disclose, sufficiently and thoroughly, the potential effects of the Plan’s sustainable management criteria for depletion of interconnected surface water on beneficial uses of the interconnected surface water and on groundwater uses and users.”

4.2.2 Evaluation

The preceding GSP for the Paso Robles Area Subbasin, submitted in 2020 to the Department, asserted that there was “no available data that establish whether or not the groundwater and surface water are connected” in the Subbasin.⁴² Therefore, the 2020 Plan did not develop sustainable management criteria for the depletion of interconnected surface water citing “...insufficient data to determine if there is an interconnection between surface water and groundwater in the Subbasin at this time.”⁴³ However, Department staff found the GSP to present conflicting information on the presence of interconnected surface water in the Subbasin. The conflicting Information undermines any argument that undesirable results related to depletions of interconnected surface water are not present and are not likely to occur in the Subbasin. The GSA needed to either develop persuasive evidence showing that interconnected surface waters are

⁴⁰ 23 CCR §§ 354.28(c)(6)(A), 354.28(c)(6)(B).

⁴¹ 23 CCR §§ 354.26, 354.28, 354.30.

⁴² 2022 Redlined Paso Robles GSP, Section 5.5, p. 149.

⁴³ 2022 Redlined Paso Robles GSP, Section 8.9.3, p. 317.

absent or develop sustainable management criteria in response to the incomplete determination.

To address Deficiency 2 identified in the Plan, the GSAs have modified portions of the Plan related to the interconnected surface water aspects of the basin setting, sustainable management criteria, and monitoring network.

4.2.2.1 Basin Setting Related to Interconnected Surface Water

The revised Plan has updated the Basin Setting to clarify the existence of interconnected surface water within the Subbasin. The GSAs have re-investigated interconnected surface and groundwater using the National Hydrology Dataset (NHD), high-resolution aerial imagery, historical groundwater levels, stream flow measurements, Natural Communities Commonly Associated with Groundwater (NCCAG), and information from modeling. The GSP explains that in the Paso Robles Subbasin, major streams all overlie alluvial deposits, and interconnection is with alluvial groundwater.⁴⁴ In some parts of the Subbasin—predominantly in the west near the Salinas River—extensive clay layers exist between the alluvium underlying the streams (i.e., the Alluvial Aquifer) and the deeper Paso Robles Formation Aquifer. These clays are noted to extend eastward to the community of Estrella along the Estrella River and the community of Creston along Huer Huero Creek. The hydrogeological conceptual model suggests that groundwater pumping, which predominantly occurs in the Paso Robles Formation, could potentially lower alluvial groundwater levels and deplete stream flows upstream of the clay layers but have only a negligible effect on alluvial water levels and stream flows overlying the clay layers.

Two categories of interconnection are described in the GSP: interconnection with surface water in streams and interconnection with the root zone of riparian vegetation (about 25 feet below ground surface).⁴⁵ Areas classified as interconnected for both categories are found along the Salinas River, the Estrella River, and San Juan Creek.⁴⁶ Specifically, the GSP states that the Salinas River surface water is interconnected with the Alluvial Aquifer; with no evidence of connection to the Paso Robles Formation Aquifer.⁴⁷ Sufficient evidence exists that there could potentially be a surface water connection between Estrella River and San Juan Creek to the underlying Paso Robles Formation Aquifer.⁴⁸ A potential connection to the vegetation zone is also identified along segments of the Salinas River (Paso Robles to the Subbasin boundary below San Miguel), Estrella River (Jardine Road up to Shedd Canyon), and San Juan Creek (upstream of Spring Creek).⁴⁹

⁴⁴ 2020 Redlined Paso Robles GSP, Section 5.5, pp. 149-151.

⁴⁵ 2022 Redlined Paso Robles GSP, Section 5.5.5, p. 162.

⁴⁶ 2022 Redlined Paso Robles GSP, Figure 5-18, p. 164.

⁴⁷ 2022 Redlined Paso Robles GSP, Section 5.5.5, p. 162 and Section 7.10, p. 254.

⁴⁸ 2022 Redlined Paso Robles GSP, Section 5.5.5, p. 162.

⁴⁹ 2022 Redlined Paso Robles GSP, Section 5.5.5, p. 163 and Section 8.9.7.2, p. 321.

The GSP provides a map, Figure 1 below, depicting locations of interconnection between groundwater and surface water.⁵⁰

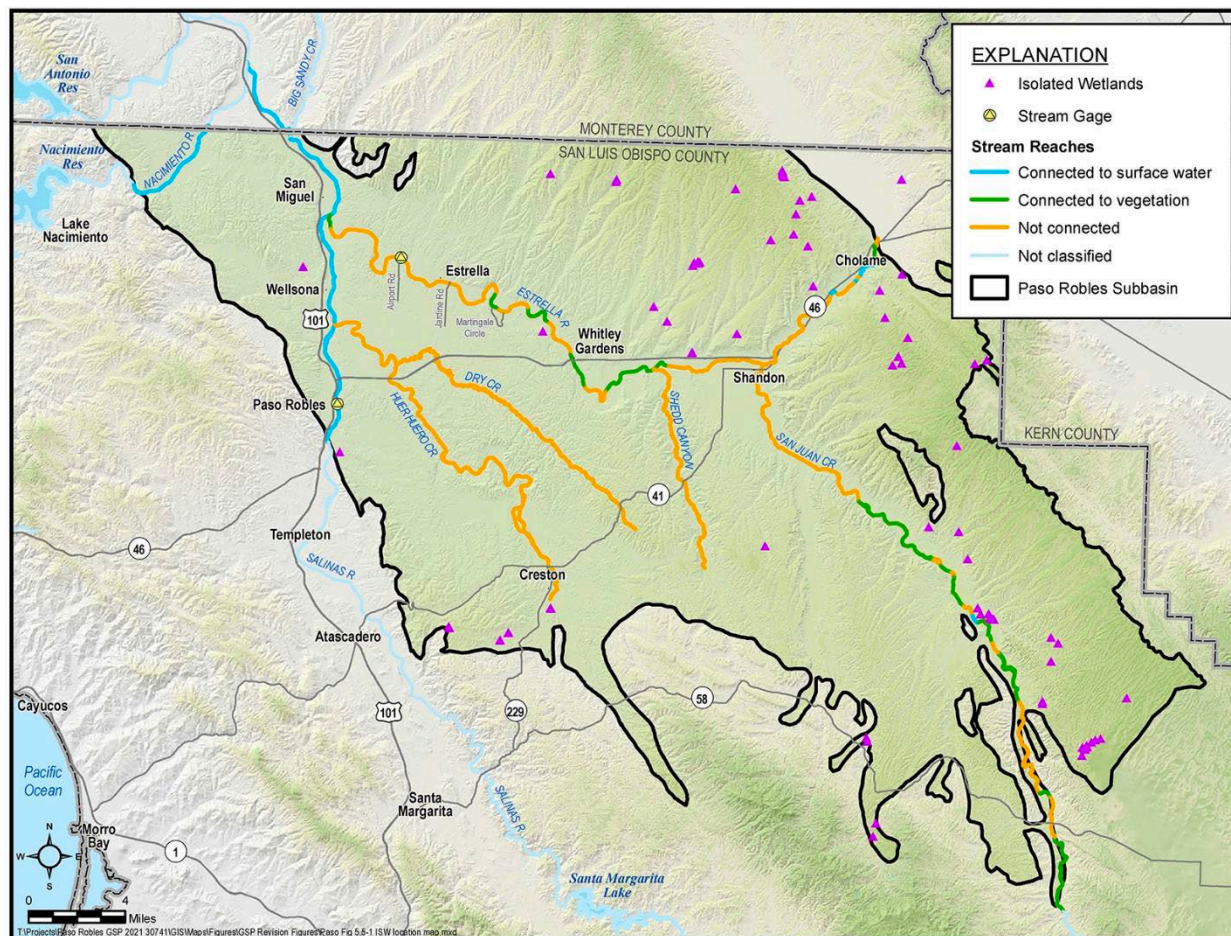


Figure 1: Locations of interconnection between groundwater and surface water.

Staff consider the revised Plan to be generally improved but still missing information that should be included to improve clarity and completeness in addressing the GSP Regulations and facilitate staff evaluations of GSP and subsequent periodic evaluations. The Plan notes that pumping from the Alluvial Aquifer is “rare”, generally occurs to meet domestic and limited livestock water demands, and large-scale irrigation pumping does not typically occur.⁵¹ However, the GSP also states that the agricultural water use sector—which is the largest by volume⁵² with production wells located along the Salinas and Estrella Rivers⁵³—also pumps from the Alluvial Aquifer⁵⁴ without quantifying that volume. The GSP should provide specific volumetric quantities of estimated pumping that

⁵⁰ 2022 Redlined Paso Robles GSP, Table 5-18, p. 164.
⁵¹ 2022 Redlined Paso Robles GSP, Section 5.5, p. 150.
⁵² 2022 Redlined Paso Robles GSP, Table 6-10, p. 199.
⁵³ 2022 Redlined Paso Robles GSP, Figure 3-8, p.64.
⁵⁴ 2022 Redlined Paso Robles GSP, Section 4.5, p. 114.

occurs from the Alluvial Aquifer to detail the comparison of pumping from the Subbasin's two principal aquifers. Staff require this supporting information to assess whether the establishment of management criteria, which relies heavily on the claim that most groundwater pumping is from the Paso Robles Formation Aquifer, is a reasonable assumption. Additionally, while the GSP states analysis from *Methodology for Identifying Groundwater Dependent Ecosystems* indicates that groundwater pumping from the Paso Robles Formation Aquifer does not materially impact relevant groundwater dependent animals in Salinas River flows, the GSP does not discuss potential impacts of pumping from the Alluvial Aquifer on southern steelhead which migrate up and down the Salinas River in winter and spring. Department staff recommend the GSAs provide clear explanation of the usage of the Alluvial Aquifer and provide specific volumetric quantities of estimated pumping that occurs from the Alluvial Aquifer to detail the comparison of pumping from the Subbasin's two principal aquifers. (see [Recommend Corrective Action 4a](#)).

Lastly, the potential connection between Estrella River and San Juan Creek and the underlying Paso Robles Formation Aquifer should, as the GSP states, be further investigated. Department staff believe this investigation should be further explained (i.e., scope, schedule, budget) and conducted by the periodic evaluation to confirm this potential connection.⁵⁵ ([Recommend Corrective Action 4b](#)).

4.2.2.2 Sustainable Management Criteria for Depletions of Interconnected Surface Water

In the revised Plan, initial sustainable management criteria are developed based on the updated information in the basin setting which classified areas of interconnection with the alluvial water table along the Salinas River, the Estrella River, and San Juan Creek.⁵⁶ While the GSP does not quantify the rate or volume of depletions of interconnected surface water due to groundwater pumping, the GSP proposes initial sustainable management criteria using shallow near stream groundwater levels (measured at Alluvial Aquifer RMS wells) as a proxy for the rate and volume of depletions. The Plan acknowledges that currently, there are too few Alluvial Aquifer monitoring wells along the Estrella River and San Juan Creek and the GSAs plan to install new monitoring wells during the first five years of implementation (see Section 4.2.2.3).⁵⁷ Therefore, initially only the Salinas River and the interconnected Alluvial Aquifer will be evaluated.

Potential effects of depletion are described in the GSP as reduction in Salinas River outflow that decreases groundwater recharge in the Salinas Valley, reduction in passage opportunity for steelhead trout, and reduction in the extent, density, and health of riparian vegetation and animal species that use riparian habitat. Accordingly, the Plan defines significant and unreasonable effects of depletions of interconnected surface water in

⁵⁵ 2022 Redlined Paso Robles GSP, Section 5.5.1, p. 152 and Section 7.10, p. 254.

⁵⁶ 2022 Redlined Paso Robles GSP, Section 8.9.2, p. 316.

⁵⁷ 2022 Redlined Paso Robles GSP, Section 8.9.3, p. 317.

terms of decreased groundwater recharge from surface water and reduction in groundwater dependent ecosystems. Specifically, the GSP states:

- Decreased groundwater discharge to the Salinas River would be significant and unreasonable if it prevented groundwater users in the Salinas Valley—where groundwater is primarily recharged by Salinas River percolation—from continuing their existing, economically viable agricultural or urban uses of land.⁵⁸
- The undesirable result for steelhead trout—which uses surface flow in the Salinas River for migration—is a long-term decrease in population as a result of flow depletion caused by groundwater pumping.⁵⁹
- An undesirable result for groundwater dependent vegetation would be water levels along more than 15 percent of the length of any of the three stream reaches with abundant riparian vegetation exceeding the minimum threshold as a result of groundwater pumping in the Paso Robles Formation Aquifer.⁶⁰

The GSP lacks specificity regarding conditions that would be considered significant and unreasonable and as a result is not consistent with requirements of the GSP Regulations. For example, the GSA does not explain how it would determine that the “economically viable agricultural or urban uses of land” had been hindered, or how the contribution of surface flow depletion due to groundwater pumping would be quantified. The GSP Regulations require undesirable results to be described by “a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin” and include a description of the potential effects of undesirable results occurring, but this information is not provided in the GSP.⁶¹ These additional supporting details would allow staff to understand the specific significant and unreasonable effects the Subbasin is trying to avoid and assess if established minimum thresholds are likely to attain that goal. As a result, Department staff conclude that the GSP’s description of significant and unreasonable conditions and definition of undesirable results was not prepared in accord with the GSP Regulations and suggest measures the GSAs should consider taking to improve this aspect of the Plan.

Minimum thresholds for depletions of interconnected surface water are defined as a decline in the alluvial water table elevation as measured in the spring at Alluvial Aquifer wells along the Salinas River, the middle reach of the Estrella River (from Shedd Canyon to Martingale Circle) and San Juan Creek upstream of Spring Creek that:⁶²

- Is likely caused by groundwater pumping in the Paso Robles Formation Aquifer,
- Is more than 10 feet below the spring 2017 elevation,

⁵⁸ 2022 Redlined Paso Robles GSP, Section 8.9.7.1, p. 320.

⁵⁹ 2022 Redlined Paso Robles GSP, Section 8.9.7.3, p. 321.

⁶⁰ 2022 Redlined Paso Robles GSP, Section 8.9.7.2, p. 321.

⁶¹ 23 CCR §§ 354.26(b)(2) and 354.26(b)(3)

⁶² 2022 Redlined Paso Robles GSP, Section 8.9.2, p. 316.

- Persists for more than two consecutive years, and
- Occurs along more than 15 percent of the length of any of the three stream reaches.

GSP Regulations require quantification of minimum thresholds as a “numeric value ... that, if exceeded, may cause undesirable results.”⁶³ The GSP defines minimum thresholds in a manner that includes quantitative elements, but whose application remains subjective and incomplete. The GSP does not explain how surface water depletion caused by pumping in the Paso Robles Formation Aquifer will be quantified, and the definition altogether ignores potential depletion caused by pumping from the Alluvial aquifer. As for the other elements of the definition, although these are couched in quantitative terms, because the GSP has not clearly defined undesirable results that identify conditions the GSA considers significant and unreasonable, the GSP is unable to show how the proposed minimum thresholds are designed to avoid undesirable results.

The GSP has identified interconnection to the alluvial water table while also identifying limited or inconclusive data regarding groundwater flow between the two principal aquifers (Alluvial Aquifer and Paso Robles Formation Aquifer), yet the description of minimum thresholds includes the requirement of being caused by pumping from the Paso Robles Formation Aquifer. For example, with the current definition, water levels in the Alluvial Aquifer monitoring well can decline more than 10 feet below 2017 levels, persist for more than two consecutive years, impact more than 15 percent of vegetation along the Salinas River, and yet not be identified as exceeding minimum thresholds if they are not found to be caused by groundwater pumping in the Paso Robles Formation Aquifer; a likely scenario given that limited data exist to assess vertical gradients and vertical flows between the two principal aquifers in the Subbasin.⁶⁴ Given the uncertainty in understanding the vertical groundwater interaction in the Subbasin and the lack of supporting scientific information describing the extent of groundwater use from each aquifer, staff do not believe the definition of minimum thresholds should require a causal nexus to pumping from the Paso Robles Formation Aquifer. It’s also unclear how the GSAs will determine when declines occur along 15 percent of the river reaches since the GSP does not detail this when describing the monitoring network. Overall, Department staff are unclear if the minimum threshold, as currently defined, will avoid significant and unreasonable effects.

Measurable objectives are defined as a five-year moving average of spring groundwater elevations that are no more than five feet below the spring 2017 groundwater elevations in Alluvial Aquifer wells along the Salinas River, the middle reach of the Estrella River (from Shedd Canyon to Martingale Circle) and San Juan Creek upstream of Spring Creek.⁶⁵ The objective is to help maintain the extent and density of riparian vegetation to 2017 levels and maintain Salinas River outflow and steelhead passage opportunity at

⁶³ 23 CCR § 354.28(a).

⁶⁴ 2022 Redlined Paso Robles GSP, Section 4.9.3, p. 123 and Section 5.1.3, p. 141.

⁶⁵ 2022 Redlined Paso Robles GSP, Section 8.9.3, pp. 317-318.

existing levels. Again, for the first five years of GSP implementation only the Salinas River and the interconnected Alluvial Aquifer will be evaluated.

However, having measurable objects defined as range is not consistent with the GSP Regulations. The current definition allows for exceedances beyond five feet below 2017 levels in a single year as long as the five-year average is above that limit, potentially causing undesirable results. Department staff recommend the measurable objectives be redefined to be consistent with the GSP Regulations which require a measurable objective to be established using the same metrics and monitoring sites as are used to define the minimum thresholds.

Department staff understand that quantifying depletions of interconnected surface water from groundwater extractions is a complex task that likely requires developing new, specialized tools, models, and methods to understand local hydrogeologic conditions, interactions, and responses. During the initial review of GSPs, Department staff have observed that most GSAs have struggled with this requirement of SGMA. However, staff believe that most GSAs will more fully comply with regulatory requirements after several years of Plan implementation that includes projects and management actions to address the data gaps and other issues necessary to understand, quantify, and manage depletions of interconnected surface waters. Department staff further advise that at this stage in SGMA implementation GSAs address deficiencies related to interconnected surface water depletion where GSAs are still working to fill data gaps related to interconnected surface water and where these data will be used to inform and establish sustainable management criteria based on timing, volume, and depletion as required by the GSP Regulations. (see [Recommended Corrective Action 5a](#))

The Department will continue to support GSAs in this regard by providing, as appropriate, financial and technical assistance to GSAs, including the development of guidance describing appropriate methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water caused by groundwater extractions. Once the Department's guidance related to depletions of interconnected surface water is publicly available, GSAs, where applicable, should consider incorporating appropriate guidance approaches into their future periodic evaluations to the GSP (see [Recommended Corrective Action 5a](#)). GSAs should consider availing themselves of the Department's financial or technical assistance, but in any event must continue to fill data gaps, collect additional monitoring data, and implement strategies to better understand and manage depletions of interconnected surface water caused by groundwater extractions and define segments of interconnectivity and timing within their jurisdictional area ([Recommended Corrective Action 5b](#)). Furthermore, GSAs should coordinate with local, state, and federal resources agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion ([Recommended Corrective Action 5c](#)).

4.2.2.3 *Monitoring Network for Depletions of Interconnected Surface Water*

The Plan recognizes that the current monitoring wells do not adequately cover the three stream reaches where interconnection of groundwater with surface water and/or the riparian vegetation root zone occurs.⁶⁶ The GSP states there are seven existing groundwater monitoring wells within 2,000 feet of those stream reaches and three stream gages on the Salinas River, Huer Huero Creek, and Estrella River; it is unclear to staff how the stream gage data are utilized in the Plan. Of the seven existing wells, four are described to be along the Salinas River; the sole area where depletions of interconnected surface water to the Alluvial Aquifer will be evaluated for the first five years of GSP implementation. The Plan acknowledges that separation between Alluvial Aquifer groundwater levels and Paso Robles Formation Aquifer is poorly known in the eastern part of the Subbasin. A map and table are provided of recommended locations for additional wells and stream gages to verify and monitor interconnection in the Subbasin. The GSP also provides a table briefly describing a \$400,000 plan to fill interconnected surface water monitoring network data gaps between 2020 and 2024, including the potential installation of five new wells.⁶⁷

As the GSAs continue to expand the monitoring network, Department staff note some clarity needs to be provided as it relates to the description of the current monitoring network. For example, though seven monitoring wells are described, the location of only two is shown on the map provided due to confidentiality agreements limiting staff's ability to evaluate the monitoring network. Furthermore, of the two wells shown, only one is along the Salinas River where management criteria will be assessed for the first five years of GSP implementation. It is not clear to staff why only the Salinas River is being evaluated given that there are three known monitoring wells along the Estrella River, another location of identified interconnection. Additionally, it is unclear why monitoring wells from the Paso Robles Formation Aquifer are not included for a potential analysis to understand if deeper groundwater pumping is causing the shallow groundwater table to decline, which is required to monitor and evaluate minimum threshold exceedances as defined. Also, though current and potential monitoring sites are described for Huer Huero Creek and Cholame Creek, these creeks are not included in the management criteria developed for the Subbasin—though, Cholame Creek is identified as having interconnection to riparian vegetation. Huer Huero Creek is identified as not connected so the significance of discussing monitoring of the creek for depletions is not clear. Lastly, and most significantly, the Plan does not explain how stream gages described in the monitoring network will be utilized to evaluate depletions of interconnected surface water or how the use of groundwater levels serves as a suitable proxy for this sustainability indicator. Department staff recommend GSAs provide a clear explanation of the monitoring network for interconnected surface water, including how each aquifer is going

⁶⁶ 2022 Redlined Paso Robles GSP, Section. 7.6.1, p. 228.

⁶⁷ 2022 Redlined Paso Robles GSP, Table 10-1, p. 376.

to be monitored and how stream gages will be utilized to evaluate depletions of interconnected surface water. (See [Recommended Corrective Action 6](#))

4.2.3 Conclusion

At this time, Department staff conclude sufficient action has been taken on this deficiency and believe the GSAs can work with the Department to further efforts on interconnected surface water. Department staff also recognize efforts from GSAs to identify monitoring data gaps and plan actions to expand the monitoring network and collect hydrologic, geologic, and hydrogeologic data to better characterize interconnectivity. However, Department staff have provided recommended corrective actions in which the GSAs should address within the periodic evaluation.

5 PLAN EVALUATION

As stated in Section 355.4 of the GSP Regulations, a basin “shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act.” The Department’s assessment is based on a number of related factors including whether the elements of a GSP were developed in the manner required by the GSP Regulations, whether the GSP was developed using appropriate data and methodologies and whether its conclusions are scientifically reasonable, and whether the GSP, through the implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the Subbasin. The Department staff’s evaluation of the likelihood of the Plan to attain the sustainability goal for the Subbasin is provided below.

5.1 ADMINISTRATIVE INFORMATION

The GSP Regulations require each Plan to include administrative information identifying the submitting Agency, a description of the Plan area, and a demonstration of the legal authority and ability of the submitting Agency to develop and implement a Plan for that area.⁶⁸

The GSP has been jointly developed and adopted by four GSAs, which include: City of Paso Robles GSA; County of San Luis Obispo GSA; San Miguel Community Services District GSA; and Shandon-San Juan GSA.⁶⁹ A Memorandum of Agreement, wherein the framework for governance and decision-making is described, established a Cooperative Committee made up of representatives from each of the five original GSAs.⁷⁰ The Cooperative Committee developed the GSP, which was then considered for adoption by each individual GSA. With respect to decisions related to GSP development, each of the GSAs has a weighted vote: County of San Luis Obispo (61 percent), City of Paso Robles (15 percent), Shandon-San Juan Water District (20 percent), San Miguel CSD (three

⁶⁸ 23 CCR § 354.2 *et seq.*

⁶⁹ 2020 Paso Robles GSP, Section 2, p. 41.

⁷⁰ Note: Heritage Ranch CSD is no longer a part of the GSAs that submitted this GSP

percent), and Heritage Ranch CSD (one percent).⁷¹ The County of San Luis Obispo Director of Groundwater Sustainability has been designated as the Plan Manager.

The Paso Robles Subbasin is part of the Salinas Valley Groundwater Basin and located in the northern portion of San Luis Obispo County which is in the Central Coast region of California. The Subbasin is drained by the Salinas River and its tributaries - including the Estrella River, Huer Huero Creek, and San Juan Creek. The Subbasin is 436,240-acres (681 square miles) and the majority of the Subbasin is comprised of gentle flatlands near the Salinas River Valley, ranging in elevation from approximately 445 to 2,387 feet above mean sea level.⁷² The Subbasin includes the incorporated City of Paso Robles and the unincorporated census-designated places of Shandon, San Miguel, Creston, Cholame, and Whitley Gardens. The Subbasin also includes disadvantaged communities (DACs) and severely disadvantaged communities (SDACs).⁷³ Bounded by four adjacent groundwater basins, the Subbasin has the Upper Valley Aquifer Subbasin to the north, the Cholame Valley Basin to the east, the Carrizo Plain Basin to the southeast, and the Atascadero Area Subbasin to the southwest.⁷⁴ The Upper Valley Aquifer Subbasin is a medium-priority basin with a GSP deadline of January 2022, while the other basins are very-low priority and not required to submit a GSP for evaluation and assessment.⁷⁵

The Subbasin currently utilizes two water sources - groundwater, surface water - and soon plans to utilize recycled water. Prior to 2015, all water demands in the Subbasin were met with groundwater. Water management authority lies with federal agencies (Los Padres National Forest and the Bureau of Land Management), state agencies (California National Guard and California Department of Fish and Wildlife), county agencies (County of San Luis Obispo), and local entities (City of Paso Robles, San Miguel CSD, Shandon-San Juan Water District, and the Estrella-El Pomar-Creston Water District).⁷⁶ Significant water users include agricultural (the largest by water use), native vegetation (largest by land area), urban, and industrial (limited use).⁷⁷ Land use planning authority lies with the City of Paso Robles and the County of San Luis Obispo.⁷⁸ Existing land uses are 387,435 acres of native vegetation, 40,228 acres of agricultural land, and 8,577 acres of urban areas.⁷⁹

The Communication and Engagement Plan provided in the GSP details the effort to involve diverse social, cultural, and economic elements of the Subbasin population. Beneficial users identified in the Subbasin include disadvantaged communities, various agencies, agriculture, water corporations, domestic wells owners, municipal well

⁷¹ 2020 Paso Robles GSP, Section 2, pp. 44-48.

⁷² 2020 Paso Robles GSP Section 1.2, pp. 42-44 and Section 3, p. 47.

⁷³ 2020 Paso Robles GSP, Figure 1, p. 700.

⁷⁴ 2020 Paso Robles GSP, Figure 1-1, p. 40.

⁷⁵ The Atascadero Area Subbasin, though a designated under SGMA as low-priority and not required to submit a GSP, is planning to develop and adopt a GSP.

⁷⁶ 2020 Paso Robles GSP, Figures 3-2, p. 51, and Figure 3-3, p. 52.

⁷⁷ 2020 Paso Robles GSP, Section 3.4.2, p. 57 and Figure 3-6, p. 58.

⁷⁸ 2020 Paso Robles GSP, Section 3.4, p. 53 and Figure 3-4, p. 54.

⁷⁹ 2020 Paso Robles GSP, Figure 3-4, p. 54 and Table 3-1, p. 53.

operators, public water systems, land use planning agencies, environmental users, surface water users, native American tribes, and the federal government.⁸⁰ As stated in the Plan, beneficial groundwater uses in the Subbasin include “various irrigated and non-irrigated agricultural activities; rural domestic/residential wells; municipal and industrial supply; and aquatic ecosystems associated with rivers and streams, some of which provide habitat for threatened or endangered species.”⁸¹ As stated in the Communication and Engagement Plan, interested parties can participate in public meetings, hearings, workshops, and communicate with Cooperative Committee members to provide input, obtain information, and review and comment on future GSP documents.⁸²

The Plan describes in sufficient detail the GSAs’ authority to manage groundwater in the Subbasin, which was generally presented in an understandable format using appropriate data. The Plan contains sufficient detail regarding the beneficial uses and users of groundwater, water use types, existing water monitoring and resource programs, and types and distribution of land use and land use plans for the Subbasin. The Agency provides a list of public meetings, materials, and notifications on its website, and lists of meetings and public comments and how they were addressed by the GSA are included in the appendices of the GSP.

The GSP’s discussion and presentation of administrative information covers the specific items listed in the GSP Regulations in an understandable format using appropriate data. Department staff are aware of no significant inconsistencies or contrary information to that presented in the GSP and therefore have no significant concerns regarding the quality, data, and discussion of this subject in the GSP. The administrative information included in the Plan substantially complies with the requirements outlined in the GSP Regulations.

5.2 BASIN SETTING

GSP Regulations require information about the physical setting and characteristics of the Subbasin and current conditions of the Subbasin, including a hydrogeologic conceptual model; a description of historical and current groundwater conditions; and a water budget accounting for total annual volume of groundwater and surface water entering and leaving the Subbasin, including historical, current, and projected water budget conditions.⁸³

5.2.1 Hydrogeologic Conceptual Model

The GSP Regulations require a descriptive hydrogeologic conceptual model of the Subbasin that includes a written description supported by cross sections and maps.⁸⁴ The hydrogeologic conceptual model is a non-numerical model of the physical setting, characteristics, and processes that govern groundwater occurrence within a basin, and

⁸⁰ 2020 Paso Robles GSP, Appendix M, Appendix D, pp. 701-703.

⁸¹ 2020 Paso Robles GSP, Appendix M, Section 3, p. 680.

⁸² 2020 Paso Robles GSP, Table 11-2, p. 313, Appendix M, p. 691, Appendix N, pp. 719-1174.

⁸³ 23 CCR § 354.12 *et seq.*

⁸⁴ 23 CCR § 354.12 *et seq.*

represents a local agency's understanding of the geology and hydrology of the basin that support the geologic assumptions used in developing mathematical models, such as those that allow for quantification of the water budget.⁸⁵

The hydrogeologic conceptual model is based primarily upon two published studies (hydrogeologic and geologic investigations by Fugro Consultants Inc. completed for San Luis Obispo County Flood Control and Water Conservation District (SLOFCWCD) in 2002 and 2005).⁸⁶ The Plan graphically represents the hydrogeologic conceptual model with a combination of scaled cross-sections. The physical characteristics of the Subbasin are represented by maps depicting the geologic formations within and surrounding the Subbasin, topography, soil characteristics, potential recharge and discharge areas, surface water bodies, and imported supplies as required.

The Plan identifies and describes two principal aquifers in the Subbasin:

- **The Alluvial Aquifer** — A relatively continuous and unconfined aquifer comprising of Quaternary-age alluvial deposits that underlie streams. It is generally composed of saturated coarse-grained sediments and occurs along Huer Huero Creek, the Salinas River, and the Estrella River. The highly permeable aquifer varies in thickness, but is generally about 100 feet thick. Hydraulic conductivity may be over 500 feet per day and wells screened in the Alluvial Aquifer can yield up to a 1,000 gallons per minute.⁸⁷
- **The Paso Robles Formation Aquifer**—An interbedded and discontinuous aquifer, comprising of Tertiary-age sand and gravel lenses that underlie the Alluvial Aquifer. Groundwater occurs under unconfined, semi-confined, and confined conditions. The aquifer is generally thin and discontinuous sand and gravel zones usually separated vertically by relatively thick zones of silts and clays. Sediments have a thickness of 700-1,200 feet. Hydraulic conductivity ranges from about 1-20 feet per day and well yields range from approximately 150-850 gallons per minute.⁸⁸

Primary groundwater users include municipal, agricultural, rural residential, small community water systems, small commercial entities, and environmental users.⁸⁹ The municipal sector pumps primarily from the Paso Robles Formation Aquifer in the Subbasin and also utilizes imported surface water. The agriculture sector, which is reliant solely on groundwater, pumps from both principal aquifers. The Plan notes that pumping

⁸⁵ DWR Best Management Practices for the Sustainable Management of Groundwater: Hydrogeologic Conceptual Model, December 2016: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-3-Hydrogeologic-Conceptual-Model_ay_19.pdf.

⁸⁶ 2020 Paso Robles GSP, Section 4, p. 83.

⁸⁷ 2020 Paso Robles GSP, Figure 4-4, p. 91, Section 4.3.2.1, p. 89, Section 4.4, pp. 102-109.

⁸⁸ 2020 Paso Robles GSP, Section 4.3.2.2 p. 101, Section 4.4, p. 102, Section 5.1.2, p. 124, Paso Robles Subbasin First Annual Report (2017-2019).

⁸⁹ 2020 Paso Robles GSP, Section 4.5, p. 110.

from the Alluvial Aquifer is “rare”, generally occurs to meet domestic and limited livestock water demands, and large-scale irrigation pumping does not typically occur.⁹⁰ The Plan concludes that groundwater in the Subbasin is generally suitable for drinking and agricultural uses; having defined the depth where water is generally of poor quality as the bottom (though flow is continuous across this depth).⁹¹

The Plan acknowledges current data gaps in the hydrogeologic conceptual model related to the characterization of the Alluvial Aquifer, inconclusive understanding of the vertical groundwater flow between the two principal aquifers, limited information on the continuity of stratigraphic features that limit groundwater flow, understanding the influence of faults on groundwater flow, and very limited data available to estimate specific yield. These gaps “could be improved with certain additional data and analyses” and, therefore, the GSAs include management actions — with a budget of \$300,000 to be spent between 2020 and 2024 — to fill data gaps and refine the hydrogeologic conceptual model with the findings.⁹² Department staff will be reviewing the progress of those efforts and recommend the GSAs provide the Department updates via annual reports and periodic evaluations.

The discussion of the hydrogeologic conceptual model related to interconnected surface water in the 2020 Plan was corrected based on deficiencies identified by the Department. An assessment of the corrected information, and corrective actions taken by the GSAs is provided in Section 4.2.2.1 of this Staff Report. Overall, the hydrogeologic conceptual model information provided in the GSP substantially complies with the requirements outlined in the GSP Regulations. In general, the Plan’s descriptions of the regional geologic setting, the Subbasin’s physical characteristics, the principal aquifer, and hydrogeologic conceptual model appear to utilize the best available science. Department staff are aware of no significant inconsistencies or contrary technical information to that presented in the Plan.

5.2.2 Groundwater Conditions

The GSP Regulations require a written description of historical and current groundwater conditions for each of the applicable sustainability indicators and groundwater dependent ecosystems.⁹³

The Plan describes groundwater conditions in the Subbasin, though, the discussion is largely based on findings from the Paso Robles Formation Aquifer. The GSP uses a total of 55 wells from the SLOFCWCD monitoring network for the assessment, with only seven of those wells being located in the Alluvial Aquifer.⁹⁴

⁹⁰ 2022 Redlined Paso Robles GSP, Section 5.5, p. 144.

⁹¹ 2020 Paso Robles GSP, Section 4.1, p. 83, Figure 4-2, p. 86, Section 4.6, p. 110.

⁹² 2020 Paso Robles GSP, Section 4.9, p. 118 and Table 10-1, p. 309.

⁹³ 23 CCR § 354.16 (a-f).

⁹⁴ 23 CCR § 354.16 et seq. and 2020 Paso Robles GSP, Section 5.1, pp. 119-120.

For the Alluvial Aquifer, the Plan states groundwater elevation data are “too limited to prepare representative contour maps of the seasonal high and seasonal low groundwater elevations, or to prepare maps of historical [1997] groundwater elevations.” A groundwater elevation contour map for 2017 depicts groundwater flow direction generally following the alignment of the creeks and rivers, flowing southeast to northwest across the Subbasin.⁹⁵ Hydrographs for the Alluvial Aquifer are not included because the data was collected under confidentiality agreements. As a result, no long-term groundwater elevations change assessment is provided. Previous hydrologic studies indicate that groundwater elevations are generally higher in the Alluvial Aquifer than the underlying Paso Robles Formation Aquifer, resulting in groundwater flow from the Alluvial Aquifer to the underlying Paso Robles Formation Aquifer.⁹⁶ As stated in the Plan, “[t]he lack of publicly available groundwater level data for the Alluvial Aquifer [and the Paso Robles Formation Aquifer] is a significant data gap.”⁹⁷

For the Paso Robles Formation Aquifer, a comparison of groundwater elevation data for historical (1997) and current (2017) groundwater conditions is presented. Over the course of the 20-year period, groundwater elevations have fallen by as much as 80 feet in some areas.⁹⁸ The GSP states groundwater flow direction is generally to the northwest and west over most of the Subbasin, except in the area north of the City of Paso Robles where groundwater flow is to the northeast.⁹⁹ The GSP states “[l]imited data exist to assess vertical groundwater gradients” but “there is an assumed upward vertical groundwater gradient within the Paso Robles Formation near the northern portion of the Subbasin, although data were not provided to verify this assumption”.¹⁰⁰ The GSP provides hydrographs depicting long-term groundwater elevation trends from 22 monitoring wells with publicly available well information.¹⁰¹

Change in groundwater storage, estimated annual groundwater pumping (derived from the GSP Model), and water year type for the Alluvial and Paso Robles Formation Aquifers are summarized for the historical (1981) and current (2016) periods as required.¹⁰² A total estimated decrease in groundwater storage of 70,000 acre-feet and 646,000 acre-feet occurred in the Alluvial and the Paso Robles Formation Aquifers, respectively, within the 35-year time period. However, the Plan states the period from 1981 through 2011 is considered representative of long-term hydrologic conditions prior to the drought period of 2012 through 2016.¹⁰³ Therefore, the Plan also provides the estimated decrease in groundwater storage from 1981 through 2011 which was 20,000 acre-feet in the Alluvial

⁹⁵ 2020 Paso Robles GSP, Section 5.1.1.1, p. 122 and Figure 5-2, p. 123.

⁹⁶ 2020 Paso Robles GSP, Section 5.1.3, p. 136.

⁹⁷ 2020 Paso Robles GSP, Section 5.1.1.2, p. 122 and Section 5.1.2.2, p. 134.

⁹⁸ 2020 Paso Robles GSP, Figure 5-7, p. 132 and Figure 5-8, p. 133.

⁹⁹ 2020 Paso Robles GSP, Section 5.1.2.1, p. 124 and Section 5.1.3, p. 136.

¹⁰⁰ 2020 Paso Robles GSP, Section 5.1.3, p. 136.

¹⁰¹ 2020 Paso Robles GSP, Section 5.1.2.2, p. 138.

¹⁰² 23 CCR § 354.18 et seq., 2020 Paso Robles GSP, Section 5.2, pp. 138-141, Figure 5-11, p. 139, Figure 5-12, p. 141.

¹⁰³ 2020 Paso Robles GSP, Section 5.2.1, p. 138.

Aquifer and 369,000 acre-feet in the Paso Robles Formation Aquifer. Department staff note that the Plan identifies “[e]xtensive, unanticipated drought” as a potential cause of undesirable results. SGMA allows for periods of drought if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.¹⁰⁴ Therefore, Department staff suggest not discounting years of drought when considering change in groundwater storage.¹⁰⁵

Groundwater quality has been analyzed throughout the basin for various studies (conducted by Fugro and most recently by the USGS), the Salt and Nutrient Management Plan, and compliance with regulatory programs.¹⁰⁶ The GSP focuses only on constituents if they have a drinking water standard, have a known effect on crops, or concentrations of these constituents of concern were above the standards for drinking water or the level that affects crops. For drinking water, total dissolved solids (TDS) exceeded the Secondary MCL in 14 of 74 samples, and Nitrate exceeded the MCL in 4 of the 74 samples.¹⁰⁷ For agriculture, of 74 samples, only 13 had severe restrictions for irrigation use due to high sodium, chloride or boron toxicity.¹⁰⁸

The Plan states the historical rate of subsidence is “relatively insignificant and not a major concern for the Subbasin. However, ongoing subsidence over many years could add up to a more significant ground surface drop and the GSAs will continue to monitor annual subsidence”.¹⁰⁹ From 2015 to 2018, a region on the Estrella River and a region northwest of Creston experienced up to 1.5 inches of subsidence while the majority of the Subbasin experienced a rise or drop of less than 1.2 inches—a rate of subsidence in the range of 0.4-0.5 inches per year.

The discussion of groundwater conditions related to interconnected surface water in the 2020 Plan was corrected based on deficiencies identified by the Department. An assessment of the corrected information, and corrective actions taken by the GSAs is provided in Section 4.2.2.1 of this staff report. The Plan sufficiently describes the historical and current groundwater conditions throughout the Subbasin, and the information included in the Plan substantially complies with the requirements outlined in the GSP Regulations.

5.2.3 Water Budget

GSP Regulations require a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and

¹⁰⁴ Water Code § 10721(x)(1).

¹⁰⁵ 2020 Paso Robles GSP, Section 8.4.2, pp. 223.

¹⁰⁶ 2020 Paso Robles GSP, Section 5.6, p. 144.

¹⁰⁷ 2020 Paso Robles GSP, Section 5.6.1, pp. 144-145.

¹⁰⁸ 2020 Paso Robles GSP, Section 5.6.2, p. 145.

¹⁰⁹ 2020 Paso Robles GSP, Section 5.4, p. 142.

leaving the basin, including historical; current; and projected water budget conditions, and the change in the volume of water stored, as applicable.¹¹⁰

Water budgets were developed using an integrated system of three hydrologic models, including a watershed model, a soil water balance spreadsheet model, and a numerical groundwater flow model. Though the models were originally developed by Fugro and Geoscience Support Services, Inc. for the SLOFCWCD, the models were updated for GSP purposes and are collectively referred to as the “GSP model.”¹¹¹ As stated by the GSP, the GSP model has uncertainty due to limitations in available data and assumptions.¹¹²

The GSP selects the period from 1981 to 2011 for historical water budget condition accounting and assessments. Over the 31-year period, a net loss of groundwater storage of approximately 390,000 acre-feet occurred and the annual average groundwater storage loss was approximately 12,600 acre-feet.¹¹³ The estimated sustainable yield for the historical period is 59,800 acre-feet per year.¹¹⁴ Years 2012 to 2016 are selected for current water budget estimates and over the five-year period, an estimated net loss of groundwater in storage of approximately 327,000 acre-feet occurred, equating to an annual average groundwater storage loss of approximately 65,400 acre-feet per year.¹¹⁵ Estimated sustainable yield for current groundwater conditions is 20,400 acre-feet per year. The period from 2020 to 2040 was selected for projected (referred to as “future” in the GSP) water budget estimates using the Department’s climate change factors for 2030. The Plan estimated future sustainable yield to be approximately 61,100 acre-feet per year.

Department staff conclude the historical, current, and projected water budgets included in the Plan substantially comply with the requirements outlined in the GSP Regulations. The GSP provides the required historical, current, and future accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the Subbasin including an estimate of the sustainable yield of the Subbasin and projected future water demands.

5.2.4 Management Areas

The GSP Regulations provide the option for one or more management areas to be defined within a basin if the GSA has determined that the creation of the management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives, provided that undesirable

¹¹⁰ 23 CCR § 354.18.

¹¹¹ 2020 Paso Robles GSP, Section 6.2, pp. 159-160.

¹¹² 2020 Paso Robles GSP, Section 6.2.1, pp. 160-161.

¹¹³ 2020 Paso Robles GSP, Section 6.3.2.3, p. 167.

¹¹⁴ 2020 Paso Robles GSP, Section 6.3.2.4, pp. 170-171.

¹¹⁵ 2020 Paso Robles GSP, Section 6.4.2.3, p. 170.

results are defined consistently throughout the basin.¹¹⁶ The Paso Robles GSP does not utilize management areas for the Subbasin.

5.3 SUSTAINABLE MANAGEMENT CRITERIA

GSP Regulations require each Plan to include a sustainability goal for the Subbasin and to characterize and establish undesirable results, minimum thresholds, and measurable objectives for each applicable sustainability indicator, as appropriate. The GSP Regulations require each Plan to define conditions that constitute sustainable groundwater management for the Subbasin including the process by which the GSA characterizes undesirable results and establishes minimum thresholds and measurable objectives for each applicable sustainability indicator.¹¹⁷

5.3.1 Sustainability Goal

The information provided in the Plan for the sustainability goal reasonably sets forth how sustainable groundwater management for the Subbasin will be achieved and substantially complies with the GSP Regulations. The sustainability goal for the Subbasin, as defined in the Plan, is "...to sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of Subbasin users." The Plan further states the GSAs will "balance the needs of all groundwater users in the Subbasin within the sustainable limits of the Subbasin's resources." The GSP states that a "combination of the management actions and conceptual projects will be implemented to ensure the Subbasin operates within its sustainable yield and achieves sustainability" within 20 years.

5.3.2 Sustainability Indicators

Sustainability indicators are defined as any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results.¹¹⁸ Sustainability indicators thus correspond with the six undesirable results – chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon, significant and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies, land subsidence that substantially interferes with surface land uses, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water¹¹⁹ – but refer to groundwater conditions that are not, in and of themselves, significant and unreasonable. Rather, sustainability indicators refer to the effects caused by changing groundwater conditions that are monitored, and for which criteria in the form

¹¹⁶ 23 CCR § 354.20.

¹¹⁷ 23 CCR § 354.22 *et seq.*

¹¹⁸ 23 CCR § 351(ah).

¹¹⁹ Water Code § 10721(x).

of minimum thresholds are established by the agency to define when the effect becomes significant and unreasonable, producing an undesirable result.

The following subsections thus consolidate three facets of sustainable management criteria: undesirable results, minimum thresholds, and measurable objectives. Information, as presented in the Plan, pertaining to the processes and criteria relied upon to define undesirable results applicable to the basin, as quantified through the establishment of minimum thresholds, are addressed for each sustainability indicator. However, a submitting agency is not required to establish criteria for undesirable results that the agency can demonstrate are not present and are not likely to occur in a basin.¹²⁰

5.3.2.1 Chronic Lowering of Groundwater Levels

The GSP Regulations require the minimum threshold for chronic lowering of groundwater levels to be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results.¹²¹ Undesirable results and minimum thresholds for chronic lowering of groundwater levels in the 2020 Plan were corrected based on deficiencies identified by the Department. An assessment of the corrected information and corrective actions taken by the GSAs is provided in Section 4.1.2 of this Staff Report.

The GSP states sustainable management criteria were developed in response to a variety of input (e.g., public outreach efforts, survey results, hydrogeologic information, evaluation of historical groundwater levels, and well construction information). The quantitative criteria for defining undesirable results have not been modified and are: “Over the course of two years, no more than two exceedances for the groundwater elevation minimum thresholds within a 5-mile radius or within a defined area of the Basin for any single aquifer. A single monitoring well in exceedance for two consecutive years also represents an undesirable result for the area of the Basin represented by the monitoring well. Geographically isolated exceedances will require investigation to determine if local or Basin wide actions are required in response.”¹²² Average 2017 non-pumping groundwater levels have been selected as measurable objectives, with minimum thresholds set 30 feet below those levels since “analysis of historical groundwater elevation data suggested that 30 feet allows for reasonable operational flexibility that accounts for seasonal and anticipated climatic variations on groundwater elevation.”

The GSP provides qualitative descriptions of how the selected minimum thresholds could impact other applicable sustainability indicators (i.e., change in groundwater storage, change in groundwater quality, and subsidence). For instance, the description for groundwater storage impacts states that because groundwater elevation minimum thresholds are set to maintain a constant elevation--consistent with pumping at or below the sustainable yield--the groundwater elevation minimum thresholds should not be a negative impact to groundwater storage. The discussion related to the depletions of

¹²⁰ 23 CCR § 354.26(d).

¹²¹ 23 CCR § 354.28(c)(1).

¹²² 2022 Redlined Paso Robles GSP, Section 8.4.6.1, p. 290.

interconnected surface water sustainability indicator has been modified based on better understanding of the basin setting (see Section 4.2 of this Staff Report).

A well impact analysis was conducted for the Paso Robles Formation Aquifer only. The Alluvial Aquifer is currently monitored by one well installed in June 2018 and did not have sufficient historical data for the 2020 GSP submittal Plan to establish initial sustainable management criteria for groundwater levels. The Plan states criteria for the Alluvial Aquifer will be established early after GSP adoption and the monitoring network will expand by locating new candidate monitoring wells, modifying confidentiality agreements at known wells so that groundwater level data can be used, or by installing new monitoring wells.¹²³ Staff recommend the GSAs include sustainable management criteria for groundwater levels in the Alluvial Aquifer based on available monitoring data as part of the next periodic evaluation (see [Recommended Corrective Action 7](#)).

Department staff conclude that the sustainable management criteria for groundwater levels is commensurate with the understanding of current conditions, responsive to interested party feedback, and reasonably protective of the groundwater uses and users in the Subbasin. The Plan provides a credible and sufficient assessment of the impacts the minimum thresholds would have on all wells by evaluating the well depth and established minimum thresholds at individual representative monitoring points. However, as highlighted in the recommended corrective actions, the GSP should include some additional supporting technical details, clarifications, and Alluvial Aquifer management criteria in the next periodic evaluation.

5.3.2.2 Reduction of Groundwater Storage

The GSP regulations require the minimum threshold for the reduction of groundwater storage to be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.¹²⁴

The Plan describes significant and unreasonable groundwater storage conditions as those conditions that lead to long-term reduction in storage or interfere with the other sustainability indicators. Conditions that may lead to an undesirable result include expansion of non-de minimis pumping, expansion of de minimis pumping, and extensive, unanticipated drought. The Plan states prolonged reductions in the amount of groundwater in storage could lead to undesirable results affecting beneficial users and uses of groundwater. Groundwater pumpers that rely on water from shallow wells may be temporarily impacted by temporary reductions if the amount of groundwater in storage drops and lower water levels in their wells.

¹²³ 2022 Redlined Paso Robles GSP, Section 8.4.3.3, p. 272.

¹²⁴ 23 CCR § 354.28(c)(2).

This GSP adopts changes in groundwater level as a proxy for changes in groundwater storage and, therefore, the “minimum threshold is that the groundwater surface elevation averaged across all the wells in the groundwater level monitoring network will remain stable above the minimum threshold for chronic lowering of groundwater levels”. The GSP states using the same measurable objectives as groundwater elevation protects against significant and unreasonable reduction in groundwater storage as it does protecting against chronic lowering of groundwater levels; the measurable objective, using the groundwater level proxy, is stable average groundwater levels. The reduction of groundwater in storage measurable objective and minimum threshold is established as a whole for the Subbasin rather than for each principal aquifer. Thus, this results in groundwater storage minimum thresholds being monitored without direct measured input from the Alluvial Aquifer, which does not have established sustainable management criteria for groundwater levels. In addressing Recommended Corrective Action 7, the GSAs should also update the discussion of reduction of groundwater storage to include the Alluvial Aquifer.

Based on review of the materials referenced in the GSP, staff find that the GSP’s discussion and presentation of information related to significant and unreasonable reduction of groundwater storage, including the rationale that maintaining stable groundwater levels indicates groundwater storage is not being reduced, covers the specific items listed in the GSP Regulations in an understandable format using appropriate data.

5.3.2.3 Seawater Intrusion

The GSP Regulations require the minimum threshold for seawater intrusion to be defined by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results.¹²⁵

The GSP states seawater intrusion is not an applicable sustainability indicator as the “Subbasin is not adjacent to the Pacific Ocean, a bay, or inlet.” Department staff concur with the rationale for not setting sustainable management criteria for seawater intrusion.

5.3.2.4 Degraded Water Quality

The GSP Regulations require the minimum threshold for degraded water quality to be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.¹²⁶

¹²⁵ 23 CCR § 354.28(c)(3).

¹²⁶ 23 CCR § 354.28(c)(4).

The Plan identifies significant and unreasonable degraded water quality conditions as any increase in a chemical constituent that results in groundwater concentrations in a public supply well above an established primary or secondary maximum contaminant level (MCL), or that lead to reduced crop production. The minimum thresholds are based on a number of supply wells, specifically limiting future primary and secondary MCL exceedances to existing exceedances plus 10 percent (with a minimum of one additional exceedance) for constituents of concern in public supply wells (for total dissolved solids, chloride, sulfate, nitrate, gross alpha radiation) and agricultural supply wells (for chloride, boron). The Plan leverages existing water quality regulatory programs operating in the Subbasin to assess degraded water quality.

Based on review of the GSP's discussion of the establish sustainable management criteria, Department staff find that the GSP's discussion and presentation of information on degradation of water quality covers the specific items listed in the regulations in an understandable format using appropriate data.

5.3.2.5 Land Subsidence

The GSP Regulations require the minimum threshold for land subsidence to be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results.¹²⁷ Minimum thresholds for land subsidence shall be supported by identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency's rationale for establishing minimum thresholds in light of those effects and maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum threshold and measurable objectives.¹²⁸

The Plan defines an undesirable result as "pumping induced subsidence of greater than 0.1 foot in any single year and a cumulative 0.5 foot in any five-year period ..." The Plan states that based on InSAR data provided by the Department, meaningful land subsidence did not occur during the period between June 2015 and June 2018 in the Paso Robles Subbasin and continuing to avoid undesirable results "will protect the beneficial uses and users from impacts to infrastructure and interference with surface land uses." The subsidence minimum threshold is, therefore, having "the InSAR measured subsidence between June of one year and June of the subsequent year be no more than 0.1 foot in any single year and a cumulative 0.5 foot in any five-year period, resulting in no long-term permanent subsidence." The measurable objective is the "maintenance of current ground surface elevations" and avoid "permanent subsidence." This represents a rate of subsidence that is three times the average rate observed between 2015 and 2018. The Plan states that possible shifts in pumping locations that lead to declines groundwater levels could trigger excessive subsidence. However, since data indicates that no infrastructure is currently affected by subsidence and future

¹²⁷ 23 CCR § 354.28(c)(4).

¹²⁸ 23 CCR § 354.28(c)(4)(A-B).

pumping will be reduced from current pumping levels, impacts to beneficial uses and users are not anticipated.

Department staff find that the GSP adequately describes the sustainable management criteria and approach to managing land subsidence. Department staff also believe the Agency used the best information and science available at the time of Plan development.

5.3.2.6 Depletions of Interconnected Surface Water

SGMA defines undesirable results for the depletion of interconnected surface water as those that have significant and unreasonable adverse impacts on beneficial uses of surface water and are caused by groundwater conditions occurring throughout the Subbasin.¹²⁹ The GSP Regulations require that a Plan identify the presence of interconnected surface water systems in the basin and estimate the quantity and timing of depletions of those systems.¹³⁰ The GSP Regulations further require that minimum thresholds be set based on the rate or volume of surface water depletions caused by groundwater use, supported by information including the location, quantity, and timing of depletions, that adversely impact beneficial uses of the surface water and may lead to undesirable results.¹³¹

The sustainable management criteria for depletions of interconnected surface water in the 2020 Plan was corrected based on deficiencies identified by the Department. An assessment of the corrected information, and corrective actions taken by the GSAs is provided in Section 4.2.2.2 of this staff report.

5.4 MONITORING NETWORK

The GSP Regulations describe the monitoring network that must be developed for each basin including monitoring objectives, monitoring protocols, and data reporting requirements. Collecting monitoring data of a sufficient quality and quantity is necessary for the successful implementation of a groundwater sustainability plan. The GSP Regulations require a monitoring network of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan.¹³² Specifically, a monitoring network must be able to monitor impacts to beneficial uses and users,¹³³ monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds,¹³⁴ capture seasonal low and high conditions,¹³⁵ include required information such as location and well construction and include maps and tables clearly showing the monitoring site type, location, and frequency.¹³⁶ Department staff

¹²⁹ Water Code § 10721(x)(6).

¹³⁰ 23 CCR § 354.16 (f).

¹³¹ 23 CCR § 354.28 (c)(6).

¹³² 23 CCR § 354.32.

¹³³ 23 CCR § 354.34(b)(2).

¹³⁴ 23 CCR § 354.34(b)(3).

¹³⁵ 23 CCR § 354.34(c)(1)(B).

¹³⁶ 23 CCR §§ 354.34(g)-(h).

encourage GSAs to collect monitoring data as specified in the GSP, fill data gaps identified in the GSP prior to the first periodic evaluation,¹³⁷ update monitoring network information as needed, follow monitoring best management practices,¹³⁸ and submit all monitoring data to the Department's Monitoring Network Module immediately after collection including any additional groundwater monitoring data that is collected within the Plan area that is used for groundwater management decisions. Staff note that if GSAs do not fill their identified data gaps, the GSA's basin understanding may not represent the best available science for use to monitor basin conditions.

The Plan's approach for establishing the monitoring networks is to leverage existing monitoring programs and incorporate additional monitoring locations that have been made available by cooperating entities. Currently the monitoring networks are limited to locations with data that are publicly available and not collected under confidentiality agreements. As stated in the GSP, "the availability of well data and restrictions of existing confidentiality agreements results in a monitoring network with relatively few wells."¹³⁹ The Plan provides estimated planning-level costs for the first five years for the verification and expansion of monitoring networks (\$670,000) and conducting groundwater investigations (\$750,000).¹⁴⁰

There are currently 23 wells in the groundwater level monitoring network, with 22 wells that are part of SLOFCWCD monitoring network for the Paso Robles Formation Aquifer, and one City of Paso Robles-owned monitoring well in the Alluvial Aquifer.¹⁴¹ The Plan acknowledges that the current number of monitoring wells for both aquifers are "insufficient."¹⁴² As such, data gaps for groundwater level monitoring are identified in the Plan, including a list of nine potential future groundwater monitoring wells (which currently have unknown well information) and a reference to approximately 90 additional wells that are currently not included due to confidentiality agreements which SLOFCWCD will attempt to amend with well owners.¹⁴³ The Plan allocates a budget of \$600,000, anticipated to be spent in the first half of 2020, for installation and inspection of monitoring wells in key data gap areas. GSAs have identified 10 sites for monitoring well installation (along with stream gage installation where needed). GSAs are planning construction of monitoring wells at two sites with existing stream gages using Supplemental Environmental Project funds in 2021.¹⁴⁴ Department staff concur there is a significant data gap in monitoring groundwater levels, especially in the Alluvial Aquifer, and recommend GSAs take action to address the gaps early in Plan implementation as planned.

¹³⁷ 23 CCR § 354.38(d).

¹³⁸ Department of Water Resources, 2016, [Best Management Practices and Guidance Documents](#).

¹³⁹ 2020 Paso Robles GSP, Section 7.1, p. 188.

¹⁴⁰ 2020 Paso Robles GSP, Table 10-1, p. 309.

¹⁴¹ 2020 Paso Robles GSP, Table 7-1, pp. 194.

¹⁴² 2020 Paso Robles GSP, Section 7.2.1, p. 197.

¹⁴³ 2020 Paso Robles GSP, Table 7-2, pp. 195, Section 7.2.1, p. 197, Table 7-3, p. 199.

¹⁴⁴ Paso Robles First Annual Report (2017-2019) and Paso Robles Water Year 2020 Annual Report.

The GSP adopts groundwater levels as a proxy for assessing reduction in groundwater storage.¹⁴⁵ As such, the network of wells providing groundwater level data (and the associated data gaps) are the same as for the reduction in groundwater storage sustainability indicator. The relationship between change in groundwater levels, amount of groundwater pumping, and change in groundwater storage will be developed after GSP adoption and when additional data are available.

The monitoring network for groundwater quality is comprised of public water supply wells to monitor constituents of concern for drinking water, and agricultural supply wells to monitor constituents of concern for crop production. Public water supply well data are from the State Water Resources Control Board (SWRCB) Division of Drinking Water and includes 31 wells in the Paso Robles Formation Aquifer and 7 in the Alluvial Aquifer. Twenty-eight agricultural supply wells were identified by reviewing data from the Irrigated Lands Regulatory Program and stored in the SWRCB's Groundwater Ambient Monitoring and Assessment Program database.

Land subsidence is evaluated by monitoring land subsidence using Interferometric synthetic aperture radar (InSAR) data. Currently this data is provided by the Department and covers the Subbasin. The GSAs will continue to annually assess subsidence using the Department-provided InSAR data. Currently, there are no data gaps identified with the subsidence network; however, GSAs will consider subsidence surveys published by the United States Geological Survey (USGS) in assessing land subsidence across the Subbasin if they become available in the future.

The discussion of the monitoring network related to depletions of interconnected surface water in the 2020 Plan was corrected based on deficiencies identified by the Department. An assessment of the corrected information, and corrective actions taken by the GSAs is provided in Section 4.2.2.3 of this staff report.

The description of the monitoring network included in the Plan substantially complies with the requirements outlined in the GSP Regulations. Overall, the Plan describes in sufficient detail a monitoring network that promotes the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the Subbasin and evaluate changing conditions that occur through Plan implementation. The GSP provides a good explanation for the conclusion that the monitoring network is supported by the best available information and data and is designed to ensure adequate coverage of sustainability indicators. The Plan also describes existing data gaps and the steps that will be taken to fill data gaps and improve the monitoring network prior to the first periodic evaluation. Department staff consider the information presented in the Plan to satisfy the general requirements of the GSP Regulations regarding monitoring network.

The GSP provides a monitoring network that will monitor the sustainability indicators and assist in achieving the sustainability goal; however, there are data gaps and

¹⁴⁵ 2020 Paso Robles GSP, Section 7.3, p. 202.

recommended corrective actions identified by both the GSAs and Department staff which will improve upon the monitoring network. The GSP Regulations require GSPs to provide specific information about each monitoring site per the data and reporting standards.¹⁴⁶ As Plan implementation progresses, it is imperative the GSA work to ensure the information defining the monitoring network is consistent within the GSP, consistent with the Department's Monitoring Network Module, and follow the data and reporting standards. Department staff recommend there be a reconciliation between the details of the monitoring network provided in the GSP with the requirements of the data and reporting standards in the GSP Regulations (see [Recommended Corrective Action 8](#)).

5.5 PROJECTS AND MANAGEMENT ACTIONS

GSP Regulations require a description of the projects and management actions the submitting agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.¹⁴⁷

The Plan includes a suite of projects (in progress and conceptual) and management actions that appear to be reasonable and feasible, and, if implemented, will likely lead to the Subbasin achieving its sustainability goal.¹⁴⁸ While projects involve new or improved infrastructure to make new water supplies available, management actions are programs or policies that will improve groundwater monitoring, promote groundwater use reduction, develop a mandatory pumping limitation program, and reduce uncertainty. As stated in the Plan, "[t]o stop persistent declines in groundwater levels ... reducing groundwater pumping will be needed."¹⁴⁹ Current levels of groundwater pumping in the Subbasin exceed the estimated sustainable yield of 61,100 acre-feet per year (by 13,700 acre-feet per year) and, in certain areas of the Subbasin, groundwater levels are persistently declining.¹⁵⁰ The Plan explains that the implementation of projects may offset pumping and lessen the degree to which management actions would be needed to operate the Subbasin within its sustainability yield.¹⁵¹

The GSAs provide general timelines for expected initiation of projects and management actions and cursory identifications of sustainable management criteria that would be affected by implementation. Largely, qualitative descriptions are provided for the evaluation of benefits to the Subbasin from management actions. Maps of projected groundwater level benefit are provided for the projects' benefits evaluation; however,

¹⁴⁶ 23 CCR §§ 352.4, 354.34(g)(2).

¹⁴⁷ 23 CCR § 354.44 et seq.

¹⁴⁸ 2020 Paso Robles GSP, Section 9.1, p. 259.

¹⁴⁹ 2020 Paso Robles GSP, Section 9.1, p. 260.

¹⁵⁰ 2020 Paso Robles GSP, Section 9.2, pp. 260-261.

¹⁵¹ 2020 Paso Robles GSP, Section 9.5, pp. 274-275.

implementation of most projects depend on willing participants, and successful funding votes.¹⁵²

The Plan divides management actions into basin-wide management actions that will apply to all Subbasin areas and reflect basic GSP implementation requirements, and an area-specific management action that requires adoption of regulations, environmental review, and legal risks. Basin-wide management actions include monitoring, reporting and outreach, promoting best water use practices, promoting stormwater capture, and promoting voluntary fallowing of irrigated crop land. The area-specific management action consists of mandatory pumping limitations in specific areas. It will take an up to five years to establish a regulatory program for area-specific pumping limitations. In the interim, the GSAs plan basin-wide management actions for certifying de minimis users and developing a metering and reporting program for non-de minimis users. Additional basin-wide management actions to increase the level of understanding of the basin include expanding groundwater level monitoring, investigating surface water-groundwater interconnectivity, refining the hydrogeologic conceptual model, and updating the groundwater model. The basin-wide management actions, if successfully and timely implemented, could increase the level of understanding in the Subbasin and allow for the successful implementation of an area specific mandatory pumping limitation regulatory program.

The six projects included in the GSP have been identified after many public meetings and studies over the last decade; however not all projects described in the Plan will necessarily be implemented.¹⁵³ The projects focus on new supply of up to 9,200 acre-feet per year, by developing recycled water (2,400 acre-feet per year) and water imports from the Nacimiento Water Project (5,800 acre-feet per year) and Salinas Dam (1,000 acre-feet per year). Only one project, City Recycled Water Delivery, is currently underway as of GSP submittal. This project will use up to 2,200 acre-feet per year of disinfected tertiary effluent for in-lieu recharge near and inside the City of Paso Robles and water not used for recycled water purposes will be discharged to Huer Huero Creek with the potential for additional recharge benefits.

The Plan adequately describes proposed projects and management actions in a manner that is generally consistent and substantially complies with the GSP Regulations. The projects and management actions, which focus largely on conservation and efficiency; stormwater efforts; increasing groundwater in storage through recharge; and increasing non-groundwater water supply, are directly related to the sustainable management criteria and present a generally feasible approach to achieving the sustainability goal of the Subbasin.

¹⁵² 2020 Paso Robles GSP, Section 9.5, p. 275.

¹⁵³ 2020 Paso Robles GSP, Section 9.5.2, p. 276.

5.6 CONSIDERATION OF ADJACENT BASINS/SUBBASINS

SGMA requires the Department to "...evaluate whether a groundwater sustainability plan adversely affects the ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin." Furthermore, the GSP Regulations state that minimum thresholds defined in each GSP should be designed to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

The Paso Robles Subbasin is bound by four adjacent groundwater basins: the Upper Valley Aquifer Subbasin to the north, the Cholame Valley Basin to the east, the Carrizo Plain Basin to the southeast, and the Atascadero Area Subbasin to the southwest. The Upper Valley Aquifer Subbasin is a medium-priority basin with a GSP deadline of January 2022, while the other basins are very-low priority and not required to submit a GSP for evaluation and assessment. The Plan includes an analysis of potential impacts to adjacent basins with the defined minimum thresholds for each applicable sustainability indicator. The Plan does not anticipate any impacts to adjacent basins developing GSPs from the minimum thresholds defined in the Plan and, if impacts are ultimately observed, thresholds would be adjusted. The GSP states the Paso Robles Subbasin GSAs have developed a cooperating working relationship with the Salinas Valley Basin GSA and the Agencies managing the Atascadero Subbasin. Specific details regarding the strategy or plan to closely coordinate with the GSA in the neighboring basins are not provided.

5.7 CONSIDERATION OF CLIMATE CHANGE AND FUTURE CONDITIONS

The GSP Regulations require a GSA to consider future conditions and project how future water use may change due to multiple factors including climate change.¹⁵⁴

Since the GSP was adopted and submitted, climate change conditions have advanced faster and more dramatically. It is anticipated that the hotter, dryer conditions will result in a loss of 10% of California's water supply. As California adapts to a hotter, drier climate, GSAs should be preparing for these changing conditions as they work to sustainably manage groundwater within their jurisdictional areas. Specifically, the Department encourages the GSA to explore how the proposed groundwater level thresholds have been established in consideration of groundwater level conditions in the Subbasin based on current and future drought conditions. The Department encourages the GSA to also explore how groundwater level data from the existing monitoring network will be used to make progress towards sustainable management of the Subbasin given increasing aridification and effects of climate change, such as prolonged drought. Lastly, the Department encourages the GSA to continually coordinate with the appropriate groundwater users, including but not limited to domestic well owners and state small water systems, and the appropriate overlying county jurisdictions developing drought plans and establishing local drought task forces¹⁵⁵ to evaluate how the Agency's

¹⁵⁴ 23 CCR § 354.18.

¹⁵⁵ Water Code § 10609.50.

groundwater management strategy aligns with drought planning, response, and mitigation efforts within the Subbasin.

6 STAFF RECOMMENDATION

Department staff recommend approval of the Plan with the recommended corrective actions listed below. The Plan conforms with Water Code Sections 10727.2 and 10727.4 of SGMA and substantially complies with the GSP Regulations. Implementation of the Plan will likely achieve the sustainability goal for the Paso Robles Area Subbasin. The GSAs have identified several areas for improvement of its Plan and Department staff concur that those items are important and should be addressed as soon as possible. Department staff have also identified additional recommended corrective actions that should be considered by the GSAs for the first periodic evaluation of its GSP. Addressing these recommended corrective actions will be important to demonstrate that implementation of the Plan is likely to achieve the sustainability goal. The recommended corrective actions include:

RECOMMENDED CORRECTIVE ACTION 1

Department staff recommend the GSAs explain the selection of ten percent of all wells going dry as considered undesirable. The GSAs should provide details describing groundwater conditions when ten percent of all wells in the Subbasin go dry and, if appropriate, justify how those groundwater conditions constitute a significant and unreasonable effect to beneficial users and uses.

RECOMMENDED CORRECTIVE ACTION 2

Staff recommend the GSAs continue to re-evaluate the well impact analysis by pursuing activities to fill data gaps so that limitations of accurate and complete well construction information are overcome, and further refine the GSP's criteria, assumptions, analysis, and objectives in defining significant and unreasonable effects based on best available information.

RECOMMENDED CORRECTIVE ACTION 3

The GSAs should consider including mitigation strategies describing how drinking water impacts that may occur due to continued overdraft during the period between the start of Plan implementation and achievement of the Subbasin's sustainability goal will be addressed, or provide a thorough discussion, with supporting facts and rationale, explaining how and why the GSAs determined not to include specific actions or programs to monitor and mitigate drinking water impacts from continued groundwater lowering below 2015 levels. Department staff recommend that the GSAs review the Department's April 2023 guidance document titled Considerations for Identifying and Addressing Drinking Water Well Impacts guidance to assist its adaptive management efforts.

RECOMMENDED CORRECTIVE ACTION 4

- a. Department staff recommend the GSAs provide clear explanation of the usage of the Alluvial Aquifer and provide specific volumetric quantities of estimated pumping that occurs from the Alluvial Aquifer to detail the comparison of pumping from the Subbasin's two principal aquifers.
- b. Define the scope, schedule, and budget of the plan to investigate the potential connection between Estrella River and San Juan Creek to the underlying Paso Robles Formation Aquifer. Provide the Department with an update of work that has been conducted by the periodic evaluation.

RECOMMENDED CORRECTIVE ACTION 5

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSA should work to address the following items by the first periodic evaluation:

- a. Work to establish undesirable results, minimum thresholds, and measurable objectives consistent with the GSP Regulations. Measurable objectives are to use the same metric used for minimum thresholds, including quantifying the location, quantity, and timing of depletions of interconnected surface water due to groundwater extraction. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department.
- b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSA's jurisdictional area.

RECOMMENDED CORRECTIVE ACTION 6

Department staff recommend the GSAs provide a clear explanation of the monitoring network for interconnected surface water, including how each aquifer is going to be monitored and how stream gages will be utilized to evaluate depletions of interconnected surface water.

RECOMMENDED CORRECTIVE ACTION 7

Staff recommends the GSAs include sustainable management criteria for groundwater levels in the Alluvial Aquifer based on available monitoring data as part of the next periodic evaluation. Additionally, the GSAs should increase the publicly available information to describe the monitoring network of the Alluvia Aquifer, including reviewing confidentiality agreements, installing new monitoring wells where needed, and filling data gaps in well information of known wells. As groundwater levels are used as a proxy for reduction of groundwater storage, GSAs may need to update the related discussion for the Alluvia Aquifer.

RECOMMENDED CORRECTIVE ACTION 8

Department staff recommend the GSAs conduct a reconciliation between the details of the monitoring network provided in the GSP with the requirements of the data and reporting standards in the GSP Regulations. Where requirements of the data and reporting standards are not provided, the GSA should include this information in the periodic evaluation of the GSP. As a reminder, updates to the monitoring network must be reflected in the SGMA Portal's Monitoring Network Module.