Stakeholder Input Collection, Integration and Communication Process

Date: April 8, 2026
Presented by: Dillon McGregor

Purpose of Today's Item

- Review how staff solicits, collects, and communicates stakeholder input
- Provide a recent example of how input is documented and presented
- Highlight ongoing efforts to improve clarity and transparency
- Receive direction if changes or additions to the process are needed

How Stakeholder Input is Collected

- Staff gathers public feedback through comment periods, workshops, small group meetings, responses to emails, and other outreach.
- Example: The Local Expert Group (LEG) was created based on stakeholder suggestions to involve CSUC faculty.

Role of the SHAC

- SHAC is a formal Brown Act committee established in the JPA and governed by a charter.
- Provides structured input and makes recommendations to the GSA Board.

How Stakeholder Input is Integrated

- Public feedback is incorporated into SHAC presentations and reports, so they are informed on input
- SHAC feedback plays a key role in supporting Board decisions.
- SHAC helps identify community priorities and perspectives.
- Input is reviewed and incorporated in relation to:
  - **Board Direction, project/study purpose and goals, GSP implementation, SGMA and regulatory compliance, timing and feasibility.**

How Stakeholder Input is Integrated for Board Consideration

- Staff compiles, summarizes and presents both stakeholder input and SHAC recommendations
- Input is incorporated into staff memos / reports and is considered alongside:
  - GSP goals and implementation
  - SGMA and regulatory compliance
  - Technical analysis
  - Regulatory requirements
  - Other relevant factors
- Staff summarizes stakeholder input in:
  - **Memos**
  - **Staff reports**
  - **Presentations**
- Input is linked to specific agenda items to support Board discussion
- Goal is clear and transparent communication of stakeholder perspectives

Example – December Staff Report

- Feedback collected from multiple stakeholder groups:
  - **Local Expert Group**
  - **Environmental representatives**
  - **Domestic well users**
  - **Agricultural users**
- Staff report:
  - **Summarized key themes**
  - **Identified differing perspectives**
  - **Provided information to support Board discussion and direction**

Ongoing Efforts

- As with GSP development, staff will implement a structured approach for stakeholder input on completed feasibility studies and pilot projects including:
  - **An online form for stakeholders to submit comments**
  - **Acceptance of comment letters, emails, or other correspondence**
  - **Maintain a tracking spreadsheet for compiling input**
  - **Present input to the Board if projects move toward implementation or funding decisions**
  - **Incorporating comments, suggestions, recommendations or points of clarification into project development or scope of work for implementation**

Questions

Vina Groundwater Sustainability Agency
308 Nelson Avenue, Oroville, CA 95965
(530) 552-3592 · VinaGSA@gmail.com

MEMORANDUM

To: Vina Groundwater Sustainability Agency Board

From: Dillon McGregor, GSA Program Manager

Date: April 23, 2025

Topic: Overview of Stakeholder Input Collection, Integration, And Communication Processes

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Purpose:
This memo summarizes how staff engages with stakeholders, incorporates their input, and communicates this information back to the Board. Staff continually seeks ways to improve transparency and accountability.

Collection of Stakeholder Input

Staff regularly engages stakeholders through the Stakeholder Advisory Committee (SHAC) and through communications and interactions with the broader public. The SHAC is a Brown Act committee established by the Vina GSA Joint Powers Agreement (JPA) and governed by a formal charter and is part of the GSA's governance structure. It provides structured, representative input on key topics and offers ongoing opportunities for appointed members to share detailed feedback. As a body, the SHAC makes recommendations to the GSA Board and SHAC input significantly informs staff planning and recommendations.

Staff collects feedback from the public through various channels. Public comment periods at SHAC and Board meetings allow community members to express their concerns and share feedback. Public workshops and informational meetings provide additional opportunities for informal engagement. Additionally, staff engages specific groups and stakeholders such as the Local Expert Group (LEG), domestic well owners, rangeland owners, community and environmental advocates, public agencies, local organizations, and others, to ensure diverse input. Notably, the LEG was created in direct response to stakeholder suggestions to include technical expertise from California State University, Chico (CSUC) faculty to provide input to staff on Vina GSA grant funded projects.

Integration of Stakeholder Input

Staff considers input from both SHAC and public stakeholders. SHAC input plays a major role in assisting decision makers, as members are appointed to represent key groundwater user groups and often bring focused, policy- or project-specific insight and perspectives.

Public input gathered through workshops, meetings, and outreach also informs decision makers by highlighting local voices and perspectives.

Communication of Stakeholder Input

To improve communication between stakeholders and decision-makers, staff is enhancing how stakeholder input is documented and presented to the Board. Memos, transmittals, and staff reports will state or summarize feedback. For instance, the memo from April 9, 2025, regarding the Sustainable Groundwater Management (SGM) grant agreement amendment clearly summarized that stakeholder input favored a course of action, and this information was shared with the SHAC, which ultimately informed the SHAC's discussion and recommendations.

Staff will continue to clearly summarize stakeholder engagement activities relevant to agenda items presented to the SHAC and Board, providing necessary context for discussions.

Staff remains committed to improving clarity and transparency around stakeholder engagement and input integration.

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MEMORANDUM

To: Vina GSA Board and Rock Creek Reclamation District GSA

From: Becky Fairbanks, GSA Project Manager

Date: December 10, 2025

Subject: GSP Periodic Evaluation Stakeholder Meetings Feedback

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Purpose

This Staff Memo provides a summary of the four stakeholder meetings that were conducted this Fall, including an overview of the content that was presented at those meetings, features of stakeholder discussions, analysis of the similarities and differences in feedback that was received across the groups, and requests direction on next steps.

Background

The Vina Groundwater Sustainability Agency (GSA) and Rock Creek Reclamation District GSA voted to approve the Vina Groundwater Sustainability Plan (GSP) in December 2021 and submitted to the California Department of Water Resources in January 2022. The GSP was approved by DWR in July 2023. As part of its review and approval, DWR provided six specific Recommended Corrective Actions (RCAs), including addressing data gaps. DWR communicated an expectation that the GSA would work to address these items by the first required periodic evaluation of the GSP. The Vina GSA also received funding through the Sustainable Groundwater Management (SGM) Round 2 grant program to support this work, including monitoring network improvements, domestic well data collection, and preparing the GSP Periodic Evaluation and any Plan Amendments.

The Sustainable Groundwater Management Act (SGMA), requires the Vina GSA complete the periodic evaluation of the Vina GSP by January 2027. As part of this process, the Vina GSA hosted a series of stakeholder meetings this Fall to gather preliminary feedback on potential technical approaches for Groundwater Levels Sustainable Management Criteria and Interconnected Surface Waters Sustainable Management Criteria.

Members of the Butte County Local Expert Group (LEG), and individuals and organizations representing environmental users, domestic well owners, and agricultural groundwater users were each invited to meet with GSA staff and technical consultants in small group venues on October 14, October 27, and November 13, 2025. The purpose of these meetings was to:

(1) Provide informational updates on groundwater sustainability planning and management

activities, with a particular focus on the approach to groundwater level (GWL) and interconnected surface water (ISW) sustainable management criteria (SMC) for the upcoming GSP Periodic Evaluation, and

(2) Dedicate space to hear each individual stakeholder group's input, thoughts, concerns, and priorities on those topics.

Each of the four groups received the same informational presentation and were asked to weigh in on the same questions, to inform and shape the GSAs' approach to the GSP Periodic Evaluation.

Summary of Stakeholder Meetings

Between October 14 and November 13, 2025, four stakeholder meetings were held to solicit input on developing the Vina GSP Periodic Evaluation. Separate sessions were conducted with the Local Expert Group, Environmental Groups, Domestic Well Users, and Agricultural Users to share updates on GSP implementation, discuss key data updates, and gather input on proposed refinements to Sustainable Management Criteria for groundwater levels and interconnected surface waters.

The presentations provided an overview of the data gap analysis, DWR's corrective actions, and the ongoing efforts to update the domestic well inventory and refine the Representative Monitoring Site (RMS) networks. Stakeholders were shown updated well maps and proposed groundwater level and ISW monitoring networks, including options for recalculating Minimum Thresholds (MTs) using new data. The discussion also covered the proposed process and timeline for developing ISW and Groundwater Dependent Ecosystem (GDE) SMCs by 2026, as well as the next steps toward incorporating feedback into the GSP Periodic Evaluation due in 2027. Attachment 1 contains the meeting materials provided to each group. An agenda and meeting materials were sent in advance of the meeting.

Stakeholder Discussion Questions

The following questions were posed to each group:

- What reactions or questions do you have about the updated domestic well inventory and proposed Groundwater Level RMS Network?
- What are your thoughts on the two options for setting the Minimum Thresholds (MTs)?
    - Option 1: Recalculate using the updated domestic well inventory and RMS well locations, or
    - Option 2: Set based on historical minimum groundwater levels minus an agreed-upon buffer.
- What are your reactions or suggestions regarding the development of a Domestic Well Mitigation program as part of the Periodic Evaluation work?
- What reactions or questions do you have about the proposed ISW RMS Network?
- Do you have any recommended adjustments or additional considerations for the ISW network?
- What are your thoughts on the proposed approach and timeline for developing ISW SMCs?

Local Expert Group Meeting – October 14, 2025

The Local Expert Group (LEG) discussion differed from the other three meetings and focused on technical refinements to the proposed monitoring networks and SMC methodologies, including more discussion of initial model results. Members provided detailed feedback on how to better represent domestic well conditions, integrate ISW and GDE considerations, and improve the clarity and usability of model outputs for both technical audiences and the public.

Key points of discussion included the importance of selecting monitoring wells that reflect conditions experienced by shallow domestic wells, evaluating the use of historical minimum water levels with an added buffer to establish MTs, and determining the GSA's potential role in mitigating impacts to domestic wells. The group also emphasized improving visual tools and communication materials to clearly depict stream connectivity, disconnection thresholds, and groundwater–surface water interactions.

LEG Recommendations and Considerations:

- Ensure RMS wells selected for groundwater level monitoring are representative of domestic well conditions.
- Consider including multi-completion well 23N01W31M002M (600 ft) in the RMS network.
- Consider using historical minimum groundwater levels plus a buffer when setting MTs.
- Clarify the GSA's approach and potential commitment to mitigating dry wells.
- Include discussion of stream conditions and connectivity when presenting water balance information.
- Recognize that ISW/GDE monitoring may not capture effects on the urban canopy.
- Incorporate cross-section graphics to visually demonstrate where and when stream disconnection occurs.
- Simplify model graphics—consider using "budgeted diagram" formats to improve clarity and avoid overestimating conditions.

Environmental Stakeholder Meeting – October 27, 2025

The environmental stakeholders emphasized the importance of incorporating ecological perspectives into the GSP updates, particularly in setting SMCs for groundwater levels and ISWs. Participants urged the GSA to ensure that environmental thresholds—not just domestic well data—inform MTs, emphasizing protection for valley oaks, blue oaks, and other groundwater-dependent vegetation will also lead to protection of domestic wells.

Participants discussed gaps in The Nature Conservancy's (TNC) GDE mapping, noting it excludes urban forests and oak woodlands that rely on shallow groundwater. They encouraged the GSA to coordinate with local data sources such as Cal FIRE, the Forest Health Collaborative, and Butte County's Habitat Conservation Plan to strengthen the environmental dataset. Participants also expressed strong interest in combined stakeholder discussions and broader public involvement, as well as enhanced collaboration with neighboring GSAs.

Environmental Group Recommendations and Considerations:

- Raise Minimum Thresholds to provide stronger protection for GDEs and ISWs.
- Use ecological indicators—such as valley oaks—as proxies when setting MTs and developing SMCs.

- Evaluate rooting depths of groundwater-dependent vegetation (including urban forests) to establish environmentally protective thresholds.
- Expand or refine GDE mapping to include valley oak woodlands and urban canopy areas not captured by current TNC datasets.
- Consider using valley oak trees or other keystone species as biological monitoring points.
- Increase opportunities for integrated public and stakeholder meetings rather than holding isolated group discussions.
- Continue communication and transparency in responding to prior environmental comment letters and technical input.

Domestic Well Users Meeting – October 27, 2025

The discussion with domestic well users centered on how groundwater level management and MT methodologies directly affect residential well reliability. Participants expressed strong concern that 2022 GSP MTs are too low to protect domestic wells and groundwater-dependent vegetation. There was consensus that wells should be protected from going dry and that the GSA should develop a mitigation program and more proactive communication with at-risk well owners.

Participants also asked for greater transparency in how the RMS network is established and how wells are classified by depth. Many favored using historical minimums (rather than the 2022 GSP inflection-point graphing method) to set MTs, paired with triggers or action levels to prompt early response before undesirable results occur. Funding and equity concerns were emphasized, with several participants calling for a financial mechanism to support well deepening or replacement similar to agricultural assistance programs.

Domestic Well User Recommendations and Considerations:

- Raise MTs to better protect shallow domestic wells and avoid any wells going dry.
- Favor setting MTs using historical minimum levels rather than approaches that allow levels to drop below historic lows.
- Include triggers or early-warning levels to prompt GSA action before MTs are reached.
- Increase the number of shallow wells included in the RMS network; consider recruiting more volunteer wells for monitoring.
- Notify domestic well owners in areas where groundwater levels approach MTs.
- Establish a domestic well mitigation program to assist with repair, deepening, or replacement when wells are impacted.
- Coordinate with Environmental Health on upcoming ordinance updates that may affect well replacement setbacks.
- Recognize the disproportionate impacts on domestic users compared with agricultural and development sectors and consider equity in mitigation funding.
- Provide continued opportunities for public input, including meetings scheduled at more accessible times for working residents.

Agricultural Stakeholder Meeting – November 13, 2025

The Agricultural Representatives discussion centered on the implications of proposed updates to the Representative Monitoring Site (RMS) networks, Sustainable Management Criteria (SMC), and the domestic well inventory. Participants sought clarity on why RMS updates are

needed if the current GSP was approved by DWR, and asked detailed questions about representativeness, data reliability, and how RMS wells are selected and validated. There was strong interest in ensuring the GSA maintains flexibility—both in MT methodologies and in future plan amendments—to avoid locking the basin into restrictive criteria before data gaps are fully addressed.

Participants also emphasized the importance of evaluating economic impacts of any new MTs or mitigation programs, noting that agricultural operations depend on predictable groundwater access. While supportive of domestic well protection, they asked for more detail on the purpose, scope, and funding responsibilities of any future well mitigation program. For ISW, several participants expressed concern about moving forward given existing data gaps, recommending the GSA proceed carefully and ensure decisions can be revisited as monitoring improves.

Agricultural Group Recommendations and Considerations:

- Clearly explain why RMS updates are needed in relation to what is required from DWR.
- Provide narrative descriptions of proposed changes before seeking detailed feedback and decision making.
- Ensure RMS wells are truly representative of subbasin conditions and verify their suitability (depth, historical data, reliability).
- Establish or maintain MTs that provide flexibility to farmers given relatively good groundwater conditions present in the subbasin, even having gone through the recent historic drought.
- Consider retaining current GWL MTs while identifying the number of wells at risk, rather than recalculating MTs immediately.
- Evaluate the economic impacts of potential MT changes and any mitigation program, particularly for agricultural operations.
- Clarify the purpose, responsibilities, and funding sources for any potential domestic well mitigation program.
- Consider limiting mitigation responsibility to wells constructed after a certain year and requiring well registration, as other basins have done.
- Proceed cautiously with ISW SMC development given existing data gaps; ensure decisions can be adjusted in future evaluations as new data may warrant adjustments.
- Continue coordination with neighboring subbasins, especially regarding ISW connectivity and model calibration.

Vina GSA Stakeholder Advisory Committee Feedback:

Minimum Thresholds and RMS Network

The Vina GSA Stakeholder Advisory Committee (SHAC) is a conglomerate of the representatives from each of the various beneficial users and stakeholders in the Vina Subbasin. During the four stakeholder meetings, the corresponding SHAC representative(s) was invited to attend the stakeholder meeting to gain insight into their user group's concerns and perspectives.

The SHAC received the summary of Stakeholder Meetings' Recommendations and Considerations detailed in this Memo at their December 3, 2025 meeting and were asked to provide additional feedback based on the various perspectives of each stakeholder group to share with the Board. SHAC expressed broad support for continuing to evaluate all three MT-

setting approaches presented by staff: 1) recalculating MTs using the updated domestic well inventory and revised RMS polygons, 2) applying a historical-minimum with buffer approach, and 3) considering retention of the current MTs and monitoring network as a reference point. Members emphasized that additional data and side-by-side comparisons will be critical to making informed decisions.

Several members noted the value of comparing Vina's MTs with those in neighboring subbasins to help identify discrepancies and ensure consistency where appropriate. While some SHAC members highlighted that GSAs ultimately manage to Measurable Objectives (MOs) and Interim Milestones (IMs), others expressed concern that the existing MTs may not sufficiently protect domestic well owners. The committee also discussed data limitations in the domestic well inventory, with some members recommending efforts to improve well information, including the potential for a well registry.

Domestic Well Mitigation Program Framework

The SHAC supported staff further exploring options for a Domestic Well Mitigation Program, including reviewing approaches taken by neighboring basins. Members noted the importance of clearly defining the GSA's role relative to Butte County's existing mitigation program to ensure the effort remains aligned with SGMA's intent and avoids duplicating responsibilities. It should be noted that the County's Drought Resilience and Outreach Project program, which includes a well mitigation program, is a temporary short-term program that is funded by the State Water Resources Control Board for domestic well owners that have been impacted specifically by drought, meet low-income disadvantage community requirements, and/or located within burn-scar/disaster recovery areas.
While some members underscored that private well owners retain responsibility for maintaining their wells, others felt a GSA-level mitigation program could still be appropriate if groundwater conditions or MT methodologies contribute to avoidable impacts. Members also indicated that development of any program should be informed by a more complete domestic well inventory and consideration of agricultural well data.

Butte County Department of Water and Resource Conservation Evaluation of Groundwater Monitoring Wells for RMS Selection

The Department has a long-standing role in groundwater monitoring and data reporting in Butte County including in the Vina Subbasin. As part of the Department's technical assistance provided to the Vina GSA under its subrecipient agreement funded by the SGM grant program, Department staff conducted a systematic evaluation of the existing groundwater level monitoring network to provide an assessment of each monitoring well and its suitability as an RMS. This evaluation and reasoning for each well is documented in Attachment F and is provided for the GSAs' and LWA team's consideration as work on the Periodic Evaluation proceeds.

Requested Action:

Feedback and public perspectives received from the series of stakeholder meetings and the SHAC is provided to the GSA Board to inform the approach and next steps in the Periodic Evaluation process. The options have been reworded from what was presented during the stakeholder meetings to clarify the request, as it became apparent that the original wording led to confusion.

A decision is not needed at this time, but Staff is seeking Board input and direction on the following items:

1. **Next Steps regarding Minimum Threshold (MT) Methodology and RMS Network Development**
   Provide direction to staff and Larry Walker Associates (LWA) on whether to proceed with calculating Minimum Thresholds (MTs) for both Groundwater Levels (GWL) and Interconnected Surface Waters (ISW) using the GWL SMC approaches below:
   - **Option 1:** Calculate the MTs for the updated RMS polygons for the expanded monitoring network based on the 2022 GSP methodology, using the updated domestic well inventory information.
   - **Option 2:** Calculate MTs based on historical minimum groundwater levels minus an agreed-upon buffer.
   - **Option 3:** Consider retention of the current MTs and monitoring network as a reference point.

Staff and LWA would document the results of the analysis make them available for the public to digest in advance of bringing the topics to the SHAC and GSA Boards for recommendations and decision-making in the coming months.

2. **Domestic Well Mitigation Program Framework**
   Provide direction on the near-term development of a framework for a Domestic Well Mitigation Program. Discuss possible scope options, timing, and anticipated level of effort.

Attachments:

A. Presentation slides and meeting materials provided at each meeting
B. Agenda and Summary of 10/14/25 GSP Stakeholder meeting with LEG
C. Agenda and Summary of 10/27/25 GSP Stakeholder meeting with Environmentalists
D. Agenda and Summary of 10/27/25 GSP Stakeholder meeting with Domestic Well Users
E. Agenda and Summary of 11/13/25 GSP Stakeholder meeting with Agricultural Users
F. Butte County Memo: Evaluation of Groundwater Level Monitoring Network for Selection of Representative Monitoring Sites

GSP Stakeholder Meetings Feedback

Vina GSA Board
December 10, 2025
Becky Fairbanks, GSA Project Manager

Prepared by LWA Team

Purpose of Today's Item

- Share feedback from Fall 2025 stakeholder meetings
- Highlight differences and common themes across groups
- **Seek Board input** (**no decision required today**) on:
  - Next steps for MT methodology and RMS network development
  - Development of a Domestic Well Mitigation Program framework

Stakeholder Meetings Held

Four meetings (Oct-Nov 2025):

- Local Expert Group (LEG) – Oct 14
- Environmental Representatives – Oct 27
- Domestic Well Users – Oct 27
- Agricultural Users – Nov 13

Goal: Present the same technical material to each group and gather early input.

What was Presented

- Updates on domestic well inventory
- Refinement of Groundwater Level (GWL) and Interconnected Surface Water (ISW) Representative Monitoring Site (RMS) Networks
- Option for setting Minimum Thresholds (MTs):
  - **Option 1: Recalculate MTs using the updated domestic well inventory and revised RMS polygons; and**
  - **Option 2: Set MTs based on historical minimum groundwater levels minus an agreed-upon buffer**
- Early discussion of potential Domestic Well Mitigation Program

Cross-Cutting Themes (All Groups)

- MT methodology directly affects well vulnerability
- Support for refining/expanding monitoring networks
- Desire for transparency in RMS selection and assumptions
- General openness to discussing Domestic Well Mitigation concepts
- Recognition that data gaps remain (ISW, GDEs, shallow wells)

Local Expert Group: Key Messages

- RMS wells must represent shallow domestic well conditions
- Consider MTs based on historical lows + buffer
- Clarify GSA's role in domestic well mitigation
- Significant ISW data gaps remain

Environmental Group: Key Messages

- Current MTs are too low to protect GDEs, urban forests, valley oaks
- Use ecological thresholds as part of MT setting
- Expand GDE mapping to include urban canopy & oak woodlands
- Support broader, integrated stakeholder discussion

Domestic Well Users: Key Messages

- Enhancing the RMS network
- Proceeding with both options to set SMCs
- Strong concern that current MTs do not protect domestic wells
- Want triggers/early warnings before MTs are reached
- Strong support for developing a mitigation program

Agricultural Users: Key Messages

- All changes should be data-driven
- Need clarity on why RMS changes are needed
- Concerns about economic impacts of MT changes
- Want flexibility in setting MTs until more data gaps are filled
- Need clarity on mitigation program purpose, scope, and funding

Domestic Well Mitigation (Themes Across Groups)

- Support for exploring program structure
- Need clarity on eligibility, funding approach, and responsibilities
- MT methodology affects mitigation need
- Environmental group sees mitigation as supplemental, not a substitute for stronger MTs
- Ag group wants economic impact analysis before committing
- LEG want clarity on long-term liability and commitment

Requested Action:
Board Direction Only – No Action today

1. Minimum Threshold (MT) Methodology & RMS Network – Next Steps

Should staff and LWA proceed with calculating Minimum Thresholds (MTs) for **both Groundwater Levels (GWL)** and **Interconnected Surface Waters (ISW)** using the GWL SMC approaches below?

- Option 1: Calculate the MTs for the updated RMS polygons for the expanded monitoring network based on the 2022 GSP methodology, using the updated domestic well inventory information.
- Option 2: Calculate MTs based on historical minimum groundwater levels minus an agreed-upon buffer.
- Option 3: Consider retention of the current MTs and monitoring network as a reference point.

Staff/LWA will document results and make them publicly available prior to returning to the SH and GSA Boards for recommendations and decision-making.

Requested Action:
Board Direction Only – No Action today

2. Domestic Well Mitigation Program Framework

- Should staff begin near-term development of a conceptual framework for a Domestic Well Mitigation Program, including:
- Possible scope and eligibility options
- Timing and implementation considerations
- Anticipated level of effort

Meeting with the Local Expert Group

October 14, 2025

2:00 PM – 4:00 PM

California State University Chico, Science Building (SCI 142)

Meeting with Vina Subbasin Environmental Groups

October 27, 2025

2:00 PM – 4:00 PM

CARD – Jeff Carter Meeting Room

Meeting with Vina Subbasin Domestic Well Users

October 27, 2025
5:30 PM – 7:30 PM
CARD – Jeff Carter Meeting Room

Meeting with Vina Subbasin Agricultural Users

November 13, 2025
1:00 PM – 3:00 PM
City of Chico Council Conference Room

Welcome!

- The purpose of the meeting today is to share information about the status of groundwater sustainability planning and management activities. Special focus on:
  - Interconnected surface waters (ISW)
  - Groundwater levels
- Your feedback and comments are valued!
  - Feedback from today will be considered by the Vina Stakeholder Advisory Committee (SHAC) and GSA Board in determining the Sustainable Management Criteria (SMC)
- Educational information is available! See back table.

Agenda

1. **Background** – Becky Fairbanks, Vina GSA Project Manager
2. **Introduction: Approach to GSP Amendments** – Laura Foglia and Ryan Fulton, Larry Walker Associates
3. **Technical Presentation & Discussion:** Groundwater Level Monitoring Network & Sustainable Management Criteria
4. **Technical Presentation & Discussion**: Interconnected Surface Water Monitoring & Sustainable Management Criteria
5. **Closing –** Marisa Perez-Reyes, Stantec

Stakeholder Meeting
Environmental / Domestic Well User Groups

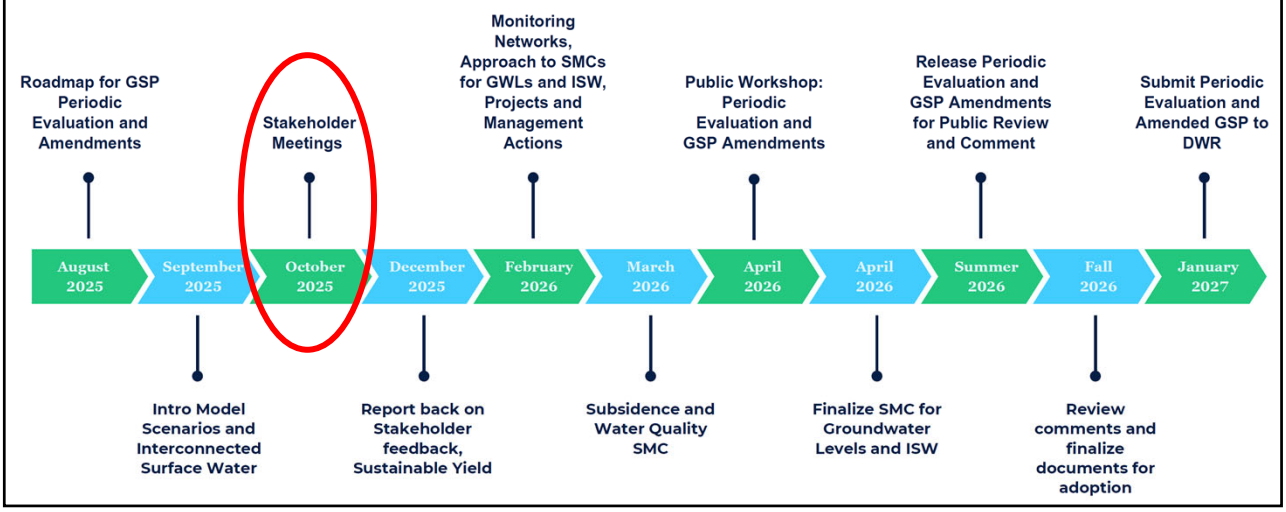
Prepared by

The LWA Team in coordination with the Vina GSA

Funding provided by the California Department of Water Resources

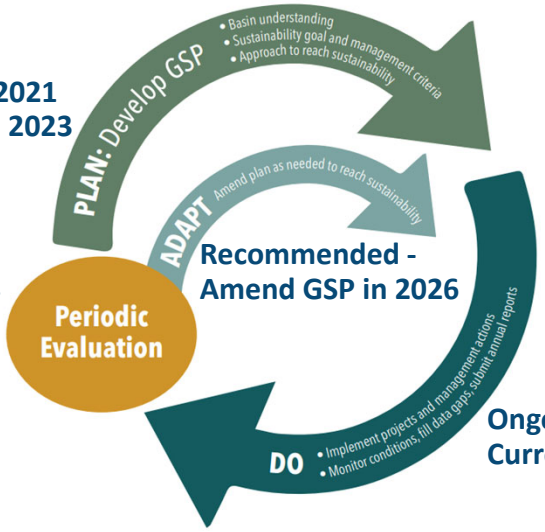
October 27, 2025

GSP Periodic Evaluation and GSP Amendments Schedule



GSP Implementation

Done!
Adopted 2021
Approved 2023



Recommended - Amend GSP in 2026

Required- Due in Jan. 2027

Ongoing – Currently grant funded

LWA recommends sections of Vina GSP be amended to address the following:

1. **Existing data gaps as described in the GSP**
2. **DWR's recommended corrective actions**
3. **Public and stakeholder comments**

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Data Gaps Identified in the GSP (see Appendix 1-F)

For Reference

- GW Level Minimum Thresholds (MTs) are currently set to reduce risks to domestic wells (GSP Section 3.3.2). The domestic well dataset is being updated to improve information and remove wells no longer in use or poorly maintained (App. 1-F).
- Lack of available shallow groundwater data precluded the 2022 GSP from including SMC for Interconnected Surface Water (ISW) and conditions relative to Groundwater Dependent Ecosystems (GDE), (App. 1-F, GSP sections 3.8.1, 4.6.1) - resolving this data gap and improved understanding of water table conditions will provide data if the GSA determines it will develop ISW / GDE SMC in the 2027 GSP update.

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DWR Corrective Actions for Groundwater Levels

1. Quantify the number of domestic wells impacted at minimum thresholds
2. Evaluate how proposed MTs impact other beneficial uses and users of groundwater (domestic wells, environmental uses, etc.)

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DWR Corrective Actions for Surface Water Depletions

1. Consider utilizing the interconnected surface water guidance when issued by the Department.
2. Continue to fill data gaps and collect additional monitoring data to define segments of interconnectivity and timing.
3. Identify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.
4. 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.

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Summary of Public Comments from 2022 GSP

For Reference

Stakeholder Group	Number of Comments	Common Comments
Agricultural	21	1. Overly restrictive MTs could reduce groundwater pumping flexibility. 2. Management actions need to consider both environmental needs and economic importance of agriculture. 3. Clarify how PMAs will affect farm operations.
Environmental & NGO	~50	1. Expand the ISW monitoring network. 2. Establish more conservative MTs to avoid adverse impacts on streams/wetlands/wildlife. 3. Prioritize data collection and adaptive management and ensure GSP aligns with long-term sustainability goals.
Domestic Well Owners	>100	1. Prevent wells from going dry. 2. Clarify how MTs are set and how impacts will be mitigated. 3. Concern about equity regarding disproportionate impact of lowering groundwater levels.
Technical Experts	13	1. Refine/amend GSP as new data becomes available. 2. Ensure monitoring networks are robust and representative. 3. Clarify explanations of model assumptions and presentation of data/results so that all stakeholders can better understand the implications.

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Requested Stakeholder Input

- Feedback on proposed RMS networks for:
  - Groundwater Levels
  - ISW (Interconnected Surface Water)
- Discuss possible approaches for setting SMC that are protective of all beneficial users, including:
  - ISW
  - Groundwater Dependent Ecosystems (GDEs)
  - Domestic Wells

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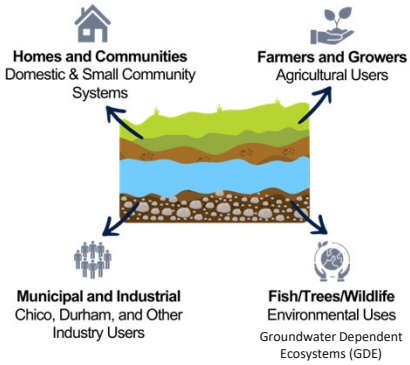
Representative Monitoring Site (RMS) Network for each Sustainability Indicator (SI) to track conditions relative to Beneficial Uses of Groundwater

Beneficial Uses/Users of Groundwater



Sustainability Indicators (SI)

**6th SI= Sea water intrusion. Not applicable in the Vina Subbasin*

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Refining RMS Monitoring Networks to fill Data Gaps

- Step One (Fall 2024): Evaluate the existing groundwater level (GWL) network and ID locations for installation of new wells.
  - DONE. Wells to be installed in coming months. New wells will not be used in the revised RMS networks due to lack of historical data
- Step Two (<u>now</u>): Evaluate the existing GWL monitoring wells that have historical data
  1. Identify wells to add to the GWL RMS network, and
  2. Identify wells to include in a newly defined ISW RMS network
- Step Three (beginning discussion): Establish SMC for all RMS

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Step 2: RMS Selection Process

1. Compile comprehensive list of possible monitoring wells, including from:
   - DWR
   - Local Agencies (e.g., City of Chico, CSU Chico, Neal Road Landfill, etc.)
   - Department of Toxic Substance Control (DTSC)
2. Classify monitoring well based on well lithology and screening intervals
3. Review data quality and condition of all possible monitoring wells (e.g., presence of oil, video logs, etc.)
4. Consistent, high-quality spring and fall measurements for at least the past 5 years
5. Map beneficial users of groundwater (ISW, GDEs, Domestic Wells)
6. Select RMS based on proximity to sensitive beneficial uses/users of groundwater:
   - **ISW/GDEs:** within 0.5 miles of an identified ISW or GDE[1]
   - **Domestic Wells:** areas with the highest density of domestic wells

1. Recommendation from SHAC (11/20/2024): drill new shallow wells within 1000' of unobserved ISW/GDE

17

Groundwater Levels – RMS Network and SMC

18

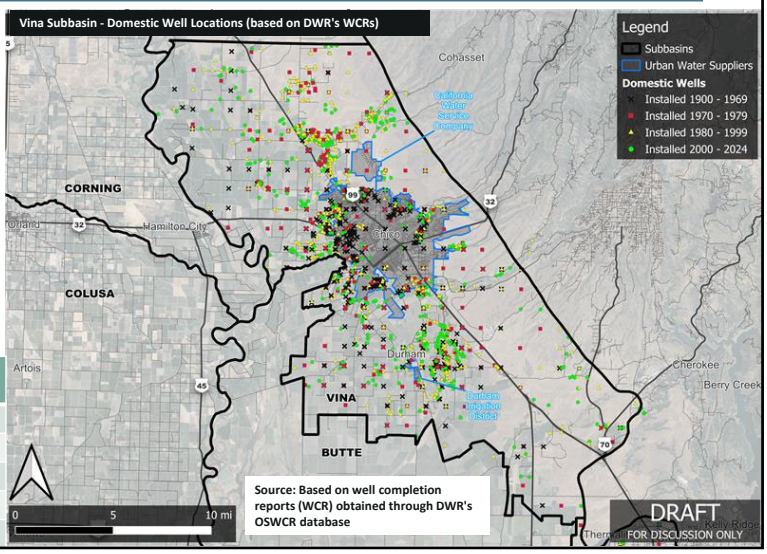
Domestic Well Inventory:
Better Characterize Beneficial Users

- **Goal: Develop an inventory of all active domestic wells (and their depths) within the Vina Subbasin.**
- **Why: To improve the estimate of the number of active domestic wells at risk of going dry for a given SMC threshold**
- The following information was / is being collected using DWR's OSWCR database (as feasible):
  - Drill / completion depth of well,
  - Location,
  - Screened interval(s),
  - Pump depth,
  - Age / status (e.g., active vs abandoned),
  - Water level,
  - Number of domestic wells per parcel, &
  - Other well specifications.

Updated Well Inventory – Refine Location

- Purpose: To eliminate duplicative wells serving the same parcel (e.g., older well replaced by a newer well)
- Map shows updated domestic well locations (green dots)
  - 2,100 wells (50%) have parcel information
  - Remaining wells assigned to centroid of PLSS section (1-mile by 1-mile area)

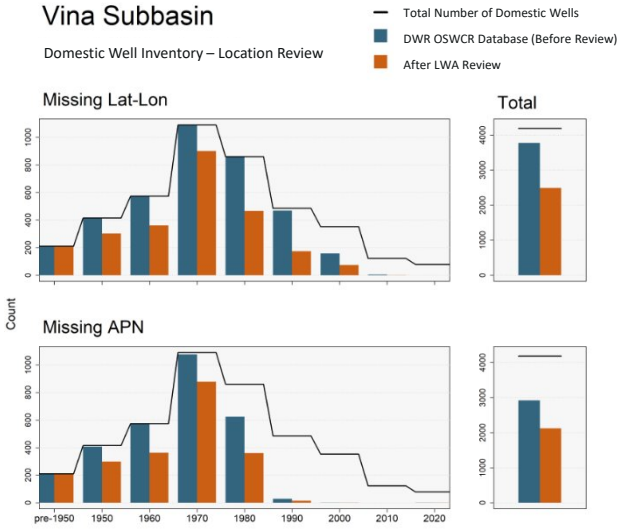
Year Installed	Number of WCRs
1900 – 1969	1,192
1970 – 1979	1,090
1980 – 1999	1,349
2000 – 2024	553
Total:	4,184



For Reference

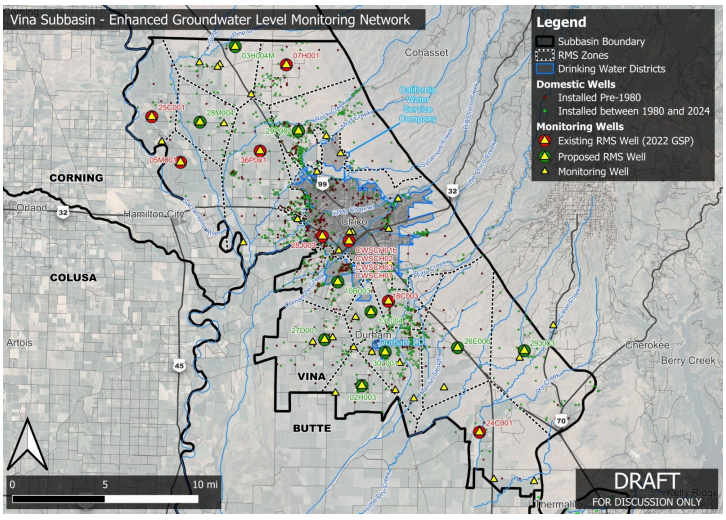
Domestic Well Inventory – Results

- There is insufficient location information available to identify all active domestic wells within the Subbasin.
- Reviewed WCRs to identify domestic well locations
  - Before: ~75% missing location
  - After: ~50% missing location
- Recommendation: Proceed with domestic well risk assessment with updated inventory.



Proposed Groundwater Level RMS Network

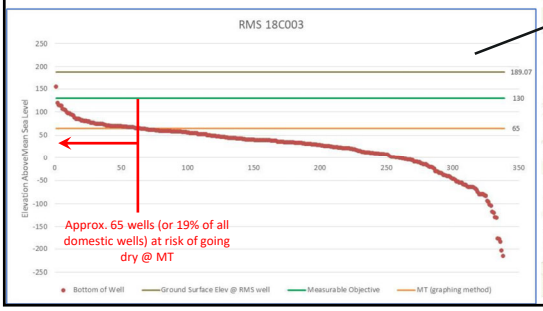
- **Goal: Establish a network that is representative of aquifer conditions in relation to:**
  - Domestic wells
  - Upper and lower aquifer conditions
- **Why:** Assess and evaluate the impact from declining GWL on all wells, including domestic and irrigation wells
- 21 RMS Locations Proposed
  - 13 from the original network
  - 8 added based on site selection process

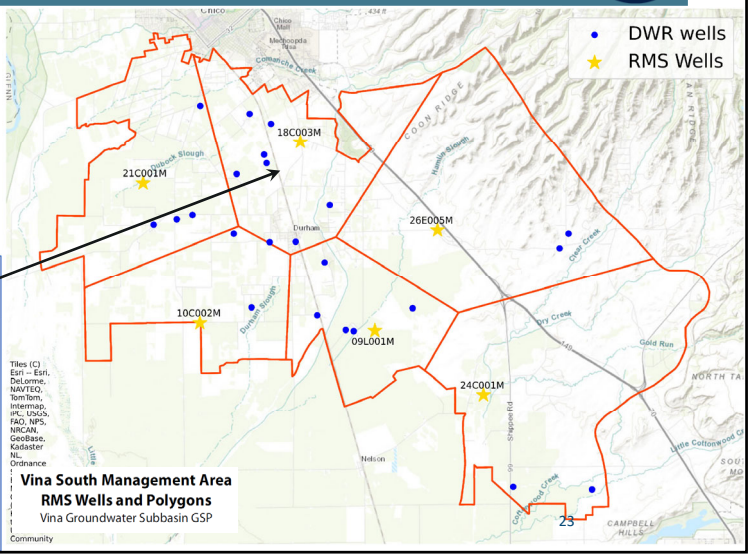


For Reference

Groundwater Levels – Current MTs

- MTs set for each RMS zone based on bottom elevations of nearby domestic wells to avoid potential impacts to domestic wells.





Proposed Groundwater Levels SMC

- **Undesirable Results** – Two RMS wells within a management area reach their MT for two consecutive years ~~of non-dry year types~~.
- **Measurable Objective (MO)** – Same approach as used in the GSP
- **Interim Milestone (IM)** – Same approach as used in the GSP
- **Minimum Threshold (MT)** – 2 Options:
  - Recalculate using same approach as 2022 GSP, using updated domestic well inventory and updated polygons based on new RMS well locations
  - Set to historical minimum measurement, minus an agreed upon buffer

Questions for Stakeholders

1. What reactions or questions do you have about the domestic well inventory and proposed GWL RMS Network?
2. Reactions or thoughts on the 2 options for setting the MT?
    1. Recalculate using same approach as 2022 GSP, using updated domestic well inventory and updated polygons based on new RMS well locations
    2. Set to historical minimum measurement, minus an agreed upon buffer
3. Reactions or thoughts on development of Domestic Well Mitigation program as part of PE work?

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Interconnected Surface Water–RMS Network and SMC

*2022 GSP uses same GWL RMS Network and GWLs as a proxy. Groundwater Level MTs are set to reduce risks to domestic wells, not stream depletions. The Plan identifies ISW as a data gap that needs to be addressed

26

Vina Subbasin Gaining and Losing Streams

- Goal: better understand where and when streams are connected to groundwater and how they interact
- Why: Assess and evaluate the impact of depletions on beneficial users:
  - Water rights holders
  - Groundwater Dependent Ecosystems
- Estimates of stream gains / losses were derived from the updated Butte Basin Groundwater Model (BBGM)
- Figure 1, shown to the right, reports how often streams are gaining versus losing
- Significant Data Gaps remain

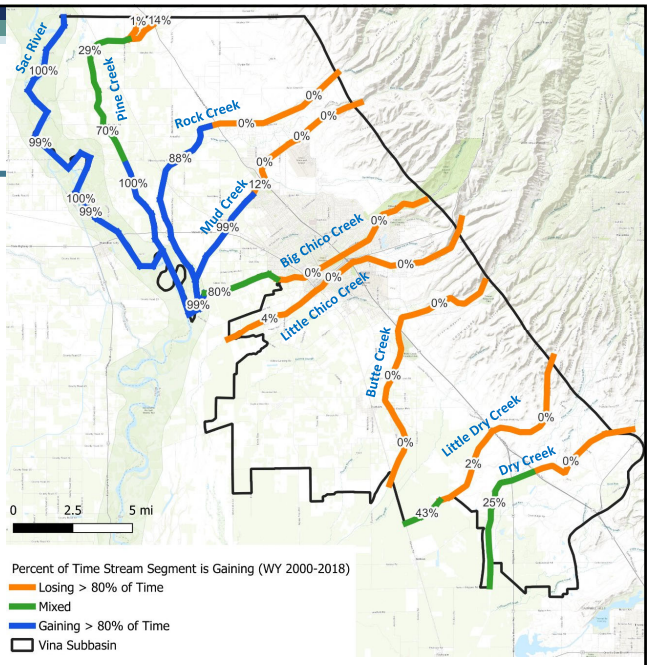


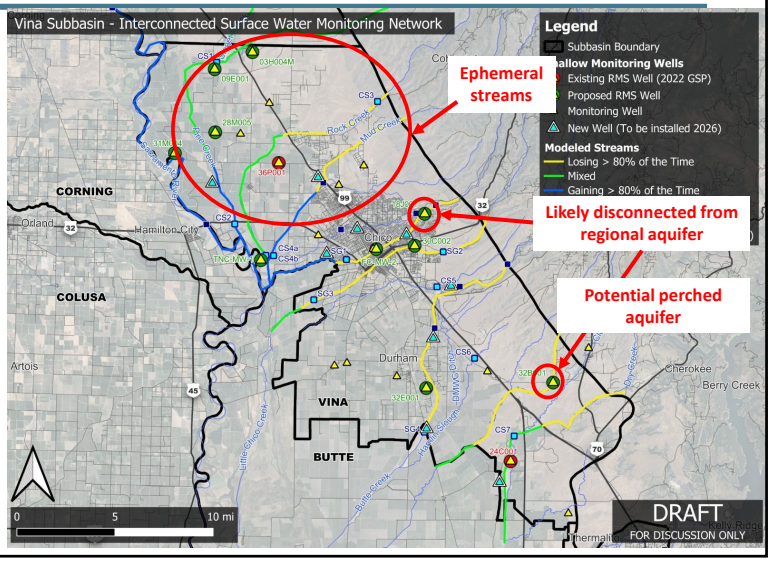
Figure 1. Vina Subbasin Gaining and Losing Stream Reaches based on BBGM, Water Years 2000 to 2018 (based on updated model received May 22, 2025).

Proposed ISW/GDE SMC Approach and Timeline

- **Goal:** To develop SMC that will prevent significant and unreasonable impacts to beneficial uses of surface water from interconnected surface water depletion caused by groundwater pumping
- **Timeline:**
  - **December 2026**: Set SMC for preliminary ISW/GDE RMS based on historical low groundwater elevation minus an acceptable buffer (e.g., 15 feet)
  - **January 2027**: Submit Periodic Evaluation & Plan Amendments with preliminary SMC
  - **January 2027 thru January 2032**: Collect additional data from expanded monitoring network and calibrate stream depletion estimates using local and regional hydrologic models
  - **January 2032**: Update SMC based on stream depletion estimates and DWR guidance as needed

Proposed ISW RMS Network

- Existing Shallow Wells:
  - 33 wells within the Subbasin
  - 22 wells with measurements for the last five years
- 12 RMS Locations Proposed
  - 2 from the original GWL RMS network
  - 10 added based on site selection process



Questions for the Stakeholders

1. What reactions or questions to you have about the proposed ISW RMS Network?
2. Any recommended adjustments to the network?
   1. Other considerations for the LWA team?
3. Reactions or thoughts to the proposed approach and timeline of setting ISW SMC?

Discussion

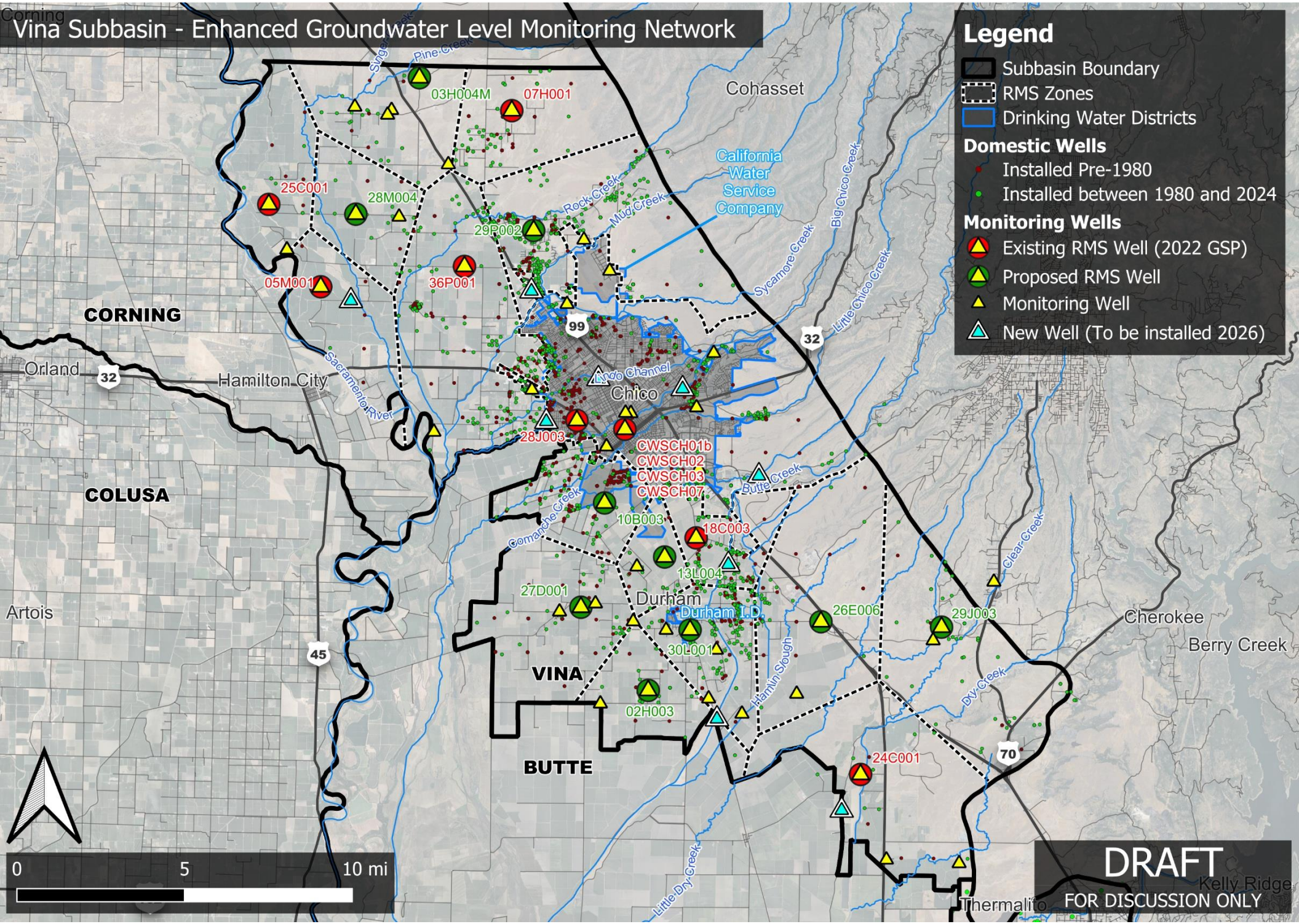
31

Wrap - Up

Looking ahead

- Comments and feedback will be shared with the SHAC and GSA Board
- Vina GSA Public Meetings being planned for Spring 2026
  - Meeting details to come
  - To sign-up for Vina GSA emails, scan the QR code or visit the GSA website.

Scan to sign-up for GSA emails!


Vina Subbasin - Enhanced Groundwater Level Monitoring Network
Legend
Subbasin Boundary
RMS Zones
Drinking Water Districts
Domestic Wells
Installed Pre-1980
Installed between 1980 and 2024
Monitoring Wells
Existing RMS Well (2022 GSP)
Proposed RMS Well
Monitoring Well
New Well (To be installed 2026)
03H004M
07H001
25C001
28M004
29P002
36P001
05M001
28J003
CWSCH01b
CWSCH02
CWSCH03
CWSCH07
10B003
18C003
13L004
27D001
30L001
02H003
26E006
29J003
24C001
Corning
Cohasset
California Water Service Company
CORNING
Orland
Hamilton City
COLUSA
Chico
Durham
Durham I.D.
Artois
VINA
BUTTE
Cherokee
Berry Creek
Kelly Ridge
Thermalito
Pine Creek
Rock Creek
Mud Creek
Sycamore Creek
Big Chico Creek
Little Chico Creek
Lindo Channel
Sacramento River
Butte Creek
Comanche Creek
Clear Creek
Dry Creek
Hamlin Slough
Little Dry Creek
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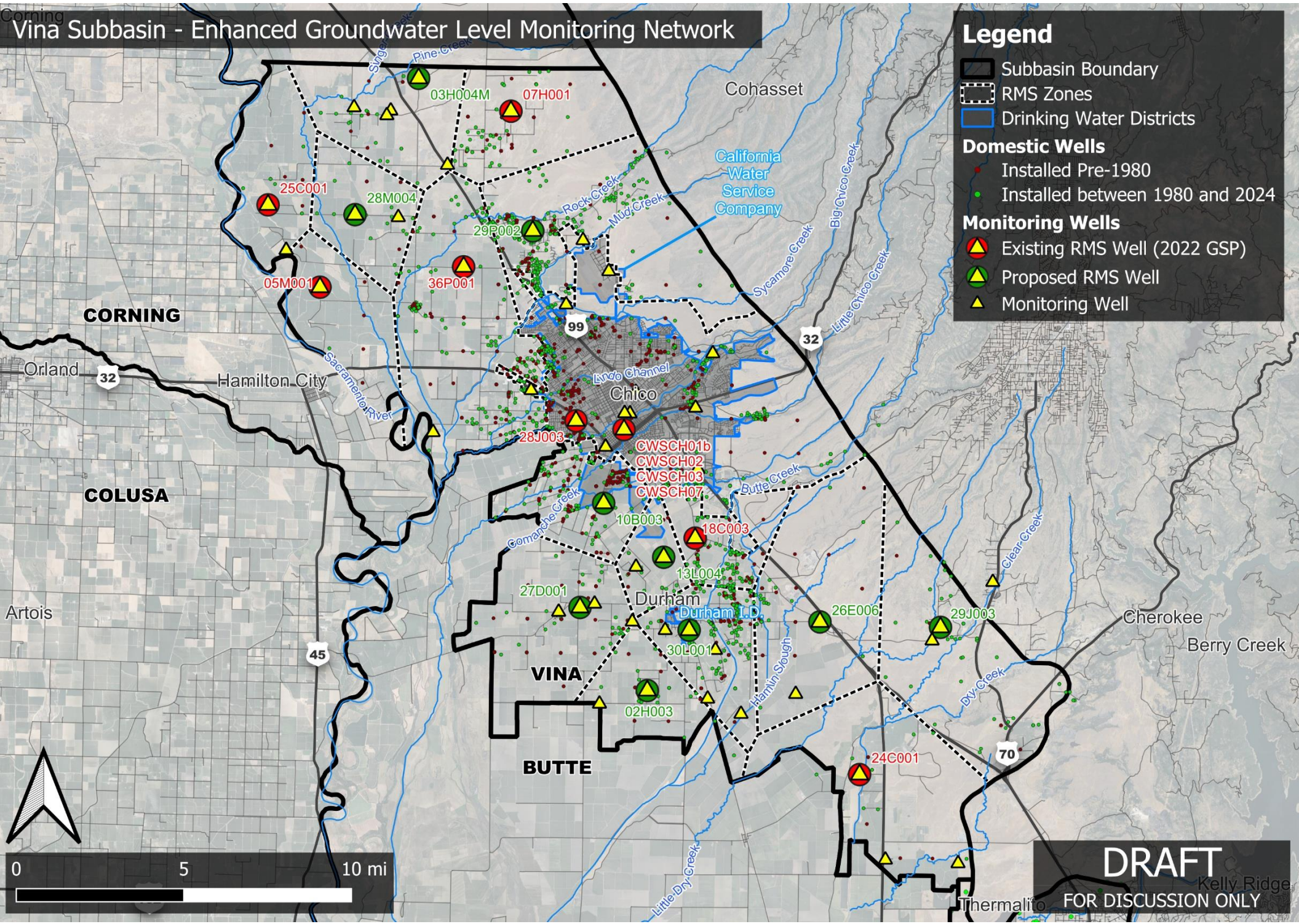
FOR DISCUSSION ONLY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03H004M
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36P001
05M001
28J003
CWSCH01b
CWSCH02
CWSCH03
CWSCH07
10B003
18C003
13L004
27D001
26E006
29J003
30L001
02H003
24C001
Cohasset
California Water Service Company
Chico
Durham
Durham I.D.
Hamlin Slough
CORNING
COLUSA
VINA
BUTTE
Orland
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Artois
Cherokee
Berry Creek
Kelly Ridge
Thermalito
Corning
Pine Creek
Rock Creek
Mud Creek
Sycamore Creek
Big Chico Creek
Little Chico Creek
Lindo Channel
Sacramento River
Butte Creek
Comanche Creek
Clear Creek
Dry Creek
Little Dry Creek
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Table 1. Updated Groundwater Level Monitoring Network well information (North Management Area)

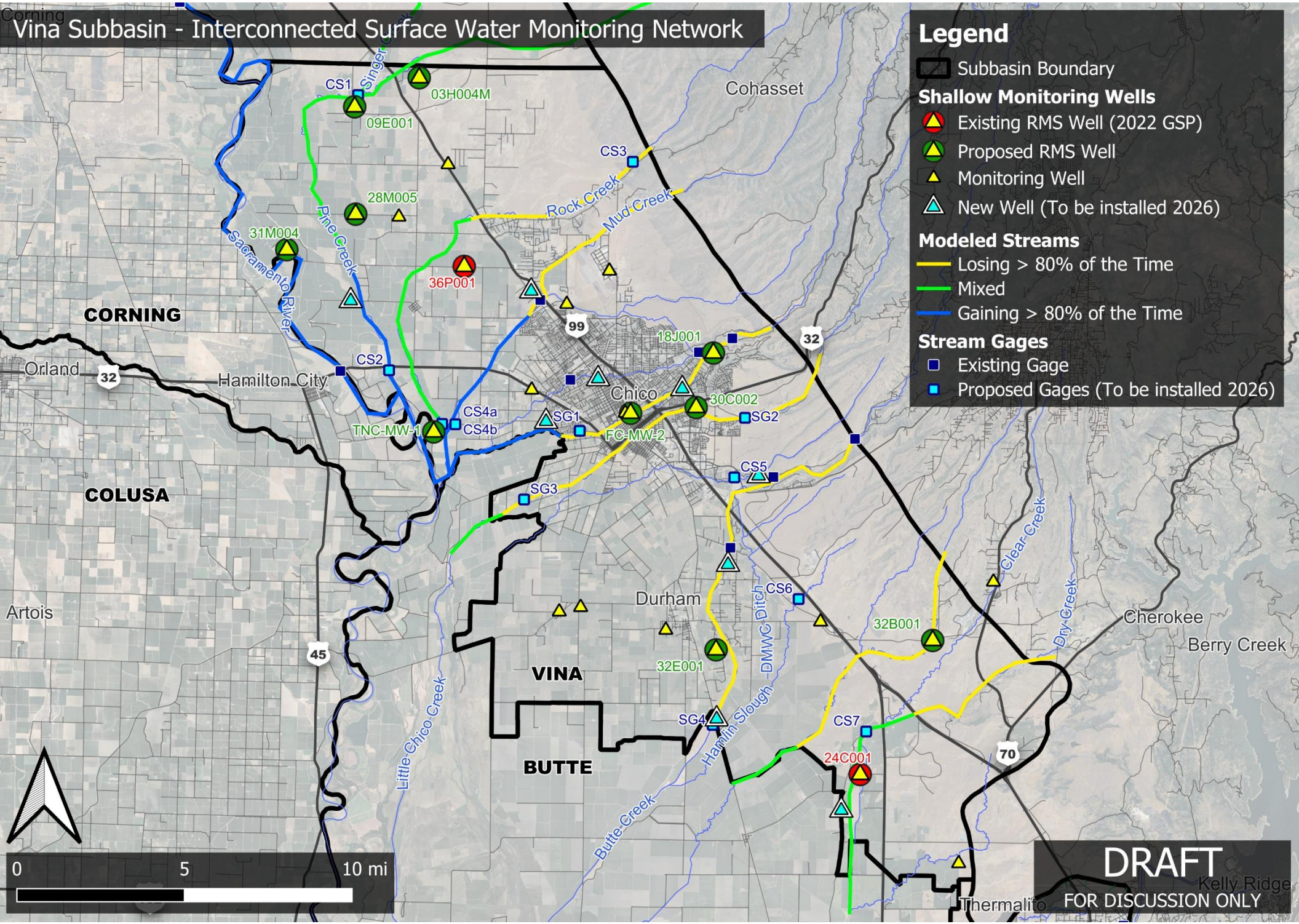
Well ID	SWN	Well Use	Aquifer Category	Drill Depth	Date of First Meas.	RMS?
03H004M	23N01W03H004M	Observation	shallow	115	3/30/2012	**Yes**
07H001	23N01E07H001M	Residential	deep	195	8/10/2018	**Yes**
25C001	23N02W25C001M	Irrigation	both	243	3/21/2000	**Yes**
28M004	23N01W28M004M	Observation	both	217	1/15/2009	**Yes**
29P002	23N01E29P002M	Irrigation	both	265	7/14/2000	**Yes**
36P001	23N01W36P001M	Residential	shallow	165	3/21/2000	**Yes**
05M001	22N01W05M001M	Irrigation	both	200	3/21/2000	**Yes**
10E001	23N01W10E001M	Irrigation	deep	668	4/18/2001	No
25G001	23N01W25G001M	Irrigation	deep	660	6/29/2007	No
16E001	23N01W16E001M	Irrigation	both	365	4/18/2001	No
31M001	23N01W31M001M	Observation	deep	1,200	7/2/2008	No
31M002	23N01W31M002M	Observation	deep	616	7/4/2008	No
31M003	23N01W31M003M	Observation	deep	245	7/4/2008	No
31M004	23N01W31M004M	Observation	shallow	106	7/4/2008	No
33A001	23N01E33A001M	Irrigation	both	506	10/14/2001	No
27L001	23N01W27L001M	Residential	shallow	102	3/21/2000	No
28M002	23N01W28M002M	Observation	deep	1,044	1/15/2009	No
28M003	23N01W28M003M	Observation	deep	696	1/15/2009	No
28M005	23N01W28M005M	Observation	shallow	72	1/15/2009	No
14R002	23N01W14R002M	Irrigation	shallow	183	3/21/2000	No
10M001	23N01W10M001M	Observation	both	220	10/11/2001	No
09E001	23N01W09E001M	Irrigation	shallow	110	3/21/2000	No
03H002	23N01W03H002M	Observation	deep	553	3/30/2012	No
03H003	23N01W03H003M	Observation	deep	351	3/30/2012	No
TNC-MW-1		Observation	shallow	70	11/10/2021	No

Table 2. Updated Groundwater Level Monitoring Network well information (Chico Management Area).

Well ID	SWN	Well Use	Aquifer Category	Drill Depth	Date of First Meas.	RMS?
CWSCH01b		Municipal Supply	both	>600	4/1/2000	**Yes**
CWSCH02		Municipal Supply	deep	>600	4/1/1988	**Yes**
CWSCH03		Municipal Supply	deep	>600	4/1/1988	**Yes**
CWSCH07		Municipal Supply	deep	<600	4/1/1991	**Yes**
28J003	22N01E28J003M	Observation	both	320	3/21/2000	**Yes**
28J001	22N01E28J001M	Observation	deep	660	3/21/2000	No
28J005	22N01E28J005M	Observation	deep	948	3/21/2000	No
30C002	22N02E30C002M	Observation	shallow	203	12/19/2001	No
20K001	22N01E20K001M	Residential	shallow	110	3/21/2000	No
18J001	22N02E18J001M	Residential	shallow	180	4/6/2001	No
09B001	22N01E09B001M	Residential	shallow	156	5/9/2001	No
CWSCH04		Municipal Supply	deep	-	-	No
CWSCH05		Municipal Supply	both	-	-	No
CWSCH06		Municipal Supply	deep	-	-	No
FC-MW-2		Observation	shallow	40	3/1/2007	No
MW-6		Observation	shallow	-	8/20/2012	No
CMW-102A		Observation	shallow	37	8/16/2006	No

Table 3. Updated Groundwater Level Monitoring Network well information (South Management Area).

Well ID	SWN	Well Use	Aquifer Category	Drill Depth	Date of First Meas.	RMS?
10B003	21N01E10B003M	Irrigation	deep	525	3/20/2000	**Yes**
18C003	21N02E18C003M	Observation	deep	240	7/8/2010	**Yes**
13L004	21N01E13L004M	Observation	deep	353	12/2/2011	**Yes**
27D001	21N01E27D001M	Residential	shallow	112	3/21/2000	**Yes**
26E006	21N02E26E006M	Observation	shallow	179	9/13/2007	**Yes**
30L001	21N02E30L001M	Residential	both	317	3/21/2000	**Yes**
29J003	21N03E29J003M	Residential	deep	513	10/19/2007	**Yes**
02H003	20N01E02H003M	Observation	both	201	10/11/2001	**Yes**
24C001	20N02E24C001M	Observation	shallow	155	1/4/2000	**Yes**
09L001	20N02E09L001M	Irrigation	deep	710	10/21/2004	No
21C001	21N01E21C001M	Irrigation	deep	565	3/30/2005	No
20P001	21N02E20P001M	Irrigation	deep	238	3/21/2000	No
13F001	21N01E13F001M	Irrigation	both	515	3/20/2000	No
12K001	21N01E12K001M	Irrigation	deep	465	10/17/2002	No
12D001	21N01E12D001M	Irrigation	both	600	3/20/2000	No
33L001	20N03E33L001M	Other	shallow	101	1/20/2000	No
31M001	20N03E31M001M	Observation	deep	201	2/12/2002	No
24C002	20N02E24C002M	Observation	deep	390	1/4/2000	No
24C003	20N02E24C003M	Observation	deep	520	1/4/2000	No
08H003	20N02E08H003M	Residential	deep	187	3/12/2008	No
10C002	20N01E10C002M	Irrigation	both	210	3/20/2000	No
06Q001	20N02E06Q001M	Irrigation	both	383	3/20/2000	No
09G001	20N02E09G001M	Observation	deep	202	2/12/2002	No
32E001	21N02E32E001M	Irrigation	shallow	184	3/26/2009	No
32B001	21N03E32B001M	Irrigation	shallow	57	2/8/2000	No
25K001	21N01E25K001M	Residential	shallow	93	3/21/2000	No
26K001	21N01E26K001M	Irrigation	deep	462	3/21/2000	No
26E003	21N02E26E003M	Observation	deep	660	9/13/2007	No
26E004	21N02E26E004M	Observation	deep	518	10/25/2007	No
26E005	21N02E26E005M	Observation	deep	315	1/1/2000	No
28F001	21N01E28F001M	Irrigation	shallow	173	2/11/2000	No
27B001	21N01E27B001M	Irrigation	both	517	3/22/2000	No
22C001	21N03E22C001M	Residential	shallow	143	3/19/2001	No
14Q002	21N01E14Q002M	Irrigation	both	290	3/20/2000	No
13L002	21N01E13L002M	Observation	deep	771	12/2/2011	No
13L003	21N01E13L003M	Observation	deep	574	12/2/2011	No
18C001	21N02E18C001M	Observation	deep	914	7/8/2010	No
18C002	21N02E18C002M	Observation	deep	701	7/8/2010	No


Vina Subbasin - Interconnected Surface Water Monitoring Network
Legend
Subbasin Boundary
Shallow Monitoring Wells
Existing RMS Well (2022 GSP)
Proposed RMS Well
Monitoring Well
New Well (To be installed 2026)
Modeled Streams
Losing > 80% of the Time
Mixed
Gaining > 80% of the Time
Stream Gages
Existing Gage
Proposed Gages (To be installed 2026)
CS1
03H004M
09E001
CS3
28M005
31M004
36P001
CS2
CS4a
CS4b
TNC-MW-1
SG1
FC-MW-2
18J001
30C002
SG2
CS5
SG3
CS6
32B001
32E001
SG4
CS7
24C001
Singer Creek
Pine Creek
Rock Creek
Mud Creek
Sacramento River
Little Chico Creek
Butte Creek
Hamilin Slough
DMWC Ditch
Clear Creek
Dry Creek
CORNING
COLUSA
VINA
BUTTE
Corning
Cohasset
Orland
Hamilton City
Chico
Durham
Artois
Cherokee
Berry Creek
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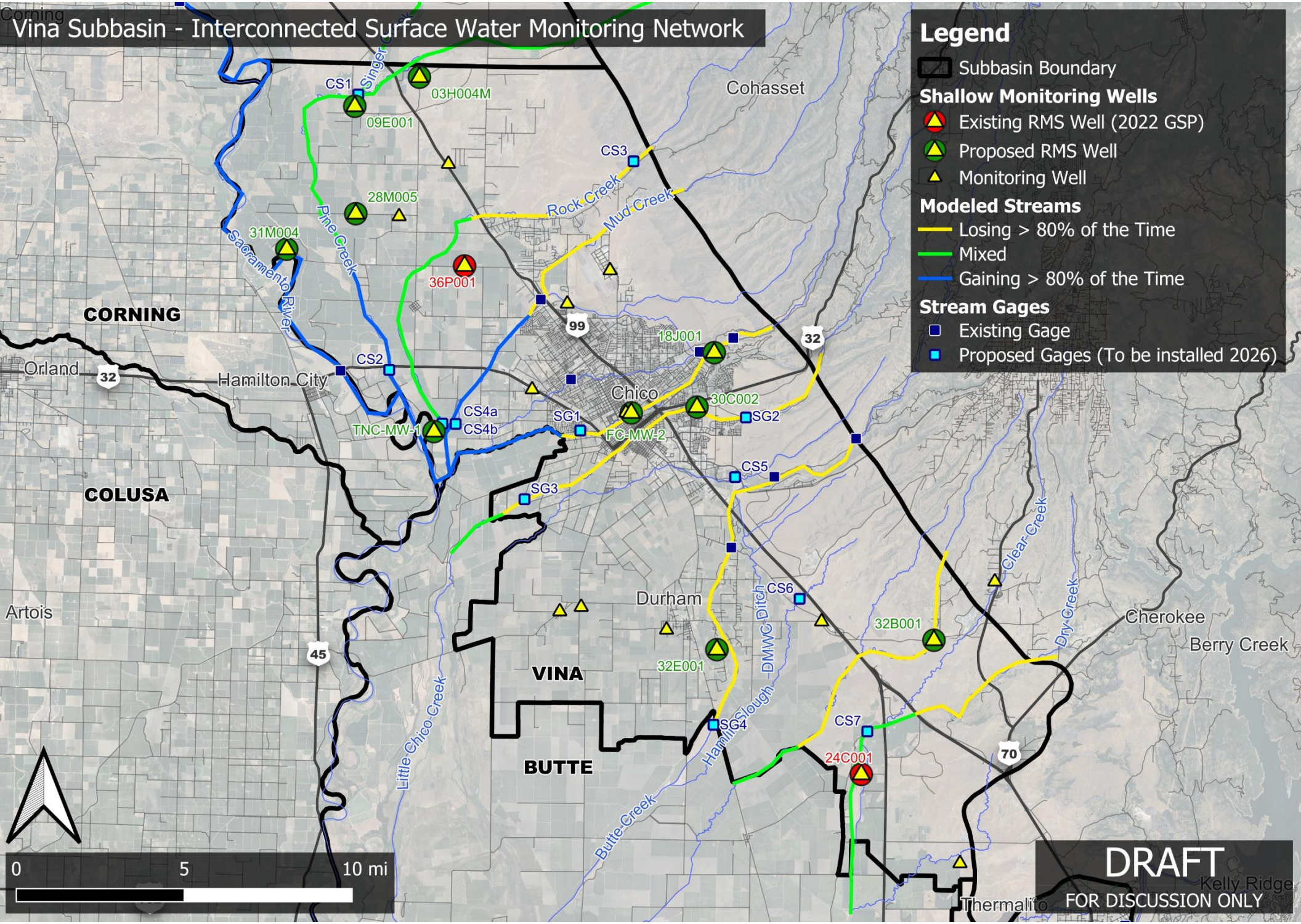
FOR DISCUSSION ONLY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Existing Gage
Proposed Gages (To be installed 2026)
CS1
03H004M
09E001
CS3
28M005
31M004
36P001
Rock Creek
Mud Creek
Pine Creek
Sacramento River
CORNING
CS2
18J001
30C002
SG1
SG2
FC-MW-2
TNC-MW-1
CS4a
CS4b
CS5
SG3
COLUSA
Orland
Hamilton City
Chico
Cohasset
Durham
CS6
32B001
32E001
VINA
SG4
CS7
24C001
BUTTE
Little Chico Creek
Butte Creek
Hamlin Slough
DMWC Ditch
Clear Creek
Dry Creek
Cherokee
Berry Creek
Artois
Thermalito
Kelly Ridge
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Table 2. New ISW Monitoring Network well information. All ISW monitoring wells are shallow.

Well ID	SWN	Latitude	Longitude	Well Use	Drill Depth	Nearest SW Feature	Distance to SW Feature (mi)	Possible SW Connection[1]	DTW Range (feet)	Date of First Meas.	RMS?
24C001	20N02E24C001M	39.5812	-121.7026	Observation	155	Dry Creek	0.20	Yes	28 - 74	1/4/2000	**Yes**
32E001	21N02E32E001M	39.6338	-121.7845	Irrigation	184	Butte Creek	0.34	Yes	30 - 63	3/26/2009	**Yes**
32B001	21N03E32B001M	39.6396	-121.6634	Irrigation	57	Little Dry Creek	0.01	Yes	11 - 22	2/8/2000	**Yes**
18J001	22N02E18J001M	39.7619	-121.7891	Residential	180	Big Chico Creek	0.13	No	99 - 157	4/6/2001	**Yes**
30C002	22N02E30C002M	39.7383	-121.7982	Observation	203	Little Chico Creek	0.16	No	104 - 136	12/19/2001	**Yes**
03H004M	23N01W03H004M	39.8782	-121.9571	Observation	115	Pine Creek	0.41	Yes	35 - 45	3/30/2012	**Yes**
09E001	23N01W09E001M	39.8651	-121.9930	Irrigation	110	Pine Creek	0.20	Yes	18 - 60	3/21/2000	**Yes**
28M005	23N01W28M005M	39.8188	-121.9912	Observation	72	Pine Creek	0.85	Yes	6 - 39	1/15/2009	**Yes**
31M004	23N01W31M004M	39.8028	-122.0294	Observation	106	Sacramento River	0.20	Yes	10 - 70	7/4/2008	**Yes**
36P001	23N01W36P001M	39.7972	-121.9297	Residential	165	Rock Creek	0.70	Yes	10 - 59	3/21/2000	**Yes**
TNC-MW-1[2]		39.7255	-121.9449	Observation	70	Rock Creek	0.32	Yes	5 - 25	11/10/2021	**Yes**
FC-MW-2[2,3]		39.7353	-121.8348	Observation	40	Big Chico Creek	0.10	Yes	12 - 18	3/1/2007	**Yes**
33L001	20N03E33L001M	39.5436	-121.6467	Other	101	Dry Creek	>1	-	22 - 70	1/20/2000	No
25K001	21N01E25K001M	39.6420	-121.8128	Residential	93	Butte Creek	>1	-	27 - 76	3/21/2000	No
27D001	21N01E27D001M	39.6511	-121.8607	Residential	112	Comanche Creek	>1	-	24 - 71	3/21/2000	No
28F001	21N01E28F001M	39.6490	-121.8726	Irrigation	173	Comanche Creek	>1	-	19 - 63	2/11/2000	No
26E006	21N02E26E006M	39.6468	-121.7263	Observation	179	Hamlin Slough	0.88	No	63 - 82	9/13/2007	No
22C001	21N03E22C001M	39.6653	-121.6300	Residential	143	Little Dry Creek	>1	-	0 - 28	3/19/2001	No
09B001	22N01E09B001M	39.7818	-121.8718	Residential	156	Mud Creek	0.67	Yes	24 - 60	5/9/2001	No
20K001	22N01E20K001M	39.7445	-121.8905	Residential	110	Lindo Channel	0.34	No	27 - 65	3/21/2000	No
14R002	23N01W14R002M	39.8411	-121.9399	Irrigation	183	Rock Creek	>1	-	26 - 56	3/21/2000	No
27L001	23N01W27L001M	39.8180	-121.9669	Residential	102	Rock Creek	>1	-	7 - 41	3/21/2000	No
MW-6		39.6736	-121.7335	Observation		Hamlin Slough	0.52	No	100 - 109	8/20/2012	No
GW-4		39.7965	-121.8483	Observation		Mud Creek	0.88	No	81 - 106	10/2/1990	No
MW-21		39.7266	-121.8229	Observation	25	Little Chico Creek	0.18	Yes	9 - 22	6/28/2004	No
DMW-3		39.7598	-121.8752	Observation	55	Lindo Channel	0.81	Yes	21 - 55	11/17/1993	No
CMW-102A		39.7354	-121.8379	Observation	36.5	Big Chico Creek	0.16	Yes	11 - 18	8/16/2006	No
SWMW-06A		39.7223	-121.8415	Observation	35	Little Chico Creek	0.14	Yes	10 - 24	8/29/2005	No
CHICOSTATE-A		39.7305	-121.8472	Observation	18.5	-	-	-	-	-	No
CHICOSTATE-B		39.7302	-121.8467	Observation	18	-	-	-	-	-	No
CHICOSTATE-C		39.7301	-121.8466	Observation	8.5	-	-	-	-	-	No
CHICOSTATE-D		39.7295	-121.8464	Observation	19	-	-	-	-	-	No
CHICOSTATE-E		39.7284	-121.8464	Observation	15	-	-	-	-	-	No

1. Possible SW connection proposed if DTW has historically been less than 35' deep
2. TNC-MW-1 and FC-MW-2 do not currently have a SWN. The LWA team will work with DWR / well owners to get these wells added to the Water Data Library (WDL) if the GSA agrees that they should be RMS wells.
3. FC-MW-2 is measured spring/fall.

Table 3. Multi-completion Well (MCW) classification status.

MCW Site	SWN	Aquifer Category	Drill Depth	Included in GWL RMS?	Included in ISW RMS?
398782N1219570W	23N01W03H002M	deep	553	No	No
	23N01W03H003M	deep	351	No	No
	23N01W03H004M	shallow	115	**Yes**	**Yes**
398188N1219912W	23N01W28M002M	deep	1,044	No	No
	23N01W28M003M	deep	696	No	No
	23N01W28M004M	both	217	**Yes**	No
	23N01W28M005M	shallow	72	No	**Yes**
398028N1220294W	23N01W31M001M	deep	1,200	No	No
	23N01W31M002M	deep	616	No	No
	23N01W31M003M	deep	245	No	No
	23N01W31M004M	shallow	106	No	**Yes**
397317N1218649W	22N01E28J001M	deep	660	No	No
	22N01E28J003M	both	320	**Yes**	No
	22N01E28J005M	deep	948	No	No
396820N1217970W	21N02E18C001M	deep	914	No	No
	21N02E18C002M	deep	701	No	No
	21N02E18C003M	deep	240	**Yes**	No
396735N1218144W	21N01E13L002M	deep	771	No	No
	21N01E13L003M	deep	574	No	No
	21N01E13L004M	deep	353	**Yes**	No
396468N1217263W	21N02E26E003M	deep	660	No	No
	21N02E26E004M	deep	518	No	No
	21N02E26E005M	deep	315	No	No
	21N02E26E006M	shallow	179	**Yes**	No
395812N1217026W	20N02E24C001M	shallow	155	**Yes**	**Yes**
	20N02E24C002M	deep	390	No	No
	20N02E24C003M	deep	520	No	No

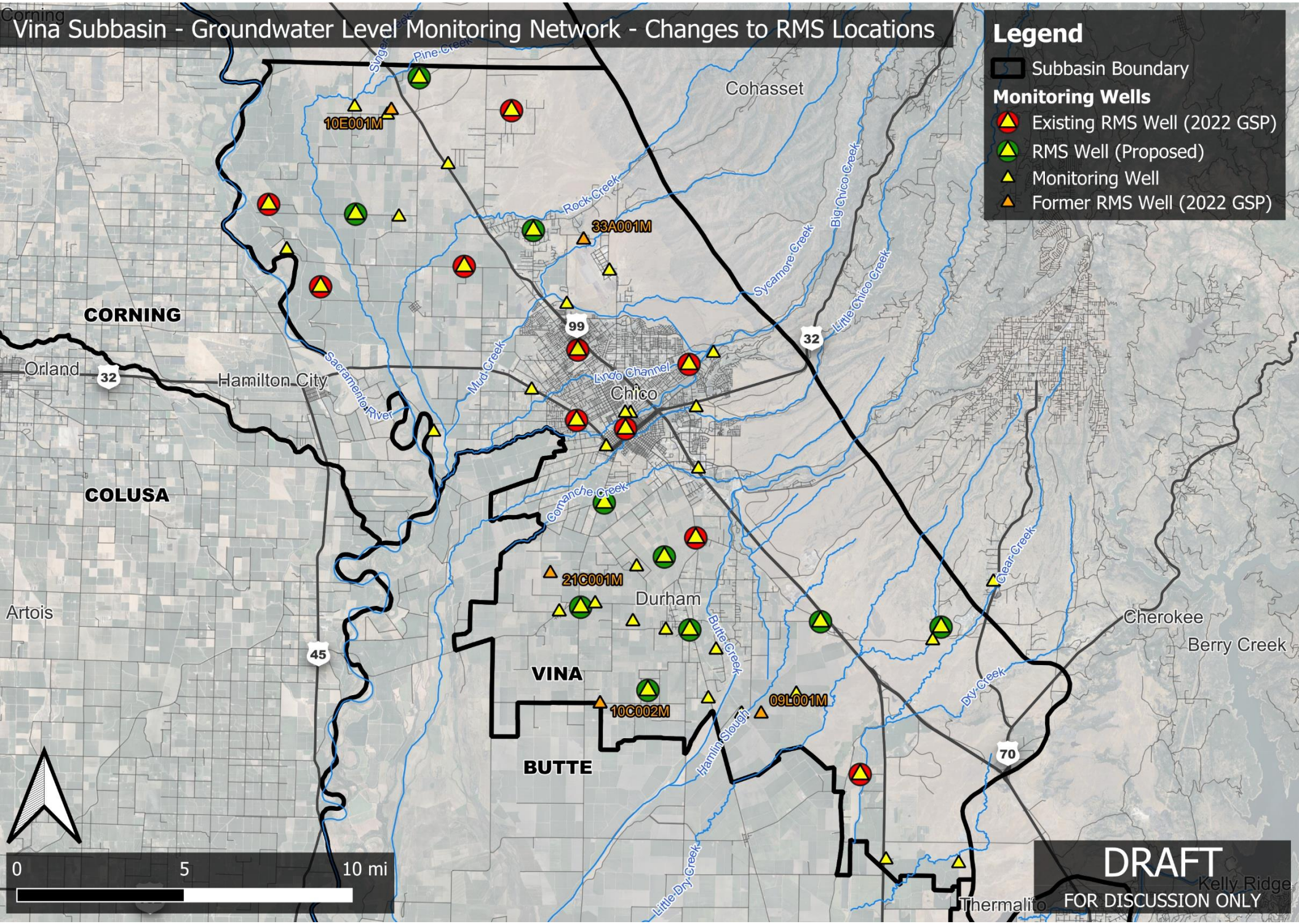

Vina Subbasin - Groundwater Level Monitoring Network - Changes to RMS Locations
Legend
Subbasin Boundary
Monitoring Wells
Existing RMS Well (2022 GSP)
RMS Well (Proposed)
Monitoring Well
Former RMS Well (2022 GSP)
10E001M
33A001M
21C001M
10C002M
09L001M
CORNING
COLUSA
VINA
BUTTE
Corning
Cohasset
Orland
Hamilton City
Chico
Durham
Artois
Cherokee
Berry Creek
Kelly Ridge
Thermalito
Pine Creek
Rock Creek
Mud Creek
Sycamore Creek
Big Chico Creek
Little Chico Creek
Lindo Channel
Comanche Creek
Butte Creek
Hamlin Slough
Dry Creek
Clear Creek
Little Dry Creek
Sacramento River
99
32
45
70
0
5
10 mi
DRAFT
FOR DISCUSSION ONLY

Table 4. Former Groundwater Level Monitoring Network RMS wells from 2022 GSP

Management Area	Well ID	SWN	Well Use	Aquifer Category	Drill Depth	Reason for Removal
North	33A001	23N01E33A001M	Irrigation	both	506	Redundancy
North	10E001	23N01W10E001M	Irrigation	deep	668	Redundancy
North	28M002	23N01W28M002M	Observation	deep	1044	MCW; replaced by different completion
South	21C001	21N01E21C001M	Irrigation	deep	565	Poor data quality, oil
South	10C002	20N01E10C002M	Irrigation	both	210	Well located outside subbasin boundary
South	09L001	20N02E09L001M	Irrigation	deep	710	Poor data quality, oil
South	13L002	21N01E13L002M	Observation	deep	771	MCW; replaced by different completion
South	26E005	21N02E26E005M	Observation	deep	315	MCW; replaced by different completion

October 14, 2025

Agenda

Vina GSA Meeting with Local Expert Group

Tuesday October 14, 2025
2:00 PM – 4:00 PM
Chico State University, Science Building, SCI 142

The purpose of this meeting is:

(1) For the Vina Groundwater Sustainability Agency (GSA) staff and technical consultant to share informational updates on groundwater sustainability planning and management activities, with a particular focus on the approach to interconnected surface water and groundwater level sustainable management criteria for the upcoming Groundwater Sustainability Plan (GSP) evaluation and amendments process, and
(2) To hold discussion to hear the LEG's input, thoughts, concerns, and priorities on these topics.

Following the meeting, feedback will be summarized and shared with the Stakeholder Advisory Committee and GSA Board, in addition to insights heard at the other three stakeholder meetings the GSA will hold this fall with domestic well users, environmental users, and agricultural users of groundwater.

Time	Agenda Item
2:00 PM	**Welcome, Purpose, and Introductions** – Christina Buck, Assistant Director of Butte County Water & Resource Conservation
2:05 PM	**Background** – Becky Fairbanks, Vina GSA Projects Manager *Introduction and overview of the status of GSP implementation projects and activities.*
2:10 PM	**Technical Presentation** – Laura Foglia and Ryan Fulton, Larry Walker Associates *Introduction to the GSP Plan Evaluation and potential amendments, summary of proposed approach and revisions to Groundwater Level monitoring network and sustainable management criteria (SMC)* **Discussion** – LEG members *Hear input, thoughts, and suggestions*
2:45 PM	**Technical Presentation** – Laura Foglia and Ryan Fulton, Larry Walker Associates *Summary of proposed approach and revisions to Interconnected Surface Water monitoring network and SMC* **Discussion** – LEG members *Hear input, thoughts, and suggestions*
3:30 PM	**Modeling Scenarios Presentation and Discussion** – Laura Foglia and Ryan Fulton, Larry Walker Associates *Presentation on various modeling scenarios, including time for discussion and Q&A with the LEG.*
3:50 PM	**Closing** – Christina Buck, Assistant Director of Butte County Water & Resource Conservation

With questions, please contact Christina Buck (cbuck@buttecounty.net) or Marisa Perez-Reyes (marisa.perez-reyes@stantec.com).

October 14, 2025

Meeting Summary

Vina GSA Meeting with Local Expert Group

Tuesday October 14, 2025
2:00 PM – 4:00 PM
Chico State University, Science Building, SCI 142

Attendees:

Local Expert Group (LEG):
Anita Chaudhry
Janine Stone
Steffen Mehl
Jim Graydon
Todd Greene

Vina GSA:
Dillon McGregor, Vina GSA Program Manager
Becky Fairbanks, Vina GSA Project Manager

Butte County:
Kamie Loeser, Director of Water and Resource Conversation
Christina Buck, Assistant Director of Water and Resource Conservation

Larry Walker Associates:
Laura Foglia, Technical Consultant
Ryan Fulton, Technical Consultant

Stantec:
Marisa Perez Reyes, Facilitator
Nicole Hinostroza, Assistant Facilitator

Welcome, Purpose, and Introductions

- Christina Buck, Assistant Director of Water and Resource Conservation, provided a brief overview of the meeting's purpose:
  - To share informational updates on groundwater sustainability planning and management activities, with a particular focus on the approach to interconnected surface waters (ISW) and groundwater level (GWL) sustainable management criteria (SMC) for the upcoming Groundwater Sustainability Plan (GSP) evaluation and amendments process, and
  - To hold discussion to hear the LEG's input, thoughts, concerns, and priorities on these topics
- She reminded them when they met back in December 2024 they discussed the monitoring networks for the purpose of identifying locations for drilling new monitoring wells. Installation of those wells is expected in the coming months. Additional analysis of the monitoring wells has been completed since then and today the group is asked to dive into a discussion of existing wells that have historical data and consider a proposed RMS network for GWL and ISW and whether additional wells should be included.
- She highlighted that feedback received during the meeting will be summarized and shared with the Stakeholder Advisory Committee (SHAC) and GSA Board, in addition to insights heard at the other three stakeholder meetings the GSA will hold with domestic well users, environmental users, and agricultural users of groundwater.
- Everyone introduced themselves and their affiliation, and if a LEG member, their area of expertise.

Background

- Becky Fairbanks, GSA Project Manager, provided a brief timeline of the SGMA projects and the Vina GSA, highlighting where the agency started, its current status, and future direction.
- She highlighted that the Vina GSA is hosting a series of stakeholder meetings to gather early input on monitoring networks and their approach to SMCs for GWLs and ISW. Feedback will be

shared with the SHAC and GSA board in December 2025. An additional public workshop is planned for April 2026 to collect additional input on the Draft Periodic Evaluation and GSP Amendments. Public release of the Periodic Evaluation and GSP Amendment is targeted for Summer 2026, with submission to DWR scheduled for January 2027.

Technical Presentation & Discussion

Groundwater Level Monitoring Network and SMC

- Laura Foglia, Larry Walker Associates (LWA), introduced the GSP Periodic Evaluation and potential amendments, and presented the proposed approach and revisions to Groundwater Level monitoring network and SMC.
- LEG members requested that the GSA provide a map of Representative Monitoring Site (RMS) wells that are no longer proposed for use.
- Jim Graydon expressed concern about ensuring the RMS wells selected for GWL monitoring are adequately protective for domestic wells, which are often shallower and more vulnerable to groundwater declines. Staff/consultants (the team) acknowledged this input and noted it could influence the choice of screening intervals in multi-completion wells (MCW) that are selected for the RMS (i.e., use a shallower or more intermediate depth for the RMS). Jim suggested the MCW with a screening interval depth of 215 feet could reflect conditions for domestic wells.
- When reviewing the well inventory, Todd Greene noted that two multi-completion wells are not being used for RMS. He recommended using the MCW 23N01W31M002M well (600 feet deep) as an RMS.
- There was discussion about the current methodology used to set minimum thresholds (MTs) for GWL at each polygon that is based on the inflection point seen in distribution of depth to bottom of wells. Laura shared that another option is to set the MT by taking a historical minimum and adding a buffer.
- There was a suggestion from Todd to consider using the ISW RMS to inform the GWL SMC. LWA responded that a combination of the two could potentially be used, depending on location, though generally speaking GWLs represent a regional condition whereas ISW data is more nuanced.
- Anita Chaudhry asked for details about the GSA's current level of commitment for mitigating domestic wells that go dry. Christina shared that the Vina GSA is not currently obligated to mitigate dry wells, but many other GSAs are tied to those commitments and have to demonstrate a funding mechanism. There was agreement around the concept that "you can make any choice as long as you can accept the consequences."
- Regarding the inflection point methodology, Steffen Mehl observed that the depth to well bottom flattens out and a huge number of domestic wells are situated just after that inflection point. Laura agreed with his suggestion to consider adding a buffer to the inflection point methodology, to protect against risking that large number of wells if they stick with that method.

Interconnected Surface Water Monitoring Network and SMC

- Laura presented the proposed approach for developing an Interconnected Surface Water monitoring network (noting that the original GSP did not include an ISW specific RMS network) and potential changes to the SMC.
- A participant noted that Big Chico Creek receives significant attention, but the one well in the area is problematic, and the downtown well is too new to be considered reliable, so how will this area be monitored?
- In response to a question from Jim about using GWL as a proxy for flux, Laura noted that without streamflows, they can't calculate flux. Stream gages are planned to be installed in the next year, though.
- Todd elevated a concern he has heard in other regions related to protecting Groundwater Dependent Ecosystems (GDE) that aren't strictly riparian. He noted that ISW RMS wells would

not be able to help track conditions in areas that are more distant from streams and creeks. Laura shared that Environmental Science Associates is conducting an analysis in the Wyandotte Creek Subbasin, based on work by Melissa Rhodes for The Nature Conservancy, involving depth to groundwater; shallow groundwater ecosystems and vegetation types; and root depths to determine if plants can access groundwater at observed levels. One missing component, though, is the approach doesn't include the urban canopy or the City of Chico area.

- There was a question about why transects couldn't be used like other GSPs. Laura responded that streams in this region are more dynamic and require assessments of where streams are losing and gaining which then inform locations of stream gauges and new wells.

Modeling Scenarios

- Laura presented on the Butte Basin Groundwater Model (BBGM) and how it can be used to understand the system under different scenarios. Dillon noted that it does not include what could be happening as a result of actions taken by neighboring subbasins outside Butte County.
- The majority agreed that the current presentation of the modeling scenario may not include the necessary context for members of the public to understand its implications. Since the graphic shows the minimum threshold much lower than projected groundwater levels, it could lead viewers to develop a false sense of security and not understand why revising minimum thresholds is necessary. Members of the LEG suggested that if the GSA were to present the modeling scenarios to other groups, they should clearly emphasize what the model is intended to show and how it will be used.
- There was discussion about the model showing equilibrium primarily impacted by groundwater that used to flow into streams but is now being intercepted by pumping. Discussion raised the point that subbasins such as those in the San Joaquin Valley that already have disconnected streams, do not see the same trend of flattening out. Christina highlighted that in the Vina Subbasin, water balance is not only about groundwater levels, but stream conditions also need to be considered. It was suggested that future discussions include this context and focus on other indicators that are relevant such as stream connectivity.
- Christina stated that one key intent of the model is to inform the sustainable yield. A challenge is that groundwater levels do not fluctuate significantly in the subbasin and that makes modeling accurately especially challenging. Also, other indicators such as effects on streamflow also need to be considered and better understood.
- Steffen expressed the need to "kick the tires" a bit more on the model.
- Todd noted that since the model assumes streams will not go dry, it raises the question of what the threshold is for when streams become disconnected. Kamie Loeser suggested including a cross-section diagram to visually show when disconnection occurs for ISWs.
- Laura noted the model is currently overestimating certain conditions and suggested that a budgeted diagram approach might be more effective in communicating with the public.

Closing

- Christina thanked attendees for their participation and emphasized the value of their input.

With questions, please contact Christina Buck (cbuck@buttecounty.net) or Marisa Perez-Reyes (marisa.perez-reyes@stantec.com).

Potential Considerations

- Ensure the RMS wells selected for GWL monitoring are adequately protective for domestic wells,

- Determine if MCW 23N01W31M002M well (600 feet deep) should be used as an RMS
- Consider the option to set the MT by taking a historical minimum and adding a buffer
- Determine the GSA's current level of commitment for mitigating domestic wells that go dry
- Consider adding a buffer to the inflection point methodology to determine the number of wells that could potentially go dry or be impacted within the buffer
- ISW/GDE wells aren't able to track impacts to the urban canopy
- Future discussions about water balance should also consider stream conditions and this context should be included as well as focus on other indicators that are relevant such as stream connectivity
- Graphics of streams should include a cross-section diagram to visually show when disconnection occurs for ISWs
- The BBGM is currently overestimating certain conditions and suggested that a budgeted diagram approach might be more effective.

October 27, 2025

Agenda

Vina GSA Meeting with Environmental Representatives

Monday October 27, 2025
2:00 PM – 4:00 PM
Chico Area Recreation & Park District (CARD) Community Center – Jeff Carter Meeting Room
545 Vallombrosa Ave, Chico, CA 95926

The purpose of this meeting is:

(1) For the Vina Groundwater Sustainability Agency (GSA) and technical consultant to share informational updates on groundwater sustainability planning and management activities, with a particular focus on the GSA's approach to the groundwater level and interconnected surface water sustainable management criteria (SMC) for the upcoming Groundwater Sustainability Plan (GSP) evaluation and amendments process, and
(2) To hold discussion to hear environmental representatives' input, thoughts, concerns, and priorities on these topics.

Following the meeting, feedback will be summarized and shared with the Stakeholder Advisory Committee and GSA Board, in addition to insights heard at the other three stakeholder meetings the GSA will hold this fall with domestic well users, the Local Expert Group, and agricultural users of groundwater.

Time	Agenda Item
2:00 PM	**Welcome, Purpose, and Introductions** – Marisa Perez-Reyes, Facilitator, Stantec
2:05 PM	**Background** – Becky Fairbanks, Vina GSA Projects Manager *Introduction and overview of the status of GSP implementation projects and activities.*
2:15 PM	**Introduction: Approach to GSP Amendments** – Laura Foglia and Ryan Fulton, Larry Walker Associates *Introduction to the GSP Plan Evaluation, corrective actions, and potential amendments, including a summary of environmental stakeholders' comments on the original GSP and discussion of how addressing the corrective actions aligns with those comments.*
2:45 PM	**Technical Presentation & Discussion: Groundwater Level Monitoring Network & Sustainable Management Criteria** – Laura Foglia and Ryan Fulton, LWA *Summary of proposed approach and revisions to Groundwater Level monitoring network and sustainable management criteria.* **Discussion** – environmental representatives *Hear input, thoughts, and suggestions*
3:05 PM	**Technical Presentation & Discussion: Interconnected Surface Water Monitoring Network & Sustainable Management Criteria** – Laura Foglia and Ryan Fulton, LWA *Summary of proposed approach and revisions to Interconnected Surface Water monitoring network and sustainable management criteria.* **Discussion** – environmental representatives *Hear input, thoughts, and suggestions*

October 27, 2025

3:55 PM	**Closing** – Marisa Perez-Reyes, Facilitator, Stantec

With questions, please contact Becky Fairbanks (rfairbanks@buttecounty.net) or Marisa Perez-Reyes (marisa.perez-reyes@stantec.com).

October 27, 2025

Meeting Summary

Vina GSA Meeting with Environmental Representatives

Monday, October 27, 2025
2:00 PM – 4:00 PM (meeting concluded about 4:30 PM)
Chico Area Recreation & Park District (CARD) Community Center – Jeff Carter Meeting Room; 545 Vallombrosa Ave, Chico, CA 95926

Attendees listed on final page.

Attachments: Presentation Slides, Supplemental Informational Materials provided by Jim Brobeck (see last page for more information)

1. Welcome, Purpose, and Introductions

Marisa Perez Reyes, Stantec Facilitator, welcomed participants and provided a brief overview of the meeting's purpose:

- To share informational updates on groundwater sustainability planning and management activities, with a particular focus on the approach to interconnected surface waters (ISW) and groundwater level (GWL) sustainable management criteria (SMC) for the upcoming Groundwater Sustainability Plan (GSP) evaluation and amendments process, and
- To hold discussion to hear the environmental representatives' input, thoughts, concerns, and priorities on these topics.

A meeting summary with notes and a copy of the presentation slides will be shared with participants after the meeting to ensure feedback is documented and to allow for corrections. Feedback received during the meeting will be summarized and shared with the Stakeholder Advisory Committee (SHAC) and GSA Board, in addition to insights heard at the other three stakeholder meetings the GSA will hold with the LEG (Local Expert Group), domestic well users, and agricultural users of groundwater.

Participant Questions/Concerns:

- Opportunity for public comment on the GSP amendments:
  - An official public comment period for the GSP amendment will follow much later in the process. This meeting represents the first touch-point with the public to garner input to inform the process.
- Individual stakeholder meetings vs settings for combined feedback:
  - Group participants expressed concern with the overall approach of soliciting input from individual stakeholder groups, saying that they wish to be able to hear the feedback being provided by other groups. The meeting organizers clarified the intent for this meeting is to dedicate full attention to the concerns of this stakeholder group, not to create silos. Future engagement will include all stakeholders together.
- Stantec's role at the meeting:
  - Stantec is a consulting firm contracted through the California Department of Water Resources' (DWR) Facilitation Support Services program and their services are at no cost to the GSA. This specific facilitator has worked in the Vina Subbasin since 2022.

2. Background

Becky Fairbanks, GSA Project Manager, provided an update on the status of the implementation of various grant-funded GSP projects and management actions. She explained the Vina GSA is hosting a series of stakeholder meetings to gather early input on monitoring networks and the approach to SMCs for GWLs and ISW, with feedback to be shared with the SHAC and GSA Board in December 2025. An additional public workshop between all groups is planned for the first quarter of 2026 to collect input on the draft Periodic Evaluation and GSP amendments, with public release targeted for Summer 2026 and submission to DWR by January 2027.

3. Technical Presentation & Discussion: Approach to GSP Amendments

Laura Foglia, Larry Walker Associates (LWA), explained the GSP implementation process involving the required Periodic Evaluation and GSP plan amendments, including a focus on addressing existing data gaps and DWR's corrective actions. She explained that when the GSP was first submitted, the GSA acknowledged significant data needs that would need to be addressed. DWR understands that the 2027 update will not address everything. Rather it is one step in a longer process, and further work will be needed to close data gaps, especially since DWR's guidance is still evolving. Laura also provided a brief overview of public comments received on the Draft GSP during the GSA's public comment period in Fall 2021 and noted that full detail on the comments are included in Appendix 1-F to the GSP, available to review on the GSA website.

Participant Questions/Concerns:

- Time spent on reviewing public comments on original GSP:
  - A common question from participants was how they could provide comments on the current GSP Periodic Evaluation process. Questions were asked if there would be a forum
- Sustainability Indicators:
  - There was confusion from a member of the public regarding Slide 12, which referenced Sea Water Intrusion as the "6th" Sustainability Indicator. Laura clarified that the intent was to show that only five Sustainability Indicators are relevant to the Vina Subbasin, as a non-coastal region. Some reason for the confusion may be owing to the fact that the sixth Sustainability Indicator is most commonly associated with Interconnected Surface Waters. The slide will be revised for future presentations.
- Public meetings:
  - Participants expressed desire for more public stakeholder meetings. They also expressed desire for combined stakeholder meetings. They want to sit with everyone at the same table.

Regarding timing, Laura noted that data from recently installed wells will be incorporated for the 2032 GSP evaluation because a certain number of years of data are necessary to provide adequate context. She also summarized the Representative Monitoring Site (RMS) selection process, explaining how these sites were chosen to ensure reliable monitoring across the subbasin. The GSA is looking for feedback on the RMS selected for the GWL and ISW networks today.

4. Technical Presentation & Discussion: Groundwater Level Monitoring Network and SMC

Laura introduced the proposed approach and revisions to Groundwater Level Representative Monitoring Site (GWL RMS) network and SMC, including an effort underway to conduct a domestic well inventory for the Subbasin. After sharing the options for the proposed approach to the GWL RMS Network, Laura asked participants to weigh in on the following questions:

- What reactions or questions do you have about the domestic well inventory and proposed GWL RMS Network?
- Reactions or thoughts on the two options for setting the minimum threshold (MT)?
  - Option 1: Recalculate using same approach as 2022 GSP, using updated domestic well inventory and updated polygons based on new RMS well locations
  - Option 2: Set to historical minimum measurement, minus an agreed upon buffer
- Reactions or thoughts on development of Domestic Well Mitigation program as part of Periodic Evaluation work?

Participant Questions/Concerns:

- Domestic well inventory:
  - Does the GSA have information on whether existing wells have been deepened?
    - Response: It depends on how drillers filled out the Well Completion Report, though the permits for drilling a new well vs deepening an existing well are the same. In cases where one parcel has two wells, the technical team is assuming the older of the two wells is not active.

        - Another participant added that their well data is not on California Groundwater Live, which only goes back to 1977.
    - A participant expressed concern that too much time was being spent discussing the GWL monitoring network and SMC and implications for domestic wells, for a meeting meant to focus on the concerns of the environmental community.
- Relationship of RMS networks to one another:
    - Is it possible for the GSA to use the new wells that were installed to track ISWs to also inform the GWL monitoring network? In particular, were any of those new wells installed in areas near Groundwater Dependent Ecosystems (GDE)?
        - Response: Laura clarified that under SGMA, RMS networks for different sustainability indicators need to be kept separate, but they could interact depending on what the data looks like. In any case, newly drilled wells cannot be used as an RMS until the 2032 GSP evaluation.
- Managing the GWL SMC to protect GDEs and valley oaks in particular:
    - Several participants expressed concern with centering the GWL SMC discussion around the needs of domestic wells. In particular, there was a desire to prioritize considerations of rooting depths for groundwater-dependent vegetation (for example, urban forests, which one participant said are unirrigated and draw exclusively from the groundwater aquifer) when setting the GWL SMC because those levels are typically shallower and would inherently be protective of domestic wells. Participants expressed interest in using environmental thresholds as criteria to set MTs, not use domestic wells as criteria to set MTs. One participant asked if we could include a visual of the hydrograph they brought to the meeting. An attachment of the hydrograph shared at the meeting will be added to the meeting summary notes.
    - There were some additional remarks about the added benefits that urban trees provide, including cooling.
    - When asked by staff about whether the urban forest should be studied/evaluated further, since it is not an identified polygon in The Nature Conservancy's (TNC) dataset, participants agreed that TNC's current map is not adequate for mapping the valley oak woodlands in the Subbasin. It was unclear whether TNC had been contacted with the request to expand their polygons.
    - A participant commented that following Method #2 for MTs resembles early SGMA approaches and the hydrographs do not reflect issues with historic lows. Participants were concerned that historic lows are too low for tree roots.
    - Emphasis was placed on the importance of establishing ecological thresholds to preserve keystone species. There was a question about what steps are necessary to achieve a keystone species designation – for example, valley oaks and spring-run Chinook salmon in Butte Creek are key species that provide significant multi-benefits.
    - Another participant urged the GSA to consider cumulative impacts on GDEs for each sustainability indicator.
    - There was a general consensus from the participants that current MTs are set too low.
- Property values:
    - One participant mentioned that protecting wells at a higher level is important for preserving property values.
- Groundwater quality:
    - A participant noted that while salinity intrusion is not currently an issue, excessive pumping could draw up salts and the GSP determination recommended providing more information on the location and extent of contamination plumes. There was recognition that although the GSA is not responsible for remediation, they do need to coordinate with other entities to ensure conditions do not worsen. The team did not spend a lot of time on this question as it was off topic from the groundwater levels and interconnected surface water discussion. The team did state they could discuss further after the meeting.
- Appreciation was expressed that the dry year exemption will be removed from the undesirable result definition.

A figure of several hydrographs from the GSP were provided as a visual aid during this discussion and are included in this summary as an attachment.

- A participant asked to attach AquAlliance's public comment to this meeting summary. The attachment has been added.

5. Technical Presentation and Discussion: Interconnected Surface Water Monitoring Network and SMC

Laura presented the proposed approach for developing an Interconnected Surface Water monitoring network (noting that the original GSP did not include an ISW specific RMS network) and potential changes to the SMC. She then asked participants to weigh in on the following questions:

- What reactions or questions do you have about the proposed ISW RMS Network?
- Any recommended adjustments to the network?
    - Other considerations for the LWA team?
- Reactions or thoughts to the proposed approach and timeline of setting ISW SMC?

Participant Questions/Concerns:

- Protection of valley and blue oaks:
    - Participants expressed concern that GDEs, as currently defined, are not inclusive of valley oaks and blue oaks. As a result, the GDE maps that TNC prepared don't show those areas.
    - Participants highlighted that valley oaks are not limited to riparian areas, and expressed concern that the ISW RMS network would not be protective of valley oaks. There was a suggestion to assess water levels and soil health, since suitable conditions allow valley oaks to thrive.
    - Participants suggested the GSP amendment identify species that could be used to track GDE health.
    - Discussion around relevant datasets:
        - As part of the GSP implementation grant, the technical team is coordinating with Environmental Science Associates to refine TNC's work. They may also be able to utilize future data from new wells that will be installed near GDEs. For now, they are working with available data and need to understand how conditions change over time.
        - There may be a Cal FIRE dataset that maps valley and/or blue oaks.
        - Forest Health Collaborative may have additional data for the GSA's consideration.
        - Butte County's Habitat Conservation Plan includes updated vegetation maps and includes discussion on balancing groundwater protection with zoning for development.
        - Suggestion to use individual valley oak trees as monitoring points, noting that there is established science to back that up.
        - Emphasis on Butte County's leadership in groundwater data collection and reference to Vina GSP Appendix 3c, which contains decades of hydrograph data. Participant highlighted that although new data is valuable, it should complement existing records and leverage deeper understanding from what already exists.
        - GSA staff invited participants to share any existing assessments and/or to maps that circle areas where data may be missing, but noted that monitoring for valley oaks would not be ready in time to inform SMC for the 2027 GSP amendment. The GSA could consider adding a project to the GSP to evaluate ecological triggers and fill the data gap in time for the 2032 evaluation.
- MT-specific comments:
    - A participant expressed a preference for using historical lows to inform the MT and emphasized that raising MTs should be the GSA's top priority.
    - Participants suggested the use of Valley Oaks be used as proxy when setting MTs and other SMCs.

    - Several participants requested the GSA address comments/concerns that surfaced in Todd Greene's paper and/or comment letter. They shared that this concern has been shared with the SHAC, but not addressed.
    - There was a consensus among the participants for more protection of ISWs and GDEs. They want to be part of the discussion for setting the MTs.
- Governance:
    - A participant asked about the Board make-up of GSAs in other subbasins across the state, wondering whether any had environmental stakeholder directors on their Boards.
- Other beneficial uses and users:
    - Concerns were also expressed about flows in Mudd Creek, where dry conditions impact salmon habitat.
    - A participant suggested that, where financially feasible, the GSA should consider offering additional protections for domestic wells and GDEs.
- Inter- and intra- basin coordination:
    - Recommendation to monitor conditions in neighboring subbasins, which have aquifer deficits that could impact Butte County.
    - A participant noted that the Tuscan aquifer is among the most studied and stressed the importance of inter- and intra-subbasin collaboration and communication.
    - Opportunity to coordinate with Glenn County GSA regarding their voluntary agreements. GSA staff emphasized that this periodic evaluation process provides an opportunity for such collaboration.

6. Closing

Marisa thanked attendees for their participation and emphasized the value of their input.

Meeting Attendees:

Environmental Representatives:
Aurelia Gonzalez
Cheetah Tchudi
Emily McCabe
Greg Brislain
Jim Brobeck
Marty Dunlap
Patrizia Hironimus
Ron Alexander
Timmarie Hamill

Vina GSA:
Dillon McGregor, Vina GSA Program Manager
Becky Fairbanks, Vina GSA Project Manager

Butte County:
Kamie Loeser, Director of Water and Resource Conversation
Christina Buck, Assistant Director of Water and Resource Conservation

Larry Walker Associates:
Laura Foglia, Technical Consultant
Ryan Fulton, Technical Consultant

Stantec:
Marisa Perez Reyes, Facilitator
Nicole Hinostroza, Assistant Facilitator

Attachment 1: AquAlliance public comment

AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATERS

October 17, 2021

Vina GSA
Vinagsa.org

RE: Comments on the draft *Vina Groundwater Sustainability Plan*

Executive Summary

The summary states:

"*The interests and vulnerability of stakeholders and groundwater uses in these Management Areas vary based on the nature of the water demand (agricultural, domestic, municipal)*" Water demand for the environment must be included. GDEs include upland and riparian valley oak groves, small stream flow, GD urban forests.

"*groundwater use has increased and as forces ranging from population growth to climate change play out*," This sentence ignores the fact that increased cross-boundary flows that may result from expanded demand west of the river (primarily agriculture and water-market-driven aquifer exercise) is at play. This threat to meeting our management goals must be acknowledged and addressed in interbasin coordination/communication process yet to be developed.

"*Groundwater storage in Subbasin is relatively stable except in the areas noted above with depressions.*" The identification of localized cones of depression is valid but it is important to recognize long-term basin declines that occur due to cross-boundary flows influence the baseline water levels. In general (depending on soil conditions and strata) the greater the distance or depth of groundwater pumping and water levels in the VGSA, the lower the magnitude but the longer the timescale of depletions. Consequently, the ultimate effects in the Vina of pumping west of the river can occur significantly after pumping starts, or even after pumping has ceased. The timescales involved in aquifer responses to pumping and other stresses can be on the order of decades, making it difficult to associate cause with effect. As such, monitoring must account for this lag in impacts. In general, the longer the timeframe for effects to be observed at a given monitoring point once they become evident, the longer those effects will persist.

"*If the water table beneath the stream lowers as a result of groundwater pumping, the stream may disconnect entirely from the underlying aquifer.*" A stream that ceases to flow once it enters the alluvial basin is entering the aquifer at that point. The deeper the aquifer level the more of the streambed is dewatered and the earlier. So while a stretch of the creek may be "disconnected" the creek itself is still connected. Mr. Toccoy Dudley, a Department hydrogeologist with the Northern District in Red Bluff, wrote in 2000:At any location in the basin, the gradient between the surface water and groundwater system is directly proportional to the head differences (water surface elevation difference) between the two hydrologic systems. The larger the head differences the higher the gradient and the higher the recharge rate....The shorter the horizontal distance over which the head change occurs increases the recharge rate dramatically. An example of this would be pumping next to a river would induce a much higher recharge rate from the surface water system than the same pumping many miles away.....increased extraction causes the groundwater levels to decline, which increases the head

difference between the groundwater and surface water systems, and consequently increases the gradient and recharge rate. In short, the more you pump, the more you can pump, to a point. Anecdotal and archeological evidence indicates the small streams of the Vina SB were perennial during pre-pumping eras.

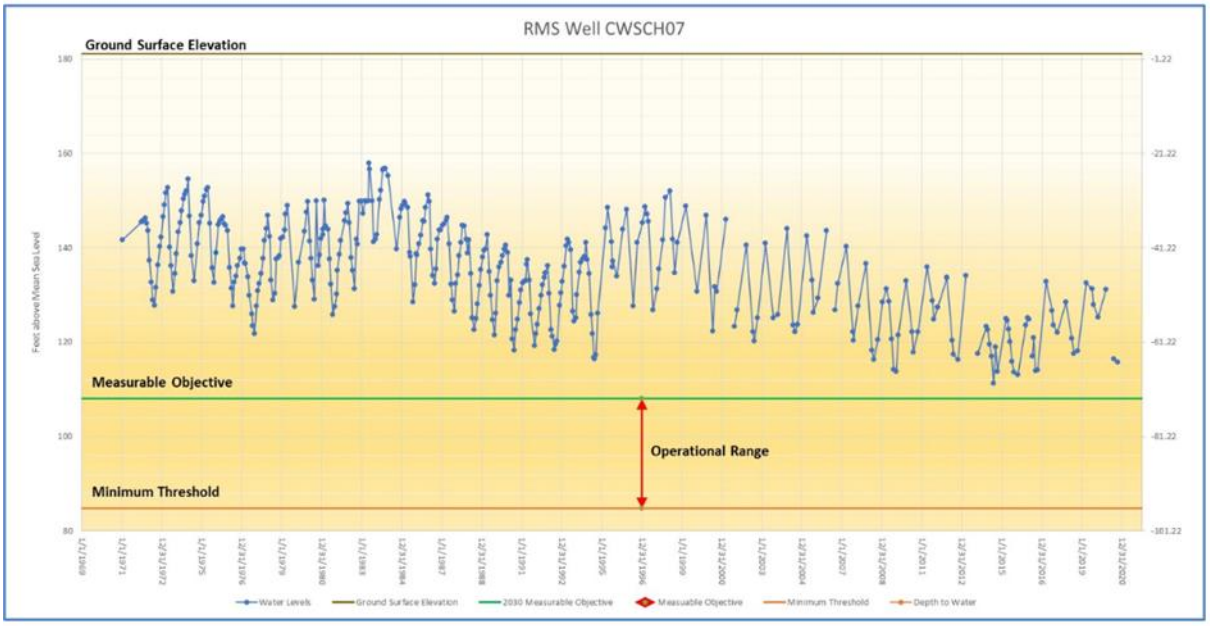


Figure ES-7: Representative Monitoring Site For Groundwater Levels With Relationship Of Measurable Objectives, Minimum Thresholds and Operational Range

The sample hydrograph is one of several that I have reviewed in Appendix 3-b of the GSP that have disturbing MO and MT levels. The MO is below the historic low, not the appropriate level to designate the top of the operational range. The MT as defined in other parts of the GSP, is purported to designate "*the point at which Undesirable Results may BEGIN to occur.*" But undesirable results will begin much earlier in the operational range. The historic low of this hydrograph is above the 80' max rooting depth of native phreatophytes. The MT is significantly lower than 80' bgs. Furthermore, the lower water table will dewater longer reaches of streams earlier in the season and persist later in the year. The operational range proposed is pessimistic in meeting goals that would avoid triggering Undesirable Results. Wise resource management strives to improve conditions that have been degraded by human development. Accepting degraded status quo or planning for increased degradation may be realistic given the human inclination to ambitiously convert resources into useful products. But the term "sustainable" implies we have the capacity to identify and honor carrying capacity while devising demand flexibility strategies to meet evolving climate conditions. Robust Management Objectives reduce the probability of careening toward Management Thresholds. Our MO levels can strive to improve conditions without risk of State management takeover. Water code § 354.30. Measurable Objectives (g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for a finding of inadequacy of the Plan.

Chapter 2 Basin Setting

2.3.4 Water Budget Estimates

2831 “Other components are more difficult to measure or do not have measured values readily available (e.g., deep percolation, subsurface flows, groundwater pumping, surface water-groundwater interaction, etc.) and are estimated using the BBGM.” It is unclear how the BBGM estimates Western Boundary Net Outflows 56,100- 65,000 AFY.

This map from the first draft of the Vina Water Budget presentation last year estimated a total of 200k AFY flowing from the east out of Butte into Colusa. The first draft of the Butte Subbasin Preliminary Basin Setting Results indicated 261k AFY of water flow from the west into the Butte basin from Colusa. These large discrepancies in outflow estimates do not inspire confidence in the Water Budget, the identification of who is responsible for GW declines or the efficacy of proposed recharge efforts.

“the ultimate effects of pumping can occur significantly after pumping starts, or even after pumping has ceased. The timescales involved in aquifer responses to pumping and other stresses can be on the order of decades, making it difficult to associate cause with effect. As such, monitoring must account for this lag in impacts. In general, the longer the timeframe for effects to be observed at a given monitoring point once they become evident, the longer those effects will persist, even if the pumping causing the effects is halted immediately.” Davids Engineering 2014. Prepared for NCWA, Sacramento Valley Groundwater Assessment Active Management – Call to Action, pp. 14-15.

We know that interbasin flows are dependent on conditions in adjacent basins. "3014 Western boundary net outflows represent Sacramento River gains from groundwater and subsurface outflows to the Corning Subbasin. The split between these outflows is uncertain at this time and identified as a data gap." This significant data gap will present challenges as the impacts of GW pumping are not immediate and can take months or years to occur. The emerging California Water Market is a factor that is going to complicate regional water budget estimates.

BCWRC’s Drought Task Force intention to evaluate the cumulative impacts of Water Transfer Programs (including GW Substitution water market transactions) and Supplemental Groundwater Pumping Operations in the Northern Sacramento Valley is essential to understand sub basin water budgets.3251 The failure of the GSP to attempt an estimate of interbasin subsurface flow along the Western Boundaries invalidates the Water Budget on which much of the GSP uses as a foundation. It is inappropriate to explain that "*Characterization of Interbasin Flows and Net Outflows along Western Boundary*" is placed in the "Next Steps" category. Water Code § 354.16 explains "Groundwater Conditions Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes the following: (a) Groundwater elevation data demonstrating flow directions, lateral and vertical gradients, and regional pumping patterns, including: (1) Groundwater elevation contour maps depicting the groundwater table or potentiometric surface associated with the current seasonal high and seasonal low for each principal aquifer within the basin." Code § 354.18. “Water Budget (a) Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions...(3) Outflows from the groundwater system by water use sector, including ... subsurface groundwater outflow." Early basin-setting drafts of the Vina, Butte and Colusa sub-basins showed large discrepancies in the modeled subsurface aquifer outflow patterns. The Butte Basin Groundwater Model has no capacity to quantify subsurface GW flow out of the western boundary of the sub-basin. The present draft recognizes the

data gap and inadequacy of regional modeling that characterizes the water budget of inflow and outflow.
SGMA regulations require Each Plan to contain a water budget for the basin that identifies discharges including subsurface groundwater outflow. The Butte County Drought Task Force recognizes that Groundwater extractions outside the Vina boundaries such as the past and present Water Transfer Programs and Supplemental Groundwater Pumping Operations in the Northern Sacramento Valley may have enduring cumulative impacts on Vina's water budget.

2.1.2.4 **Groundwater Recharge Areas**

"*Groundwater recharge is the downward movement of water from the surface to the groundwater system*." Some recharge occurs from upward movement. Piezometric pressure from the semi-confined portions of the Tuscan System allows water to move upward recharging into or supporting alluvial unconfined aquifers if sufficient pressure exists. Line 1940 explains; "*In locations where groundwater levels in the shallower wells are lower than in the deeper wells, the gradient indicates upward movement of groundwater, with a similar relationship defining the volume of upward flow*." Conversely the alluvial shallow aquifer can leak downwards if the piezometric elevation is reduced. Line 1937: "*When groundwater levels in the shallower wells are higher than in the deeper completions, the gradient indicates downward movement of groundwater. The volume of downward flow is proportional to the gradient and the hydraulic conductivity between the shallow and deep measurement points*." The USDA groundwater atlas [https://pubs.usgs.gov/ha/ha730/ch_b/B-text3.html] explains this well-known water fact: "By the early 1960's, intensive ground-water development had significantly lowered water levels and altered ground-water flow patterns in the Central Valley aquifer system. By far the most dramatic impact of development was in the San Joaquin Valley, where water-level declines in the confined part of the aquifer system were locally more than 400 feet. Although predevelopment flow was toward the San Joaquin River throughout most of the basin, large withdrawals from deep wells in the western and southern parts of the aquifer system changed the direction of horizontal flow in the confined part of the system until the water moved toward the withdrawal centers. Also, because the magnitude of the withdrawals caused hydraulic heads in the confined parts of the aquifer system to fall far below the altitude of the water table, the vertical hydraulic gradient was reversed over much of the San Joaquin Valley. As a result, much of the water in the upper unconfined zone of the aquifer system that flowed laterally toward the river under predevelopment conditions leaked downward through the confining beds into the lower confined aquifer after development...Ground-water development in the San Joaquin Valley has reduced the effectiveness of the confining beds within the aquifer. Thousands of wells with casings perforated for much of their length have been drilled through the clay confining units. Where these wells are open to the unconfined and confined aquifers, they allow virtually unrestricted vertical flow through the well bore. The amount of water that flows downward through one large-diameter well has been estimated to be equivalent to the natural leakage through the "E-clay" over an area of approximately 7 square miles. During the peak of the withdrawal season, the net downward flow may be, on average, as much as 0.3 cubic foot per second per well." Significant Depressurization of the regional confined aquifer can take place within and outside of the Vina sub basin. Well-casings that have perforations at shallow and deep levels interrupt the confining layers and increase the vertical flow. Lines 1456-1460 indicate there is this type of potentially interbasin leakage in the Vina SB "*Aquifer testing conducted as part of the Lower Tuscan Aquifer study (Brown and Caldwell, 2013) indicated there is also the potential for Upper Watershed recharge in the shallow aquifer interval to move down to*

greater depths due to irrigation pumping, causing a mixing of recharge sources in the intermediate and possibly deeper aquifer zones in the Vina South Management Area." Line 1469 discusses "*Additional recharge through management activities of flood flows or irrigation practices has potential in the Vina Subbasin...*" but does not discuss how the recharged water can migrate through the deep aquifer into adjacent sub-basins that are being pumped.

2.1.5 Groundwater Producing Formations presents an incomplete overview of the producing geology and fails to quantify the robust yields of the Tuscan even while quantifying the production amounts available in less important aquifer units, line 1614: "*Wells penetrating the sand and gravel units of the Riverbank and Modesto Formations produce up to about 1,000 gallons per minute (gpm)*" The Update on the Stony Creek Fan aquifer Performance Testing [http://cetehama.ucdavis.edu/files/135217.pdf] indicated that that Lower Tuscan can produce 2,500-3,000 gpm. The GCID and others are exploiting/depressurizing this extremely productive aquifer. The cumulative demand of the wells exercising the lower Tuscan is undoubtably impacting water levels in all aquifer layers in the 4-county basin.

2.1.8.2 Beneficial Uses "*Water produced from the principal aquifer is primarily used to meet irrigation, domestic, and municipal water demand*." This sentence should include "*environmental demand*". Groundwater and surface water are historically and, in many cases, currently connected. Beneficial uses must include the benefits to ecosystems including Groundwater Dependent upland vegetation. According to the State Water Board delineation of beneficial uses: [https://www.waterboards.ca.gov/rwqcb2/water_issues/programs/planningtmdls/basinplan/web/bp_ch2.html]

2.1.3 COLD FRESHWATER HABITAT (COLD)
Uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

2.1.14 PRESERVATION OF RARE AND ENDANGERED SPECIES (RARE)
Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.

2.1.18 FISH SPAWNING (SPWN)
Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

2.1.19 WARM FRESHWATER HABITAT (WARM)
Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

2.1.20 WILDLIFE HABITAT (WILD)
Uses of waters that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.

Beneficial uses of streams that have intermittent flows, as is typical of many streams in the region, must be protected throughout the year and are designated as "existing."

2.2 Groundwater Conditions; • "*Wells showing depths to first encountered groundwater deeper than 500 feet were eliminated from the data set*." The rationale behind this limitation is unclear. If there is significant piezometric pressure identified in the water encountered below 500' it should be included in

the analysis. The hydrographs in this section measure a shallow portion of the system. It is likely that the groundwater flow volumes would be stimulated when the pressurized portion of the aquifer is depressurized by major production operations. The cumulative effect of these extractions may be the cause of the decline in the seasonally fluctuating regional aquifer levels. The failure to evaluate the effect of confined/semi-confined piezometric pressure dynamics on groundwater conditions must be remedied. line 2143 identifies the existence and importance of this pressure in relation to subsidence but there is no other mention of piezometric pressure. "*As the pressure created by the height of water (i.e., head) declines in response to groundwater withdrawals, aquitards between production zones are exposed to increased vertical loads*." The measurement of piezometric pressure is important for groundwater monitoring. It allows us to determine the level and flow patterns of the groundwater. Omitting a discussion of piezometric pressure when discussing groundwater conditions in our region is like ignoring blood pressure during a human physical exam.

Line 1996

"*Since the year 2000, there has been a cumulative decline in March 1 groundwater storage of about 400,000 acre-feet (AF). This indicates the cycles of groundwater pumping are not in balance with the cycles of recharge that replenish the aquifer, and that groundwater depletion has occurred consistent with long-term decline in groundwater levels*." Without a regional GW model and a record of pumping throughout the Tuscan basin it is impossible to identify pumping in the VGSB as the sole demand resulting in the decline in GW storage.

Line 2017

"Development of groundwater quality-related Sustainable Management Criteria for the Vina Subbasin is not intended to duplicate or supplant the goals and objectives of ongoing programs including those by Butte County, the SVWQC and the State Drinking Water Information System (SDWIS) [SWRCB Geotracker/GAMA website, the California Department of Toxic Substances Control (DTSC) EnviroStor website, and the Environmental Protection Agency's (EPA) National Priorities List (NPL)]." GW pumping stimulates the movement of toxic plumes through the aquifer system. Advection is the movement of dissolved solute with flowing groundwater. The amount of contaminant being transported is a function of its concentration in the groundwater and the quantity of groundwater flowing, and advection will transport contaminants at different rates in each stratum. Who are the personnel in the VGSA that will be tracking these data and correlating it to various GW pumping regimes and flow patterns?

Line 2298

"*There is no indication in the streamflow data to suggest groundwater interactions that contribute to the streamflow behavior. Similar conditions would be expected for other creeks that traverse the Vina Subbasin (Little Chico, Sycamore, Rock, and Butte Creek) since they flow across a similar fan topography and similar shallow subsurface geology. The overall conclusion from this study in relation to interconnected surface water is that, for significant portions of the year, the upland creeks in the Vina Subbasin would be classified as disconnected streams and the surface water would be considered "completely depleted" as defined under SGMA*." Water code chapter 23 explains "(o) "Interconnected surface water" refers to surface water that is hydraulically connected <u>at any point</u> by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted." As I read Water Code it is clear that streams flowing out of the foothills are hydraulically connected until they reach a point where the aquifer has been depleted below stream level at which point the stream looses as it recharges the evacuated aquifer. As the GW level declines the stretch of dewatered stream

expands. Spatial and temporal dewatering monitoring is a critical GDE function of a GSA. The California Department of Fish and Wildlife has specific GDE recommendations that must be implemented in the VGSA: [https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=170185&inline]
"GROUNDWATER DEPENDENT ECOSYSTEMS (GDES)
1. How will groundwater plans identify GDEs and address GDE protection?
2. How will GSAs determine if GDEs are being adversely impacted by groundwater management?
3. If GDEs are adversely impacted, how will groundwater plans facilitate appropriate and timely monitoring and management response actions?
INTERCONNECTED SURFACE WATERS (ISW)
1. How will groundwater plans document the timing, quantity, and location of ISW depletions attributable to groundwater extraction and determine whether these depletions will impact fish and wildlife?
2. How will GSAs determine if fish and wildlife are being adversely impacted by groundwater management impacts on ISW?
3. If adverse impacts to ISW-dependent fish and wildlife are observed, how will GSAs facilitate appropriate and timely monitoring and management response actions."
According to a study on small streams flowing through the Vina SB: "Nonnatal rearing of juvenile Chinook salmon was documented in several intermittent tributaries to the Sacramento River. Condition factors and length measurements of juvenile chinook captured in the intermittent tributaries were compared with those captured in the mainstem Sacramento River. The data suggests that juvenile chinook rearing in the tributaries grew faster and were heavier for their length than those rearing in the mainstem. Faster growing fish smolt earlier, and may enter the delta earlier in the year before low water and pumping degrade rearing habitat." Intermittent Streams as Rearing Habitat for Sacramento River Chinook Salmon.
https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/exhibits/swrcb/swrcb_maslin1997.pdf

The unregulated streams that flow into the Sacramento River are leaking into drained aquifers. Dan Wendell of The Nature Conservancy, a panelist at a workshop held by the California Natural Resources Agency, explained "since the 1940s, groundwater discharge to streams in the Sacramento Valley has decreased by about 600,000 acre-feet per year due to groundwater pumping, and it's going to decrease an additional 600,000 acre-feet in coming years under status quo conditions due to the time it takes effects of groundwater pumping to reach streams."
https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/CSPA%20et%20al/part2/aqua_282.pdf

2.2.7 Groundwater Dependent Ecosystems
2488 Not Likely a GDE Due to Adjacency to Irrigated Agricultural Fields
2504 Not Likely a GDE Due to Dependence on Agricultural-dependent Surface Water
GDEs were incorrectly removed in areas adjacent to irrigated fields due to the presence of surface water. However, GDEs can rely on multiple water sources – including shallow groundwater receiving inputs from irrigation return flow from nearby irrigated fields - simultaneously and at different temporal/spatial scales. Basins with a stacked series of aquifers may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each

aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow principal aquifers, that support springs, surface water, and groundwater dependent ecosystems. Areas in proximity to irrigated land can still potentially be reliant on shallow groundwater aquifers, and therefore should not be removed solely based on their proximity to irrigated fields.

3014 "*Western boundary net outflows represent Sacramento River gains from groundwater and subsurface outflows to the Corning Subbasin. The split between these outflows is uncertain at this time and identified as a data gap*." The subsurface outflow analysis must be expanded to include outflows into other nearby sub basins including Butte and Colusa. Increased GW extractions due to crop changes, "emergency" supplemental GW pumping, and GW substitution transfers is likely to increase subsurface flows over time. Butte Counties nascent Drought Impacts Analysis Study plans to compile the 2021 water transfer programs (April 2021-December 2021) from Butte, Tehama, Glenn, Colusa, Yuba and Sutter counties.
The report will include a brief description of the programs, amount of water transferred, recipient of water, whether surface water or groundwater substitution is utilized, destination of transferred water, etc. including maps. Analysis of the transfer programs will evaluate the cumulative impacts of the programs' impacts on water supplies and demands. This type of annual evaluation must be ongoing as demand/supply conditions evolve and consider "timescales involved in aquifer responses to pumping and other stresses can be on the order of decades, making it difficult to associate cause with effect. As such, monitoring must account for this lag in impacts. In general, the longer the timeframe for effects to be observed at a given monitoring point once they become evident, the longer those effects will persist, even if the pumping causing the effects is halted immediately." [1]
[1] Davids Engineering 2014. Prepared for NCWA, Sacramento Valley Groundwater Assessment Active Management – Call to Action.

Line 3016 **Water Banking Stimulation of sub surface flows** "*It is anticipated that this data gap* [sub surface flows] *will be addressed through future refinements to the BBGM and through coordination and collaboration with neighboring subbasins as part of GSP implementation*." The coordination and collaboration with neighboring subbasins is, at best, an forthright sharing of information and unbiased evaluation of model results. However, the VGSA would be naïve to ignore the special interests of key players in the Northstate Water World that may inspire some purveyors to profitably engage in the emerging California Water Market with less regard to the interests of GDEs and water users that are not participating in Transfer/sales that "exercise" the shared regional aquifer while promising to use PMAs to refill drained aquifer water banks.

3181 **Habitat Monitoring Deficit** "It is anticipated that these uncertainties will be reduced over time through monitoring and additional data collection, refinements to the BBGM and other tools, and coordination with neighboring basins." The DGSP is deficient because significant monitoring infrastructure has yet to be funded and built in the shallowest portion of the aquifer system that GDEs rely upon. According to the 2007 DWR/NCWA Sacramento Valley Water Resource Monitoring, Data Collection and Evaluation Framework; "The long-term health of riparian vegetation, wetland species, and number of other native habitat are commonly associated with maintaining a minimum range of groundwater levels and an appropriate level of interaction between surface water and groundwater

resources. The lowering of groundwater levels due to natural climatic changes or the interception of groundwater underflow to surface water systems due to the increased groundwater extraction associated with water management programs, have the potential to impact the native habitat areas. Baseline habitat monitoring is an important data collection objective because it allows for a better understanding of the existing water resource requirements of the native habitat and the evaluation of potential impacts associated with potential changes in water resource management practices. In order to identify potential habitat impacts associated with potential changes in water management practices, a program-specific network of shallow monitor monitoring wells should be developed to detect changes in water levels over the shallowest portion of the aquifer. In evaluating impacts to certain wetlands species, it is important to discern both the rate of groundwater level change, as well as the cumulative change over the entire year. Data collection and monitoring frequency should be appropriately selected to support the temporal and long-term evaluations."
https://www.waterboards.ca.gov/waterrights//water_issues/programs/bay_delta/california_waterfix/exhibits/docs/CSPA%20et%20al/part2/aqua_280.pdf

3266 3. SUSTAINABLE MANAGEMENT CRITERIA

3298 • "*MT– Quantitative threshold for each Sustainability Indicator used to define the point at which undesirable results may begin to occur.*" The stated definition is the most egregious violation of common sense in the DGSP. Undesirable results BEGIN to occur even before historic low levels (the approximate upper reach of the operational range) are occur. Domestic well failures, destruction of GDEs and chronic lowering of groundwater levels occur at historic GW levels and would be exacerbated if the aquifer is managed within the Operational Ranges being proposed. I find the Plan to be deficient in protecting beneficial uses. Historic low GW levels shown in most of the Appendix 3-B hydrographs are still above the 80' max rooting depth of native and urban forest trees. The Minimum Threshold as defined in the GSP, is purported to designate "the point at which Undesirable Results may BEGIN to occur." But undesirable results will begin much earlier in the proposed operational range shown in most of the hydrographs. These MTs are significantly deeper than 80' bgs. Furthermore, the lower water table will dewater longer reaches of streams earlier in the season and persist later in the year. Dan Wendell of The Nature Conservancy, a panelist at a workshop held by the California Natural Resources Agency, explained "since the 1940s, groundwater discharge to streams in the Sacramento Valley has decreased by about 600,000 acre-feet per year due to groundwater pumping, and it's going to decrease an additional 600,000 acre-feet in coming years under status quo conditions due to the time it takes effects of groundwater pumping to reach streams." The operational range proposed will not avoid triggering this and other significant irreversible Undesirable Results.
SGMA Regulations define "Measurable objectives" as "specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions.." Setting GW level MOs below historic low levels does not meet this requirement. Most of the proposed MOs are below historic low levels. This is not the appropriate level to designate the top of the operational range. SGMA Water Code § 354.30 explains "An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for a finding of inadequacy of the Plan." The managers assure the public that the goal of the VGSP is to maintain GW levels above or near the MOs or that if the MT is approached/transgressed PMAs would be employed to bring water levels back to the MO or higher. The

definition of the MT shows the “Operational Range” as the defined goal. The proposed broad operational ranges fit the prescription for market driven groundwater banking but would result in many undesirable impacts to water users not participating in the rapidly emerging California Water Market.

3415 **Water Bank Prescription** "*The quantitative Vina Subbasin Undesirable Result for the Chronic Lowering of Groundwater Levels occurs when: Two RMS wells within a management area reach their MT for two consecutive years of non-dry year-types.*" Two years of operating at the MT level would destroy GDEs including the urban forest of Chico. The insulting caveat that it would be acceptable to forgive the extreme MT levels if they occur during 2 consecutive dry years would allow GW levels to decline below the MT and implies that artificial recharge during “wet” years is a mitigating option. This is another example of an operation prescription for conjunctive use water bank marketing.

3477 **Cumulative impacts of regional pumping** “*Groundwater levels are typically lower during dry years and higher during wet years. Superimposed on this four- to seven-year short-term cycle is a long-term decline in groundwater levels. In other words, groundwater levels during more recent dry-year cycles are lower than groundwater levels in earlier dry-year cycles*.” The DGSP fails here to identify the cumulative impacts of increased pumping in the regional shared Tuscan aquifer system that is driving the long-term trend in driving down the fluctuating hydrograph record. Management of connected groundwater systems is challenging for several reasons. First, the cumulative GW depletions caused by pumping depends on the spatial scale: in general (depending on soil conditions and strata) the greater the distance or depth between groundwater pumping and a monitoring well, the lower the magnitude but the longer the timescale of depletions. Consequently, the ultimate effects of pumping can occur significantly after pumping starts, or even after pumping has ceased. The timescales involved in aquifer responses to pumping and other stresses can be on the order of decades.

3703 **Outside Hydrologic Influence** “*hydrologic impacts outside of the Vina Subbasin, such as upper watershed development or fire-related changes in run-off, could result in impacts to streamflow, riparian areas, or GDEs that are completely independent of any connection to groundwater use or conditions within the Vina Subbasin.*” Since the deep Tuscan Aquifer System is recharged from the eastern basin foothills it is certainly appropriate to recognize impacts to groundwater use and conditions within the Vina SB resulting from fire related soil conditions and streamflow in the recharge area. [https://www.buttecounty.net/waterresourceconservation/SpecialProjects/StableIsotopeRechargeProject.aspx]
Additionally, conditions in the down-gradient portion of the Tuscan System are worthy of evaluation as the VGSP evolves. The lower Tuscan Aquifer system is being developed as a water source west of the Sacramento River and is being evacuated with vigor especially during dry years. This may accelerate the rate of subsurface flow out of the Vina SB. The Glenn Colusa Irrigation District board pumped over 25K af of Tuscan groundwater for 2-3 months this summer to supplement their river allocation. This is on top of 10k af of groundwater substitution water transfers and even more surface water sales from “willing sellers” to "willing buyers" South Of Delta. The 35k/a/f is more water in 3 months than the Chico Urban Area pumps in a year. The State emergency declaration allows water purveyors like GCID to sidestep laws that require environmental review. GCID used district wells located 5-10 miles west of Chico that can pump 3KAF/minute. The Butte County Drought Task Force recognizes the importance of evaluating cumulative impacts of programs on water supplies and demands on the Vina SB may be significant and is

initiating a "Drought Impacts Analysis Study" that will compile and analyze the 2021 Water Transfer Programs and the Supplemental Groundwater Pumping Operations in the Northern Sacramento Valley. https://buttecounty.granicus.com/MetaViewer.php?view_id=2&clip_id=1006&meta_id=157029

3776 Upland GDE Designation "*The Vina Subbasin specifically recognizes deep-rooted tree species, such as Valley Oak, that are common along riparian corridors in both upland streams and the Sacramento River. This connectivity is not well measured or understood in the Vina Subbasin at this time.*" The failure of the DGSP to accept the well-documented fact that deep rooted trees are not exclusively located along riparian corridors but are nonetheless dependent on the shallow aquifer.
US Forest Service Index of Species Information for Valley Oak explains the wide distribution of the Valley Oak ecosystem: https://www.fs.fed.us/database/feis/plants/tree/quelob/all.html
"Valley oak typically has several vertical roots that tap groundwater and extensive horizontal root branches. Vertical root depth has been measured as deep as 80 feet (262m) in some individuals. Best growth is attained when water tables are about 33 feet (10 m) below the surface. Historically, these forests extended 0.6 to 5.0 miles (1-8 km) on each side of major rivers. Valley oak cover was once extensive, extending through lowlands and into foothills."
Limiting GDE evaluation to measurable impacts to interconnected streamflow is insufficient.
California Code of Regulations, Title 23 § 351. Definitions.
"(g) Identification of groundwater dependent ecosystems within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information.
(m) "Groundwater dependent ecosystem" refers to ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface."
The DGSP, like other planning documents, promises on line 3785 "to fill these data gaps and the GSAs are committed to addressing these issues and develop appropriate SMCs for the Vina Subbasin." But like other co-equal goals that assure balancing water supply with ecosystem health it is meeting the demand that takes precedence. In 2007 the DWR, NCWA and the State Water Board recognized the importance of habitat monitoring in their Sacramento Valley Water Resource Monitoring, Data Collection and Evaluation Framework
https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/CSPA%20et%20al/part2/aqua_280.pdf
"The lowering of groundwater levels due to natural climatic changes or the interception of groundwater underflow to surface water systems due to the increased groundwater extraction associated with water management programs, have the potential to impact the native habitat areas….In order to identify potential habitat impacts associated with potential changes in water management practices, a program-specific network of shallow monitor monitoring wells should be developed to detect changes in water levels over the shallowest portion of the aquifer."
But there has been no investment in creating the network needed to collect baseline conditions or to monitor declines in this critical GDE preservation goal.

5. PROJECT AND MANAGEMENT ACTIONS

4412 5.2.3.1 **Agricultural Irrigation Efficiency**
4414 Butte County agriculture is a keystone feature of culture in the Vina SB. The importance of maintaining the viability of irrigated agriculture is of paramount importance. The results of the Vina GSA,

Agricultural Groundwater Users of Butte County, and Butte County Farm Bureau survey to evaluate current irrigation methods and practices, identify opportunities and methods to improve irrigation efficiency, determine potential issues preventing the adoption of efficiency practices, and provide recommendations for increasing participation in these practices were expected to be available in September 2021. A summary of the results would be helpful in evaluating opportunities to stabilize or reduce demand. Incentives to invest in efficient GW irrigation through grant funding and tax rebates are needed to maximize benefits. According to Valerie Kincaid "A project proponent maintains the right to water that is recharged whether it results from recharge projects or groundwater demand reduction projects (e.g., conservation, recycling)." Why is this not listed as a recharge project?

4449 5.2.3.2 Project: Residential Conservation The Estimated Groundwater Offset and/or Recharge: 100 acre-feet/year is certainly below the potential for urban efficiency. The voluntary expansion of xeriscape replacement of turf is evident and the adoption of efficient water using appliances is inevitable. The managers should review the successful urban conservation data from last decade to evaluate more realistic estimates of potential offset amounts.

4079 " *As discussed in Section 4.1, the GSAs in the Vina Subbasin intend to further evaluate the SMC for interconnected surface waters to avoid undesirable results to aquatic ecosystems and GDEs. As additional data are collected and evaluated, the Vina Subbasin commits to developing additional SMC and installation of monitoring points, as appropriate, for specific stream reaches and associated habitat where there is a clear connection to groundwater pumping in the principal aquifer*." Restricting monitoring points and GDE considerations to riparian proximities is insufficient for the protection of deep-rooted vegetation, both native trees and the Chico urban forest. According to the USDA Forest Service "Urban forests help to filter air and water, control storm water, conserve energy, and provide animal habitat and shade. They add beauty, form, and structure to urban design. By reducing noise and providing places to recreate, urban forests strengthen social cohesion, spur community revitalization, and add economic value to our communities."
[https://www.fs.usda.gov/managing-land/urban-forests]
The shallowest portion of the aquifer system that sustains this vegetation extends beyond riparian corridors. The Sacramento Valley Water Resource Monitoring, Data Collection and Evaluation Framework 2007 DWR NCWA
https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/CSPA%20et%20al/part2/aqua_280.pdf] recognizes the importance of establishing a monitoring network in the shallowest portion of the aquifer for this purpose: "The long-term health of riparian vegetation, wetland species, and number of other native habitat are commonly associated with maintaining a minimum range of groundwater levels and an appropriate level of interaction between surface water and groundwater resources. The lowering of groundwater levels due to natural climatic changes or the interception of groundwater underflow to surface water systems due to the increased groundwater extraction associated with water management programs, have the potential to impact the native habitat areas. Baseline habitat monitoring is an important data collection objective because it allows for a better understanding of the existing water resource requirements of the native habitat and the evaluation of potential impacts associated with potential changes in water resource management practices. In order to identify potential habitat impacts associated with potential changes in water management practices, a program-specific network of shallow monitor monitoring wells should be

developed to detect changes in water levels over the shallowest portion of the aquifer. In evaluating impacts to certain wetlands species, it is important to discern both the rate of groundwater level change, as well as the cumulative change over the entire year. Data collection and monitoring frequency should be appropriately selected to support the temporal and long-term evaluations."

4477 5.2.3.3 Project: Streamflow Augmentation

"*The project would primarily take place at Comanche Creek, Butte Creek, Little Chico Creek, and Big Chico Creek*." It is unclear how Little Chico Creek and Big Chico Creek would be integrated into this program since they are, apart from flood control infrastructure, unregulated by dams. If a project includes the application for a new right to recharge water, it will need to obtain a water right permit from the State Water Resources Control Board (SWRCB) through a surface water right application and a supplemental groundwater recharge form. The water right permit application would need to identify the "beneficial use" that the project intends to meet. Recharging groundwater is not considered a beneficial use, however, meeting the sustainable management criteria in a GSP may be determined to be a beneficial use.

Since this project is in the "Planned" category and is expected to move forward and be completed there must be more detailed information available to the public. The project description should be clear on permits that would be required to be negotiated with regulatory agencies such as CFW and the State Water Board.

4507 **5.2.3.4 Flood MAR/Surface Water Supply and Recharge Scoping**

This planned scoping project must include a detailed evaluation of the efficacy of up-gradient recharge efforts that may enhance extraction opportunities in down-gradient sub-basins that are developing new groundwater exploitation infrastructure to supply expanding permanent crop acres and engaging in water transfers that integrate the shared aquifer system into their transfer portfolio and have a history of using the same aquifer as an "emergency" supplemental water supply. The legal consequences of attempting MAR have been summarized by Ms. Kincaid and issues of aquifer privatization and potential water bank extirpation of Butte Chapter 33 protection remain unresolved and exacerbated by the expert analysis presented by the Public Policy Institute of California. "**County export ordinances prevent beneficial trades.** In the absence of state regulation of groundwater, county ordinances have protected local parties against injury from groundwater-related exports. But their export permitting hurdles are so high that they impede any transfers, including those that present no significant risk to local groundwater sustainability. In Butte County, for instance, it would take 18 months to go through all the steps to obtain a permit for a same-year groundwater substitution transfer. Once GSAs establish sustainability plans that address undesirable impacts of pumping, it should be possible to ease the coarser restrictions on this practice found in most county ordinances—which effectively preclude trades if they entail water leaving the county. If counties with restrictive groundwater export ordinances fail to amend their laws to conform to SGMA, the legislature should consider preempting local laws that discriminate against out-of-county uses or place undue burdens on groundwater and groundwater-substitution transfers that would not jeopardize sustainable groundwater management of the source aquifer."
https://www.ppic.org/publication/improving-californias-water-market/

All the projects outlined in lines 4408-4663, as well as 4870 5.2.4.11 Project: Surface Water Supply and Recharge, whether they are conservation (demand reduction) or recharge (supply augmentation)

projects have the potential to carry the legal consequences of artificial recharge efforts. According to Kincaid [https://www.vinagsa.org/files/4441577c7/PMA+Legal+Implications+Discussion+Paper.pdf]

“A project proponent maintains the right to water that is recharged whether it results from recharge projects or groundwater demand reduction projects (e.g., conservation, recycling). If a project uses or obtains a surface water supply and recharges into the aquifer, the project proponent would have a legal right to the recharged water. Water does not legally become “common” or “native” supply available to overlying groundwater right holders unless it is abandoned by the project proponent.” The contentious issue of privatization of the aquifer that is used as a water bank must be resolved at the State level because local ordinances may be overridden by SGMA jurisdiction. The strategy of integrating the Tuscan Aquifer System into the State Water Supply is a long-standing threat to the balance of uses required to maintain the quality of life in the Vina SB. According to the Public Policy Institute of California, “County export ordinances prevent beneficial trades. In the absence of state regulation of groundwater, county ordinances have protected local parties against injury from groundwater-related exports. But their export permitting hurdles are so high that they impede any transfers, including those that present no significant risk to local groundwater sustainability. In Butte County, for instance, it would take 18 months to go through all the steps to obtain a permit for a same-year groundwater substitution transfer.

“Streamline transfer reviews while maintaining protections. Approval delays by federal, state, and local authorities often reflect uncertainties about the physical impact of a surface or groundwater transfer on other water users or the environment. Yet there are various ways to streamline the process while maintaining protections, for instance by conducting more up-front analysis of impacts through programmatic reviews, developing a “fast lane” for transfers below a certain size, developing a structured evaluative process for reviews, and establishing an after-the-fact process for balancing accounts to enable quicker approvals of time-sensitive activities.

"Develop more equitable local rules for groundwater substitution transfers. Well-run groundwater substitution programs can expand long-term water availability by more actively using local groundwater storage. Once GSAs establish sustainability plans that address undesirable impacts of pumping, it should be possible to ease the coarser restrictions on this practice found in most county ordinances—which effectively preclude trades if they entail water leaving the county. If counties with restrictive groundwater export ordinances fail to amend their laws to conform to SGMA, the legislature should consider preempting local laws that discriminate against out-of-county uses or place undue burdens on groundwater and groundwater-substitution transfers that would not jeopardize sustainable groundwater management of the source aquifer."

The State may use emergency proclamation or legislative action to neutralize local control of water policy such as the Chapter 33 ordinance in Butte County. The broad operating range and historic low-level starting point (MO) that the VGSA consultants and staff have inserted into the VGSP will create the storage space needed to bank/sell water stored in the Butte Basin. The Kincaid white paper explains that Potential Management Actions “would allow the Vina GSA to protect the Vina subbasin and the implementation of the GSP from negative implications from artificial recharge projects through enactment of rules, ordinances and/or policies.” But her estimation that ordinances or policies that the GSA may adopt to ensure recharge projects are operating without adverse impact to the basin offer no assurance that the VGSA would have the capacity to successfully navigate the State prerogative to manipulate the emerging water market that intends to “Streamline groundwater substitution and water transfer permitting and approval processes by allowing consolidated basin-level environmental reviews

to facilitate water market transactions," [https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118]

4664 **5.2.4.5 Community Monitoring Program** "*This project would create routine water table monitoring programs for approximately 8,000 acres of Ecological Reserves in the region between lower Forest Ranch and Cohasset Road near Chico Airport, including the Big Chico Creek, Sheep Hollow, and Cabin Hollow tributaries.*" This project should be required to be implemented yesterday! Baseline habitat monitoring is an important data collection objective because it allows for a better understanding of the existing water resource requirements of the native habitat and the evaluation of potential impacts associated with potential changes in water resource management practices. To identify potential habitat impacts associated with potential changes in water management practices, a program-specific network of shallow monitor monitoring wells should be developed to detect changes in water levels over the shallowest portion of the aquifer. In evaluating impacts to certain GDE species, it is important to discern both the rate of groundwater level change, as well as the cumulative change over the entire year. Data collection and monitoring frequency should be appropriately selected to support the temporal and long-term evaluations.

4691 **5.2.4.6 Project: Wastewater Recycling**

While this project requires time consuming permitting and coordination with regulatory agencies as well as significant infrastructure installations it will be helpful in keeping Chico's GW demand from expanding along with the urban development that is anticipated. Focusing purple pipe infrastructure on athletic field irrigation is a good target during dry seasons.

4722 **5.2.4.7 Project: Community Water Education Initiative**

A population that is well informed on watershed health, water use conservation and water policy is an excellent education goal. This project should identify regional responsible water use and climate responsive flexibility. The political science portion should dive into the history of California water policy; how it has shaped regional water infrastructure and the need for local vigilance in defending the hydrologic balance from insatiable demand from unfettered urban and agricultural expansion south of the Delta.

4768 **5.2.4.8 Project: Rangeland Management and Water Retention**

4802 **5.2.4.9 Project: Fuel Management for Watershed Health**

4833 **5.2.4.10 Project: Removal of Invasive Species**

Investments in the health of ecosystems that provide the water recharge for the Tuscan Aquifer System have been, like in the rest of the Sierra Cascade watershed, unwisely underfunded. An excerpt from the Sierra Nevada Ecosystem Project lays out the imbalance of resource extraction vs reinvestment. These projects would begin to address that imbalance.

"Based on estimates of direct resource values as one input (not the total revenue produced by resource dependent activities), the Sierra Nevada ecosystem produces approximately $2.2 billion

worth of commodities and services annually. Water accounts for more than 60% of that total value. Other commodities [timber and grazing] account for 20% as do services.
"Public timber and private recreation are the largest net contributors of funds to county governments both in total dollars and as a percentage of their total value. Around 2% of all resource values are presently captured and reinvested into the ecosystem or local communities through taxation or revenue sharing arrangements. The declining status of some aspects of the Sierra Nevada ecosystem suggests that this level of reinvestment is insufficient to ensure sustainable utilization of the ecosystem."
https://pubs.usgs.gov/dds/dds-43/VOL_III/VIII_C23.PDF

4870 **5.2.4.11 Project: Surface Water Supply and Recharge** While it is suggested that these projects will require a SWRCB permit; CEQA and others the State is on a path of "streamlining and acceleration of managed aquifer recharge and groundwater banking permitting processes" and to "Streamline groundwater substitution and water transfer permitting and approval processes to optimize the economic value of groundwater".
https://data.ca.gov/dataset/californias-groundwater-update-2020-bulletin-118/resource/94f3a5f6-23f3-4aec-ab84-b546bf211bab
It is unclear if the legal and environmental consequences of this project will be adequately considered. The preservation of undisturbed critical vernal pool habitat is an ecological priority in some of the presumed areas of inundation.

4973 **5.3.4 Landscape Ordinance**
4980 **5.3.5 Prohibition of Groundwater Use for Ski (Recreational) Lakes**
These two common sense regulations would help meet our goals.

4984 **5.3.6 Expansion of Water Purveyors' Service Area**
Assuming that this is exclusively for residential development it is critical that service area expansion does not stimulate urban sprawl that intrudes on either green-line or gold-line open space.

4990 5.3.7 Groundwater Allocation
The consideration of groundwater allocation must be scientifically connected to the actual cause of failure to achieve sustainability goals by 2042. If cross-boundary water flows are causing declining levels in up-gradient portions by extractions in the down-gradient portion of the shared regional aquifer system, there must be well designed/implemented monitoring/modeling systems in place that have the confidence of all involved.

5005 5.4 Data Collection

5006 5.4.1 County Contour Mapping
"*As part of the efforts to collect the information necessary to fill the data gaps identified in Section 3, this project proposes to expand the existing monitoring program to include Butte, Glen, Colusa, and Tehama counties and conduct these groundwater elevation surveys in the spring, summer, and fall. The monitoring program would gather data used to produce groundwater contours and estimates of lateral and vertical flow direction and volume. Producing this data for the four counties will help to identify interbasin flow patterns and*

influences on surface water flows and replenishment locations, thereby improving coordination between counties and water management decision-making." This inter-basin effort must be implemented ASAP! A reliable inter-basin GW modeling is also at the top of the management list.

6. PLAN IMPLEMENTATION

5135 Table 6-5: Estimated Costs for Implementing Data Gaps

"*Interconnected Stream Monitoring $100,000 – $250,000*" As mentioned in previous comments the immediate implementation of a network of shallow monitor monitoring wells should be developed to detect changes in water levels over the shallowest portion of the aquifer. Baseline habitat monitoring is an important data collection objective because it allows for a better understanding of the existing water resource requirements of the native habitat and the evaluation of potential impacts associated with potential changes in water resource management practices. The long-term health of riparian vegetation, wetland species, and number of other native habitat are commonly associated with maintaining a minimum range of groundwater levels. Limiting the data gap to Interconnected Stream Monitoring would leave out GDEs that are outside of designated riparian zones. The shallow aquifer has an important role to play in keeping deep rooted trees, including the large trees in the Chico Urban Forest, that survive the regional dry months without supplemental irrigation.

The USDA also recognizes that Urban Forests such as exists in Chico and other Butte County towns provide a range of valuable ecosystem services. I posit that the groundwater dependent trees of our towns ARE ecosystems. Many environmental challenges are exacerbated within the urban landscape, such as stormwater runoff and flood risk, chemical and particulate pollution of urban air, soil and water, the urban heat island, and summer heat waves. Chico's urban forest canopy mitigates these challenges. Research shows that urban trees are integral to the environmental quality of cities and towns.
In April of 2007 Butte County resolved to adopt an oak woodlands management plan.
"Butte County supports significant acreage of oak woodland habitat. The historical importance of oaks is apparent in the names of towns, cities, streets and residential complexes throughout California. Butte County's oak woodlands enhance the natural and scenic beauty of the area, provide forage and shelter for more than 300 species of wildlife, facilitate nutrient cycling, moderate temperature extremes, reduce soil erosion, sustain water quality and increase the monetary and ecological value of property."
http://www.buttecounty.net/Portals/10/Docs/Planning/Projects/OakWoodland/Chapter53_ButteCounty_OakWoodlandMitigationOrd_2018-10-29.pdf?ver=2018-10-29-165211-350

Water Code § 113: "It is the policy of the state that groundwater resources be managed sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future beneficial uses."

5253 6.7 Interbasin Coordination
5271 1. Information Sharing
"*This will continue throughout GSP implementation and may include:*

1. Inform each other on changing conditions (i.e., surface water cutbacks, land use changes, policy changes that inform groundwater management)
2. Share annual reports and interim progress reports
3. Share data and technical information and work towards building shared data across and/or along basin boundaries (e.g., monitoring data, water budgets, modeling inputs and outputs, and Groundwater Dependent Ecosystems)"

Information Sharing must include the water-market/emergency GW pumping volumes/locations/timing that members of the North Sac River Corridor group intend to implement and a report on the final v/l/t of these extra demands on the shared aquifer system. These extra pumping demands are not unprecedented and have become a routine component of California's plan to use the Northern Sacramento Valley as a "reliable" source of supply.

Butte County is on the verge of conduction a Drought Impacts Analysis Study that will evaluate the numerous 2021 Water Transfer Programs in Northern Sacramento Valley including the Supplemental Groundwater Pumping Operations. The study portends to accomplish an evaluation of cumulative impacts of programs on water supplies and demands in the inter-basin, but focus on the Vina Subbasin"
https://buttecounty.granicus.com/MetaViewer.php?view_id=2&clip_id=1006&meta_id=157029
pdf Pg 42-43
The report will include a brief description of the programs, amount of water transferred, recipient of water, whether surface water or groundwater substitution is utilized, destination of transferred water, etc. including maps. This report should be conducted every year, funded by SGMA interbasin coordination parties and be included in the VGSA Annual report submitted by April 1 for the prior year's activities.

5295 3. **Coordinate on mutually beneficial activities**
GSAs that overlie the Tuscan Aquifer Formation should provide cooperative funding for mutually beneficial watershed management in the recharge areas located in the foothills east of the valley floor.

5314 **5. Issue Resolution Process**
"Vina Subbasin will pursue development of an issue-resolution process with neighboring subbasins in the North Sac River Corridor group."

This single sentence description of the process to identify and resolve "issues" belies the potential for regional conflict over water management issues. The drama surrounding the nascent Tuscan Water District and the unpopular "Operational Range[s]" proposed in the DVGSP are examples of "issues" that have already emerged in this process. Conflict arising from expanded GW demand in the North Sac River Corridor group are being litigated between stakeholders and agencies. Achieving sustainability requires local agencies, stakeholders, and water users to make many difficult and potentially contentious decisions. These decisions are prone to conflict, particularly when pumping restrictions are viewed as infringing on property rights, or when fees are charged to support local management. Newly formed GSAs have additional layers of potential conflict. Questions regarding authority, streamlined legal and regulatory timelines, a lack of existing precedents and the need to represent agency and constituent interests have the

potential to exacerbate conflicts under SGMA. In some cases, where authoritative interpretations of legal authority and limits have not been established yet, litigation may be necessary and warranted. The State prefers the Northern Sacramento Valley to quietly comply with the myth that this region is a source of "surplus" water that can peacefully serve the accelerating water market through conjunctive-use water banking. However, it is likely that conjunctive-use water banking would degrade the groundwater basin and groundwater users who are not involved in conjunctive use but are reliant on the same groundwater basin.

Chapter 4: MONITORING NETWORKS

4218 Well "Construction Data – Well data such as perforation depths, construction date, and well depth was considered for selection." Many of the selected wells to not meet the above criteria for selection:
4262 Table 4-5. Groundwater Levels RMS Well Construction Details
North MA: 3/6 of the wells do not have listed screen intervals. This makes it difficult to know what layer of aquifer is being monitored. Scientifically constructed multi-completion wells with defined screen depths/elevations is needed. The other 3 have screen intervals ranging from about 70' to almost 500'. While this type of well construction is suitable for production it is unsuitable for transparent depth/elevation monitoring of the aquifer system.
Chico MA The well depths are undefined as are the screen depths. There is a notable lack in monitoring the shallow aquifer that supports the unirrigated Chico Urban Forest.

In summary:
The VGSP must strive to develop and use the best modeling/monitoring processes that recognize the influence of the upland recharge area and the downslope aquifer extraction that influences the ability of this GSA to achieve a robust sustainability goal that does not collapse during the inevitable dry periods that the historic record reveals and the climate destabilization models predict. The hydrologic and geologic science used must not be cast aside by the political science that drives California Water Policy that views the Butte County as an underutilized export source that can be "exercised" by conjunctive water banking. The environment, the urbanites and the rural community require a reliable water table that can't be displaced, even during consecutive dry years.

Jim Brobeck, Water Policy Analyst, AquAlliance

GW LEVELS

The DWR Ecological Technical Assistance: Groundwater Dependent Ecosystems document describes the MT as the "transition" point "between functionally stable and detrimental ecosystem states" it restates the premise that the "Minimum Threshold" aquifer levels allowed "**before** undesirable results **begin** to occur." The Vina Plan claims that legally defined "undesirable results" can't occur during dry or critically dry water years. Of course, dry years will likely produce the greatest impacts to domestic well users and the environment. For instance, the 2024 Water Reduction Program Agreement Between the Sacramento River Settlement Contractors and the U.S. Bureau of Reclamation is a drought resilience plan that expects to extract an extra 167,100 A/F of N Sac Valley groundwater into irrigation canals during dry years. The State Water Contractors are working on a similar plan for this side of the river.

The VGSP excludes enforcement of MT targets during these dry years.

"The quantitative Vina Subbasin Undesirable Result for the Chronic Lowering of Groundwater Levels occurs when: Two RMS wells within a management area reach their MT for two consecutive years of non-dry year-types." The absence of undesirable results indicators for dry water years means environmental uses of groundwater and interconnected surface water may experience significant and unreasonable effects throughout the duration of dry or critical water years before the undesirable results are 'identified' and managed. APPROVAL OF THE VINA SUBBASIN GROUNDWATER SUSTAINABILITY PLAN. RECOMMENDED CORRECTIVE ACTION

a. Revise the definition of undesirable results and language pertaining to significant and unreasonable lowering of groundwater level to **remove the non-dry year** condition

ECOLOGICAL THRESHOLDS MUST INCLUDE NON-RIPARIAN GROUNDWATER DEPENDENT VEGETATION.

The current designated GDE locations are exclusively riparian. This neglects to protect Valley Oak Woodlands and the Chico Urban Forest.

Valley oak trees are a **keystone species** on which many other organisms in an ecosystem depend, such that if it were lost the ecosystem would change drastically.

Valley oak typically has several vertical roots that tap groundwater and extensive horizontal root branches. Vertical root depth has been measured as deep as 80 feet. The oaks depend on water-table access. Historically, these forests extended 0.6 to 5.0 miles (1-8 km) on each side of major rivers. Remaining valley oak riparian and woodland areas comprise critical habitat which is intensively used by wildlife.

The unirrigated Chico Urban Forest is also dependent on access to the water table to thrive. An even higher than 79' bgs may be required to protect Chico's deep rooted urban forest.

There are significant environmental impacts to streamflow and terrestrial vegetation when groundwater levels reach historic low levels. To assume negative impacts only begin to occur when VGSP MT levels are observed is illogical.
Revise the MTs to 79' or higher to preserve these woodlands.
These MT revisions will protect many domestic and agricultural wells.
The MOs that designate the highest groundwater level of the GSP operating range are set at the historic low levels. This contradicts the citizen led BMO water level targets that identified historic low groundwater levels as "alert stage". The myth that the GSA needed to set the MO at these levels is required to prevent the State Water Board from taking over the management of the Vina sub-basin. This myth is belied by the Water Code:
§ 354.30. Measurable Objectives (g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for a finding of inadequacy of the Plan.
Revise the VGSP to raise the MO for the purpose of improving overall conditions in the basin.

WATER QUALITY
RECOMMENDED CORRECTIVE ACTION
a. Provide additional information in the GSP outlining the location and extent of contamination plumes, identifying which constituents are being monitored under various programs, and thoroughly describing ongoing remediation efforts within the Subbasin.
b. Evaluate whether groundwater management actions, including production and/or replenishment under the jurisdiction of the GSAs, may influence the migration of contaminant plumes.
Revise the definition of undesirable results to **remove the non-dry year condition** or discuss how degradation during dry period will be managed as necessary to ensure that adverse water quality conditions are offset during other periods.

Finally, the legal consequences of recharge projects promoted by and using water owned by senior water right holders is an environmental issue in that the privatization of water stored in a shared aquifer is vulnerable to unreasonable exploitation that can cause permanent damage to the environment. The VGSA attorney has issued a fair analysis of these consequences in her paper: Legal Implications of Potential Projects and Management Actions Stakeholders, GSA Board members and consultants must familiarize themselves with this important document.

DWR recommendations in determination that the Vina Groundwater Sustainability Plan is “complete”

Statement of Findings Regarding the Approval of the Sacramento Valley Basin – Vina Subbasin Groundwater Sustainability Plan July 27, 2023

https://sgma.water.ca.gov/portal/service/gspdocument/download/9927

Pg 25: the GSA does not access how the proposed minimum thresholds for the chronic lowering of groundwater levels may impact other sustainability indicators (e.g., groundwater storage, depletion of interconnected surface water, etc.). Considering **the GSA is choosing to manage the Subbasin below historic lows,** understanding this relationship will be important during plan implementation. Department staff recommend the GSA provide a description of the relationship between established minimum thresholds for the chronic lowering of groundwater levels and how they avoid undesirable results for each of the other sustainability indicators (see Recommended Corrective Action 3c)

Pg 33: Groundwater level data shows cyclic fluctuations over a four-to seven-year cycle and, generally, the lowest groundwater levels of a given cycle were used for this projection.191 Since there is a continuous long-term decline in groundwater levels, the measurable objectives or the projected 2030 levels are the lowest levels observed since 2000 and generally lower than the groundwater levels observed in 2015.

33-34: the majority of the interim milestone groundwater levels are the same as the measurable objectives and when the interim milestones are different, they only differ by a few feet.

34: The measurable objectives set at 2030 groundwater levels are 10 to 84 feet higher than the minimum threshold levels. The GSP states that this range between minimum thresholds and measurable objectives provides operational flexibility for active management… Department staff note that the Agencies’ approach, of allowing the groundwater level to further decline until 2030, is based on the anticipation that it will take a few years to implement the water conservation and supply augmentation projects and to reflect the benefit of these projects on groundwater levels.

40: The Plan acknowledges that most of the streams in the Subbasin are interconnected surface water bodies.. Although the GSP provides inconsistent information regarding stream gains and losses, it does provide rate and volume of surface water depletions. However, the GSP does not specify if the quantified rate or volume of surface water depletions due to groundwater pumping as required by the GSP Regulations. Instead, the GSP proposes to use groundwater levels as a proxy for depletions of interconnected surface water because the connectivity between the surface water and groundwater is not well measured or understood at this time. The GSP further elaborates that the groundwater model incorporates interaction of surface water and groundwater at a regional scale but there are significant data gaps that limit calibration of the groundwater response to the uppermost layer of the model. The GSP also states that an accelerated schedule has been developed to fill these data gaps, and the sustainable management criteria for depletions of interconnected surface water will be established in the future. The GSAs have not provided a technical justification for the use of groundwater elevations as a proxy for quantifying the location, quantity, and timing of depletions of interconnected surface water due to groundwater extraction. As a result, the GSAs have not demonstrated by adequate evidence that groundwater elevation can serve as a sustainability indicator for the depletions of interconnected surface water. .. 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. 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, the GSAs, where applicable, should consider incorporating appropriate guidance approaches into their future periodic evaluations to the GSP (see Recommended Corrective Action 6a). 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 (see Recommended Corrective Action 6b). 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 (see Recommended Corrective Action 6c)

4.4 MONITORING NETWORK

42: Specifically, a monitoring network must be able to monitor impacts to beneficial uses and users, monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds, capture seasonal low and high conditions, include required information such as location and well construction and include maps and tables clearly showing the monitoring site type, location, and frequency.

43: Department staff calculate the density of the proposed monitoring wells in the Subbasin to be approximately 27 wells per 100 square miles which is slightly less than the 31 wells per 100 square miles stated in the GSP, but still exceeding the range (0.2 – 10 wells per 100 square miles) recommended by the Department… the GSP does not provide specific months when the monitoring will take place. The GSP does not provide analysis to support the justification that the proposed frequency of measurements can accurately capture the seasonal highs and lows in the Subbasin. Therefore, Department staff recommend GSAs should specify which months depict the seasonal high and low and provide justification on specified months representing the seasonal high and low.

44: The proposed water quality monitoring network consists of seven monitoring wells 252 and eight representative monitoring wells….The GSAs plan to monitor pH and temperature, but plan only to track specific conductance or salinity at the representative monitoring sites.

.. the GSP discusses using the groundwater level as a proxy for land subsidence,.. Because GSAs' intent to monitor and manage land subsidence in the Subbasin is not clearly described in the Plan, Department staff recommend the GSAs establish monitoring for land subsidence utilizing a method that directly measures land elevation change such as remote sensing data, survey monuments, or global positioning system stations.

45. Department staff are unable to determine if the proposed monitoring network is sufficient to evaluate conditions related to depletions of interconnected surface water because pertinent information about the monitoring network, such as specific details regarding monitoring sites, frequency of monitoring, and scientific justification for site selection are not provided. Department staff recommend the GSAs clarify the groundwater level monitoring sites that will be used for the evaluation of depletions

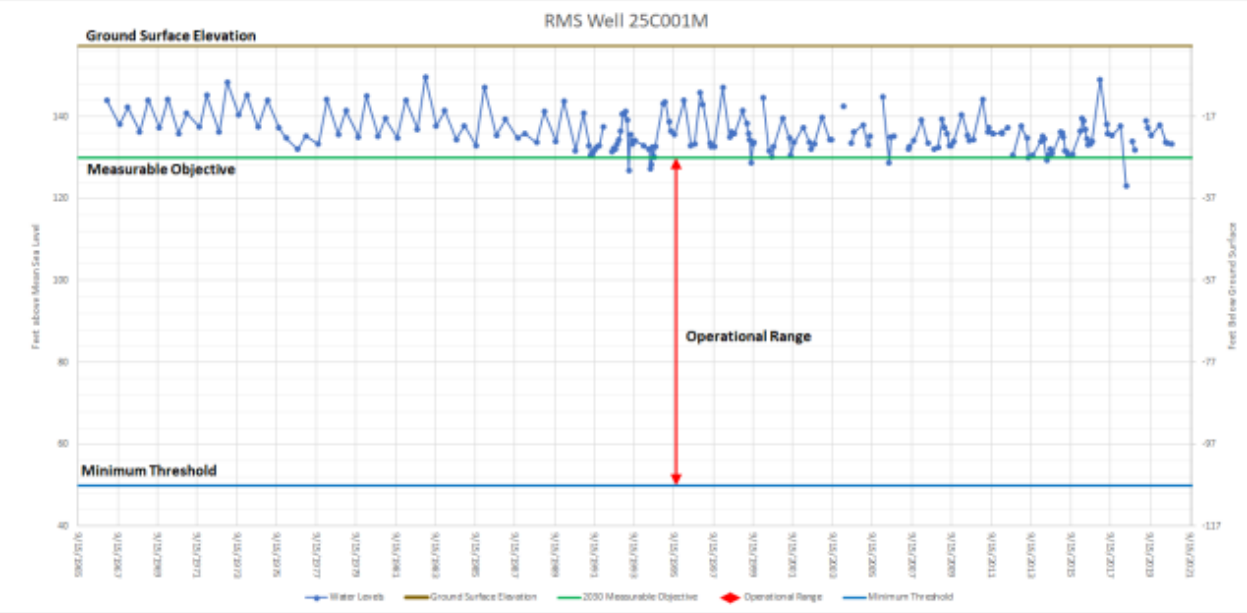
of interconnected surface water and provide site-specific information (see Recommended Corrective Action 6d).

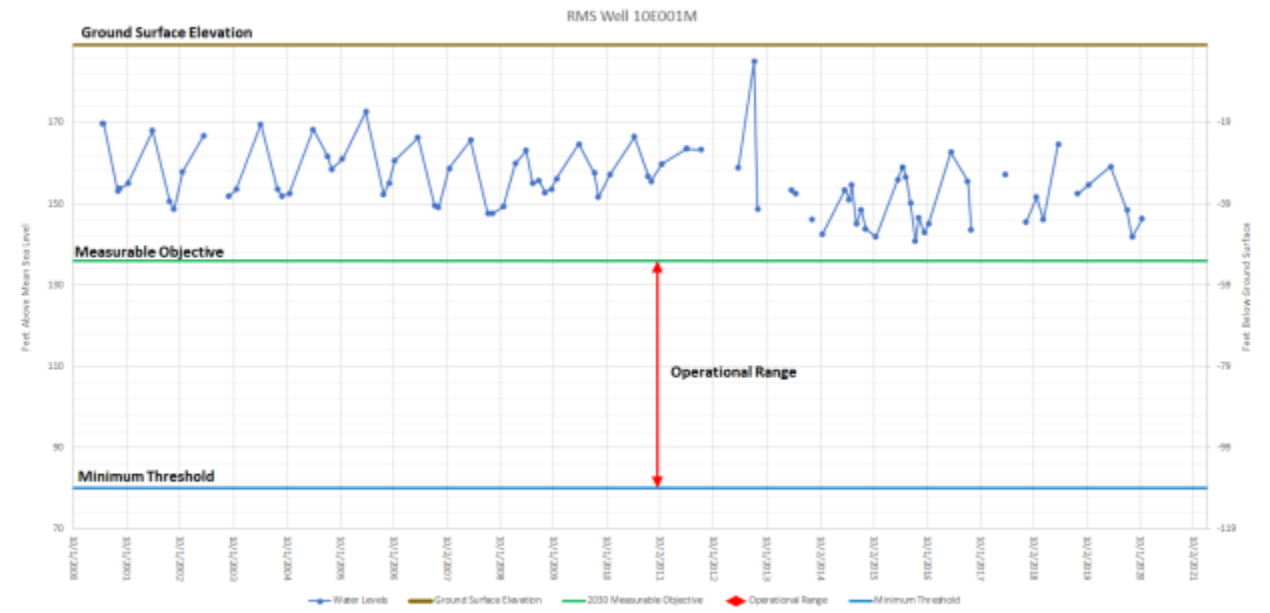
Pg 50
4.7 CONSIDERATION OF CLIMATE CHANGE AND FUTURE CONDITIONS
Since the GSP was adopted and submitted, climate change conditions have advanced faster and more dramatically.
Pg 51:
6 DWR STAFF RECOMMENDATIONS
RECOMMENDED CORRECTIVE ACTION 1
Provide additional information on historical and current groundwater quality conditions in the Subbasin and refine the definition of sustainable management criteria including:
a. Provide additional information in the GSP outlining the location and extent of contamination plumes, identifying which constituents are being monitored under various programs, and thoroughly describing ongoing remediation efforts within the Subbasin.
b. Evaluate whether groundwater management actions, including production and/or replenishment under the jurisdiction of the GSAs, may influence the migration of contaminant plumes.
RECOMMENDED CORRECTIVE ACTION 2
Review the model inputs/outputs and provide consistent information regarding stream loss and gains throughout the GSP. Clarify whether these values simply represent the overall interaction between the surface water and groundwater system or the quantity of depletion due to groundwater pumping.
Pg 52: RECOMMENDED CORRECTIVE ACTION 3
Provide sufficient information regarding criteria used to identify significant and unreasonable conditions, undesirable results, and the potential impacts to various beneficial uses and users of groundwater related to the chronic lowering of groundwater level minimum thresholds. The GSAs should address the following items:
a. Revise the definition of undesirable results and language pertaining to significant and unreasonable lowering of groundwater level to remove the non-dry year condition or discuss how extractions and recharge will be managed as necessary to ensure that reductions in groundwater levels or storage during dry years are offset by increases in groundwater levels or storage during other years within the sustainable management criteria for the chronic lowering of groundwater levels.
b. Provide information on impacts to domestic wells during projected conditions where minimum thresholds are exceeded but undesirable results do not occur and also quantify domestic wells that will be impacted by the proposed minimum threshold. Furthermore, the GSAs should evaluate the impacts of proposed minimum thresholds on other beneficial uses and users, such as public and small water systems and environmental users and users. c. Evaluate how the proposed minimum thresholds for the chronic lowering of groundwater levels may impact other sustainability indicators (e.g., groundwater storage, depletion of interconnected surface water, etc.).
RECOMMENDED CORRECTIVE ACTION 4
Revise the definition of undesirable results to remove the non-dry year condition or discuss how degradation during dry period will be managed as necessary to ensure that adverse water quality conditions are offset during other periods.
RECOMMENDED CORRECTIVE ACTION 5

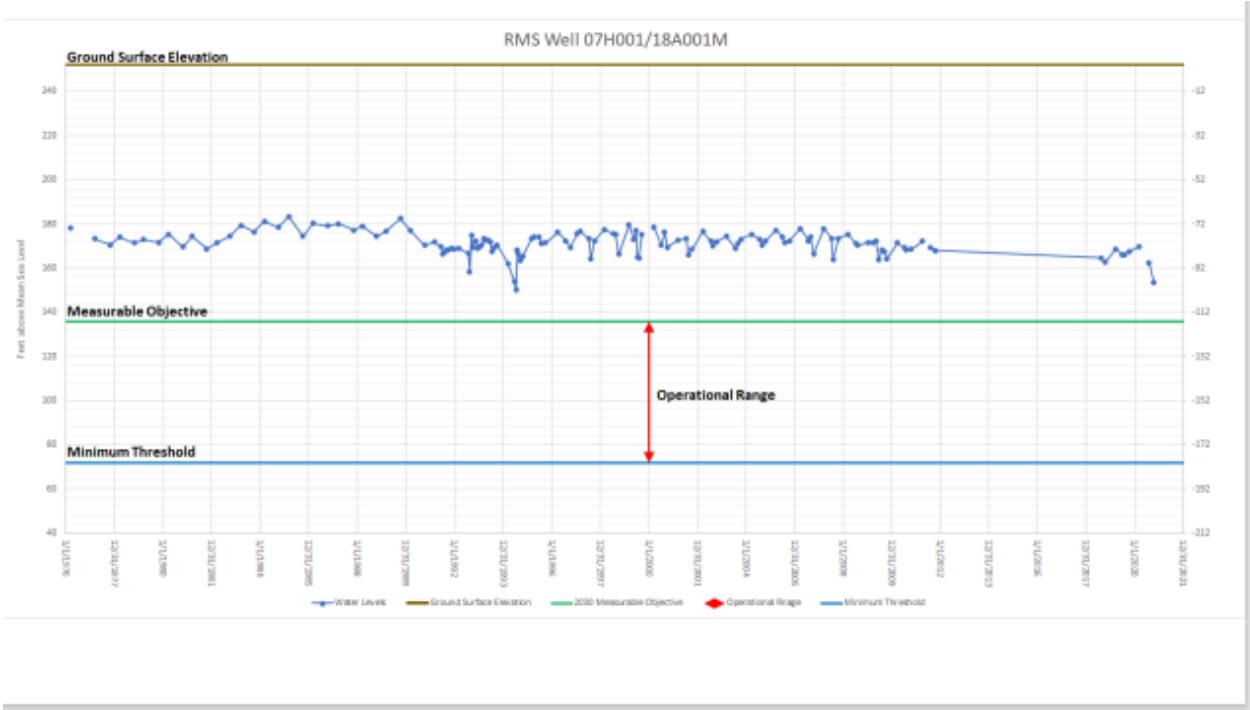
Provide additional information on criteria used to identify undesirable results, and sustainable management criteria for land subsidence,
Pg 53
RECOMMENDED CORRECTIVE ACTION 6
Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide 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.

https://www.vinagsa.org/files/61ed01a45/3C+RMS+Well+Hydrographs.pdf
APPENDIX 3-C Representative Monitoring Site Well Hydrographs

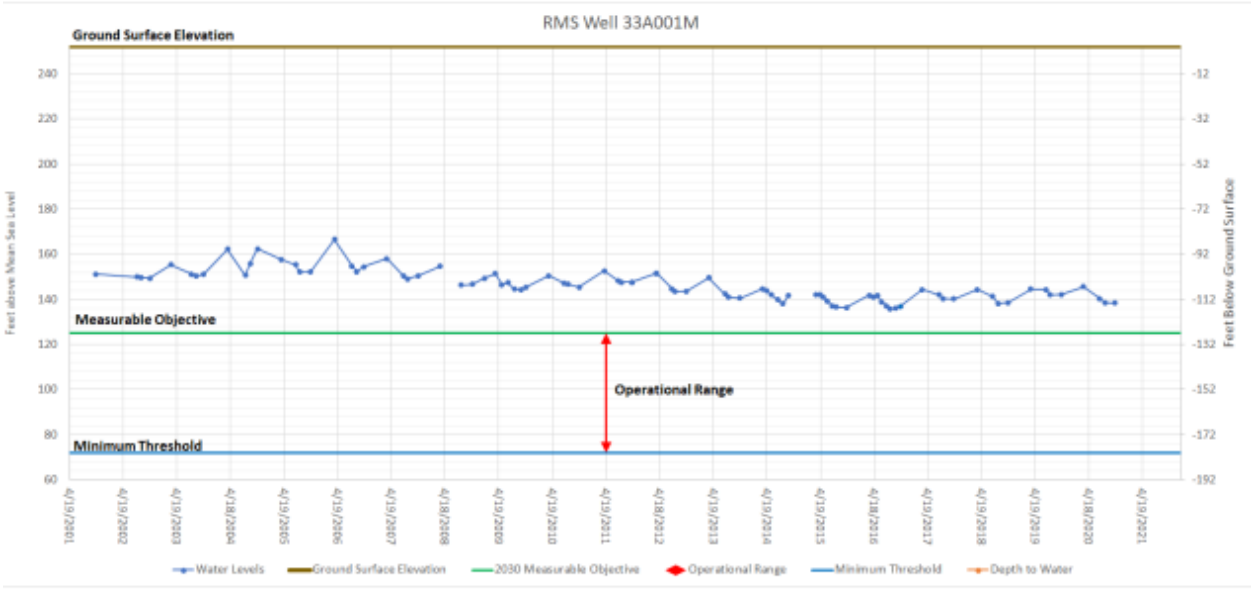
Vina Subbasin North Management Area:



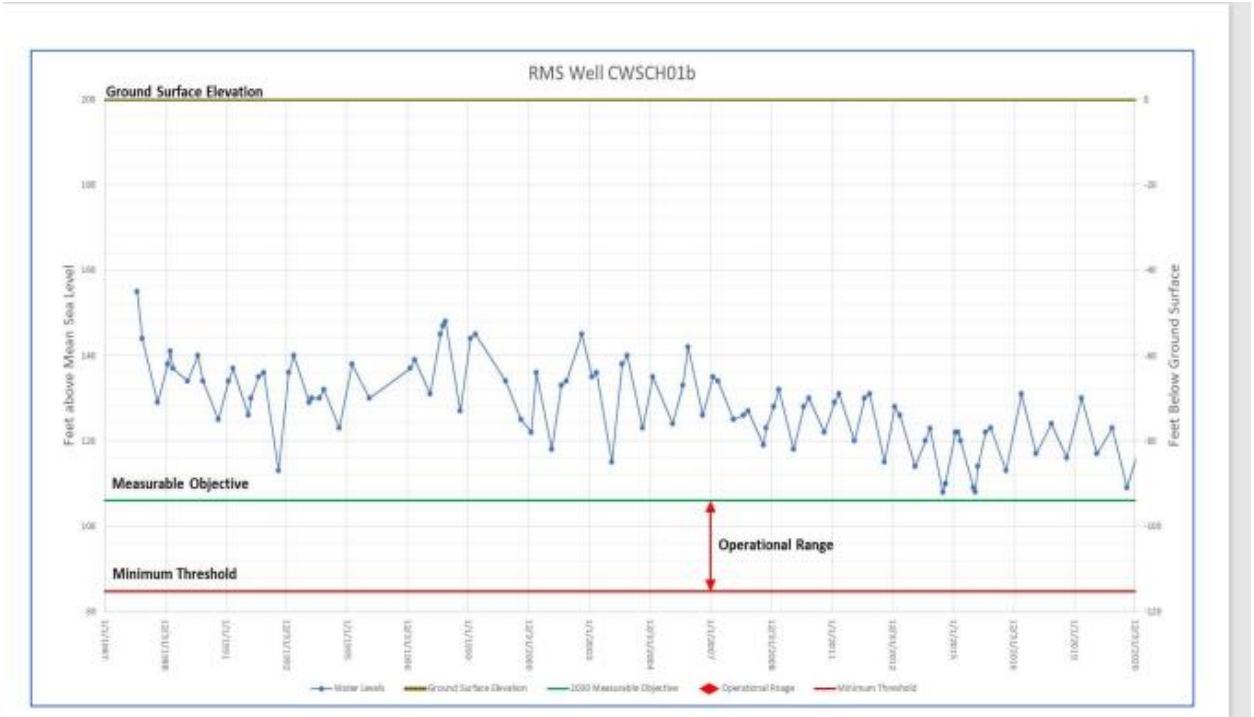


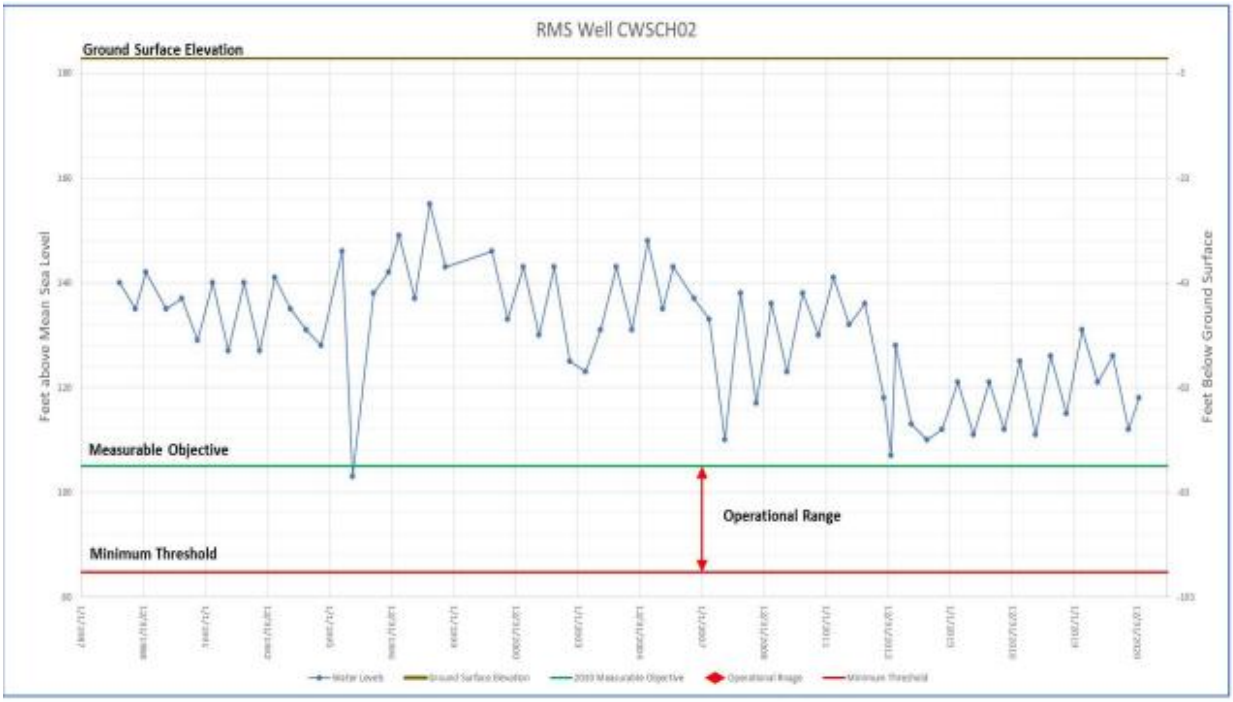

RMS Well 07H001/18A001M
Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold
Feet above Mean Sea Level
Water Levels
Ground Surface Elevation
2030 Measurable Objective
Operational Range
Minimum Threshold

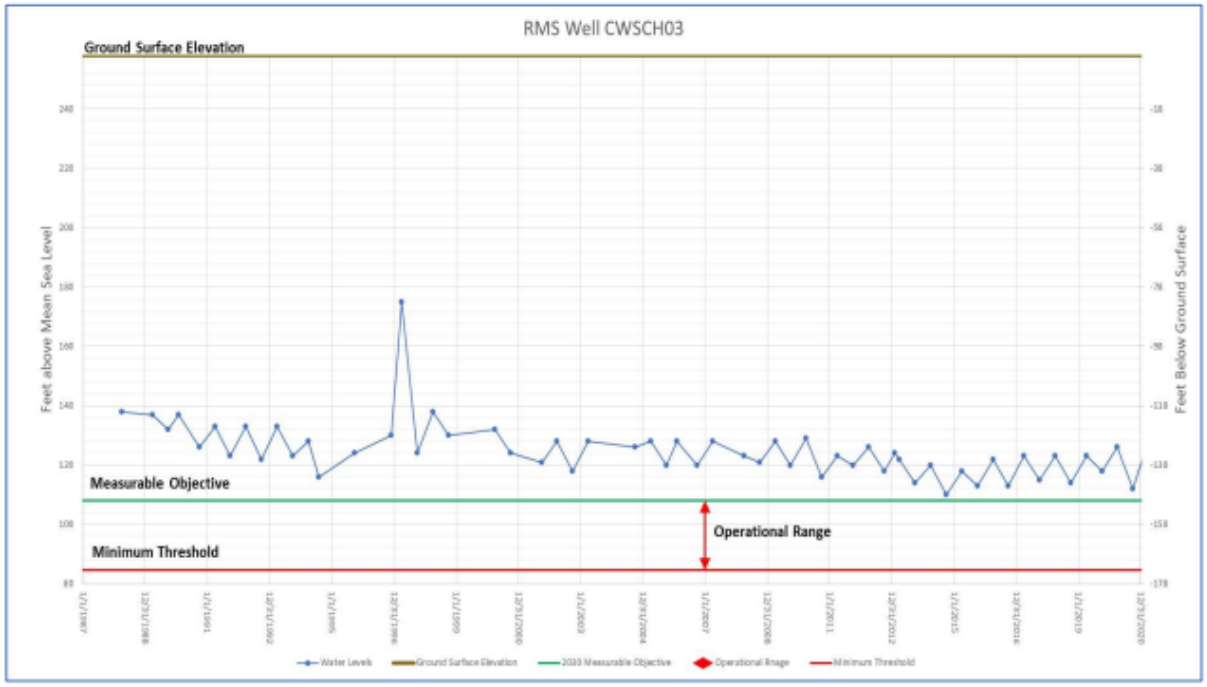

Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold
Feet above Mean Sea Level
Feet Below Ground Surface
Water Levels
Ground Surface Elevation
2030 Measurable Objective
Operation Range
Minimum Threshold
Depth to Water

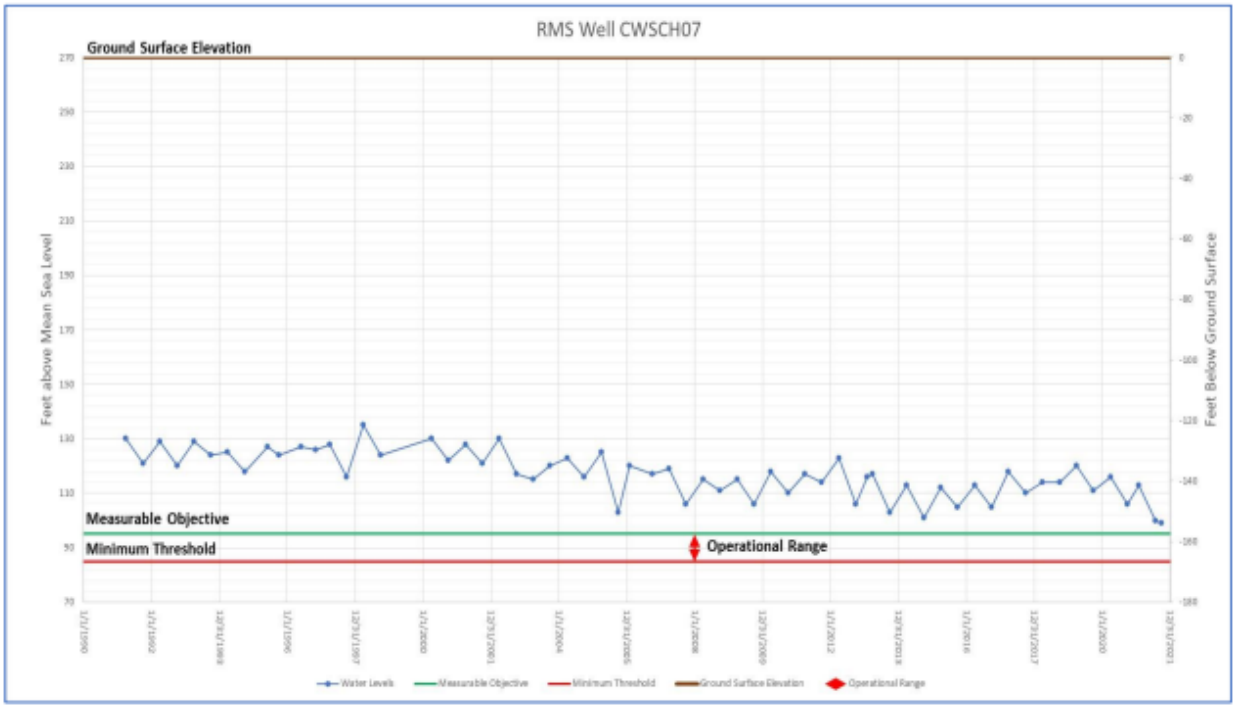


Vina Subbasin Chico Management Area:

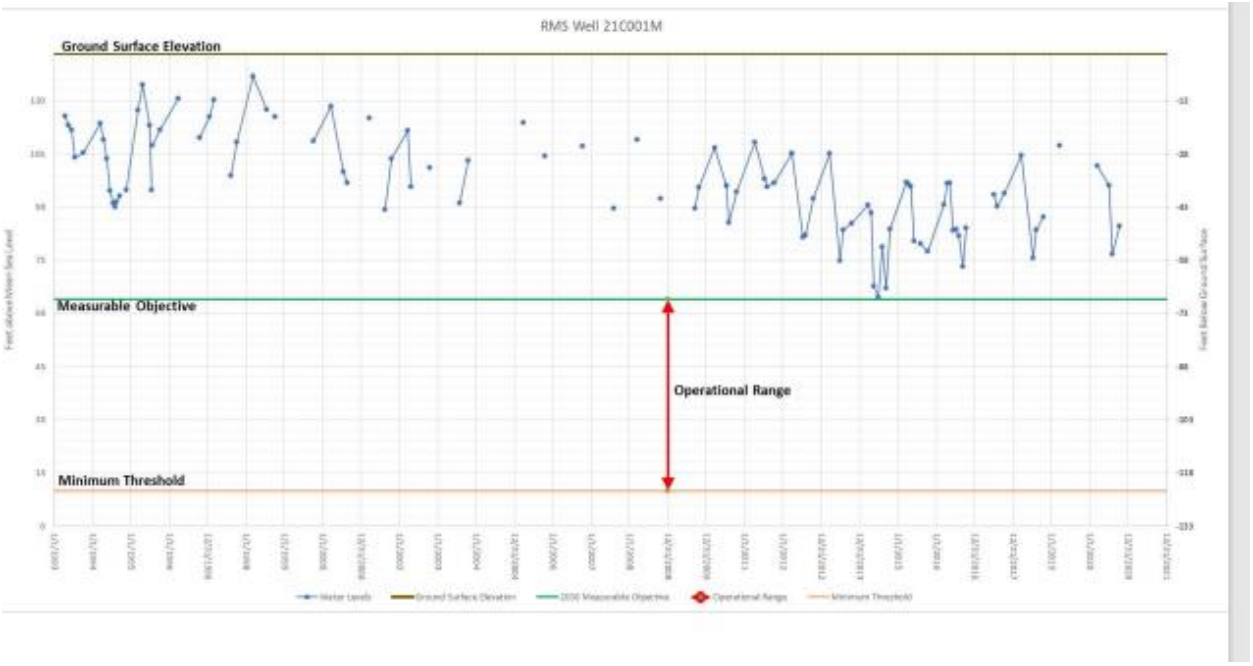


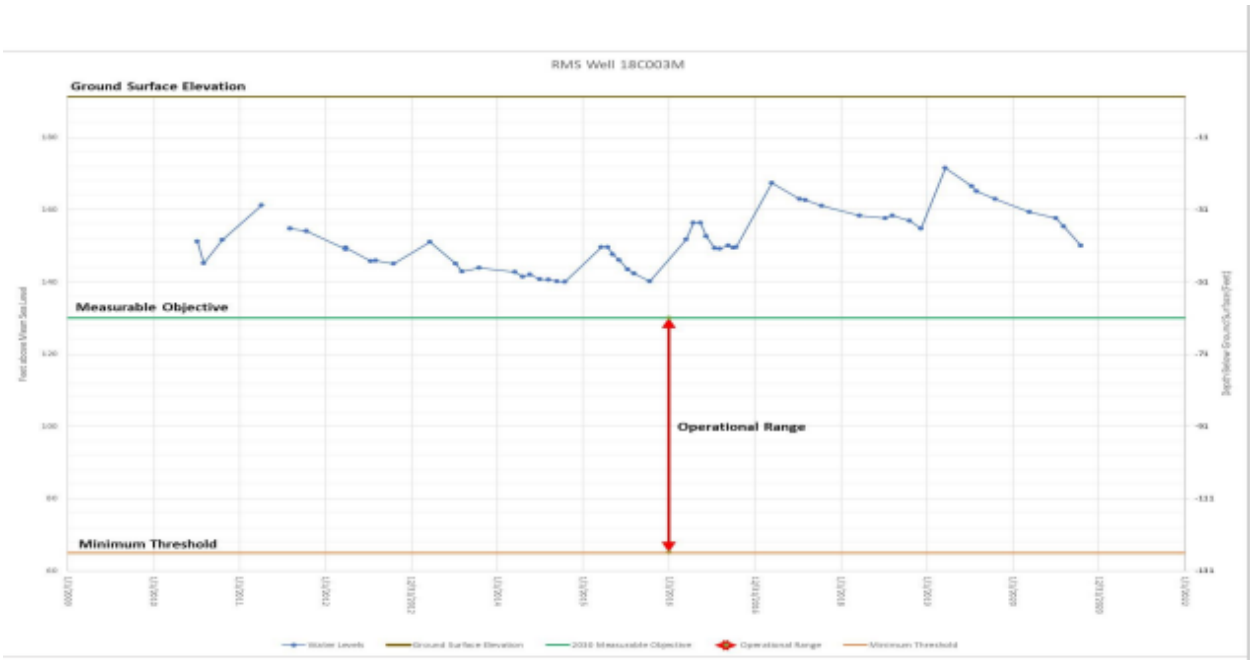

RMS Well CWSCH02
Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold
Feet above Mean Sea Level
Feet Below Ground Surface

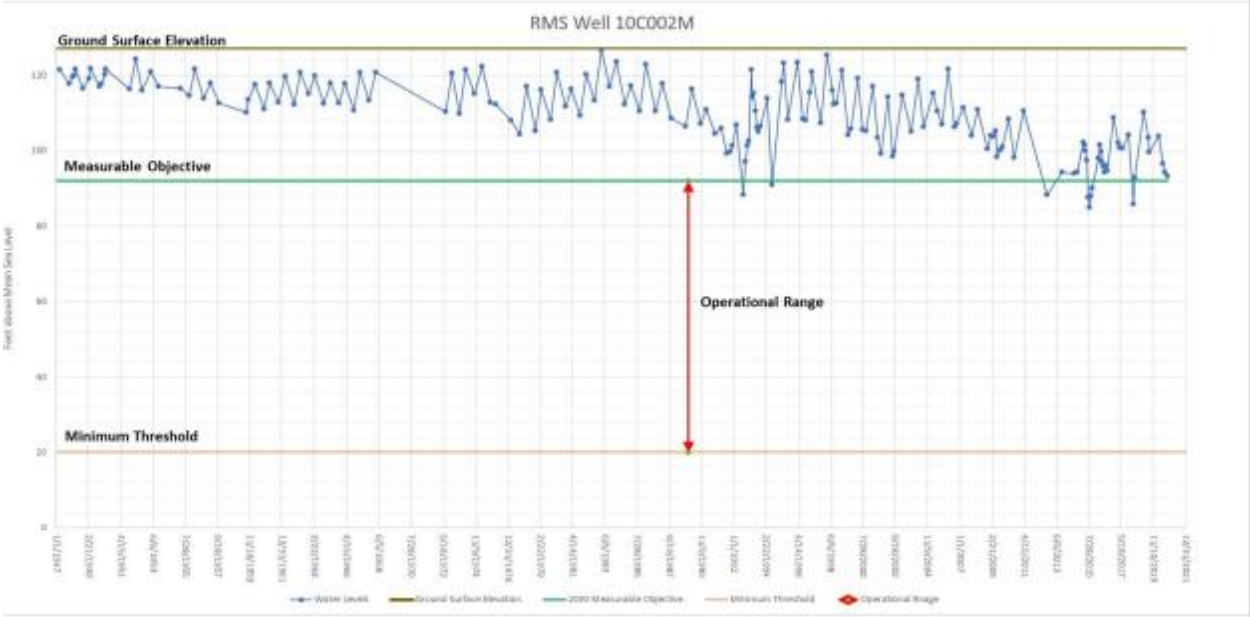

RMS Well CWSCH03
Ground Surface Elevation
Feet above Mean Sea Level
Feet Below Ground Surface
Measurable Objective
Operational Range
Minimum Threshold
Water Levels
Ground Surface Elevation
2010 Measurable Objective
Operational Range
Minimum Threshold

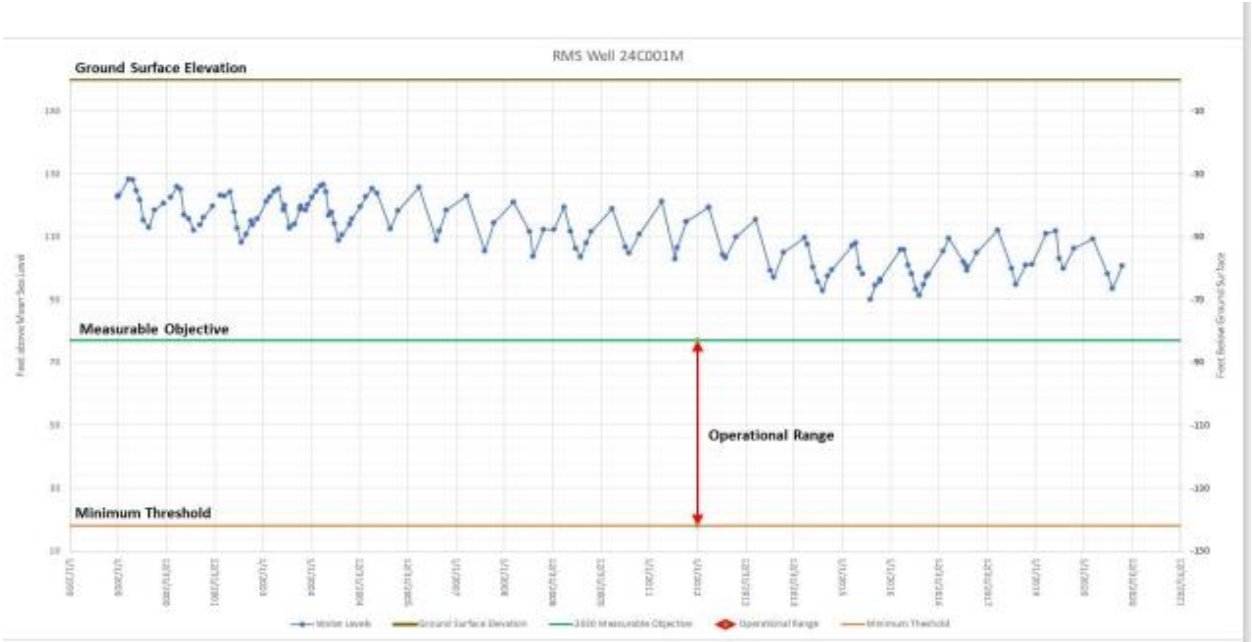

RMS Well CWSCH07
Ground Surface Elevation
Feet above Mean Sea Level
Feet Below Ground Surface
Measurable Objective
Minimum Threshold
Operational Range
Water Levels
Measurable Objective
Minimum Threshold
Ground Surface Elevation
Operational Range

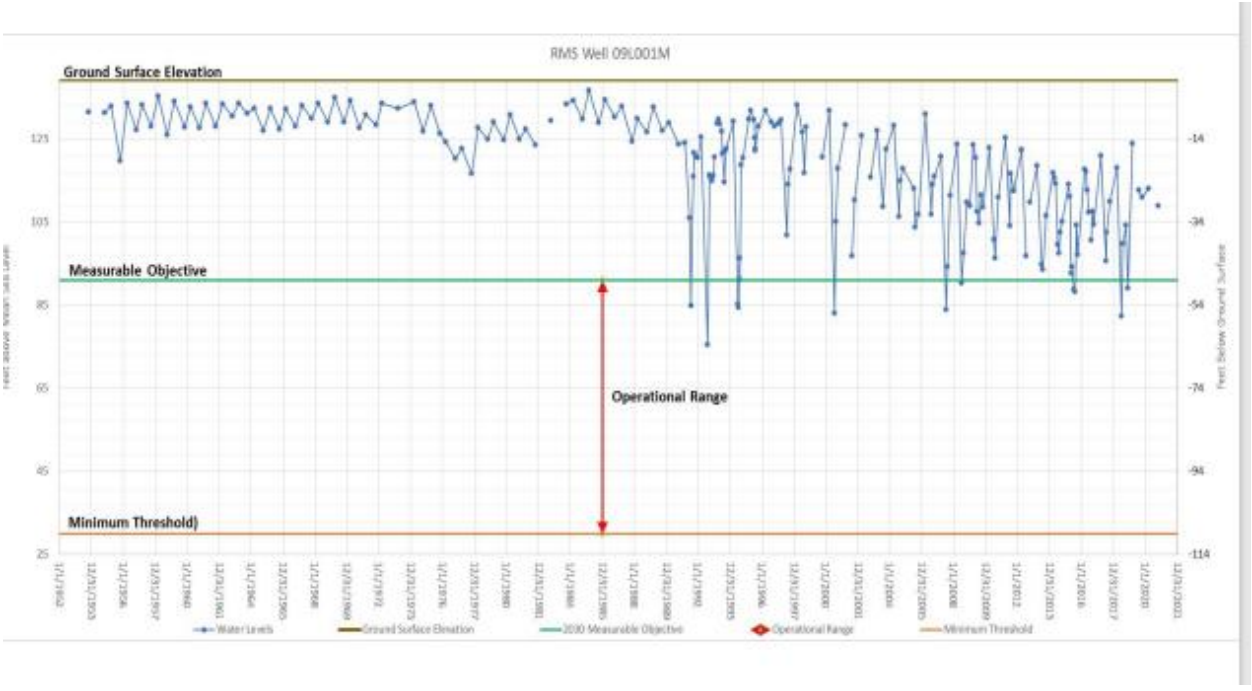
Vina Subbasin South Management Area:

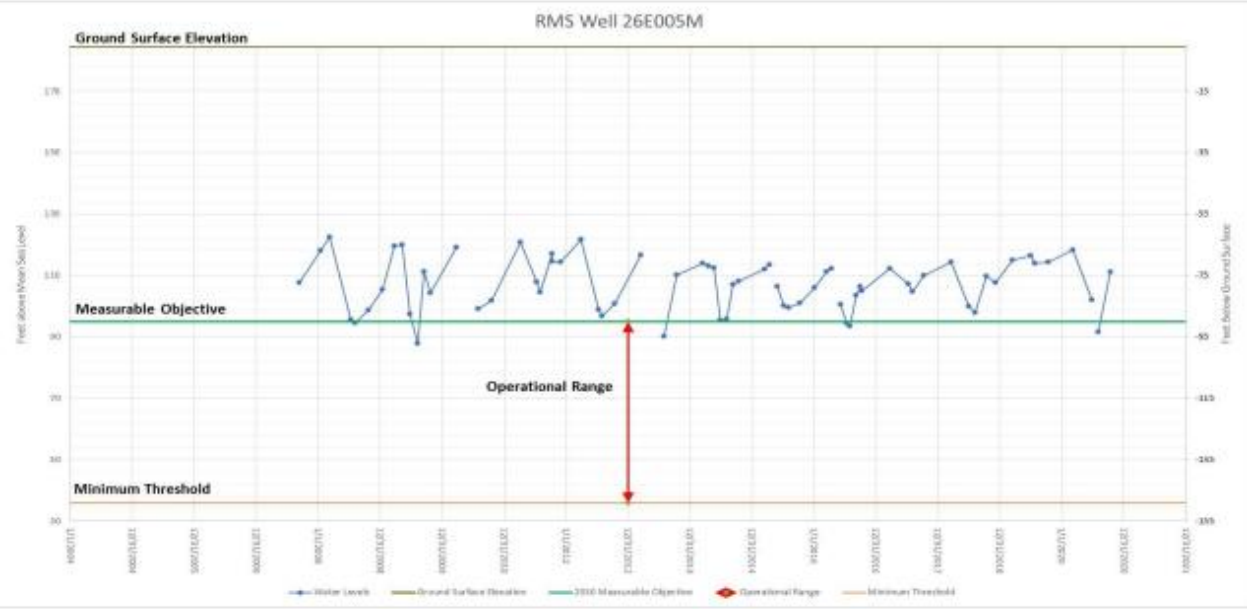



RMS Well 18C003M
Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold


RMS Well 10C002M
Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold


RMS Well 24CD01M
Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold


RMS Well 09L001M
Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold)


RMS Well 26E005M
Ground Surface Elevation
Measurable Objective
Operational Range
Minimum Threshold

FOR IMMEDIATE RELEASE
November 12, 2021

TECHNICAL ADVISORY COMMITTEE MEMBERS TO THE VINA GSA OFFER DISSENTING VIEW ON THE VINA SUBBASIN GROUNDWATER SUSTAINABIITY PLAN

CHICO – For nearly two years, a technical advisory group called the Stakeholders Advisory Committee (SHAC) has met to help inform the Vina Sub-basin Groundwater Sustainability Plan (GSP) and the Vina GSA Board of Directors.

Five of the 10 SHAC members have serious concerns about the draft GSP in its current form which severely downplays important measuring methods, data gaps, and/or disregards input from the public, state agencies, environmental groups, domestic well owners, local institutions, engineers and scientists. The draft Plan will not lead to sustainability as required by the Sustainable Groundwater Management Act (SGMA), but will allow major groundwater fluctuations, significant well failures, and cost burdens on harmed farms, homes, and businesses.

Some of the more egregious concerns include:

- The unprecedented and destructive nature of the proposed operating ranges for (MO's), the operational range and the minimum threshold (MT). These lower levels which lead toward de-watering of the aquifer could cause irreversible damage to groundwater dependent ecosystems like our urban forests, valley oaks, streams, fisheries and more.
- The legal consequences of water banking which could lead to the private ownership of the basin's aquifer. This will come into play with the Project Management Actions (PMA's) but it is not really touched upon or thoroughly explored in this document.
- The liability associated with dewatering of wells, i.e., if the operating range is allowed to go as low as suggested in the plan, many domestic wells will be in danger of going dry. Who will be liable for this situation? The unsuspecting well owners? The Vina GSA? The farmers who are pumping?
- The inadequate monitoring protocol
- The lack of inter-basin conflict identification/resolution. For instance, Vina Sub-basin could be doing everything right but if our neighbors continue to pump and sell water downstream like they did this year, it affects our groundwater levels because we share an aquifer with nearby basins in nearby counties.

QUOTES BY SHAC MEMBERS

"The GSP does not recognize the importance of the whole aquifer system," Dr. Todd Greene, Chair & professor of geological and environmental sciences at CSU, Chico, said. "Ag folks involved in this process are thinking about their own economics but where they want to

operate takes us to a whole new world – one where we've never been. We have insufficient information to know what this will look like or what the consequences of operating in this new world will mean." Greene sits on the SHAC as the CSU, Chico representative.

"It is abundantly clear that this trajectory will harm the people and environment of the Vina sub-basin and surrounding region. The plan makes no effort to correlate declining aquifer levels to escalating regional cumulative demand by several other sub-basins on the shared aquifer," said Jim Brobeck, the environmental representative on the SHAC.

"The low measurable objective and minimum threshold make a fatal assumption. That there is going to be water available to replace it," said Bruce Smith, the SHAC business association representative. "We are currently in a megadrought and a steadily declining system of aquifers. If we needed to get extra water today there is nowhere that it is available. Both Oroville and Shasta Dams are far below average. This fatal measurable objective, fatal minimum threshold, low quality RMS wells and lack of defined GDEs will take us to where Owens Valley and the San Joaquin Valley are. If the current Vina GSP is approved as is, history will look on it as one of California's greatest environmental disasters. Not something I would want to be remembered for."

"Domestic wells are going to go dry under this plan," said Anne Dawson, one of two domestic well users on the SHAC. "The attitude has been; It's your private well - you need to adjust - You deal with it. So, I see domestic well owners having to bear a good deal of the cost if these MOs and MTs are not raised. I also believe it would be beneficial to add a project and management action to establish rules and proposed actions if groundwater levels appear to be falling too rapidly. This would be similar to the current alert system that is used for basin management objectives."

"We need a wholistic view of our aquifer and this plan does not meet that standard," Chris Madden, SHAC representative for Butte College said.

The GSP is required under SGMA, passed in 2014, which set forth a statewide framework to help protect groundwater resources over the long-term. Local control is emphasized.

Finally, the State of California's Department of Fish & Wildlife (CFW) wrote a comment letter on the plan, dated Oct. 7, 2021. CFW had quite a lot to say about this plan and can be found in the public comments portion of the GSP. The 13-page letter articulates the issues and quotes water law and codes that apply to the concerns stated above by SHAC members.

- GSPs must consider impacts to groundwater dependent ecosystems (GDEs)
- GSPs must consider the interests of all beneficial uses and users of groundwater, including environmental users of groundwater and GSPs must identify and consider potential effects on all beneficial uses and users of groundwater
- GSPs must establish sustainable management criteria that avoid undesirable results within 20 years of the applicable statutory deadline, including depletions of

- GSPs must establish sustainable management criteria that avoid undesirable results within 20 years of the applicable statutory deadline, including depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water ... and describe monitoring networks that can identify adverse impacts to beneficial uses of interconnected surface waters.
- GSPs must account for groundwater extraction for all water use sectors, including managed wetlands, managed recharge, and native vegetation.

See link below to connect to the proposed plan.
https://www.vinagsa.org/public-review-draft-groundwater-sustainability-plan-gsp

We the undersigned hold the dissenting viewpoint that the GSP is inadequate as presented and certain criteria adopted will lead to undesirable results.

Dr. Todd Greene _____ Date 11-12-2021
SHAC CSU, Chico Representative

Anne Dawson _____ Date 11/12/2021
SHAC Domestic Well Representative

Bruce Smith _____ Date 11/12-2021
SHAC Business Representative

Chris Madden _____ Date 11/12/2021
SHAC Butte College Representative

Jim Brobeck _____ Date 11-12-2021
SHAC Environmental Representative

Attachments include:

- Dr. Todd Greene's extended comments
- Jim Brobeck's extended comments
- Aimee Raymond's extended comments (she sits on Butte County's Water Commission and is a retired statistical engineer)

October 27, 2025

Agenda

Vina GSA Meeting with Domestic Well Users

Monday October 27, 2025
5:30 PM – 7:30 PM
Chico Area Recreation & Park District (CARD) Community Center – Jeff Carter Meeting Room
545 Vallombrosa Ave, Chico, CA 95926

The purpose of this meeting is:

(1) For the Vina Groundwater Sustainability Agency (GSA) and technical consultant to share informational updates on groundwater sustainability planning and management activities, with a particular focus on the GSA's approach to the groundwater level and interconnected surface water sustainable management criteria for the upcoming Groundwater Sustainability Plan (GSP) evaluation and amendments process, and
(2) To hold discussion to hear domestic well users' input, thoughts, concerns, and priorities on these topics.

Following the meeting, feedback will be summarized and shared with the Stakeholder Advisory Committee and GSA Board, in addition to insights heard at the other three stakeholder meetings the GSA will hold this fall with the Local Expert Group, environmental users, and agricultural users of groundwater.

Time	Agenda Item
5:30 PM	**Welcome, Purpose, and Introductions** – Marisa Perez-Reyes, Facilitator, Stantec
5:35 PM	**Background** – Becky Fairbanks, Vina GSA Projects Manager *Introduction and overview of the status of GSP implementation projects and activities.*
5:45 PM	**Introduction: Approach to GSP Amendments** – Laura Foglia and Ryan Fulton, Larry Walker Associates *Introduction to the GSP Plan Evaluation, corrective actions, and potential amendments, including a summary of domestic well users' comments on the original GSP and discussion of how addressing the corrective actions aligns with those comments.*
6:15 PM	**Technical Presentation & Discussion: Groundwater Level Monitoring Network & Sustainable Management Criteria** – Laura Foglia and Ryan Fulton, LWA *Summary of proposed approach and revisions to Groundwater Level monitoring network and sustainable management criteria.* **Discussion** – domestic well users *Hear input, thoughts, and suggestions*
7:10 PM	**Technical Presentation & Discussion: Interconnected Surface Water Monitoring Network & Sustainable Management Criteria** – Laura Foglia and Ryan Fulton, LWA *Summary of proposed approach and revisions to Interconnected Surface Water monitoring network and sustainable management criteria.* **Discussion** – domestic well users

	Hear input, thoughts, and suggestions
7:25 PM	**Closing** – Marisa Perez-Reyes, Facilitator, Stantec

With questions, please contact Becky Fairbanks (rfairbanks@buttecounty.net) or Marisa Perez-Reyes (marisa.perez-reyes@stantec.com).

October 27, 2025

Meeting Summary

Vina GSA Meeting with Domestic Well Users

Monday, October 27, 2025
5:30 PM – 7:30 PM
Chico Area Recreation & Park District (CARD) Community Center – Jeff Carter Meeting Room; 545 Vallombrosa Ave, Chico, CA 95926

Attendees listed on final page.

Attachments: Presentation Slides

1. Welcome, Purpose, and Introductions

Marisa Perez Reyes, Stantec Facilitator, welcomed participants and provided a brief overview of the meeting's purpose:

- To share informational updates on groundwater sustainability planning and management activities, with a particular focus on the approach to interconnected surface waters (ISW) and groundwater level (GWL) sustainable management criteria (SMC) for the upcoming Groundwater Sustainability Plan (GSP) evaluation and amendments process, and
- To hold discussion to hear the domestic well owners' input, thoughts, concerns, and priorities on these topics

A meeting summary with notes and a copy of the presentation slides will be shared with participants after the meeting to ensure feedback is documented and to allow for correction. Feedback received during the meeting will be summarized and shared with the Stakeholder Advisory Committee (SHAC) and GSA Board, in addition to insights heard at the other three stakeholder meetings the GSA will hold with the LEG (Local Expert Group), environmental representatives, and agricultural users of groundwater.

2. Background

Becky Fairbanks, GSA Project Manager, provided an update on the status of the implementation of various grant-funded GSP projects and management actions. She explained that Vina GSA is hosting a series of stakeholder meetings to gather early input on monitoring networks and the approach to SMCs for GWLs and ISW, with feedback to be shared with the SHAC and GSA Board in December 2025. An additional public workshop between all groups is planned for first quarter of 2026 to collect input on the draft Periodic Evaluation and GSP amendments, with public release targeted for Summer 2026 and submission to DWR by January 2027.

3. Technical Presentation & Discussion: Approach to GSP Amendments

Laura Foglia, Larry Walker Associates (LWA), explained the GSP implementation process involving the required Periodic Evaluation and GSP plan amendments, including a focus on addressing existing data gaps and DWR's corrective actions. She explained that when the GSP was first submitted, the GSA acknowledged significant data needs that would need to be addressed. DWR understands that the 2027 update will not address everything. Rather it is one step in a longer process, and further work will be needed to close data gaps, especially since DWR's guidance is still evolving. Laura also provided a brief overview of public comments received on the Draft GSP during the GSA's public comment period in Fall 2021 and noted that full detail on the comments are included in Appendix 1-F to the GSP, available to review on the GSA website.

Participant Questions/Concerns:

- Qualification for inclusion in ISW network:
  - What is the minimum creek size considered for the ISW monitoring network?
  - What does SGMA mean by a "beneficial use or user" of groundwater?
  - Wells should be located within 0.5 miles of an identified ISW or groundwater dependent ecosystem (GDE) in order to be included in the ISW RMS network.

4. Technical Presentation & Discussion: Groundwater Level Monitoring Network and SMC

Laura Foglia introduced the proposed approach and revisions to Groundwater Level Representative Monitoring Site (GWL RMS) network and SMC, including the effort underway to conduct a domestic well inventory for the Subbasin. She shared options for the proposed GWL RMS Network and asked participants to weigh in on the following questions:

- What reactions or questions do you have about the domestic well inventory and proposed GWL RMS Network?
- Reactions or thoughts on the two proposed options for setting the minimum threshold (MT)?
    - Option 1: Recalculate using same approach as 2022 GSP, using updated domestic well inventory and updated polygons based on new RMS well locations
    - Option 2: Set to historical minimum measurement, minus an agreed upon buffer
- Reactions or thoughts on development of Domestic Well Mitigation program as part of Periodic Evaluation work?

Participant Questions/Concerns:

- Domestic well inventory:
    - Participants asked for more information about the assumptions the team used to determine whether wells are more or less likely to be active or inactive,
    - The technical team asked whether participants could advise about whether older wells located inside CalWater's service area are generally still active or whether those users are generally being served by CalWater now. Participants advised LWA that they should reach out to CalWater directly to get more information.
- Methodology for setting MTs:
    - Participants asked for more information about how the RMS polygons were determined, as well as how the MTs for each polygon/RMS zone were determined in the original GSP. Discussion provided clarification on these topics.
    - Potential approach using historic lows:
        - Participants expressed concern that the Measurable Objective (MO) is set lower than historic lows. GSA staff shared that the reason for that was to account for the Subbasin's downward trend and allow more time for the GSA to implement projects that reverse the trend.
        - Participants expressed concern that subtracting a buffer from the historical low could worsen local conditions, and the GSA should prioritize actions that avoid problems up-front.
        - One participant expressed that allowing any domestic wells to go dry is unacceptable and that approaches which allow groundwater levels to fall below historic minimums are not acceptable based on the data she has reviewed.
    - There were concerns about allowing groundwater levels to drop too far because impacts on GWL can be delayed and recovery takes time.
    - A participant highlighted that the current MTs are too low to protect groundwater-dependent trees.
    - Appreciation was expressed that the dry year exemption will be removed from the undesirable result definition.
    - A participant asked whether the GSA had conducted a financial analysis of the fiscal impacts of different MT methodologies. Staff responded that their analysis has not gone that far yet – instead, they have focused on refining the number of active wells in the subbasin to support that future effort.
    - Participants expressed interest for wanting to open the door to discuss MTs. Some participants expressed interest in setting MTs based on historical minimums.
- Selecting wells to include in the RMS:
    - There were questions about why certain wells were removed from the original network. LWA replied that some wells were removed because they provide less reliable measurements (e.g., oil frequently detected in the well).

  - A participant expressed confusion about why the GSA wouldn't invest more to monitor more wells and why they needed to narrow down the selection, to which the technical team clarified that the selection process is specific to the RMS that Butte County Water and Resource Department and DWR will monitor to track undesirable results.
  - One participant shared they wished to see more shallow wells included in the RMS network. Additionally, some participants expressed concern about why some relatively shallow wells were classed as deep and other relatively deep wells were classified as shallow.
  - A participant suggested mobilizing existing shallow well users to be included in the monitoring network rather than drilling new wells. LWA shared that they are implementing a community domestic monitoring program using grant-funds, but the budget only allows for the monitoring of eight volunteer wells. The team is installing equipment at the sites that have been selected, and they plan to notify the volunteers who weren't selected after all monitoring equipment has been successfully installed.
- Communication with domestic well owners in vulnerable areas:
  - Several participants suggested the GSA should notify domestic well owners with shallow wells in zones where the MT is set near their domestic well's depth and are therefore potentially at a higher risk of going dry.
- Public input process:
  - Participants asked how domestic well owners or other stakeholder can weigh in on the MT methodology options after today's meeting and stay up to date on when decisions are made about the MT methodology.
    - GSA staff shared that summaries from this and other stakeholder meetings will be compiled and presented to the SHAC and Board. Members of the public are encouraged to provide public comments at SHAC meetings and/or GSA Board meetings even if they aren't a designated stakeholder representative on the SHAC because their remarks can be influential to those decision-makers. Members of the public are also encouraged to join the subscriber list for updates. Agenda topics for discussion and/or decision at upcoming meetings are always identified, per Brown Act requirements.
    - One participant expressed frustration that working members of the public are not able to attend Board meetings at the times of day they typically meet.
- Possibility of utilizing triggers:
  - There was a suggestion from a member of the public that if the MT in a given area is reached, well owners there should be notified by the GSA.
  - At the request of a participant, GSA staff shared information about pre-GSP submission discussions about the possibility of creating an Interim Milestone Action Plan (IMAP), which would identify and describe reactions and triggers if trends continue to go down. This approach could be reconsidered in the Periodic Evaluation/GSP amendments. Examples of actions that could be triggered as a result of reaching a trigger level could include voluntary cropping changes or programs such as the Extend Orchard Replacement (i.e., growers could be asked to switch to a crop that requires less water during critically dry conditions).
  - A participant encouraged the GSA to enact proactive cropping/farming changes now rather than waiting for conditions to worsen.
- Potential well mitigation program:
  - Participants had a lot of questions and concerns about wells going dry.
  - There was a consensus from the participants for the GSA to have a domestic well mitigation program.
  - In response to a request for clarification, the technical team explained what is meant by "mitigation" in this context. For SGMA, well mitigation typically refers to set-aside funding to replace or deepen existing wells that go dry as a result of the GSA's management of local groundwater resources. At present, the GSA does not have a well mitigation program, but staff welcomed input from participants on whether one should be established.

        - There were questions about what types of actions would be covered under well mitigation (for example, hauled water tanks).
        - County staff highlighted an existing program that is offering a similar service. The Butte County Drought Resilience Outreach Program (DROP) grant is funding some well repair/replacement, though it is based on income. A mitigation program could be modeled after DROP.
    - Complicating factors:
        - Participants shared their experiences and challenges with well replacement, repair, and deepening, noting that there are frequently other considerations at play that make those fixes complicated or more costly.
        - For example, one participant shared that her well is located in a garage on her property that would need to be demolished to deepen the well. There were concerns that a mitigation program would not cover costs like replacing the garage.
        - Another participant shared that their well is located in the area with volatile organic contaminants (VOC), and there are additional costs associated with deepening wells in those areas. There were concerns about whether a well mitigation program would cover those costs.
        - One participant asked if there was a possibility that environmental setbacks could be lifted to make drilling a replacement well easier. County staff noted that Environmental Health will be updating their well ordinance next year and that could be considered. Another participant added there will also be a septic system ordinance that may re-evaluate those setbacks.
    - Funding a well mitigation program:
        - Participants stressed the importance of having a financial discussion about how well deepening or replacement would be funded.
        - Frustrations were expressed that agricultural growers who are responsible for most groundwater use in the Subbasin are compensated for land fallowing whereas well owners are not compensated for well deepening.
        - A participant stated that as a tax-paying agency, the GSA should be setting aside funds to cover the costs of wells going dry.
- There was a comment about balancing agricultural groundwater use against growing demands for new urban development in Chico.
- There was a question about how the airborne electromagnetic (AEM) helicopter survey data was used. Staff shared that the AEM data collected from those surveys has been used to enhance geologic understanding of the Subbasin.

5. **Technical Presentation & Discussion: Interconnected Surface Water Monitoring Network and SMC**

Because the meeting participants prioritized discussion on the GWL SMC, there was very little time to share information or discuss the ISW SMC. Laura provided a brief introduction to how the ISW RMS Network is being developed, noting that 22 existing shallow wells have data from the past five years and can be used for the RMS.

6. **Closing**

Marisa thanked attendees for their participation and emphasized the value of their input.

Attendees:

October 27, 2025

Domestic Well Representatives:
Anne Dawson
Blake Ellis
Jeannette Alosi
Jeannie Trezzino
Jennifer Switzer
Jim Graydon
John Hooper
Carey Daves
Lester Messina
Michael
Nora Todenhagen
Pat Riley
Ron Alexander
Susan Schrader

Vina GSA:
Dillon McGregor, Vina GSA Program Manager
Becky Fairbanks, Vina GSA Project Manager

Butte County:
Kamie Loeser, Director of Water and Resource Conversation
Christina Buck, Assistant Director of Water and Resource Conservation

Larry Walker Associates:
Laura Foglia, Technical Consultant
Ryan Fulton, Technical Consultant

Stantec:
Marisa Perez Reyes, Facilitator
Nicole Hinostroza, Assistant Facilitator

Attachment: Presentation Slides

November 13, 2025

Agenda

Vina GSA Meeting with Agricultural Representatives

Thursday November 13, 2025
1:00 PM – 3:00 PM
Chico City Council Conference Room 1, 411 Main Street, Chico, CA 95928

The purpose of this meeting is:

(1) For the Vina Groundwater Sustainability Agency (GSA) and technical consultants to share informational updates on groundwater sustainability planning and management activities, with a particular focus on the GSA's approach to the groundwater level and interconnected surface water sustainable management criteria (SMC) for the upcoming Groundwater Sustainability Plan (GSP) evaluation and amendments process, and
(2) To hold discussion to hear agricultural representatives' input, thoughts, concerns, and priorities on these topics.

Following the meeting, feedback will be summarized and shared with the Stakeholder Advisory Committee and GSA Board, in addition to insights heard at the other three stakeholder meetings the GSA will hold this fall with environmental representatives, the Local Expert Group, and domestic well users of groundwater.

Time	Agenda Item
1:00 PM	**Welcome, Purpose, and Introductions** – Marisa Perez-Reyes, Facilitator, Stantec
1:10 PM	**Background** – Becky Fairbanks, Vina GSA Projects Manager *Introduction and overview of the status of GSP implementation projects and activities.*
1:15 PM	**Introduction: Approach to GSP Amendments** – Laura Foglia and Ryan Fulton, Larry Walker Associates *Introduction to the GSP Plan Evaluation, corrective actions, and potential amendments, including a summary of agricultural stakeholders' comments on the original GSP and how addressing the corrective actions aligns with those comments.*
1:45 PM	**Technical Presentation & Discussion: Groundwater Level Monitoring Network & Sustainable Management Criteria** – Laura Foglia and Ryan Fulton, LWA *Summary of proposed approach and revisions to Groundwater Level monitoring network and sustainable management criteria.* **Discussion** – agricultural representatives *Hear input, thoughts, and suggestions*
2:20 PM	**Technical Presentation & Discussion: Interconnected Surface Water Monitoring Network & Sustainable Management Criteria** – Laura Foglia and Ryan Fulton, LWA *Summary of proposed approach and revisions to Interconnected Surface Water monitoring network and sustainable management criteria.* **Discussion** – agricultural representatives

November 13, 2025

	Hear input, thoughts, and suggestions
2:55 PM	**Closing** – Marisa Perez-Reyes, Facilitator, Stantec

With questions, please contact Becky Fairbanks (rfairbanks@buttecounty.net) or Marisa Perez-Reyes (marisa.perez-reyes@stantec.com).

November 13, 2025

Meeting Summary

Vina GSA Meeting with Agricultural Representatives

Thursday, November 13, 2025
1:00 PM – 3:00 PM (meeting concluded at 3:30 PM)
Chico City Council Conference Room 1, 421 Main Street, Chico, CA 95928

Attendees listed on final page.

Attachments: Presentation Slides

1. Welcome, Purpose, and Introductions

Marisa Perez Reyes, Stantec Facilitator, welcomed participants and provided a brief overview of the meeting's purpose:

- To share informational updates on groundwater sustainability planning and management activities, with a particular focus on the approach to interconnected surface waters (ISW) and groundwater level (GWL) sustainable management criteria (SMC) for the upcoming Groundwater Sustainability Plan (GSP) Periodic Evaluation and amendments process, and
- To hold discussion to hear the agricultural representatives' input, thoughts, concerns, and priorities on these topics.

A meeting summary with notes and a copy of the presentation slides will be shared with participants after the meeting to ensure feedback is documented and to allow for correction. Feedback received during the meeting will be summarized and shared with the Stakeholder Advisory Committee (SHAC) and Groundwater Sustainability Agency (GSA) Board, in addition to insights heard at the other three stakeholder meetings the GSA has held this Fall with the LEG (Local Expert Group), domestic well users, and environmental representatives.

2. Background

Becky Fairbanks, GSA Project Manager, provided an update on the status of the implementation of various grant-funded GSP projects and management actions. She explained the Vina GSA has been hosting a series of stakeholder meetings to gather early input on monitoring networks and the approach to SMCs for GWLs and ISW, with feedback to be shared with the SHAC and GSA Board in December 2025. An additional public workshop between all groups is planned for the first quarter of 2026 to collect input on the draft Periodic Evaluation, with public release targeted for Fall 2026 and submission to DWR by January 2027.

3. Technical Presentation & Discussion: Approach to GSP Periodic Evaluation

Laura Foglia, Larry Walker Associates (LWA), explained the GSP implementation process involving the required Periodic Evaluation and optional GSP Plan Amendments, including a focus on addressing existing data gaps and DWR's corrective actions. She explained that when the GSP was first submitted, the GSA acknowledged significant data needs that would need to be addressed. DWR understands that the 2027 update will not address everything. Rather, it is one step in a longer process, and further work will be needed to close data gaps, especially since DWR's guidance is still evolving. Laura also provided a brief overview of public comments received on the Draft 2022 GSP during the GSA's public comment period in Fall 2021 and noted that full detail on the comments are included in Appendix 1-F to the GSP, available to review on the GSA website. Lastly, Laura shared about the purpose and process of refining the Representative Monitoring Networks (RMS) and how they monitor Sustainability Indicators, particularly Groundwater Levels and Interconnected Surface Waters.

Participant Questions/Concerns:

- Reasoning for new RMS selection process
    - A participant had questions about the previous RMS selection process and why a new process was needed if DWR approved the previous network. Laura explained that the previous RMS network had gaps in monitoring, and some wells had to be removed. She

also explained the advantages of including more wells in the RMS to provide greater operational flexibility.

- Clarification on how ISWs and GDEs are identified
    - Participants requested more information to understand how ISWs and GDEs were identified. Laura explained that the GSA is working with The Nature Conservancy and Environmental Science Associates to cross-check a previous study they did to identify GDEs. More detailed information about the selection process will be provided in the GSP Periodic Evaluation and a technical memo. Becky Fairbanks further clarified that a decision will not be made today and the GSA is not seeking the agricultural stakeholder group's formal recommendation. They are looking for early feedback on the various well options that are available to consider for inclusion in the RMS network.
    - Participants also asked if our selection of RMS wells meets the requirements of DWR.

4. Technical Presentation & Discussion: Groundwater Level Monitoring Network and SMC

Laura Foglia introduced the proposed approach and revisions to Groundwater Level Representative Monitoring Site (GWL RMS) network and SMC, including the effort underway to conduct a domestic well inventory for the Subbasin. She shared options for the proposed GWL RMS Network and asked participants to weigh in on the following questions:

- What reactions or questions do you have about the domestic well inventory and proposed GWL RMS Network?
- Reactions or thoughts on the two options for setting the minimum threshold (MT)?
    - Option 1: Recalculate using same approach as 2022 GSP, using updated domestic well inventory and updated polygons based on new RMS well locations
    - Option 2: Set to historical minimum measurement, minus an agreed upon buffer
- Reactions or thoughts on development of Domestic Well Mitigation program as part of Periodic Evaluation work?

Participant Questions/Concerns:

- Domestic Well Inventory
    - Does the inventory include wells that have failed or been abandoned?
        - The technical team uses the best information available, however, abandoned wells are not always declared to the County.
    - Several questions focused on the inventory process. Ryan Fulton, LWA, explained that parcel data, zoning classifications, locations outside public water systems, and DWR's OSWCR data were used to estimate roughly 4,000 wells in the Subbasin.
    - In response to a request for further information on why this domestic well inventory update was necessary, LWA explained that the 2022GSP used available database from DWR which has limitations (unknown location of active wells) and DWR has requested greater transparency on wells that are at risk of going dry. Becky added that an updated inventory with more accurate data can help in understanding the factors involved for wells going dry.
    - A participant noted that the driver is the Human Right to Water, although domestic wells draw comparatively little from the subbasin, access to drinking water is the issue
- RMS Network related questions/comments
    - Is the GSA meeting or exceeding the requirements of DWR's corrective actions?
    - The GSP already aims to protect most domestic wells. Why do we need to update this SMC?
    - How does the GSA use the RMS well locations to generate the polygons?
    - How do we know RMS wells are representative of conditions in the subbasin?
    - How do you know the proposed locations for the proposed RMS wells are correct?
    - How are you verifying RMS wells?
    - What are the advantages of including more wells in the RMS network? How can we save costs?

        - Christina Buck, Butte County, highlighted that including more wells in the network can provide redundancy if a well needs to be removed. Some domestic wells are being fitted for monitoring, but they are too new to include yet as RMS.
    - A participant emphasized the point that adding more RMS wells in areas where domestic wells are located can provide more confidence in the impact analysis (i.e. number of wells at risk above the MT). Having better distribution of wells with water levels helps the GSA.
    - How do we know what the historical low is for a given well?
        - Many of the wells that have been selected for the RMS network have several decades of measurement data to refer back to.
    - Some participants noted that more detailed information is needed to understand potential changes, while others emphasized the importance of confirming that selected wells are truly representative of the subbasin and nearby conditions.
    - MT Methodology
    - Participants expressed a desire for maximum flexibility to support farmers, noting that economic impacts of a mitigation program would be a major consideration but that more information is needed.
    - Another participant suggested that the GSA could keep current MTs and simply identify the number of dry wells at those levels.
    - Participants noted the 2022 MTs already protect domestic wells, so why do we need to change them?
    - There was a question about whether Option 1 would not require a Plan Amendment but Option 2 would? LWA responded that there is lots of flexibility as to what is included in the Periodic Evaluation vs. what is addressed as a Plan Amendment.
        - A participant commented that if you use the same approach, you do not need to amend the Plan.
    - A comment was made criticizing the current process and approach – potential changes to the network or SMC have not been detailed with narrative. This makes it hard to analyze and is premature to provide specific feedback. A narrative with an explanation of proposed changes would be helpful.
- Potential Domestic Well Mitigation Program
    - Participants had a lot of questions regarding creating a domestic well mitigation program.
        - If the GSA created a mitigation program, how do we decide how many wells we are responsible for?
        - What is the purpose of a mitigation program?
        - Who would be responsible?
        - How would it get funded?
        - Have other GSAs developed mitigation programs?
    - In response to a question about whether well owners are responsible for repairing their wells, the group discussed the GSA's responsibility for management-related failures such as silting caused by lowered water levels.
    - Participants raised questions about the correlation between well age and failure risk. Laura noted that other plans often limit responsibility to wells constructed after a certain year and require well registration.
    - How much money would a domestic well owner receive under the potential mitigation program? How would eligibility be determined? GSA staff noted that these are questions the GSA would need to grapple with as part of developing the program.

5. Technical Presentation and Discussion: Interconnected Surface Water Monitoring Network and SMC

Laura presented the proposed approach for developing an Interconnected Surface Water Representative Monitoring Site (ISW RMS) network (noting that the 2022 GSP did not include an ISW specific RMS network) and potential changes to the SMC. Participants were asked to weigh in on the following questions:

- What reactions or questions do you have about the proposed ISW RMS Network? Any recommended adjustments to the network? Other considerations for the LWA team?
- Reactions or thoughts to the proposed approach and timeline of setting ISW SMCs?

Participant Questions/Concerns:

- Purpose and Methodology
  - Isn't the criteria for ISW measured in volume? Why is the GSA proposing an SMC related to groundwater levels?
    - LWA explained that eventually the goal is for the GSA to calculate stream depletion volumes, but more data is needed and the model (which serves as the current starting point) requires more calibration. Laura noted that this is in line with what other basins are doing.
  - Participants asked about the benefits of ISW monitoring. Laura explained that it helps inform SMCs to prevent shifts in stream conditions (where streams are gaining versus losing) and avoid further disconnection from the aquifer. It also informs whether features like urban forests rely on perched aquifers or ISWs.
  - Questions arose about whether ISW data would benefit neighboring subbasins. Laura noted that coordination is underway to develop a reasonable ISW approach across basins. For the 2027 Periodic Evaluation, most data will come from groundwater levels while ISW data improves and is used to improve models.
- RMS Selection and Data Gaps
  - How are stream depletion percentages calculated? How were the new shallow well sites selected?
    - Christina explained that the model calculates these daily, but more data is needed to validate results. The model can be used to inform where new wells should be installed.
    - According to the model, streams east of the 99 freeway are less likely to be interconnected with the groundwater, but the GSA plans to place one well in the area to observe conditions and help characterize the connection (or lack thereof).
  - Participants noted that there appears to be an overlap between the ISW and GWL monitoring wells. Laura acknowledged there are two overlapping wells, and Christina added that when the Butte Subbasin has overlapping wells, so the one with the more limiting metric becomes the limiting factor. A participant requested flexibility in ISW MTs to account for this overlap.
  - Several participants expressed concern about moving forward given the existing data gaps, suggesting it would be better to wait until the next Periodic Evaluation. Some felt there was insufficient data and worried MTs would be "locked in" at a restrictive level.
  - Participants noted we all want a plentiful water supply. We just do not want to make a decision that we cannot change in the future.

6. Closing

Marisa thanked attendees for their participation and emphasized the value of their input.

Meeting Attendees:

November 13, 2025

Agricultural Representatives:
Rich McGowen
Tovey Giezentanner
John Fio
Kyle Burns
James Strong
Darren Rice
Steven Koehnen
Cheetah Tchudi
Davis Kehn
Tod Kimmelshue

Vina GSA:
Dillon McGregor, Vina GSA Program Manager
Becky Fairbanks, Vina GSA Project Manager

Butte County:
Christina Buck, Assistant Director of Water and Resource Conservation

Larry Walker Associates:
Laura Foglia, Technical Consultant
Ryan Fulton, Technical Consultant

Stantec:
Marisa Perez Reyes, Facilitator
Nicole Hinostroza, Assistant Facilitator

Attachment: Presentation Slides

Vina Subbasin Context:

1. GSP developed after 2 big droughts and during driest 25-year period over the past 1,200 years.

2. Current conditions in the Vina Subbasin:
    a. GW Levels:
        i. Spring GW elevations are above the MO (18' on average) and MT (68' on average)
        ii. Current MTs are set to protect most domestic wells, including those not constructed sustainably.
    b. GW Storage:
        i. Increase on average of ~8,000 AF/Year for past 10 years.
    c. Subsidence:
        i. …no indications of inelastic subsidence .
    d. Depletion from Creeks, Streams, and other Surface Water
        i. …no exceedances of minimum thresholds.
        ii. …on track to meet the first five-year Interim Milestone set for 2027 and avoid undesirable results for these criteria.
    e. Adjacent Basin:
        i. …[GSP] does not adversely affect the ability of adjacent basins to implement their GSPs or impede achievement of sustainability goals.
    f. GW Quality:
        i. …no exceedances of the minimum thresholds for water quality.
    g. Practical
        i. Observed GW level conditions are high through much of the Subbasin.
        ii. High GW levels will likely limit where recharge projects can occur.
    h. Findings & Conclusions, per DWR Determination Letter, page 6 of 6:
        i. Projections of future basin extractions are likely to stay within current and historic ranges, at least until the next periodic evaluation by the GSA and Department.
        ii. Basin groundwater levels and other SGMA sustainability indicators are unlikely to substantially deteriorate while the GSA implements DWR's corrective actions.
        iii. State intervention is not necessary at this time to ensure that local agencies manage GW in a sustainable way.

3. The existing GSP, supported by ongoing projects, management actions, and monitoring, is adequate to address current groundwater conditions and minimize impacts to uses and users through the 2027 evaluation, provided DWR's recommended corrective actions are addressed over time.

4. **Staff orientation:** Therefore, proposals to amend the GSP prior to 2027 require exceptional justification, demonstrating unforeseen changes or critical deficiencies that cannot be addressed through existing measures. Proposed amendments should be:
    a. Documented in a Written Memo: Clearly explained to stakeholders, detailing rationale, impacts, and benefits, ensuring transparency and public record compliance.
    b. Approved by GSA Boards: Consensus among the Rock Creek Reclamation District GSA and Vina GSA boards should occur before pursing any amendment, ensuring coordinated and authorized action.

Water and Resource Conservation Kamie N. Loeser, Director

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Oroville, California 95965

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bcwater@buttecounty.net

MEMORANDUM

DATE: November 17, 2025

TO: Vina Groundwater Sustainability Agency (GSA) and Rock Creek Reclamation District GSA

FROM: Christina Buck, Asst. Director and Kelly Peterson, Water Resource Scientist

RE: Evaluation of Groundwater Level Monitoring Network for Selection of Representative Monitoring Sites

Purpose

This memo provides background and technical analysis conducted by the Butte County Department of Water & Resource Conservation ("Department") to support the Vina and Rock Creek Reclamation District (RCRD) GSAs in preparing for the 2027 Periodic Evaluation of the 2022 Vina Groundwater Sustainability Plan (2022 GSP). The Department's analysis evaluates the existing groundwater level monitoring network, with a focus on identifying wells that may be suitable for inclusion as Representative Monitoring Sites to support the work of the Periodic Evaluation.

Background

The Department has a long-standing role in groundwater monitoring and data reporting. In addition, Department staff contributed to the development of the 2022 GSP and since 2022 has managed SGMA annual reporting for all three subbasins in Butte County. Department staff conducts spring, summer, and fall groundwater level measurements throughout the County in partnership with staff from the Department of Water Resources, Northern Region Office.

Through a subrecipient agreement with the Vina GSA, the Department is providing technical assistance for the Data Gaps Identification and Data Improvement Project (Component 2) of the GSAs' grant funded work. This component also includes completion of the Periodic Evaluation and potential GSP Amendments.

RMS Wells in the SGMA Framework

Representative Monitoring Sites (RMS) are the specific wells assigned Minimum Thresholds (MTs), Measurable Objectives (MOs), and Interim Milestones (IMs). There are six sustainability indicators defined by SGMA, including Groundwater Levels (GWL) and Interconnected Surface Water (ISW) and each has an RMS network. Selected wells make up the RMS network designated for each sustainability indicator. The focus of this evaluation is on monitoring wells for the GWL RMS network. The 2022 GSP identified 17 RMS wells across the Vina North, Vina Chico, and Vina South Management Areas for the GWL RMS network.

Since adoption of the GSP, three of the RMS wells have been identified as regularly having questionable measurements or missing data (23N01W10E001M, 20N02E09L001M, 21N01E21C001M) and one of the wells is located just outside of the southern subbasin boundary (20N01E10C002M). Removing these wells from the GWL RMS network would lead to the need to supplement the network with additional wells to fill the gaps. Since there is a robust available network of groundwater level monitoring wells with historical data within the subbasin, the Department has worked with the GSAs' technical consultant, Larry Walker Associates (LWA) to identify existing monitoring wells for possible inclusion in a revised GWL RMS network. This memo provides technical information for the GSAs' consideration and to support the ongoing work of LWA, who will ultimately bring an updated RMS network to the GSA Boards for their consideration.

General Considerations

Advantages of Including More RMS Wells

Increasing the number of RMS wells in the GWL RMS network, when justified, provides a couple advantages:

1. Better Representation of Beneficial Users: Improves the ability to reflect shallow domestic well conditions and localized trends.

2. Improved Spatial Distribution: Reduces reliance on a small number of wells and provides information on conditions across the subbasin

3. Increased Confidence in Trend Analysis: More RMS wells reduce the impact of anomalies and / or data gaps caused by questionable measurements and strengthen basin-wide assessments.

This approach has been used successfully in the Butte Subbasin, where some wells serve both GWL and ISW monitoring functions. As such, some GWL RMS monitoring wells may also be part of the ISW RMS network with different sustainable management criteria (SMC) for each. Other subbasins, including Butte, have used dual-purpose wells.

Boundary-Adjacent Wells

Several monitoring wells are located near the boundaries with the Los Molinos, Corning or Butte Subbasins. These wells can be useful for tracking boundary conditions but may also be influenced by actions outside the GSA's boundaries. For this reason, they are listed below for special consideration. Staff recommends the GSA technical team work with neighboring subbasins to identify additional wells on the other side of the boundary for inclusion in a subbasin boundary network for tracking purposes. This could be addressed through ongoing Inter-basin Coordination efforts.

23N01W03H002-4M
23N02W25C001M
23N01W31M001-4M
22N01W05M001M
20N01E10C002M
20N02E06Q001M
20N02E24C001-3M
20N03E31M001M
20N03E33L001M

Department Analysis

The Department conducted a systematic evaluation of the groundwater level monitoring network to determine which wells may be suitable for RMS designation. The analysis involved the following information and approach:

Evaluation Criteria: Each well was reviewed based on access reliability in the field, measurement history and quality of data (i.e. considering frequency of missing data in hydrographs and/or presence of numerous questionable measurements), well construction information, alignment with local domestic well depths, density of domestic wells in the area, and geographic distribution.

Domestic Well Context: Domestic well statistics were obtained from the California Open Data Portal (i07 WellReportStatsBySection). This was utilized to assess the monitoring well's alignment with depths of domestic wells within its vicinity to evaluate how representative it is of nearby domestic wells. This dataset does not incorporate the refined LWA domestic well inventory but is still useful for understanding general spatial trends in well depth and density.

Spatial Analysis and Mapping: Two maps were prepared showing monitoring wells, average domestic well depths, and subbasin and management area boundaries (see Attachment 1).

Categorization of Wells: Wells were categorized as "Yes" (suitable for RMS), "Consider" (those that could be suitable RMS), or "No" based on construction, data quality, representativeness, access and / or geographic distribution needs.

Results

Described below are high level observations from the results of the evaluation. The attached summary table (Attachment 1) contains the result of the well-by-well evaluation and rational for the RMS categorization.

Vina North: Several additional wells appear to be strong candidates for RMS designation due to multi-completion construction, alignment with domestic well depths, and improved spatial coverage.

Vina Chico: The majority of beneficial users of groundwater for residential use in Chico are served by Cal Water Service. The 2022 GSP includes four Cal Water wells as RMS. In addition, two monitoring wells on the west side of Chico would be suitable as RMS to represent the high density of domestic well users on the outskirts of Chico.

Vina South: Opportunities exist to improve spatial representation and include wells better aligned with domestic well conditions.

Anticipated Next Steps

LWA will continue evaluating the monitoring networks for both GWL and ISW as part of the 2027 Periodic Evaluation. The GSAs will review and approve any recommended RMS network changes as part of the Periodic Evaluation and any GSP amendments, if necessary. The Department will continue to engage with the technical team to provide input on available data, the monitoring networks, and inter-basin considerations with other Butte County subbasins specifically, and the northern Sacramento Valley region more broadly.

Attachments

1. Summary Table and Maps: Vina Subbasin Groundwater Level Monitoring Network Evaluation Results
2. Detailed Evaluation Results Summary Table with Maps indicating Domestic Well density

Attachment 1

Vina Subbasin Groundwater Level Monitoring Network Evaluation Results

Conducted by Butte County Department of Water and Resource Conservation. November 17, 2025

	Well ID	SWN	Butte County Analysis: RMS?	Butte County Reasoning/Considerations	Well Use
North	05M001	22N01W05M001M**	Yes	Good geographical location. Long period of record. No screen info.	~~Irrigation~~ Observation
	07H001	23N01E07H001M**	Yes	Good align w/ dom. Good geographical location	Residential
	29P002	23N01E29P002M	Yes	Near significant number of dom. and good align. No screen info.	Irrigation
	33A001	23N01E33A001M**	Yes	East side location beneficial. A bit deep with long screen interval.	~~Irrigation~~ Observation
	03H004	23N01W03H004M	Yes	Multi-completion well. Good align w/ dom. Close to boundary	Observation
	09E001	23N01W09E001M	Yes	Good align w/ dom. No screen interval but shallow.	Irrigation
	10M001	23N01W10M001M	Yes	Good align w/ dom.	Observation
	14R002	23N01W14R002M	Yes	Good geographical location. No screen info.	Irrigation
	27L001	23N01W27L001M	Yes	Good align w dom well.	Residential
	28M004	23N01W28M004M	Yes	Multi-completion well. A little deep for dom. 27L001 nearby, good alternative.	Observation
	31M004	23N01W31M004M	Yes	Multi-completion well. Close to boundary.	Observation
	36P001	23N01W36P001M**	Yes	Good align w/ dom well. Good geographical location. No screen info.	Residential
	25C001	23N02W25C001M**	Yes	Good geographical location. A little deep for dom. No screen info.	Irrigation
	03H002	23N01W03H002M	No	Redundant:Shallower zone selected	Observation
	10E001	23N01W10E001M**	No	Missing data	Irrigation
	16E001	23N01W16E001M	No	Lots of missing data. Deep for dom wells. Not mapped	Irrigation
	25G001	23N01W25G001M	No	Lots of Questionable Measurements (oil). Not mapped	Irrigation
	28M002	23N01W28M002M	No	Redundant:Shallower zone selected	Observation
	28M003	23N01W28M003M	No	Redundant:Shallower zone selected	Observation
	28M005	23N01W28M005M	No	Redundant: deeper zone selected	Observation
	31M001	23N01W31M001M	No	Redundant:Shallower zone selected	Observation
	31M002	23N01W31M002M	No	Redundant:Shallower zone selected	Observation
	03H003	23N01W03H003M	Consider	Redundant:Shallower zone selected. Consider for deeper monitoring	Observation
	31M003	23N01W31M003M	Consider	Redundant:Shallower zone selected. Could include this one instead	Observation

** Indicates the well is included in the 2022 GSP GWL RMS Network

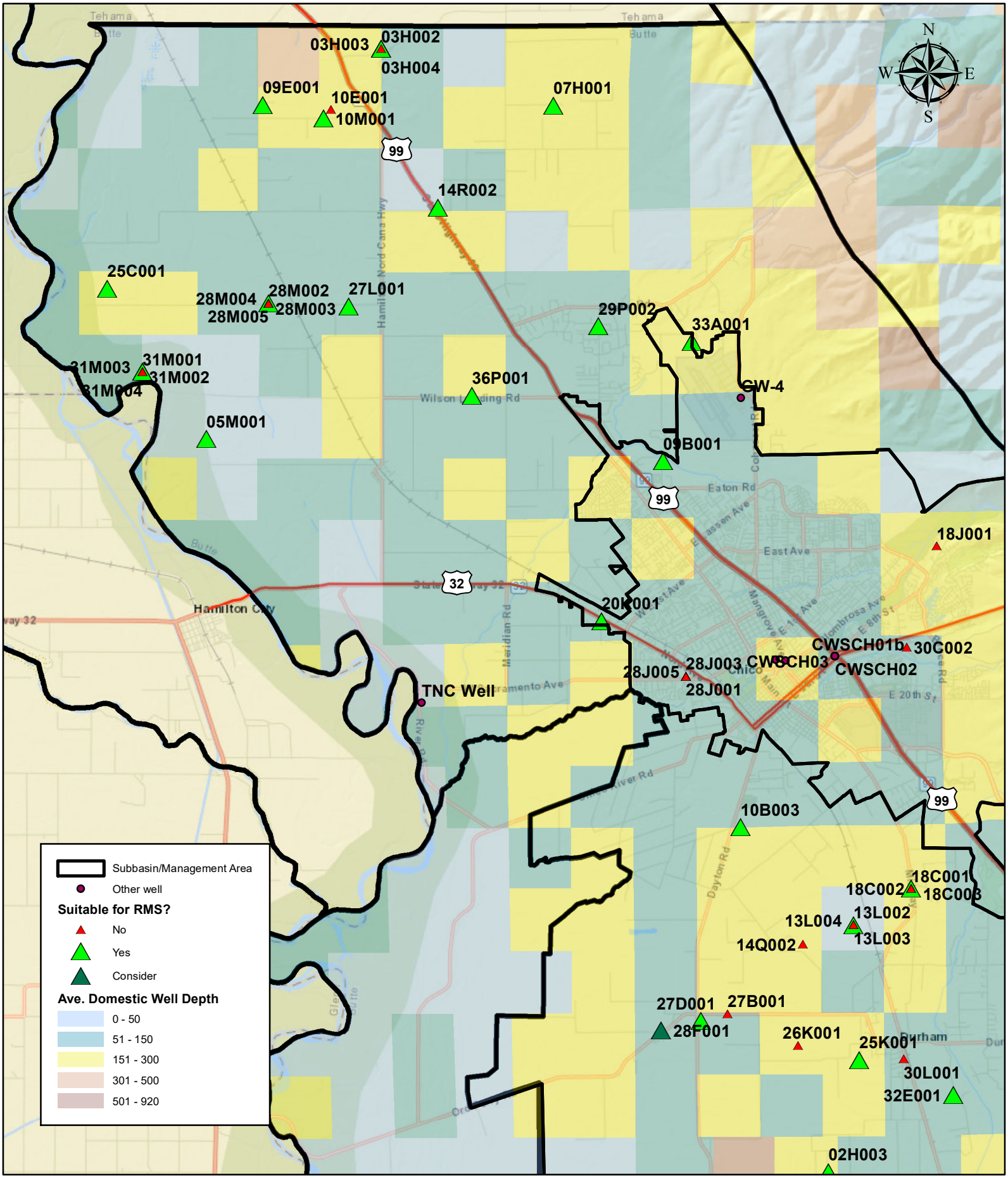
	Well ID	SWN	Butte County Analysis: RMS?	Butte County Reasoning/Considerations	Well Use
Chico*	09B001	22N01E09B001M	Yes	Good align w/ dom. Good geographical location. No Screen info	Residential
	20K001	22N01E20K001M	Yes	Good align w/ dom. Good geographical location. No Screen info	Residential
	28J001	22N01E28J001M	No	Old mon. well, concerned about future reliability	Observation
	28J003	22N01E28J003M**	No	Remove: Old mon. well, concerned about future reliability	Observation
	28J005	22N01E28J005M	No	Old mon. well, concerned about future reliability	Observation
	18J001	22N02E18J001M	No	East side of Chico. (CalWater Service area). Good align w/ dom. No Screen info.	Residential
	30C002	22N02E30C002M	No	East side of Chico (CalWater Service area). Dedicated observation. Good align w/ dom.	Observation

* CalWater wells not evaluated. Four CalWater wells are included in the 2022 GSP GWL RMS network in the Chico Management Area

** Indicates the well is included in the 2022 GSP GWL RMS Network

	Well ID	SWN	Butte County Analysis: RMS?	Butte County Reasoning/Considerations	Well Use
South	09G001	20N02E09G001M	Yes	Good geographical location and mid-depth. No dom wells nearby	Observation
	02H003	20N01E02H003M	Yes	Good align w dom.	Observation
	08H003	20N02E08H003M	Yes	Good align w dom.	Residential
	24C001	20N02E24C001M**	Yes	Good align w dom.	Observation
	33L001	20N03E33L001M	Yes	Good align w/ dom. Good geographical location	~~Other~~ Observation
	10B003	21N01E10B003M	Yes	Good geographical location. Deep for dom.	~~Irrigation~~ Observation
	13L004	21N01E13L004M	Yes	Multi-completion well	Observation
	25K001	21N01E25K001M	Yes	Good align w/ dom wells.	Residential
	27D001	21N01E27D001M	Yes	Good align w/ dom. Reliable access.	Residential
	18C003	21N02E18C003M**	Yes	Unique pattern during drought years. Good align w dom	Observation
	26E006	21N02E26E006M	Yes	Good align w/ dom. Multi-completion well	Observation
	32E001	21N02E32E001M	Yes	Lots of dom wells. Good align w/ dom.	Irrigation
	32B001	21N03E32B001M	Yes	Good geographical location. Very shallow.	~~Irrigation~~ Observation
	10C002	20N01E10C002M**	No	Outside subbasin. Good for tracking boundary conditions	~~Irrigation~~ Observation
	09L001	20N02E09L001M**	No	Often pumping, Too deep, Oil. Not mapped	Irrigation
	24C002	20N02E24C002M	No	Redundant:Shallower zone selected	Observation
	24C003	20N02E24C003M	No	Redundant:Shallower zone selected	Observation
	12D001	21N01E12D001M	No	NMs, patchy data, often pumping. Not mapped	Irrigation
	12K001	21N01E12K001M	No	Questionable Measurements (Oil). Not mapped	Irrigation
	13F001	21N01E13F001M	No	Missing data, always pumping. Not mapped	Irrigation
	13L002	21N01E13L002M	No	Redundant:Shallower zone selected	Observation
	13L003	21N01E13L003M	No	Redundant:Shallower zone selected	Observation
	14Q002	21N01E14Q002M	No	Redundant, 13L004 better alternative; lacking screen info	Irrigation
	21C001	21N01E21C001M**	No	QMs (oil). Too deep for dom. Not mapped.	Irrigation
	26K001	21N01E26K001M	No	Missing data	Irrigation
	27B001	21N01E27B001M	No	Too deep for dom. Redundant, 27D001 better alternative	~~Irrigation~~ Observation
	18C001	21N02E18C001M	No	Redundant:Shallower zone selected	Observation
	18C002	21N02E18C002M	No	Redundant:Shallower zone selected	Observation
	20P001	21N02E20P001M	No	QMs, tape hangs up. Not mapped	Irrigation
	26E003	21N02E26E003M	No	Redundant:Shallower zone selected	Observation
	26E004	21N02E26E004M	No	Redundant:Shallower zone selected	Observation
	30L001	21N02E30L001M	No	Redundant w/ 25K001. A little deep for dom. No screen info.	~~Residential~~ Observation
	22C001	21N03E22C001M	No	Outside subbasin	Residential
	29J003	21N03E29J003M	No	QM measurements due obstructions post 2018 Camp Fire	~~Residential~~ Other
	26E005	21N02E26E005M**	Consider	Redundant:Shallower zone selected	Observation
	06Q001	20N02E06Q001M	Consider	Deep for dom. Redundant w/ 2H003 and 8H003?	Irrigation
	31M001	20N03E31M001M	Consider	A little deep for dom but dedicated observation well. Close to boundary.	Observation
	28F001	21N01E28F001M	Consider	Redundant, 27D001 better alternative. Located in Dayton, lots of dom. Good align w/ dom	Irrigation

** Indicates the well is included in the 2022 GSP GWL RMS Network



Vina Groundwater Level Monitoring Network

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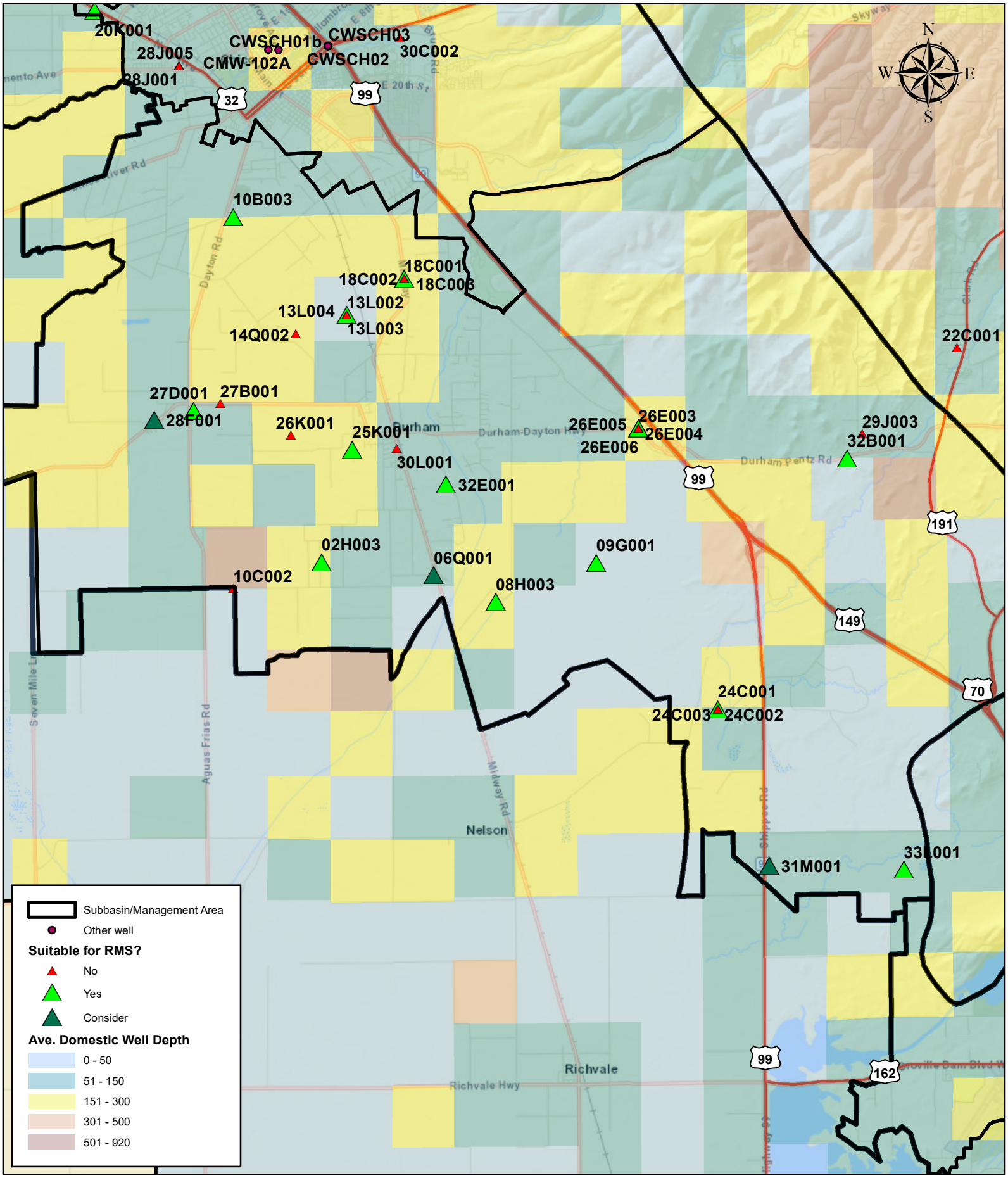

Vina Groundwater Level Monitoring Network

0 1 2 4 Miles

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Attachment 2

Vina Subbasin Groundwater Level Monitoring Network Evaluation Results

Conducted by Butte County Department of Water and Resource Conservation. November 17, 2025

	Well ID	SWN	Butte County Analysis: RMS?	Butte County Reasoning/Considerations	Well Use	Drill Depth	Ave. Dom Well Depth	Min. Dom Well Depth	Max. Dom Well Depth	Aquifer Category	Location Description	LWA Proposed RMS (Oct. 2025)	LWA Reason for Removal
North	05M001	22N01W05M001M**	Yes	Good geographical location. Long period of record. No screen info.	~~Irrigation~~ Observation	200	0	0	0	both	South of Wilson Landing box	**Yes**	
	07H001	23N01E07H001M**	Yes	Good align w/ dom. Good geographical location	Residential	195	193	113	275	deep	Meridian Rd/Wildhorse Hollow	**Yes**	
	29P002	23N01E29P002M	Yes	Near significant number of dom. and good align. No screen info.	Irrigation	265	150	100	300	both	Garner Ln.	**Yes**	
	33A001	23N01E33A001M**	Yes	East side location beneficial. A bit deep with long screen interval.	~~Irrigation~~ Observation	506	187	130	250	both	Chico Airport	Removed	Redundancy
	03H004	23N01W03H004M	Yes	Multi-completion well. Good align w/ dom. Close to boundary	Observation	115	154	62	200	shallow	Gaia Way - MultiComp	**Yes**	
	09E001	23N01W09E001M	Yes	Good align w/ dom. No screen interval but shallow.	Irrigation	110	162	100	220	shallow	Cana Pine Creek N. of Broyles	No	
	10M001	23N01W10M001M	Yes	Good align w/ dom.	Observation	220	208	116	300	both	Broyles Rd. observation	No	
	14R002	23N01W14R002M	Yes	Good geographical location. No screen info.	Irrigation	183	0	0	0	shallow	Hwy 99	No	
	27L001	23N01W27L001M	Yes	Good align w dom well.	Residential	102	133	102	200	shallow	Bennett Rd Residential	No	
	28M004	23N01W28M004M	Yes	Multi-completion well. A little deep for dom. 27L001 nearby, good alternative.	Observation	217	123	123	123	both	Bennett Rd MultiComp	**Yes**	
	31M004	23N01W31M004M	Yes	Multi-completion well. Close to boundary	Observation	106	49	49	49	shallow	Sacramento River MultiComp	No	
	36P001	23N01W36P001M**	Yes	Good align w/ dom well. Good geographical location. No screen info	Residential	165	162	145	180	shallow	Wilson Landing Residential	**Yes**	
	25C001	23N02W25C001M**	Yes	Good geographical location. A little deep for dom. No screen info.	Irrigation	243	157	120	200	both	Bennett Rd. slough	**Yes**	
	03H002	23N01W03H002M	No	Redundant:Shallower zone selected	Observation	553	154	62	200	deep	Gaia Way - MultiComp	No	
	10E001	23N01W10E001M**	No	Missing data	Irrigation	668	208	116	300	deep	Broyles Rd. orchard	Removed	Redundancy
	16E001	23N01W16E001M	No	Lots of missing data. Deep for dom wells. Not mapped	Irrigation	365	89	0	195	both	Cana Pine Creek Rd. S. of Broyles	No	
	25G001	23N01W25G001M	No	Lots of Questionable Measurements (oil). Not mapped	Irrigation	660	143	105	210	deep	Hwy 99/Meridian	No	
	28M002	23N01W28M002M	No	Redundant:Shallower zone selected	Observation	1044	123	123	123	deep	Bennett MultiComp	No	
	28M003	23N01W28M003M	No	Redundant:Shallower zone selected	Observation	696	123	123	123	deep	Bennett MultiComp	No	
	28M005	23N01W28M005M	No	Redundant: deeper zone selected	Observation	72	123	123	123	shallow	Bennett MultiComp	No	
	31M001	23N01W31M001M	No	Redundant:Shallower zone selected	Observation	1,200	49	49	49	deep	Sacramento River MultiComp	No	
	31M002	23N01W31M002M	No	Redundant:Shallower zone selected	Observation	616	49	49	49	deep	Sacramento River MultiComp	No	
	03H003	23N01W03H003M	Consider	Redundant:Shallower zone selected. Consider for deeper monitoring	Observation	351	154	62	200	deep	Gaia Way - MultiComp	No	
	31M003	23N01W31M003M	Consider	Redundant:Shallower zone selected. Could include this one instead	Observation	245	49	49	49	deep	Sacramento River MultiComp	No	

** Indicates the well is included in the 2022 GSP GWL RMS Network

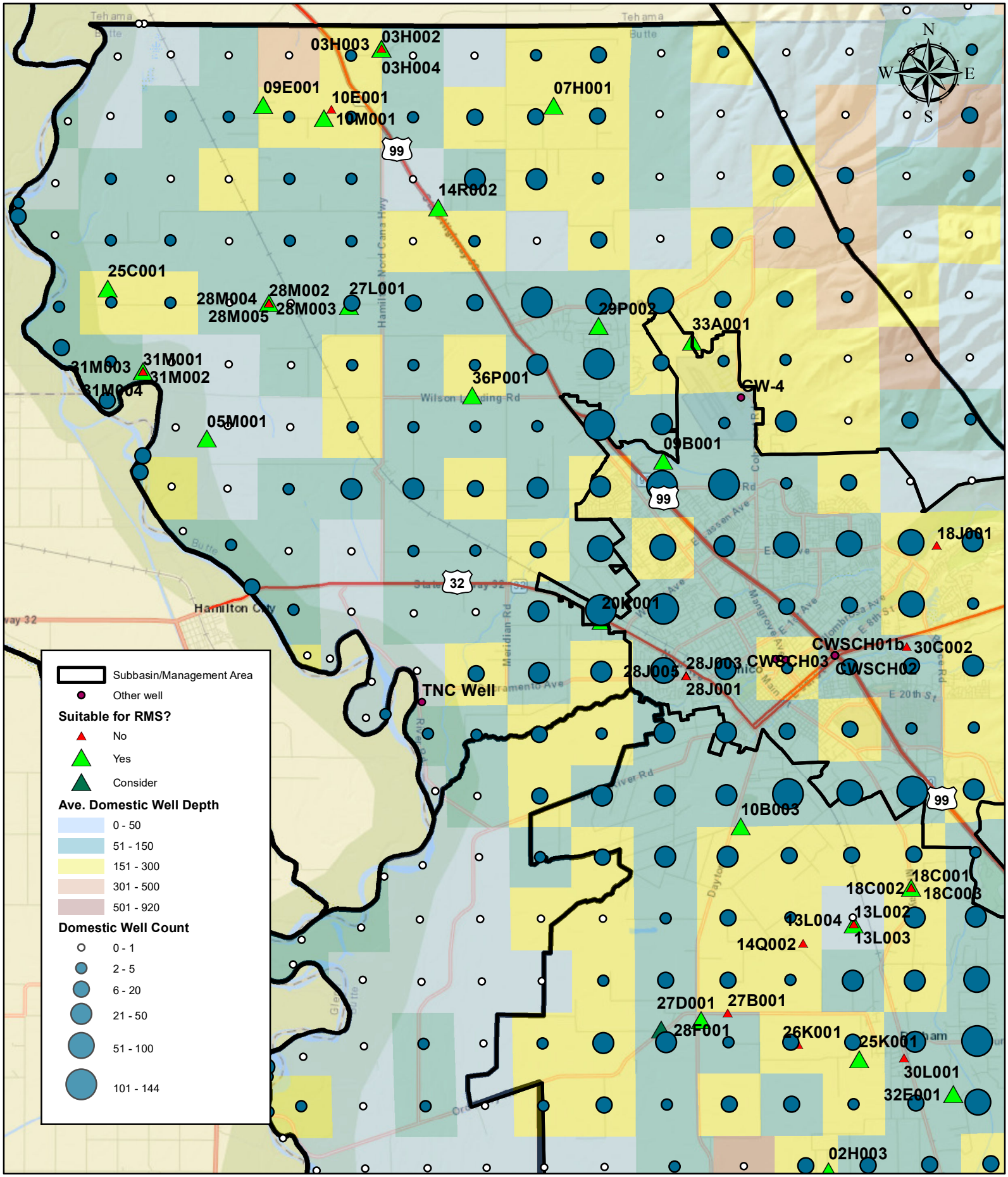
	Well ID	SWN	Butte County Analysis: RMS?	Butte County Reasoning/Considerations	Well Use	Drill Depth	Ave. Dom Well Depth	Min. Dom Well Depth	Max. Dom Well Depth	Aquifer Category	Location Description	LWA Proposed RMS (Oct. 2025)	LWA Reason for Removal
Chico*	09B001	22N01E09B001M	Yes	Good align w/ dom. Good geographical location. No Screen info	Residential	156	145	50	475	shallow	Hicks Ln	No	
	20K001	22N01E20K001M	Yes	Good align w/ dom. Good geographical location. No Screen info	Residential	110	138	45	265	shallow	Hwy 32	No	
	28J001	22N01E28J001M	No	Old mon. well, concerned about future reliability	Observation	660				deep	W. Sacramento Ave	No	
	28J003	22N01E28J003M**	No	Remove: Old mon. well, concerned about future reliability	Observation	320				both	W. Sacramento Ave	**Yes**	
	28J005	22N01E28J005M	No	Old mon. well, concerned about future reliability	Observation	948				deep	W. Sacramento Ave	No	
	18J001	22N02E18J001M	No	East side of Chico. (CalWater Service area). Good align w/ dom. No Screen info.	Residential	180	152	23	345	shallow	Rondo Ct by 5 Mile	No	
	30C002	22N02E30C002M	No	East side of Chico (CalWater Service area). Dedicated observation. Good align w/ dom.	Observation	203	103	42	192	shallow	Marsh Jr. High	No	

* CalWater wells not evaluated. Four CalWater wells are included in the 2022 GSP GWL RMS network in the Chico Management Area

** Indicates the well is included in the 2022 GSP GWL RMS Network

	Well ID	SWN	Butte County Analysis: RMS?	Butte County Reasoning/Considerations	Well Use	Drill Depth	Ave. Dom Well Depth	Min. Dom Well Depth	Max. Dom Well Depth	Aquifer Category	Location Description	LWA Proposed RMS (Oct. 2025)	LWA Reason for Removal
South	09G001	20N02E09G001M	Yes	Good geographical location and mid-depth. No dom wells nearby	Observation	202	0	0	0	deep	Esquon Airstrip	No	
	02H003	20N01E02H003M	Yes	Good align w dom.	Observation	201	161	44	465	both	Harvest Ln. N. of Grainland Rd	**Yes**	
	08H003	20N02E08H003M	Yes	Good align w dom.	Residential	187	151	102	210	deep	Esquon Residential	No	
	24C001	20N02E24C001M**	Yes	Good align w dom.	Observation	155	90	90	90	shallow	Nelson Rd. MultiComp	**Yes**	
	33L001	20N03E33L001M	Yes	Good align w/ dom. Good geographical location	~~Other~~ Observation	101	140	140	140	shallow	East of Hwy 99 nr S. boundary	No	
	10B003	21N01E10B003M	Yes	Good geographical location. Deep for dom.	~~Irrigation~~ Observation	525	155	60	235	deep	Dayton Rd/Rodgers Ave	**Yes**	
	13L004	21N01E13L004M	Yes	Multi-completion well	Observation	353	0	0	0	deep	CSU Farm MultiComp	**Yes**	
	25K001	21N01E25K001M	Yes	Good align w/ dom wells.	Residential	93	200	40	577	shallow	Turner Road, Durham	No	
	27D001	21N01E27D001M	Yes	Good align w/ dom. Reliable access.	Residential	112	111	82	143	shallow	Aguas Frias/Durham Dayton Hwy	**Yes**	
	18C003	21N02E18C003M**	Yes	Unique pattern during drought years. Good align w dom	Observation	240	151	87	362	deep	Patrick's Ranch MultiComp	**Yes**	
	26E006	21N02E26E006M	Yes	Good align w/ dom. Multi-completion wel	Observation	179	152	88	260	shallow	Custom Fab near Hwy 99	**Yes**	
	32E001	21N02E32E001M	Yes	Lots of dom wells. Good align w/ dom.	Irrigation	184	135	50	680	shallow	Stanford Ln, Durham	No	
	32B001	21N03E32B001M	Yes	Good geographical location. Very shallow.	~~Irrigation~~ Observation	57	0	0	0	shallow	Durham Pentz Rd. East	No	
	10C002	20N01E10C002M**	No	Outside subbasin. Good for tracking boundary conditions	~~Irrigation~~ Observation	210	0	0	0	both	Aquas frias/Grainland	Removed	Well outside subbasin boundary
	09L001	20N02E09L001M**	No	Often pumping, Too deep, Oil. Not mapped	Irrigation	710	0	0	0	deep	Esquon Irrigation	Removed	Poor data quality, oil
	24C002	20N02E24C002M	No	Redundant:Shallower zone selected	Observation	390	90	90	90	deep	Nelson Rd. MultiComp	No	
	24C003	20N02E24C003M	No	Redundant:Shallower zone selected	Observation	520	90	90	90	deep	Nelson Rd. MultiComp	No	
	12D001	21N01E12D001M	No	NMs, patchy data, often pumping. Not mapped	Irrigation	600	163	105	220	both	Nr. Hegan Ln. CSU Farm	No	
	12K001	21N01E12K001M	No	Questionable Measurements (Oil). Not mapped	Irrigation	465	163	105	220	deep	Bruce Ln/Hegan	No	
	13F001	21N01E13F001M	No	Missing data, always pumping. Not mapped	Irrigation	515	0	0	0	both	CSU Farm north	No	
	13L002	21N01E13L002M	No	Redundant:Shallower zone selected	Observation	771	0	0	0	deep	CSU Farm MultiComp	No	
	13L003	21N01E13L003M	No	Redundant:Shallower zone selected	Observation	574	0	0	0	deep	CSU Farm MultiComp	No	
	14Q002	21N01E14Q002M	No	Redundant, 13L004 better alternative; lacking screen info	Irrigation	290	167	120	240	both	Fimple/Hegan	No	
	21C001	21N01E21C001M**	No	QMs (oil). Too deep for dom. Not mapped.	Irrigation	565	119	37	240	deep	N. of Dayton/Chico St.	Removed	Poor data quality, oil
	26K001	21N01E26K001M	No	Missing data	Irrigation	462	168	100	278	deep	Burkick Lane, Durham	No	
	27B001	21N01E27B001M	No	Too deep for dom. Redundant, 27D001 better alternative	~~Irrigation~~ Observation	517	111	82	143	both	Four Corners	No	
	18C001	21N02E18C001M	No	Redundant:Shallower zone selected	Observation	914	151	87	362	deep	Patrick's Ranch MultiComp	No	
	18C002	21N02E18C002M	No	Redundant:Shallower zone selected	Observation	701	151	87	362	deep	Patrick's Ranch MultiComp	No	
	20P001	21N02E20P001M	No	QMs, tape hangs up. Not mapped	Irrigation	238	131	40	300	deep	Cummings Rd. Nr Butte Crk	No	
	26E003	21N02E26E003M	No	Redundant:Shallower zone selected	Observation	660	152	88	260	deep	Durham Dayton Hwy MultiComp	No	
	26E004	21N02E26E004M	No	Redundant:Shallower zone selected	Observation	518	152	88	260	deep	Durham Dayton Hwy MultiComp	No	
	30L001	21N02E30L001M	No	Redundant w/ 25K001. A little deep for dom. No screen info.	~~Residential~~ Observation	317	119	30	259	both	Memorial Hall, Durham	**Yes**	
	22C001	21N03E22C001M	No	Outside subbasin	Residential	123	146	45	295	shallow	West Branch Ln	No	
	29J003	21N03E29J003M	No	QM measurements due obstructions post 2018 Camp Fire	~~Residential~~ Other	513	143	100	180	deep	Butte College	**Yes**	
	26E005	21N02E26E005M**	Consider	Redundant:Shallower zone selected	Observation	315	152	88	260	deep	Durham Dayton Hwy MultiComp	Removed	MultiComp; replaced
	06Q001	20N02E06Q001M	Consider	Deep for dom. Redundant w/ 2H003 and 8H003?	Irrigation	383	142	56	267	both	Midway/White Dr.	No	
	31M001	20N03E31M001M	Consider	A little deep for dom but dedicated observation well. Close to boundary.	Observation	201	123	123	123	deep	Hwy 99 nr S. boundary	No	
	28F001	21N01E28F001M	Consider	Redundant, 27D001 better alternative. Located in Dayton, lots of dom. Good align w/ dom	Irrigation	173	137	56	238	shallow	Yokum Ln, Dayton	No	

** Indicates the well is included in the 2022 GSP GWL RMS Network



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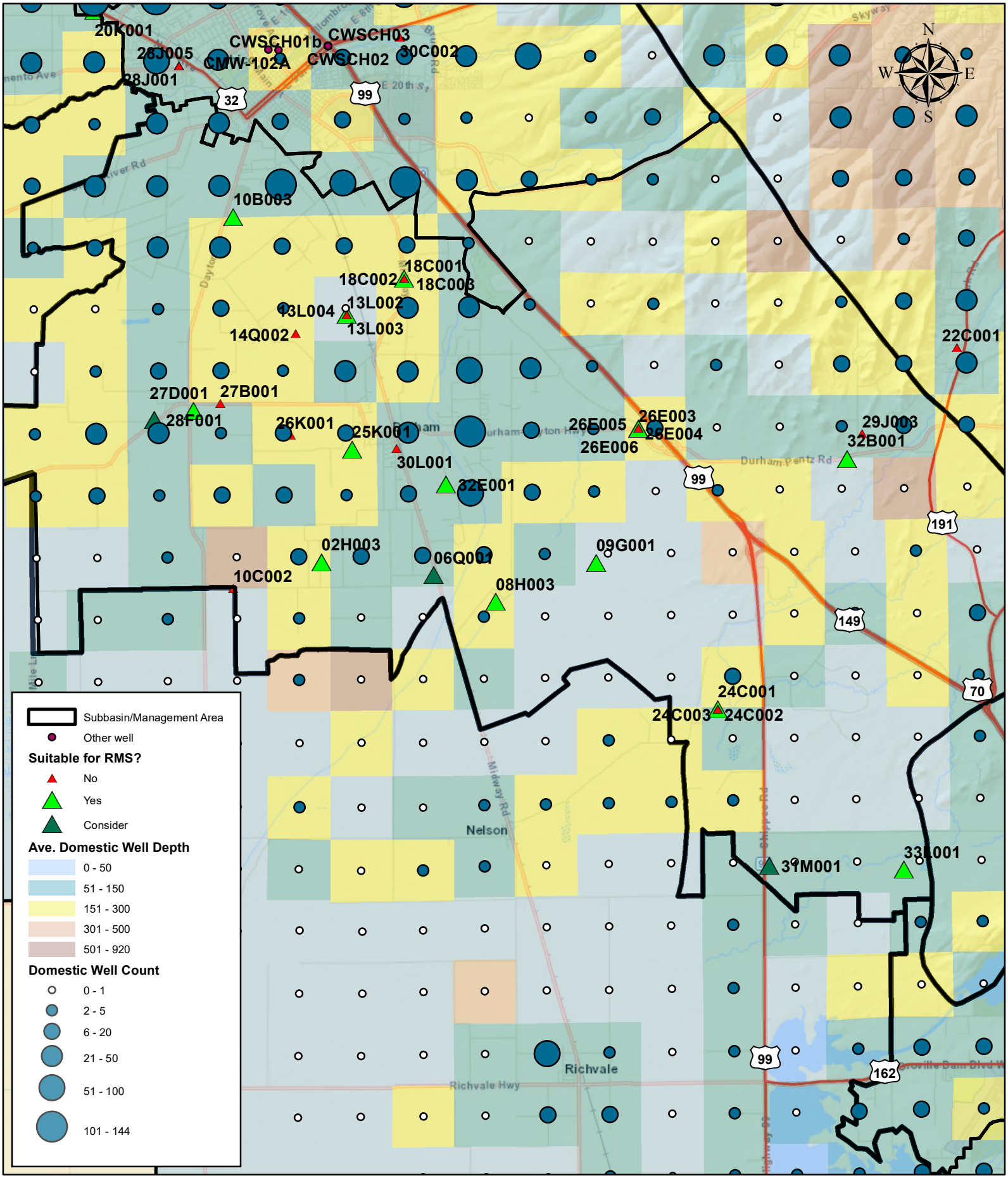

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