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WYANDOTTE CREEK SUBBASIN

Periodic Evaluation

DRAFT

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Wyandotte Creek GROUNDWATER SUSTAINABILITY AGENCY

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SECTION 1: EXECUTIVE SUMMARY

1.1 Background

The Wyandotte Creek Subbasin (Subbasin) is identified by the California Department of Water Resources (DWR) as a medium priority subbasin. The Subbasin is managed by the Wyandotte Creek Groundwater Sustainability Agency (GSA; **Figure 1-1**). The GSA is formed through a Joint Powers Agreement (Agreement) of three member agencies, including Butte County, the City of Oroville, and Thermalito Water and Sewer District. The Wyandotte Creek GSA Board (Board) is composed of five seats, each with equal and full voting rights, which consists of an elected official from each member agency, an agricultural groundwater user, and a domestic well user (non-agricultural); the latter two positions being appointed by the Butte County Board of Supervisors. The GSA covers the entirety of the Subbasin, an area of 93 square miles (59,382 acres) in southeast Butte County.

The California Code of Regulations Title 23 (23 CCR) §356.4 requires GSAs in subbasins with a DWR-approved Plan to evaluate their Plan at least every five years and whenever the Plan is amended, and to submit the Periodic Evaluation to DWR at that time. The purpose of this Periodic Evaluation is to provide (1) an evaluation and written assessment of the 2027 Plan Amendments, including a discussion of the Plan Amendments and the reasons for those amendments; and (2) an evaluation of whether the 2027 Plan Amendments both continue to meet the requirements of SGMA and will lead to achievement of the sustainability goal for the Subbasin. Specific requirements of Periodic Evaluations are further described in 23 CCR §356.4.

The Evaluation is accompanied by an Amended GSP, which was adopted by the GSA on [FILL IN], following all public notice requirements. On July 27, 2023, DWR approved the Wyandotte Creek Subbasin GSP with five (5) recommended corrective actions (RCA), which have been addressed as part of the Amended GSP. DWR's recommended corrective actions and actions completed by the GSA are included in Error! Not a valid bookmark self-reference.. Revisions to address DWR's recommended corrective actions are summarized in *Section 10* of this 2027 Periodic Evaluation. The GSA's efforts to address all these topics are described throughout this Periodic Evaluation, as applicable, and cross-referenced with the 2027 Plan Amendment.

Table 1-1. DWR Recommended Corrective Actions

RCA Number	Summary of Recommended Corrective Action	Activities completed by GSA	Discussion of GSA's Response
1	Provide additional information on historical and current groundwater quality conditions in the Subbasin and refine the definition of sustainable management criteria.	- Updated GSP section 2.2.4.3 based on recent review of contamination plumes in the Subbasin. Explicitly listed and described all existing contamination sites and the corresponding responsible agency and/or mitigation program. - Evaluation of water quality data did not reveal significant impacts from pumping; the GSA is currently working on a handout to give to project partners that highlights locations in the Subbasin with water quality	Section 3.4: Degraded Water Quality

RCA Number	Summary of Recommended Corrective Action	Activities completed by GSA	Discussion of GSA's Response
		problems that could impact project feasibility. - Updated water quality network and SMCs. Four of the original RMS network wells were removed. - Added three potential constituents of concern, recommended by the State Water Resources Control Board: nitrate, perfluorooctanoic acid (PFOA), and perfluorooctanoic sulfonate (PFOS). - Discussed how the GSA has participated with regulatory programs.	
2	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.	- Updated inventory of domestic wells and used to complete a domestic well risk assessment. - Updated and expanded groundwater level RMS network. Expanded characterization of GDEs (GSP Section 2.2.7) and ISW monitoring (GSP Section 4.6); quantified impacts to domestic wells (GSP Appendix 3-B). - The non-dry year condition was removed from the definition of undesirable results. Changed MT approach for lowering groundwater levels to be more reflective of undesirable result definition. - The list of PMAs was also updated (GSP Section 5.2.3) to describe benefits from recent water supply reliability and recharge projects.	Section 3.1: Chronic Lowering of Groundwater Levels
3	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.	- The non-dry year condition was removed from the definition of undesirable results.	Section 3.4: Degraded Water Quality
4	Provide additional information on criteria used to identify undesirable results, and	- The definition of undesirable results and SMCs have been revised.	Section 3.5: Land Subsidence

RCA Number	Summary of Recommended Corrective Action	Activities completed by GSA	Discussion of GSA's Response
	sustainable management criteria for land subsidence.	- The monitoring network has been revised to better evaluate subsidence conditions throughout the basin. Current analysis shows minimal/negligible land subsidence. - The GSA has established annual monitoring protocol for subsidence using surveyed wells, InSAR data, and local GPS stations for ground-truthing (as data allows).	
5	Use future DWR guidance regarding estimations of the location, quantity, and timing of depletions of interconnected surface water and establish specific sustainable management criteria to sustainably manage depletions of interconnected surface water through a number of actions further described in the letter.	- The GSA reviewed the guidance released to date; the guidance was taken into consideration during the Periodic Evaluation and Plan Amendment process. - Improved the ISW monitoring network by classifying existing monitoring wells by depth, drilling new wells, and installing new stream gages; the updated monitoring network is visualized in Figure 4-4 of Amended GSP. - Coordination will take place while developing approach for ISW sustainable management criteria. - Updated Butte Basin Groundwater Model (BBGM) and provided new ISW results. - Updated groundwater dependent ecosystem delineations	Section 3.6: Depletion of Interconnected Surface Water

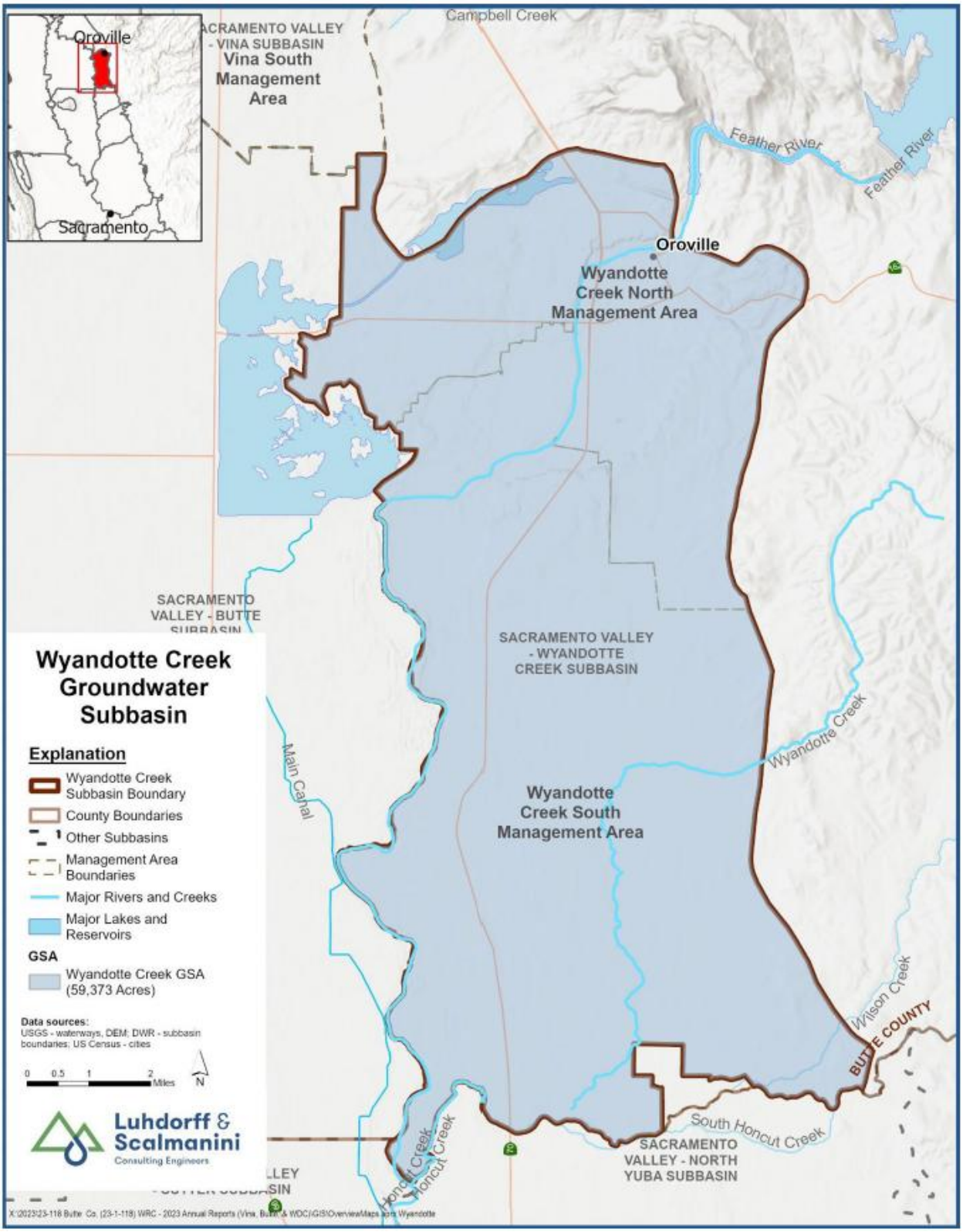


Figure 1-1. Wyandotte Creek Subbasin and Groundwater Sustainability Agency Boundaries[1]

1.2 Periodic Evaluation Overview

The Wyandotte Creek Subbasin sustainability goal is:

> To ensure that groundwater is managed to provide a water supply of adequate quantity and quality to support beneficial users of groundwater including but not limited to rural areas and other communities, the agricultural economic base of the region, and environmental resource uses in the Subbasin now and in the future.

The Subbasin's sustainability goal will be maintained through 2042. Projects and management actions to address local groundwater concerns will be implemented as needed. Implementation of the GSP seeks to improve local understanding of all beneficial uses and users of groundwater, including interconnected surface water and groundwater dependent ecosystems, and to protect local groundwater supplies for domestic and agricultural users. This Periodic Evaluation serves to evaluate and demonstrate how GSA activities have continued to advance the sustainability goal over the evaluation cycle of February 1, 2022, through January 30, 2027. The Periodic Evaluation, in contrast to annual report reviews, also looks at the collective data over the evaluation period to identify trends, any conditions of concern, and overall progress for maintaining the sustainability goal. This Evaluation compares conditions to interim milestones, measurable objectives, and minimum thresholds, as set in the 2027 GSP.

During this evaluation cycle, the GSA monitored groundwater conditions, developed Annual Reports, acquired funding to support GSP implementation, and implemented projects and management actions (PMAs) as needed. This Periodic Evaluation compares groundwater conditions to the established sustainable management criteria (SMC) for each sustainability indicator as described in the 2027 GSP. During this time, conditions remained on track to maintain sustainability through 2042. As part of this Periodic Evaluation and Amended GSP, monitoring networks for each sustainability indicator have been modified and enhanced to incorporate new monitoring sites to fill data gaps in support of maintaining the sustainability goal. SMC definitions have been modified where necessary due to the monitoring network changes and in accordance with DWR's recommended corrective actions to support future Subbasin condition assessments.

Wyandotte Creek Subbasin implemented PMAs identified in the 2022 GSP, continued to conduct groundwater management activities, and evaluated new information and data collected to improve characterization of the Subbasin. GSA activities during this evaluation cycle were largely funded through DWR's Sustainable Groundwater Management (SGM) Grant Program although the GSA also established a fee to support local implementation and administration of the GSA. Significant new information and data acquired were incorporated into both the Periodic Evaluation and Amended GSP, as feasible, and include:

- Airborne electromagnetic (AEM) data collected by DWR, which was used to develop groundwater monitoring networks for shallow and deep aquifer zones.
- Classified each groundwater level monitoring network well using DWR's AEM surveys and well screen intervals. Wells were classified as being representative of shallow water table or deep aquifer conditions.
- Installation of new groundwater monitoring wells to fill data gaps.
- Assessment of groundwater dependent ecosystems (GDEs) and interconnected surface water (ISW) to determine potential impacts from groundwater pumping.
- Improvements to the domestic well inventory and assessment of risks.
- Feasibility assessment of direct and in-lieu groundwater recharge projects using various recharge methods, locations, and available water supplies.

[1] Wyandotte Creek Subbasin (5-021.69) Groundwater Sustainability Plan Annual Report – 2024. https://sgma.water.ca.gov/portal/gspar/preview/435

1.3 Summary of Groundwater Conditions Relative to the Sustainable Management Criteria (SMC)

Measured conditions in the Subbasin over the first five years after GSP submission (2022-2027) were in compliance with amended minimum/maximum thresholds (MTs) for all applicable sustainability indicators (SIs) as described in the 2027 amended GSP. An MT is a quantitative value that represents the groundwater conditions at a representative monitoring site that, when exceeded individually or in combination with MTs at other monitoring sites, may cause an undesirable result(s) in the basin. Whether the MT represents a minimum or maximum value is dependent on the SI. MT is a minimum threshold for all SIs except for water quality where MT is a maximum threshold. As an example of a minimum, if groundwater levels are lower than the value of the measurable objective (MO) for that site, they are moving in the direction of the MT. As an example of a maximum, for the groundwater quality sustainable management criteria (SMC), as the value of the EC concentration increases from the MO established for that site, it is moving in the direction of the MT. The SIs and SMC, including MTs, are summarized in **Table 3-1**. Note that seawater intrusion is not an applicable SI in this Subbasin. Each SI is evaluated at representative monitoring sites (RMS).

1.3.1 Current Groundwater Level and Storage Conditions

The current groundwater conditions in the Subbasin are characterized by groundwater elevations that have remained consistently near or above the MO, staying well above the corresponding MT and remaining within the Subbasin's established margin of operational flexibility for each RMS well. Importantly, none of the RMS wells experienced a decline below the MT, hence avoiding undesirable results as defined in the GSP.

From the WY 2025 Annual Report, groundwater elevations are, on average, 42 feet above the MT throughout the Subbasin and, on average, 17 feet above the MOs. Elevations are mostly near or slightly higher than those observed in recent years. This positive trend is influenced by the wet and above normal hydrologic conditions experienced in WY 2023 to 2025, which resulted in increased natural recharge, surface water supplies and reduced groundwater extractions.

Fluctuations in groundwater levels and storage within the Subbasin are influenced by the balance between aquifer recharge and extraction. Groundwater levels serve as a proxy for estimating changes in groundwater storage, with observed patterns closely mirroring those in the broader Sacramento Valley. In years characterized by drought and low precipitation, diminished surface water supplies lead to increased extraction and reduced recharge, causing a decline in groundwater storage.

The annual change in groundwater storage is reported in the GSP Annual Reports, using a methodology based on observed groundwater levels. The evaluation period marked an increase in groundwater storage of approximately 39,400 acre-feet (AF) in the subbasin (WY 2022-2025). For context, in the past 25 years, the largest one-year decrease in groundwater storage is estimated to be - 28,800 AF in 2007, and the greatest one-year increase was estimated to be 36,500 AF in 2006.

1.4 Status of Projects and Management Actions

During the evaluation period, the GSA began implementing projects to support maintaining sustainable conditions in the subbasin and to address recommended corrective actions, largely funded by the SGM Implementation Grant Program (2024-2026). The ongoing implementation of PMAs, described in *Section 5*, aims to address these corrective actions effectively through this Periodic Evaluation of the GSP, which is submitted to DWR in January 2027. Updates on the status of management actions are described in *Section 4* and summarized in **Table 4-1**.

1.5 Other Elements of the Periodic Evaluation

1.5.1 Stakeholder and Public Engagement

- Outline stakeholder engagement efforts.
- Provide a high-level summary of public comments received during Groundwater Sustainability Plan (GSP) implementation and PE preparation.

Table 1-2. Stakeholder and Public Engagement Comments

Comment ID	Commenter	Comment
1		
2		
3		

[Update in 2026 after continued stakeholder outreach regarding the PE]

1.6 Organization of the Periodic Evaluation

The organization of this Periodic Evaluation meets the requirements outlined in Section 3.3 of the Groundwater Sustainability Plan Implementation: A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments[2].

[2] California Department of Water Resources. 2023. Groundwater Sustainability Plan Implementation: A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/GSP-Implementation-Guidance-Report.pdf

SECTION 2: NEW INFORMATION COLLECTED OR ACQUIRED (§356.4(F))

According to GSP Emergency Regulations §356.4(f) the Periodic Evaluation must include:

> A description of significant new information that has been made available since Plan adoption or amendment, or the last five-year assessment. The description shall also include whether new information warrants changes to any aspect of the Plan, including the evaluation of the basin setting, measurable objectives, minimum thresholds, or the criteria defining undesirable results.

2.1 New Information Since 2022 GSP Development

New and significant information acquired since development of the 2022 GSP is summarized in **Table 2-1**.

Table 2-1. Summary of New Information Since 2022 GSP Submittal.

Significant New Information	Description	Aspects of Plan Affected	Warrant Change(s) to Any Aspects of the Plan
Airborne Electromagnetic (AEM) Data Collection	AEM data was collected by DWR in the North Sacramento Valley in April and May 2022 and published in Data Report for Survey Area 7 (North Sacramento Valley - Colusa, Butte, Wyandotte Creek, Vina, Los Molinos, Corning, Red Bluff, Antelope and Bend groundwater subbasins).[3]	Basin Setting	Yes – Section 5.1 of the Periodic Evaluation and Section 2.1.6 of the Amended GSP
Butte Basin Groundwater Model (BBGM) Updates	The BBGM has been updated to version 1.3 and extended through water year 2024. See Technical Memorandum discussing BBGM updates (prepared by Woodard & Curran; finalized January 2026)	Basin Setting	Yes – Sections 5.3 and 5.4 of the Periodic Evaluation and Section 2.2.6 and 2.3 of the Amended GSP
DWR Technical Support Services (TSS) well installation	Under DWR's Technical Support Services, one set of nested monitoring wells, 18N04E19D001M - 18N04E19D003M, was installed in 2021, specifically to address the spatial data gaps identified in the GSP. This well has been added to the monitoring network for groundwater levels, water quality, and interconnected surface water.	Monitoring Network	Yes – Section 6 of the Periodic Evaluation and Section 4 of the Amended GSP
Updated Groundwater Dependent Ecosystem Desktop Analysis	Updated GDE maps and proposed monitoring plan developed by Environmental Science Associates. See report titled "Wyandotte Creek Groundwater Subbasin Groundwater Dependent Ecosystem Analysis (February 2026)" and memorandum regarding Groundwater Dependent Ecosystem Technical Study (dated March 2026) for additional information.	Basin Setting and Monitoring Network	Yes – Sections 5.2 and 6.1.1 of the Periodic Evaluation and Sections 2.2.7.2 and 4 of the Amended GSP

[3] https://data.cnra.ca.gov/dataset/aem/resource/68098d78-741e-40a2-a359-9be3aba4f618

Significant New Information	Description	Aspects of Plan Affected	Warrant Change(s) to Any Aspects of the Plan
SGM Implementation Monitoring Well and Stream Gage Installation	Funding from the SGM Implementation Grant Program developed designs and specifications for fourteen dual completion shallow wells and one deep multi-completion well. Four shallow wells, one deep well, and five stream gages were completed in March 2026. The additional proposed shallow wells may be installed as funding allows and as needed.	Monitoring Network	Yes – Section 6 of the Periodic Evaluation and Section 4 of the Amended GSP
Updated Well Risk Assessment	Updated domestic well inventory and minimum thresholds to protect domestic wells, maintain operational flexibility, and estimate costs for domestic well mitigation program to be implemented as needed.	Basin Setting, SMCs, and Monitoring Network	Yes – Sections 3 and 4 of the Amended GSP
Monitoring Network Assessment	Groundwater level monitoring sites were analysed and then classified to provide stratigraphic context for the well screened intervals to identify which aquifer zone each monitoring well is representative of. Wells represented of shallow water table and deep aquifer groundwater level conditions were identified.	Monitoring Network	Yes – Section 4 of the Amended GSP
Expanded Monitoring Networks	Identified groundwater level monitoring sites representative of domestic wells and interconnected surface water. Additional groundwater quality sites were identified.	Monitoring Network	Yes – Section 4 of the Amended GSP
Butte Inter-basin Coordination Modeling using C2VSim v1.5.	Inter-basin Flow Evaluation with Regional Model. Additional information available in technical memorandum developed by Montgomery & Associates dated January 7, 2026.	Inter-basin Coordination	Yes – Section 6.7 of the Amended GSP
Water Quality Sampling from North Region Office Collected January 2025	Water quality samples taken near the Palermo / Honcut areas including mineral quality, nutrients, metals, and salinity.	Monitoring Network	Yes – Section 4 of the Amended GSP

SECTION 3: GROUNDWATER CONDITIONS RELATIVE TO SUSTAINABLE MANAGEMENT CRITERIA (§356.4(A))

This section fulfills the requirements for GSP Emergency Regulations §356.4(a):

> A description of current groundwater conditions for each applicable sustainability indicator relative to measurable objectives, interim milestones and minimum thresholds.

The 2022 GSP originally described the sustainable management criteria (SMC) for each relevant sustainability indicator: groundwater elevations, groundwater storage, water quality, land subsidence, and interconnected surface water. The amended GSP has updated SMCs for all sustainability indicators except seawater intrusion, which is not applicable to this Subbasin. The updated SMCs for all sustainability indicators listed in the 2027 GSP are shown in **Table 3-1**.

In this section, for each indicator, groundwater conditions are compared to the revised SMC defined in the amended 2027 GSP. During the evaluation period, WY 2022 was a critical year, WY 2024 and WY 2025 were above normal years, and WY 2023 was a wet year. The relevant DWR recommended corrective actions from the 2023 GSP determination letter are listed, followed by the GSP amendments that address each corrective action.

Table 3-1. Sustainable Management Criteria for Sustainability Indicators According to the Amended 2027 GSP.

GSP Section	Sustainability Indicator	Undesirable Results	Identification of Undesirable Results	Minimum Threshold	Measurable Objective and Interim Milestones
3.3	Groundwater Levels	The sustained groundwater levels are too low to provide a water supply of adequate quantity and quality to support rural areas and communities, and the agricultural economic base of the region, or if significant and unreasonable impacts to environmental uses of groundwater occur.	Two or 25% of RMS wells (whichever is greater) within a management area reach their MT for two consecutive years.	The MT is set to the deeper value of two criteria: Set to protect 95% of nearby shallow domestic wells. A specified distance below the historic low; either (A) the range of historically measured groundwater levels or (B) 20 feet, whichever is shallower.	The MO was set equal to the average groundwater level recorded from October 1st, 2015, through September 30th, 2025. IMs are set to the MO.
3.4	Groundwater Storage	Sustained groundwater storage volumes are insufficient to support rural areas and communities, the agricultural economic base of the region, and environmental uses.	Groundwater Levels SMC are used by proxy.	Groundwater Levels SMC are used by proxy.	Groundwater Levels SMC are used by proxy.
3.5	Water Quality	Groundwater pumping that degrades water quality and compromises the long-term viability of rural areas and communities, the agricultural economic base of the region, and environmental uses for suitable habitat.	Two or 25% of measured RMS wells (whichever is greater) across the entire Wyandotte Creek Subbasin exceed their Maximum Threshold (MT) for two consecutive years.	The higher of 900 µs/cm or the measured historical high, whichever is greater.	700 µs/cm
3.6	Seawater Intrusion	Not applicable.	Not applicable.	Not applicable.	Not applicable.
3.7	Land Subsidence	Groundwater pumping leads to changes in the ground surface elevation severe enough to disrupt critical infrastructure, development of projects that enhance the viability of rural areas, communities, and the agricultural economic base of the region.	Undesirable results will occur when the ground surface elevation of at least 12% of InSAR RMS sites (or at least 3 of 21 sites) declines a distance that exceeds the subsidence MT.	0.5 feet of subsidence over five years (or 2 feet over 20 years).	One foot over 20 years (e.g., 0.25 feet over a 5-year period)

GSP Section	Sustainability Indicator	Undesirable Results	Identification of Undesirable Results	Minimum Threshold	Measurable Objective and Interim Milestones
3.8	Interconnected Surface Water	Avoiding significant and unreasonable depletion of surface water flows caused by groundwater pumping that significantly impacts beneficial uses.	Two or 25% of shallow RMS wells (whichever is greater) across the entire Subbasin reach their MT for two consecutive years.	The MT is set to a specified distance below the historical low; either (A) the range of historically measured groundwater levels or (B) 20 feet, whichever is shallower.	The MO was set equal to the average groundwater level recorded from October 1st, 2015, through September 30th, 2025. IMs are set to the MO.

3.1 Chronic Lowering of Groundwater Levels

3.1.1 Current Conditions Relative to SMC

In response to DWR's recommended corrective actions, the groundwater level representative monitoring network was updated, SMCs revised, and PMAs reevaluated with the new SMCs. The undesirable results definition has been updated in Section 3.3.1 of the Amended GSP.

A summary of conditions over the evaluation cycle, listing the total number of wells at or above the amended SMCs, is shown in **Table 3-2**. Hydrographs for the ten RMS wells are provided in **Attachment A**.

Table 3-2. Chronic Lowering of Groundwater Levels Threshold Analysis Summary, WYs 2022 to WY 2026 – Number of RMS Wells at or Above Threshold Based on Spring Measurements.

Water Year	Number of RMS Wells with Good Measurement	Measurable Objective	2027 Interim Milestone	Minimum Threshold
2022	10	9	9	10
2023	10	10	10	10
2024	9	9	9	9
2025	9	9	9	9
2026	9	9	9	9

Groundwater levels were above the minimum threshold during the evaluation cycle at all representative monitoring wells (**Table 3-2**). Undesirable results are not currently occurring and have not occurred over the evaluation cycle, where an undesirable result is identified as more than two (or 25%, whichever is greater) of representative monitoring wells below their minimum thresholds for two consecutive years, within a management area (2 wells each in Oroville Management Area and South Management Area) (**Table 3-1**). No management actions were activated to address minimum threshold exceedances for the chronic lowering of groundwater levels sustainability indicator.

Groundwater levels rose and fell with the water year type, with groundwater levels naturally falling during dry years and recovering in wet years.

3.1.2 DWR's Recommended Corrective Actions

DWR's 2023 GSP determination letter identified one recommended corrective action regarding groundwater levels. The three aspects of this corrective action are included below, verbatim:

- **Corrective Action 2a:** 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.

  GSA Response: The definition of undesirable results has been modified to remove the non-dry year condition. See Section 3.3.1 of the amended GSP. PMAs were also updated (Section 5.2.3 of the Amended GSP) to describe benefits from recent water supply reliability and recharge projects benefits.

- **Corrective Action 2b:** Provide information on impacts to domestic wells during projected conditions where minimum thresholds are exceeded but undesirable results do not occur and quantify domestic wells that will be impacted by the proposed minimum threshold. Furthermore, the GSA 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 as the GSP does not evaluate those impacts.

  GSA Response: A domestic well risk assessment has been completed to quantify impacts to domestic wells at the MT (Appendix 3-B). The GSA inventory of domestic wells has been updated, as described in Appendix 3-B. The groundwater level RMS network has been updated and expanded, as described in Section 4.9.1 of the amended GSP. Expanded data collection efforts on GDEs (2.2.7.2) and ISW monitoring (4.6).

- **Corrective Action 2c:** 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.

  GSA Response: To improve monitoring for impacts on beneficial uses and users and other sustainability indicators, the groundwater level RMS network has been revised, the full network expanded, and new wells drilled to fill data gaps in groundwater level and ISW. The MT approach was also adjusted to be more reflective of updated undesirable result definition. The completed domestic well inventory has been used to update the domestic well risk assessment in Appendix 3-B. The analysis provides an estimate of the undesirable result that would occur if water levels declined to the MT. The 2027-2032 implementation period will continue to collect data for improved characterization of GDEs and ISWs. The 2032 PE will assess if the current groundwater level SMCs are protective of GDEs and ISWs.

The following section describes all proposed amendments to the GSP to address DWR's recommended corrective actions.

3.1.3 Amendments to GWL SMC

In response to the DWR recommended corrective actions the definition of undesirable results, and minimum thresholds have been revised. The non-dry condition for undesirable results has been removed per DWR's recommendation. The analysis for setting the MTs has been revised. Previously, the MT was set for each RMS well based on bottom elevations of nearby domestic wells to ensure that 85% of domestic wells are protected from going dry. The new MT will protect 89% of the domestic wells while allowing operational flexibility to pump groundwater when needed. The new MT is set to the deeper value of two criteria:

1. Set to protect 95% of the nearby shallow domestic wells; AND,
2. Set to a specified distance below the historic low: the distance is either the range of historically measured groundwater levels or 20 feet, whichever is shallower.

The MT for each RMS well has been set using either Criterion 1 or 2 above (see **Table 3-1** in the amended GSP). In the 2022 GSP, the MO and IMs for groundwater level were based on the groundwater trend line of the RMS well for the dry periods (since 2000) of observed short-term climatic cycles extended to 2030. However, groundwater levels have not shown a strong downward trend even during droughts in the Subbasin. The amended GSP set the MO equal to the average groundwater level recorded from October 1st, 2015, through September 30th, 2025. Interim milestones were set to the MO. For the RMS network, one well was removed due to oil contamination and two were added. The current RMS network is shown in Figure 4-5 of the GSP and Error! Reference source not found. *Section 6.1* of the Periodic Evaluation further describes the monitoring network.

3.1.4 Progress Toward Achieving Sustainability

GSP implementation relative to the groundwater levels sustainability indicator has been effective in the Subbasin. Beyond several reported cases of failing domestic wells, there were no reports over the evaluation cycle of Subbasin conditions and GSP implementation affecting beneficial uses and users of water. In WY 2022, a critical year type, Wyandotte Creek Subbasin residents could apply to the Butte County OEM Drought Assistance Program to receive water deliveries and or water storage tanks at their residences. Based on data during the evaluation period, conditions related to the chronic lowering of groundwater levels sustainability indicator are not negatively impacting other sustainability indicators.

3.2 Groundwater Storage

Because of the direct relationship between groundwater levels and groundwater storage, the SMC for groundwater levels is used as a proxy for groundwater storage. DWR provided no recommended corrective actions regarding groundwater storage.

3.3 Seawater Intrusion

Seawater intrusion is not applicable to the Wyandotte Creek Subbasin due to its distance from the ocean.

3.4 Water Quality

3.4.1 Current Conditions Relative to Water Quality SMC

Current conditions of water quality are limited to results collected over the evaluation period, between WY 2022 to WY 2025 (February 1, 2022, through September 30, 2025). Water quality conditions in relation to the revised MT and MO from the amended GSP are summarized in **Table 3-3**. The SMCs have been updated from the 2022 GSP to address DWR recommended corrective actions. Interim milestones are equal to the MO. For completeness, historical data from wells that have been removed from the RMS network have been included. Salinity is the main constituent of concern in the Subbasin and is evaluated by measuring specific conductance.

During the evaluation period, all but one well are below the MO (**Table 3-3**). The well *08M001M* was above the MO but below the MT during WY 2024. Undesirable results are not occurring and have not occurred over the evaluation period, where two or 25% (whichever is higher) of measured RMS wells across the entire Wyandotte Creek Subbasin exceed their minimum threshold (MT) for two consecutive years. There were no MT exceedances during the evaluation period, and no management actions were implemented in response to MT exceedances. Wells PWS=02, 28L001M, and 13B002M were removed from the network in 2022. Well 16Q001M was removed in 2023. Further explanation for why these wells were removed is available in Section 6.4.1.

Table 3-3. Water Quality SMCs and Data from February 1, 2022, to September 30, 2025

Well ID	Measurable Objective / Interim Milestone (SC, µS /cm)	Minimum Threshold (SC, µS /cm)	WY 2022 Measurement (SC, µS /cm)	WY 2023 Measurement (SC, µS /cm)	WY 2024 Measurement (SC, µS /cm)	WY 2025 Measurement (SC, µS /cm)
08M001M	700	900	Questionable[c]	Questionable[c]	715	521
06E002M	700	900	--	383	138	157
09N002M	700	900	--	333	327	341
19D003M[a]	700	900	Questionable[b]	Questionable[b]	Questionable[b]	290
16Q001M[c]	700	900	88	--	--	--
PWS-02[c]	700	900	344	--	--	--
28L001M[c]	700	900	--	--	--	--
13B002M[c]	700	900	--	--	--	--

Notes:

[a] New nested well (wells completed in same borehole) installed by DWR under TSS Grant. Shallow completion is used as RMS.

[b] Data excluded due to being flagged as questionable measurement.

[c] Well removed from RMS network.

3.4.2 DWR's Recommended Corrective Actions

In DWR's 2023 GSP determination letter, the department identified five recommended corrective actions regarding water quality. All aspects of these corrective actions are shown below, verbatim, followed by the GSA response.

- **Corrective Action 1a:** 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.

  GSA Response: The 2022 GSP lists locations of impacted groundwater due to existing plumes, identified by reviewing information available on the 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). After a review of all contamination plumes within the Subbasin, Section 2.2.4.3 of the amended GSP has been updated to explicitly list and describe all existing contamination sites and the corresponding responsible agency and/or mitigation program. GSP Figure 2-16, Active Contamination Remediation Sites, presents the locations of known impacted groundwater or potentially impacted groundwater in the Wyandotte Creek Subbasin. Contamination plumes are periodically monitored in coordination with Butte County Public Health and Department of Toxic Substances Control, Site Mitigation and Restoration Program, including monitoring extent of plumes available on public websites: EnviroStor and GeoTracker to assess how groundwater pumping impacts plume movement.

- **Corrective Action 1b:** Evaluate whether groundwater management actions, including production and/or replenishment under the jurisdiction of the GSA, may influence the migration of contaminant plumes.

  GSA Response: Evaluation of water quality data did not reveal significant impacts from pumping; the GSA is currently working on a handout to give to project partners that highlight locations in the Subbasin with water quality problems that could impact project feasibility and/or influence project design.

  GSP Section 4.4 on the Groundwater Quality Monitoring Network has been updated to be consistent with recent changes to the monitoring network. The GSP identifies eight (8) water quality RMS locations. The updated RMS network will have four (4) locations. The updated RMS network will be used to ensure that groundwater management actions are not having a negative impact on groundwater quality.

  Additionally, the GSA will evaluate and collect (as needed) water quality samples to determine concentrations of other potential constituents of concern including nitrate, perfluorooctanoic acid, and perfluorooctanoic sulfonate per State Water Resources Control Board recommendations[4]. The goal is to demonstrate that all constituents currently being monitored by other agencies have been kept at reasonable levels within the Subbasin and are not impacted by groundwater pumping or implementation of PMAs.

- **Corrective Action 1c:** Investigate if groundwater quality issues are adversely impacting groundwater supply and beneficial uses and provide information if there are any mitigation programs in place and the effectiveness of such programs.

  GSA Response: GSP Sections 2.2.4 and 3.5.1 discuss other regulatory programs such as the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) and the Irrigated Lands Regulatory Program. GSA staff and members of the consulting team have participated in CV-SALTS webinars and have responded to CV-SALTS requests for GSA input. Additionally, point-

[4] Groundwater Quality Considerations for High and Medium Priority Groundwater Basins. State Water Resources Control Board. November 22, 2022.

source contaminants are managed and regulated through a variety of other programs by the Regional Water Quality Control Board, DTSC, and the EPA. Through coordination with existing agencies, the Wyandotte Creek GSA will know if existing regulations are being met or if groundwater pumping activities in the Wyandotte Creek Subbasin are contributing to significant and unreasonable undesirable effects related to degraded water quality. The GSA will continue to track and communicate as needed to stay engaged with these other regulatory programs to monitor any groundwater quality issues and any mitigation programs.

Additionally, the GSA adapted new SMCs, as described in *Section 3.4.3*.

- **Corrective Action 1d:** Coordinate with the lead agencies overseeing these remediation sites regularly and update the Plan stating how existing groundwater quality conditions and/or remediation efforts may impact the GSA's ability to manage groundwater.

  GSA Response: The GSA elaborated within Section 2.2.4.2 of the amended GSP based on recent and planned future discussions with regulatory agencies (e.g., State Board, Department of Toxic Substances Control) overseeing water quality improvement / remediation programs.

- **Corrective Action 3:** 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.

  GSA Response: The GSA has removed the non-dry year condition from the definition of undesirable results.

The following section describes all proposed amendments to the GSP to address DWR's recommended corrective actions.

3.4.3 Amendments to Water Quality SMC

Salinity is the only water quality constituent for which sustainable management criteria are set and is measured as specific conductance as a basic groundwater quality characteristic to evaluate a basin for evidence of saline intrusion. The focus of the monitoring is to track any migration of connate water upwelling from deep portions of the aquifer, where sediment has an ancient marine origin. Groundwater quality monitoring has been conducted to establish baseline levels throughout the Subbasin so that any future saline changes may be identified. Groundwater quality baseline monitoring was conducted by Butte County as documented in their annual groundwater quality trend monitoring program technical memorandums. The 2027 Amended GSP defines updated water quality SMCs based on the water quality baseline data.

MTs and MOs for water quality were defined by considering two primary beneficial uses at risk of undesirable results related to salinity: drinking water and agriculture uses. There are several water quality standards for irrigated agriculture, which all recognize that total salt is an important criterion to determine the suitability of water for irrigation. Salinity can affect plant water availability and yield. Typical ranges for irrigation water for specific conductance are 0 to 3,000 µS/cm. The California Department of Health Services has established the preferred agricultural water quality level of less than 700 µS/cm.[5] The amended GSP lowers the MO from 900 to 700 µs/cm. The MO was set at the irrigated agriculture sensitivity level for salinity to protect agricultural usage which is consistent with the former Butte County Basin Management Objectives (BMO) defined in the Butte County Code of Ordinances (Chapter 33A). The Butte County BMO Program expired upon the adoption of the 2022 GSP. The upper limit for specific conductance to provide safe drinking water is 1,600 µS/cm which was used to set the MT in the 2022 GSP. The amended GSP lowers the MT from 1,600 to the recommended secondary maximum

[5] Artiola, Janick F., Ian L. Pepper, Mark Brusseau. Environmental Monitoring and Characterization. Table 9.4, pg 148

contaminant level of 900 µs/cm, or the measured historical high, to ensure safe drinking water and suitable quality for irrigation (Title 22 CCR §64449-B). The SMC updates are summarized in **Table 3-4**.

Additionally, the revised water quality network has lost and gained wells compared to original network presented in the 2022 GSP. Four wells were removed per the request of the landowners (28L001M in 2022 and 16Q001M in 2023), due to an inoperable pump (13B002M), or water quality issues (PWS-02). Two wells were added to the network: 06E002M in 2022 and 09N002M in 2023. Additional wells will be installed in Spring 2026 and added to the water quality broad network, focusing on the west and south edge of the Subbasin.

Table 3-4. Current and Amended SMCs and Definition of Undesirable Results for Specific Conductance (µs/cm) in the Wyandotte Creek Subbasin.

	Measurable Objective	Maximum Threshold	Undesirable Result
2022 SMC	900 µs/cm	1,600 µs/cm	2 RMS wells exceed their MT for two non-dry consecutive years
2027 Amended SMC	700 µs/cm	The greater of 900 µs/cm or the measured historical high	2 or 25% (whichever is greater) of measured RMS wells over the entire Wyandotte Creek Subbasin exceed their MT for two consecutive years.

3.4.4 Progress Toward Achieving Sustainability

GSP implementation relative to the water quality sustainability indicator has been effective in the Subbasin. Observed water quality conditions do not exceed their MTs (see **Table 3-3**) nor is there an observed negative trend in water quality. Water quality conditions did not negatively affect beneficial uses and users of water. Based on data during the evaluation period, conditions related to the water quality sustainability indicator are not negatively impacting other sustainability indicators.

3.5 Land Subsidence

3.5.1 Current Conditions Relative to SMC

Current conditions of subsidence consider data collected over the evaluation period, between WY 2022 to WY 2025. Subsidence conditions in relation to the revised MT and MO from the amended GSP are summarized in **Table 3-5**. The SMCs have been updated from the 2022 GSP to address DWR recommended corrective actions. Previously, the groundwater level SMCs and network served as proxy for the subsidence sustainability indicator. In the amended GSP, the network uses a select group of groundwater level wells and satellite-based InSAR data. SMCs are based on the InSAR data and groundwater level data is used to determine if any observation of subsidence is natural or from groundwater pumping within the Subbasin.

During the evaluation period, all RMS sites are in compliance with the MO and MT specified in the 2027 GSP (**Table 3-5**). Undesirable results are not occurring and have not occurred over the evaluation period, where the ground surface elevation of at least 12% of RMS wells (or at least 3 of 21 sites) declines a distance that exceeds the subsidence MT. No management actions were implemented in response to MT exceedances, which did not occur. The Subbasin continues to experience no significant subsidence (Error! Reference source not found.).

Table 3-5. Subsidence SMCs and Data from WY 2021 to WY 2025.

RMS Well / InSAR Pixel[a]	Site Type	Latitude	Longitude	Measurable Objective / Interim Milestone	Minimum Threshold	Vertical Displacement from WY 2021 to 2025 (feet)
Wyandotte Creek – Oroville Management Area						
16Q001M	InSAR pixel	39.4977	-121.6369	0.25 feet of subsidence over 5-year period	0.5 feet of subsidence over 5-year period	-0.03
32P001M	InSAR pixel	39.4540	-121.5503			-0.04
PWS-01	InSAR pixel	39.51234	-121.55461			-0.04
PWS-02	InSAR pixel	39.51234	-121.55461			-0.04
PWS-03	InSAR pixel	39.51234	-121.55461			-0.04
S1[b]	InSAR pixel	39.47207	-121.57766			-0.04
Wyandotte Creek – South Management Area						
03D001M	InSAR pixel	39.364	-121.6328	0.25 feet of subsidence over 5-year period	0.5 feet of subsidence over 5-year period	-0.03
13B002M	InSAR pixel	39.3336	-121.5853			-0.05
09N002M	InSAR pixel	39.3387	-121.5363			-0.03
22B001M	InSAR pixel	39.319	-121.5089			-0.03
25N001M[b]	InSAR pixel	39.3818	-121.59156			-0.05
08M001M	InSAR pixel	39.4283	-121.5586			-0.04
16C001M	InSAR pixel	39.4239	-121.5318			-0.04
19D001M[b]	InSAR pixel	39.40512	-121.57362			-0.06
19D002M[b]	InSAR pixel	39.40512	-121.57362			-0.04
19D003M[b]	InSAR pixel	39.40512	-121.57362			-0.03
31F001M	InSAR pixel	39.4606	-121.5725			-0.03
M1[b]	InSAR pixel	39.35066	-121.55492			-0.05
S2[b]	InSAR pixel	39.43354	-121.60648			-0.07

RMS Well / InSAR Pixel[a]	Site Type	Latitude	Longitude	Measurable Objective / Interim Milestone	Minimum Threshold	Vertical Displacement from WY 2021 to 2025 (feet)
S7[b]	InSAR pixel	39.39294	-121.53966			-0.03
S10[b]	InSAR pixel	39.36540	-121.64045			-0.04
PMO	GPS Station	39.433265	-121.60457			-0.05

[a] Paired InSAR pixel and well.

[b] Wells installed in 2026.

3.5.2 DWR's Recommended Corrective Actions

In DWR's 2023 GSP determination letter, they identified one recommended corrective action regarding land subsidence. The two aspects of this corrective action are shown below, verbatim:

- **Corrective Action 4a:** Provide a clear, quantitative definition of when undesirable results for land subsidence may occur in the Subbasin, as required by the GSP Regulations, to support the selection of land subsidence minimum thresholds that demonstrate avoidance of undesirable results

  GSA Response: The GSA reviewed the newly available guidance for subsidence, and the guidance was taken into consideration during the Periodic Evaluation and Plan Amendment process. The subsidence SMCs and monitoring network have been revised. The definition of undesirable results for land subsidence has been revised for Wyandotte Creek Subbasin; undesirable results will occur when the ground surface elevation of at least 12% of RMS wells (or at least 3 of 21 sites) declines a distance that exceeds the subsidence MT. In the 2022 GSP, the groundwater level SMCs were used as a proxy for the subsidence SMCs. In the amended 2027 GSP, the new definition of undesirable results includes a measurable quantitative metric based on vertical displacement of the land surface (measured subsidence) (see Section 3.7.1 of the GSP).

- **Corrective Action 4b:** Establish sustainable management criteria for land subsidence for the Subbasin utilizing a monitoring network that directly measures land elevation change such as remote sensing data, survey monuments, or global positioning system stations.

  GSA Response: The definition of minimum thresholds (MTs), measurable objectives (MOs), and interim milestones (IMs) have been revised. In the 2022 GSP, the groundwater level SMCs were used as a proxy for the subsidence SMCs. In the amended 2027 GSP, the new MT, MO, and IM now have measurable quantitative metric based on vertical displacement over time (see Section 3.7 of the GSP). Additionally, the subsidence network has been updated to rely on InSAR data, checked against groundwater levels, and ground-truthed by available GPS subsidence station(s) (see Section 4.5 and 4.9.3 of the GSP). This subsidence monitoring network utilizes direct measurements of land subsidence using InSAR satellite data.

The following section describes all proposed amendments to the GSP to address DWR's recommended corrective actions.

3.5.3 Amendments to Land Subsidence SMC

Prior to and during GSP development, subsidence monitoring was conducted under two programs: (1) DWR's Sacramento Valley Subsidence Network GSP Survey and (2) satellite-based subsidence monitoring with InSAR. The GSA performed an analysis of data from both programs to quantify the extent of historical subsidence (Section 2.2.5.2 of the GSP). The analysis reviewed subsidence data between 2008 to 2019 and showed that the Subbasin experienced minimal subsidence historically, with a maximum value of -0.25 feet of subsidence (elastic) over five years. Extending the InSAR data through the end of October 2024, there was no evidence that current trends have deviated from those discussed in the GSP. Historical subsidence through 2024 is likely elastic, or reversible, and within the uncertainty of measurement methods.

The amended SMCs for subsidence are based on historical subsidence trends calculated from InSAR data. Should subsidence occur, the InSAR data is compared to the nearby groundwater level data to assess for any trends.

- Minimum Threshold: The MT is set to double the historical trend at -0.5 feet of subsidence over five years (or 2 feet over 20 years), and is meant to represent inelastic, or irreversible, subsidence solely due to lowering groundwater levels and may lead to undesirable results.

- Undesirable Results: Undesirable results will occur when the ground surface elevation of at least 12% of RMS InSAR pixels (or at least 3 of 21 sites) declines a distance that exceeds the subsidence MT.
- Minimum Threshold: The MO is one foot over 20 years (e.g., 0.25 feet over a 5-year period) for each InSAR pixel.
- Interim Milestone: The IM is one foot over 20 years (e.g., 0.25 feet over a 5-year period) for each InSAR pixel.

Additionally, the subsidence monitoring network has been updated to rely on the InSAR satellite data, confirmed with GPS sites with vertical displacement data (**Figure 6-4)**. The RMS network consists of 31 monitoring well and InSAR pixel pairs (see Section 4.5 and 4.9.3 of the GSP).

3.5.4 Progress Toward Achieving Sustainability

GSP implementation relative to the subsidence sustainability indicator has been effective in the Subbasin. Observed subsidence conditions were in compliance with the minimum threshold and measurable objective/interim milestone. Subsidence conditions did not negatively affect beneficial uses and users of water. Based on data during the evaluation period shown in Error! Reference source not found., conditions related to the subsidence sustainability indicator are not negatively impacting other sustainability indicators.

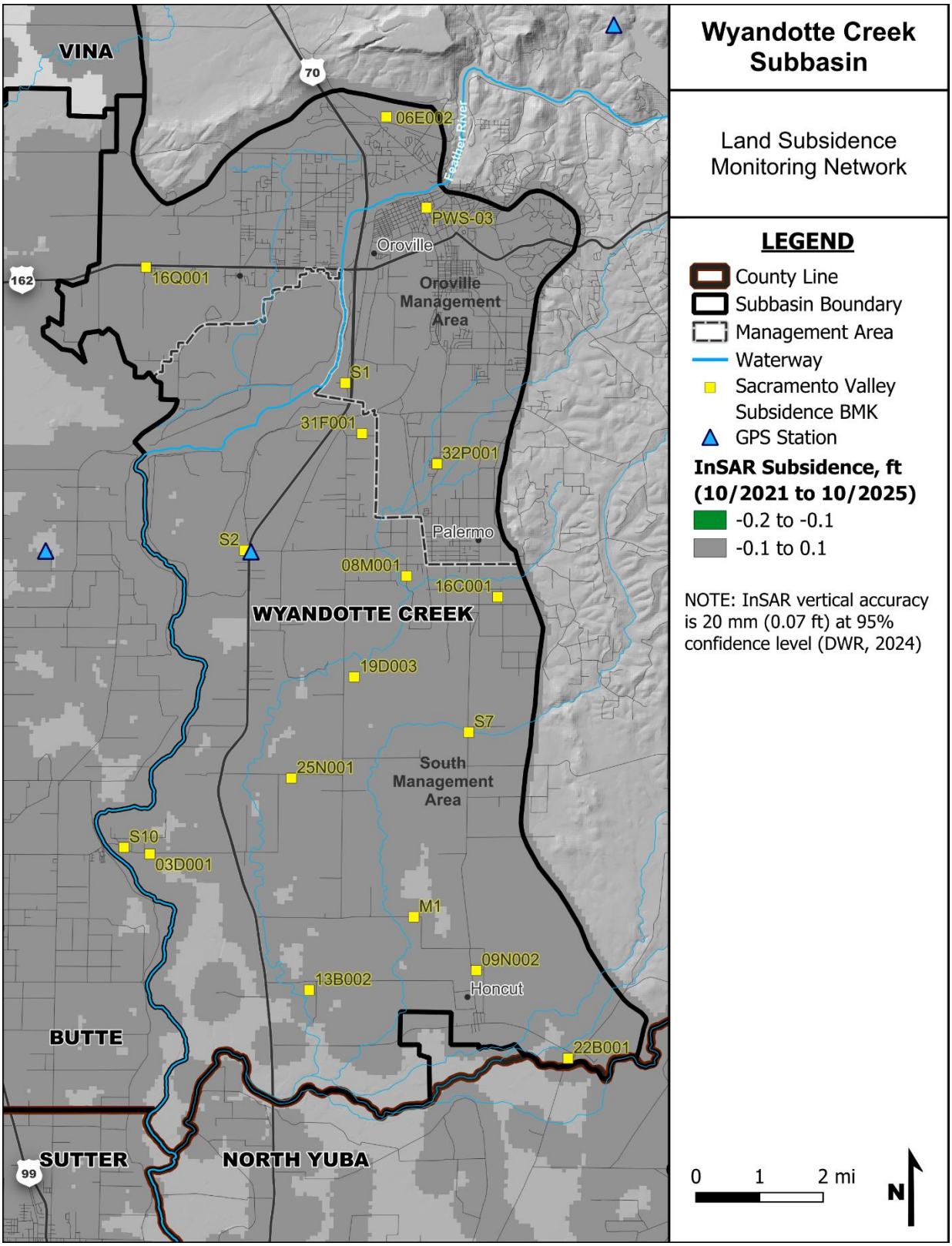


Figure 3-1. Subsidence from WY 2022 to WY 2025.

3.6 Interconnected Surface Water (ISW)

3.6.1 Current Conditions Relative to SMC

The ISW SMCs have been updated from the 2022 GSP to address DWR recommended corrective actions. The revised SMCs are described in *Section 3.3* above and in Section 3.8 in the amended GSP. The GSA has expanded its network of stream gages and groundwater wells near streams but needs additional time to collect data to further characterize the system and address data gaps. The GSA intends to further evaluate this SMC for the next periodic evaluation to avoid undesirable results to aquatic ecosystems and in-stream GDEs. New SMCs have been drafted for the current 2027 Amended GSP, with the goal of collecting additional data for five more years to fill data gaps.

During the evaluation period, all wells are above their MO, IM, and MT (Error! Reference source not found.). All three wells had good spring measurements in 2022 through 2025, and in 2026 only two wells had good spring measurements. A map of the RMS network is shown in **Figure 6-5**. Hydrographs for the three RMS wells are provided in **Attachment B**. The undesirable result occurs when two shallow RMS wells (or 25%, whichever is greater) across the entire Subbasin reach their MT for two consecutive years. Undesirable results are not occurring and have not occurred over the evaluation period. No management actions were implemented in response to MT exceedances.

Table 3-6. Depletion of Interconnected Surface Water Groundwater Levels Threshold Analysis Summary, WYs 2022 TO 2026 – Number of RMS Wells at or Above Threshold Based on Spring Measurements.

Water Year	Number of RMS Wells with Good Measurement	Measurable Objective	2027 Interim Milestone	Minimum Threshold
2022	3	3	3	3
2023	3	3	3	3
2024	3	3	3	3
2025	3	3	3	3
2026	2	2	2	2

3.6.2 DWR's Recommended Corrective Actions

In DWR's 2023 GSP determination letter, they identified two recommended corrective actions regarding interconnected surface water. All aspects of these corrective actions are shown below, verbatim:

- **Corrective Action 5a:** Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.

  GSA Response: As of the preparation of this Periodic Evaluation, DWR has not yet released formal ISW guidance to set SMCs from stream depletions. When guidance is issued, the GSA will review the recommended methodologies and, where appropriate, incorporate them to refine or establish quantifiable minimum thresholds, measurable objectives, and interim milestones related to ISW depletion. Any updates required by the guidance will be addressed, consistent with SGMA requirements.

- **Corrective Action 5b:** Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.

  GSA Response: The ISW network has been expanded and new wells drilled to fill ISW data gaps. The streamflow gage network has also been expanded through collaboration with neighboring agencies and installing new gages with SGM Implementation Grant Program funding. New data and monitoring sites have been incorporated into Sections 3.8, 4.6, 3.3, and 4.2 of the amended GSP. Additionally, new ISW results from the Butte Basin Groundwater Model (BBGM) have been added to Section 2.2.6 of the amended GSP. An update of groundwater dependent ecosystem delineations has been added Section 2.2.7 of the amended GSP.

- **Corrective Action 5c:** 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.

  GSA Response: The GSA is collaborating with the County, DWR, Northern California Water Association, neighboring subbasins, and stakeholders regarding beneficial uses and users. Public meetings have been held to discuss the perspective of all beneficial users and uses. In addition, GSAs in the region are coordinating in the Northern Sacramento Valley on best approaches to evaluate ISWs in streams along shared boundaries, including the Feather River. GSA staff and their technical consultants have worked across subbasins to develop a workplan for regional coordination and collaboration to address the depletions of interconnected surface water sustainability indicator in the Sacramento Valley (ISW Workplan). This ISW Workplan will be shared with DWR staff and an approach to implement this workplan over the next implementation period will be developed. Coordination will continue while developing the approach for ISW sustainable management criteria.

- **Corrective Action 5d:** Clarify the groundwater level monitoring sites that will be used for the evaluation of depletions of interconnected surface water and provide site-specific information.
- **GSA Response:** The ISW network includes all wells categorized as "shallow" in the groundwater level network and the RMS network currently includes 3 monitoring wells, selected due to their proximity to existing stream gages and identified ISWs (Section 4.6 and Section 4.9.4 of the amended GSP). Additional shallow wells and stream gages are being installed in 2026 and may be used to expand the monitoring network by 2032. The following section describes all proposed amendments to the GSP to both address DWR's recommended corrective actions and further protect beneficial users of interconnected surface water supplies.

3.6.3 Amendments to ISW SMC

A new ISW network, ISW RMS network, and ISW SMCs have been added to the amended GSP to address DWR recommended corrective actions. MTs for ISW RMS are the shallower of (A) the historical low minus the historical range or (B) the historical low minus 20 feet. The new undesirable result is defined as: two ISW RMS wells (or 25%, whichever is greater) across the entire Subbasin reach their MT for two consecutive years.

Additional data will be collected from 2026 to 2032 to fill data gaps. This includes collecting additional data from the expanded monitoring network and calibrating stream depletion estimates, using local and regional hydrologic models as feasible. The GSA may consider further refinements to the ISW SMCs as data and refined modeling allows.

3.6.4 Progress Toward Achieving Sustainability

GSP implementation relative to the ISW sustainability indicator has been effective in the Subbasin. Observed ISW conditions do not exceed their MTs (see Error! Reference source not found.). ISW conditions did not negatively affect beneficial uses and users of water. Based on data during the evaluation period, conditions related to the ISW sustainability indicator are not negatively impacting other sustainability indicators.

SECTION 4: STATUS OF PROJECTS AND MANAGEMENT ACTIONS (23 CCR §356.4(B))

This section fulfills the requirements of GSP Emergency Regulations §356.4(b):

> A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions.

4.1 Projects and Management Actions Summary

All completed, in-progress, and potential projects and management actions (PMAs) prioritized by the GSA are summarized in **Table 4-1**. Additional information on PMAs can be found in *Section 5* of the GSP. PMAs are implemented based on funding availability and identified need. Several PMAs could be triggered to address groundwater conditions as needed. Public noticing and engagement of interested parties regarding PMAs occur during Wyandotte Creek Advisory Committee (WAC) meetings and Board of Director meetings. Input on PMAs is solicited during these meetings and status updates have been provided during preparation of GSP Annual Reports. No challenges or setbacks have prevented or delayed implementation of PMAs and all PMAs will be implemented during GSP implementation as feasible. The addition of PMAs will be evaluated as needed and during each Periodic Evaluation cycle.

The GSA sought outside funding to reduce the local financial burden, including through state and federal grant programs. Starting in WY 2023, the GSA has focused on implementing PMAs to address DWR's recommended corrective actions, largely funded by the SGM Implementation Grant Program. If permits and/or California Environmental Quality Act (CEQA) documentation is required for a PMA, these documents will be identified as part of the planning phase.

4.2 Completed Projects and Management Actions

This section fulfills the requirements of GSP Emergency Regulations §356.4(b):

> For projects and management actions that are currently ongoing or have already been completed, the Periodic Evaluation should provide an evaluation and status update including realized benefits, expected benefits, and benefits and impacts to beneficial uses and users. The description should include how these projects and management actions are helping the basin achieve sustainability through the assessment of the groundwater conditions in relation to the measurable objectives for the relevant sustainability indicators. A description of the monitoring network and data related to projects and management actions that show progress toward sustainability, and documentation that the project is not impacting nearby beneficial users, should be included.

4.2.1 Thermalito Water and Sewer District Water Treatment Plan Capacity Upgrade Project

Realized Benefits To Date: Groundwater pumping for municipal use fell from 350 AF in 2023 to 50 AF in 2024.

Expected Benefits: Since groundwater is a significant contributor to drinking water in the city of Oroville and the Wyandotte Creek Subbasin, increasing the capacity of the treatment plant will reduce the impact of groundwater pumping.

Benefits and impacts to beneficial users: Reduction in Groundwater Demand/Reduced Pumping

Contribution to Achieving Sustainability: The TWSD increased the capacity of the water treatment plant serving the city of Oroville and surrounding area. By treating a greater volume of water for the area, the amount of groundwater pumped for drinking water decreased.

4.3 In-Progress Projects and Management Actions

This section fulfills the same requirements of GSP Emergency Regulations §356.4(b) as stated above in section 4.2.

4.3.1 Residential Water Conservation Project

Realized Benefits To Date: Conservation programs have resulted in reductions in urban pumping to the order of 50.5 AF in 2022, 100 AF in 2023, and 0.2 AF in 2024. Annual water savings compared to 2021 water usage equate to roughly 150 AFY.

Expected Benefits: As groundwater is the primary source of water for the region, these various conservation projects will reduce groundwater demand, allowing groundwater levels and overall storage to recover.

Benefits and Impacts to Beneficial Users: Water Conservation/Efficiency, Reduction in Groundwater Demand/Reduced Pumping

Contribution to Achieving Sustainability: Reduction in groundwater pumping will increase groundwater storage and reduce potential overdraft.

4.3.2 Palermo Clean Water Consolidation Project

Expected Benefits: Expanding the SFWPA service areas in Palermo would provide more residents with clean and safe drinking water using a surface water source and will reduce dependence on groundwater pumping wells that may be contaminated. This would also allow groundwater levels and water quality in the region to recover. This project will improve the resilience of drinking water supplies to households in Palermo. Over 1,000 residents are planned to be annexed into SFWPA's potable water supply, ~760 of which are inside of the Wyandotte Creek subbasin.

Benefits and Impacts to Beneficial Users: In-lieu use to allow groundwater levels and water quality in the region to recover.

Contribution to Achieving Sustainability: In-lieu use to allow groundwater levels and water quality in the region to recover

4.3.3 Regional Conjunctive Use Project

This project combines the (1) Intra-basin Water Transfer, (2) Agricultural Surface Water Supplies, and (3) Flood MAR projects, as described in the 2022 GSP, as they have been advanced simultaneously under the Regional Conjunctive Use Project with the GSA's SGM Round 2 grant. The goal is to use excess surface water supplies, including from flood water near Palermo and South Feather Water and Power Agency, in-lieu of pumping groundwater to irrigate managed wetlands and rice. The project is being implemented in coordination with Butte County's Palermo Master Drainage Plan.

Need to Advance Project: Feasibility study and 30% designs and specifications are complete. The project will be implemented once additional grant funding is secured.

Expected Benefits: Additional surface water use could result in up to 4,000 AFY of direct and/or in-lieu recharge for the subbasin. The project is expected to reduce flooding in Palermo. During periods of heavy rain, there are many wells that are being cross contaminated with septic effluent. This contamination has moved into the upper groundwater aquifer. Well samples taken in 2007 and in 2021 show that up to 25% of the sampled wells in Palermo have coliform contamination above safe levels to consume. This project is expected to prevent any additional contamination from septic effluent caused by flooding in Palermo.

4.4 Potential Projects

This section fulfills the requirements of GSP Emergency Regulations §356.4(b):

> For projects and management actions that have yet to begin or are still conceptual, assess the need for those based on the current conditions and expected outcomes of the existing projects and management actions. Describe the potential timeline to get those projects and management actions implemented or what may be needed to take them from the conceptual or as-needed phase to the "shovel ready" phase.

4.4.1 Extend Orchard Replacement

Need to Advance Project: Dependent upon availability of financial incentives and willingness of growers to participate. The project proponents are in the process of determining the feasibility of this project including the possibility of securing the necessary finances to move forward.

Expected Benefits and Evaluation: The Wyandotte Creek GSA met with stakeholders from the Vina Subbasin, where an Extended Orchard Replacement Program is being piloted, to learn more about this project. By increasing the time between orchard removal and replanting, the soil may be allowed to fallow, restoring its fertility, and decreasing its water demand. This would decrease the overall use of groundwater in the Subbasin. Implementation for this program will occur as needed.

4.4.2 Domestic Well Mitigation

Need to Advance Management Action: The mitigation program will be implemented if groundwater conditions decline below historical lows or as domestic wells are significantly impacted by declining groundwater levels. Local agencies are actively working to connect vulnerable residents with domestic wells to public water supply systems, such as the Palermo Clean Water Consolidation Project.

Expected Benefits and Evaluation: Improve water supply reliability for residents reliant on domestic wells. The PMA will be implemented as needed to manage groundwater conditions in the Subbasin. This PMA gives the GSA a means to mitigate for damages caused by declining groundwater levels from over pumping.

Table 4-1. Projects and Management Actions Summary Table

Name (GSP Section)	Description	Targeted Sustainability Indicator	Status	Schedule	Benefits Observed to Date or Anticipated Benefits	Estimated Accrued Benefits at Completion
Thermalito Water and Sewer District Water Treatment Plant Capacity Upgrade Project (5.2.4.1)	Increase capacity of TWSD water treatment plant that serves the city of Oroville and surrounding area.	Groundwater Levels; Groundwater Storage; Water Quality; Land Subsidence	Completed	Project completed in April 2024.	Groundwater pumping for municipal use fell from 350 AF in 2023 to 50 AF in 2024.	Water treatment plant capacity upgrades reduced groundwater pumping by 300 AF, so far.
Residential Water Conservation Project (5.2.5.1)	Implementation water conservation practices in accordance with the 2020 UWMP by municipal water suppliers. Some of these conservation projects include: -installation of low flow fixtures -toilet replacements -urinal valve and bowl replacements -clothes washer replacements -residential conservation kits -smart controllers -high efficiency irrigation nozzles -water waste prevention ordinances -metering -conservation pricing -public education and outreach -distribution system loss assessment	Groundwater Levels; Groundwater Storage	In-progress	Began in 2022, complete by 2025.	Conservation programs have resulted in reductions in urban pumping to the order of 50.5 AF in 2022, 100 AF in 2023, and 0.2 AF in 2024. Annual water savings compared to 2021 water usage equate to roughly 150 AFY.	Based on current estimates, the project will have saved a total of ~500 AF by the end of 2025. The current water savings estimate of 150 AFY meet the original goal of 100 to 200 AFY.
Palermo Clean Water Consolidation Project (5.2.5.2)	SFWPA would expand its service areas and water delivery capabilities to provide treated drinking water to Palermo	Groundwater Levels; Groundwater Storage	In-progress (Ongoing)	Planning started in 2021. Project design is completed,	Reduction in groundwater demand in the subbasin.	Over 1,000 residents are planned to be annexed into SFWPA's potable

Name (GSP Section)	Description	Targeted Sustainability Indicator	Status	Schedule	Benefits Observed to Date or Anticipated Benefits	Estimated Accrued Benefits at Completion
	residents to mitigate drinking water supply and contamination issues.			funding is secured, and implementation is underway and is expected to be completed in 2026.		water supply, ~760 of which are inside of the Wyandotte Creek subbasin.
Regional Conjunctive Use Project (5.2.5.3)	Combines the scopes of the Flood MAR (5.2.4.3), Intra-basin Water Transfer (5.2.5.1), and Agricultural Surface Water Supplies (5.2.5.2) described in the 2022 GSP. Additional surface water supplies have been identified: intra-basin deliveries from SFWPA and floodwater in the Palermo area. Wyman Ravine and Wyandotte Creek have both been identified as waterways with a substantial number of historically groundwater-irrigated rice and managed habitat along their reaches within the Subbasin, presenting opportunities for in-lieu recharge and Flood MAR projects.	Groundwater Levels; Groundwater Storage; Water Quality; Land Subsidence	In-progress	Feasibility study and intra-basin discussions began in 2024, complete by 2032.	Reduction in groundwater demand in the subbasin.	Additional water supplies could result up to 4,000 AFY of direct and/or in-lieu recharge for the subbasin.
Extend Orchard Replacement (5.2.6.1)	A program would be developed that would incentivize local growers to increase the duration of their current fallowing practice between orchard removal and replanting by one growing season. The program would temporarily reduce groundwater demand, possibly reduce the need for soil treatments such as fumigation, and expand recycling options for the previous orchard. Participation would require incentives and be voluntary.	Groundwater Levels	Potential (As needed)	Program development began in 2024 for the Vina Subbasin. Implementation schedule is TBD.	Reduction in groundwater demand in the subbasin.	Reduction in groundwater demand in the subbasin.

Name (GSP Section)	Description	Targeted Sustainability Indicator	Status	Schedule	Benefits Observed to Date or Anticipated Benefits	Estimated Accrued Benefits at Completion
Domestic Well Mitigation (5.3.1.1)	Establish a voluntary registry of domestic wells and compile domestic well logs, screen depths, and locations. Secure financial resources to improve, deepen, or replace select domestic wells. Provide emergency response to homes with dry domestic wells, including supplying bottled water and potable water for sanitation, especially for GDAs.	Groundwater Levels	Potential (As needed)	Began domestic well survey and domestic well monitoring plan in 2024, complete in 2026. Drought Resilience and Outreach Program funded in 2024, domestic well repair or replacement anticipated to begin in 2025.	Improve water supply reliability of current domestic wells.	Improve water supply reliability of current domestic wells.

SECTION 5: BASIN SETTING EVALUATION BASED ON NEW INFORMATION OR CHANGES IN WATER USE (23 CCR §356.4(C)-(D))

This section fulfills the requirements of GSP Emergency Regulations §356.4(d):

> An evaluation of the basin setting in light of significant new information or changes in water use, and an explanation of any significant changes. If the Agency's evaluation shows that the basin is experiencing overdraft conditions, the Agency shall include an assessment of measures to mitigate that overdraft.

The Subbasin is not in overdraft as of December 2026, therefore the GSA will continue to evaluate measures to mitigate overdraft as needed, considering projected potential groundwater level declines due to climate change. The PMAs currently under implementation are expected to close the up to 3,700 ac-ft/year gap that was predicted in Section 2.3.6 of the GSP with expected future climate conditions.

5.1 Hydrogeologic Conceptual Model

The hydrogeologic conceptual model (HCM) presented in the 2022 GSP identifies the major factors contributing to groundwater flow and movement and how different physical features and characteristics affect conditions within a subbasin. The HCM serves as an important component of the basin setting, providing the framework for understanding groundwater conditions and water budgets. This section summarizes new applicable data and analysis that informed a revised understanding of the HCM, including Airborne Electromagnetic (AEM) surveys, basin characterization, and work to fill data gaps.

As described in Sections 2 and 4: Basin Setting and Monitoring Networks, respectively, of the amended GSP, groundwater level monitoring sites were analyzed and then classified to provide stratigraphic context for the well screened intervals to identify which aquifer zone each monitoring well is representative of. A previous investigation (Blair et al., 1991) provided the initial framework for placing screens of the monitoring wells into three different stratigraphic units, from oldest to youngest: Ione Formation, Mehrten Formation (including the Nomlaki Tuff), and the Laguna Formation[6]. Additionally, 72 boreholes and 8 Airborne Electromagnetic (AEM) data profiles from the DWR W07 region were used to guide interpretations. **Figure 5-1** and **Figure 5-2** show AEM flightlines and a representative aquifer cross-section, respectively.

In general, monitoring wells screened in the Laguna Formation are representative of the shallow (or upper) aquifer zone and wells screened in the Ione Formation are representative of the deeper aquifer zone. Table 4-1 in the Amended GSP identifies which aquifer zone each monitoring well is screened within (e.g., Shallow, Deep, or Both).

5.1.1 Airborne Electromagnetic (AEM) Data Survey

An airborne electromagnetic (AEM) survey by DWR took place in the summer of 2022. Flight lines / boring log locations and a representative cross section for the Wyandotte Creek Subbasin are shown in **Figure 5-1** and **Figure 5-2,** respectively.

[6] Blair, T.C., Baker, F., and Turner, J., 1991, Cenozoic fluvial facies architecture and aquifer heterogeneity, Oroville, California, Superfund site and vicinity, in Tyler, N., and Miall, A.D., editors, Three-dimensional facies architecture of terrigenous clastic sediments and its implications for hydrocarbon discovery and recovery: SEPM Concepts in Sedimentology and Paleontology, No. 3, p. 147-159.

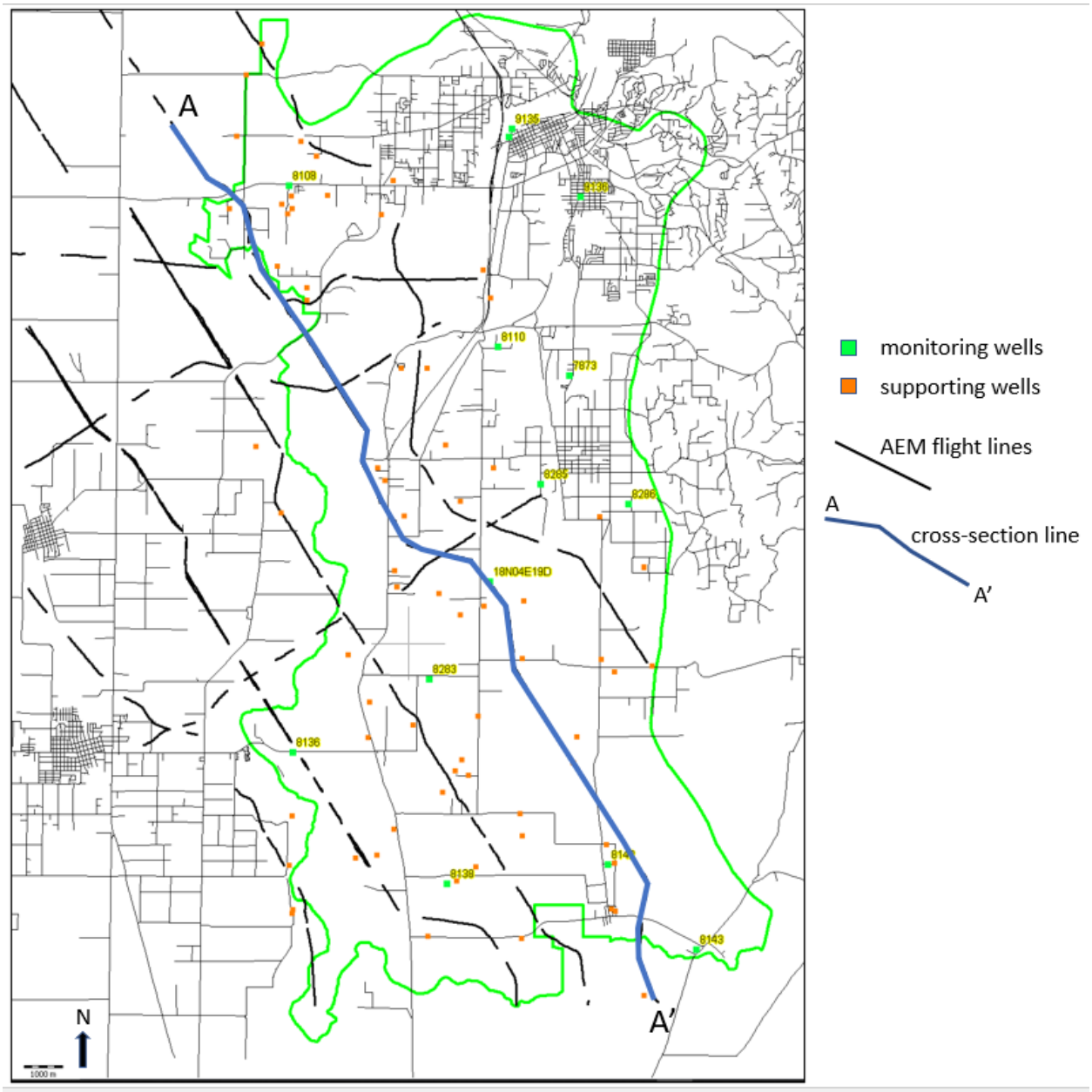


Figure 5-1. AEM Survey Flight Lines and Boring Log Locations, Wyandotte Creek Subbasin.

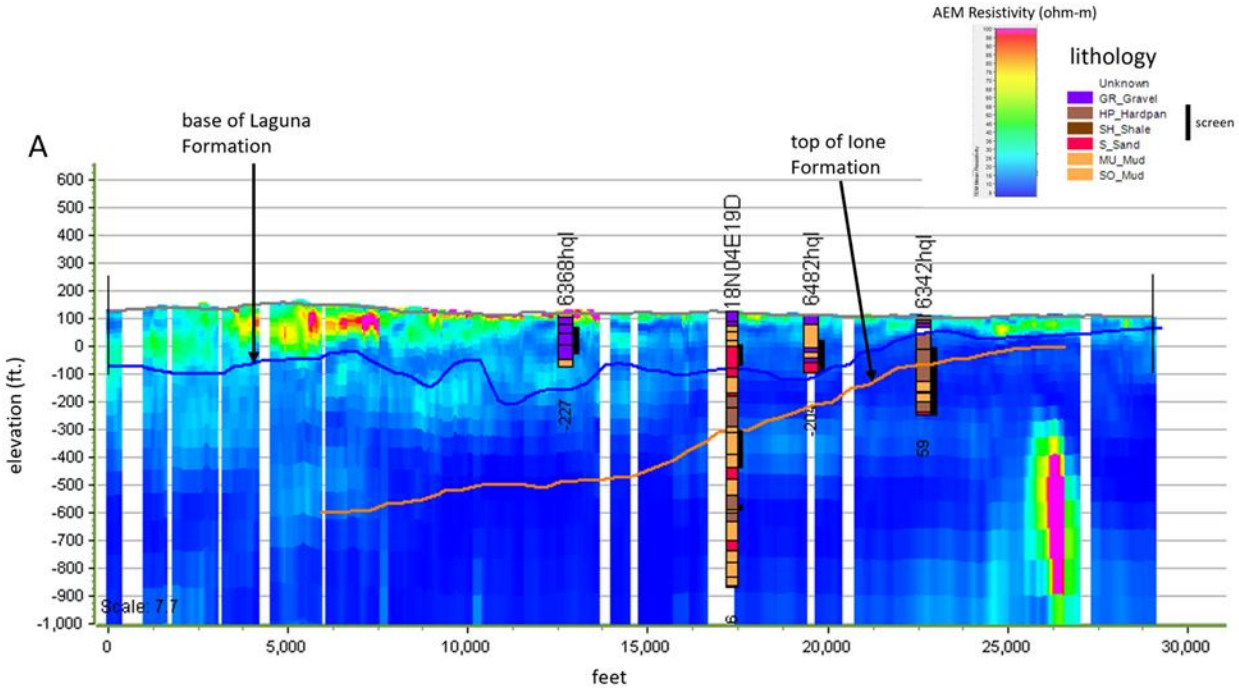


Figure 5-2. Wyandotte Creek Subbasin Groundwater Aquifer Representative Cross-Section from DWR's AEM Survey.

5.1.2 HCM Data Gaps

Data gaps identified in the 2022 GSP and DWR recommended actions have been addressed by the installation of additional monitoring wells and stream gages, expansion of monitoring networks, and studies of surface water outflows and groundwater dependent ecosystems. The spatial gaps in the representative monitoring network have been addressed by the addition of new wells and stream gages, through DWR's Technical Support Services (TSS) program and SGM Implementation Grant Program. A summary of the additions to the monitoring network are further described in *Section 6*.

Revised groundwater level, water quality, subsidence, and interconnected surface water monitoring networks were developed to address several of DWR's recommended corrective actions. The revisions expand the spatial distribution of wells, focusing on areas with vulnerable domestic wells, interconnected surface water and groundwater dependent ecosystems. These revisions to the monitoring networks included the installation of five groundwater level monitoring wells and five stream gages. These new monitoring wells and stream gauges will allow for improved characterization of stream-aquifer connectivity and to support future modeling of ISW conditions, especially in areas that previously had limited to no data availability. **Table 6-1** includes the list of wells added to the groundwater level monitoring network and **Figure 6-2** shows the current groundwater level monitoring network.

5.2 Groundwater Conditions

New data sources, tools, and analysis implemented during the evaluation period have increased the understanding and management of groundwater conditions. The evaluation period began during a drought followed by wet and normal years, and groundwater conditions have tracked the Subbasin recovery from drought. The 2020-2025 time period includes one dry year (2020), two critical years (2021, 2022), two above normal years (2024, 2025), and wet year (2023).

The monitoring networks for groundwater and stream gages have been expanded to fill data gaps and groundwater wells have been categorized by depth / screen intervals to better track changes in the shallow and deep aquifer. With the new monitoring networks, the GSA aims to collect enough data during the next evaluation period to better identify ISWs and GDEs for protection. The domestic well inventory has been completed and used to update the domestic well risk assessment.

Within the Wyandotte Creek Subbasin the revised subsidence network uses data from a new source: satellite- and aircraft-based Interferometric Synthetic Aperture Radar (InSAR) from DWR. The dataset nearly covers the entire Subbasin, with some gaps in the southwest. The TRE Altamira InSAR dataset provides estimates of total vertical displacement from June 2015 to Present.

The Wyandotte Subbasin also has a new program where private well-owners can report dry wells and ask for assistance. In Butte County, reporting can be done through DWRs voluntary Household Water Supply Shortage Reporting System (mydrywell.water.ca.gov; “Dry Well Reporting System”), through the Butte County OEM Drought Assistance Program and / or through Butte County Environmental Health Division when a well permit application is submitted. Those reporting to the County are encouraged to fill out the DWR Dry Well Reporting System reports as well, but not all do. The SGMA Data Portal shows that roughly 10 reports of dry wells have been documented, primarily focused near Palermo. Within calendar year 2022, 27 residents within the Subbasin applied for the Butte County OEM Drought Assistance Program to receive water deliveries and or water storage tanks due to a dry or reduced capacity household domestic well at their residences. Well Completion Reports (WCRs) are submitted to DWR, where the GSA tracks the number of agricultural and domestic wells installed per year through quarterly reports provided by Butte County Environmental Health Division

A 2022 letter from the State Water Resources Control Board recommended to add three constituents of concern to the amended GSP: nitrate, perfluorooctanoic acid (PFOA), and perfluorooctanoic sulfonate (PFOS). State Water Board staff compared water quality data from the State Water Board’s Groundwater Ambient Monitoring and Assessment Program (GAMA) to determine which constituents have exceeded Maximum Contaminant Levels (MCLs) or Health-Based Screening Levels (HBSLs). If a constituent exceeded screening criteria in three or more well types within a groundwater basin, the constituent was labeled as a potential constituent of concern. The amended GSP has added the three constituents of concern to its list of monitored analytes (Section 2.2.4.1 in amended GSP).

In both the 2022 GSP and DWR’s Determination Letter, groundwater dependent ecosystems were identified as an area with significant data gaps. To address the data gap, a new desktop analysis was performed as described in the report titled “Wyandotte Creek Groundwater Subbasin Groundwater Dependent Ecosystem Analysis” conducted by Environmental Science Associates (February 2026). The GDE desktop analysis indicated that likely GDEs within Subbasin are concentrated along the Feather River, Honcut Creek, and the lowland valley portions of Wyman Ravine and Wyandotte Creek. Additional groundwater level data will be collected in these areas over the next evaluation period (2027 – 2032) to better characterize GDEs. A GDE monitoring program has been developed that proposes long-term monitoring as part of refining Sustainable Management Criteria to avoid significant and unreasonable impacts to GDEs. Additional information on long-term monitoring is described further in a memorandum regarding Groundwater Dependent Ecosystem Technical Study provided by Environmental Science Associates (March 2026).

5.3 Water Use Changes and Associated Water Budget

5.3.1 Comparison of Water Budgets During Evaluation Cycle

New water budgets were developed utilizing the updated BBGM. BBGM 1.0 was used to develop water budgets for the 2022 GSP and has been updated to BBGM 1.3 (also known as BBGM 2025 and BBGM Version 1.2 through 2024). Additional details about the water budgets and BBGM updates are available in a Technical Memorandum prepared by Woodard & Curran (January 2026). **Table 5-1** and **Figure 5-3**

through **Figure 5-6** show the updated annual historical water budget results over the evaluation cycle (WYs 2022 through 2024) for the Wyandotte Creek Subbasin.

Table 5-1 shows the annual volume for each water budget component from WY 2020 to 2024 as calculated with BBGM 1.3. Annual water budgets are dependent on hydrologic conditions such as water year type. Water year designations control the variation in precipitation and deep percolation from rainfall. In comparison, surface water diversions and inflows and groundwater extractions have smaller variations, by volume. Groundwater pumping decreases during Wet years (WY 2023) and increases during Dry and Critical years (WYs 2020 through 2022). The water budgets within the evaluation cycle differ from those in the annual reports due to the use of different methodology while BBGM was being updated and extended. As described in the plan amendment, the GSA plans to use the methodology developed in the annual reports for future reporting as the BBGM 1.3 calibration is pending based on the availability of the new data and the GSA plans periodic updates to the model.

Table 5-1. Annual Historical Water Budget Results Calculated by BBGM 1.3 from WY 2020 to WY 2024, Wyandotte Creek Subbasin

Component	WY 2020 (AF)	WY 2021 (AF)	WY 2022 (AF)	WY 2023 (AF)	WY 2024 (AF)
Water Year Designation	**Dry**	**Critical**	**Critical**	**Wet**	**Below Normal**
Groundwater Pumping	49,700	55,900	55,300	45,400	45,500
Precipitation	70,600	58,900	109,100	164,400	119,900
Surface Water Diversions and Inflows	13,500	9,900	9,900	10,600	12,500
Total Inflow	133,800	124,700	174,300	220,300	177,800
Deep Percolation	36,200	26,100	51,600	94,200	61,700
Evapotranspiration	83,000	84,800	84,700	88,800	90,700
Surface Water Outflows	16,700	14,100	33,800	39,300	26,200
Total Outflow	135,900	125,000	170,100	222,300	178,600
Inflow-Outflow	-2,100	-200	4,200	-2,000	-800
Subsurface Inflow	19,000	19,800	19,500	18,000	18,200
Groundwater Inflow from Foothills	6,100	5,500	6,100	6,800	6,100
Recharge: Rivers and Streams	2,800	5,000	6,900	8,400	7,900
Recharge: Conveyance	2,400	1,700	1,700	1,900	2,200
Recharge: Thermalito Forebay	3,600	3,600	3,600	3,600	3,600
Deep Percolation: Rainfall	25,500	17,300	40,400	83,500	52,600
Deep Percolation: Applied Water	10,700	8,800	11,300	10,700	9,100
Other[a]	3,700	3,500	3,600	3,600	3,600
Total Inflow	73,800	65,200	93,100	136,500	103,300
Subsurface Outflow	24,900	23,500	24,200	25,100	24,800
Groundwater Extraction	49,700	55,900	55,300	45,400	45,500
Discharge to Rivers and Streams	27,200	16,600	17,800	29,900	27,500

Component	WY 2020 (AF)	WY 2021 (AF)	WY 2022 (AF)	WY 2023 (AF)	WY 2024 (AF)
Water Year Designation	**Dry**	**Critical**	**Critical**	**Wet**	**Below Normal**
Other[a]	-	-	-	-	-
Total Outflow	101,800	96,000	97,300	100,400	97,800
Inflow-Outflow	-31,600	-34,400	-7,800	32,500	1,900

[a] Other includes model discrepancy and rounding errors

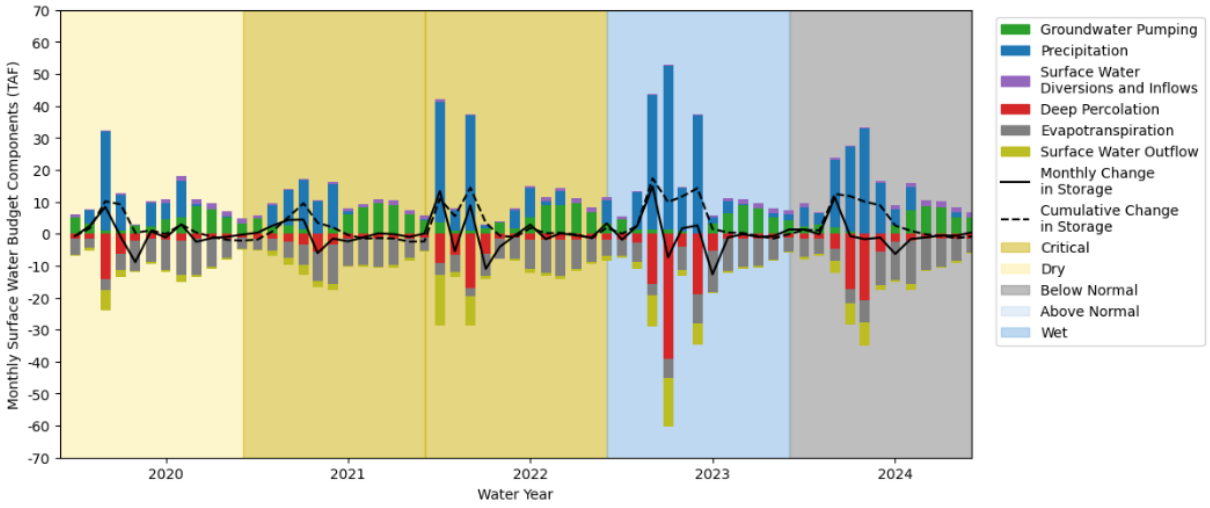


Figure 5-3. Monthly Surface Water Budget for the Wyandotte Creek Subbasin between WY 2020 and WY 2024.

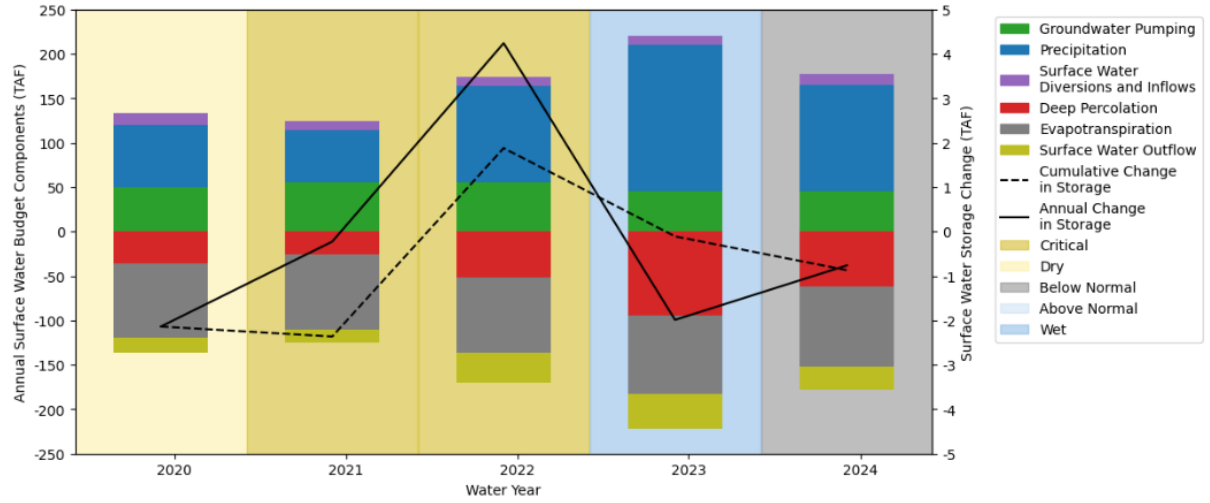


Figure 5-4. Annual Surface Water Budget for the Wyandotte Creek Subbasin between WY 2020 and WY 2024.

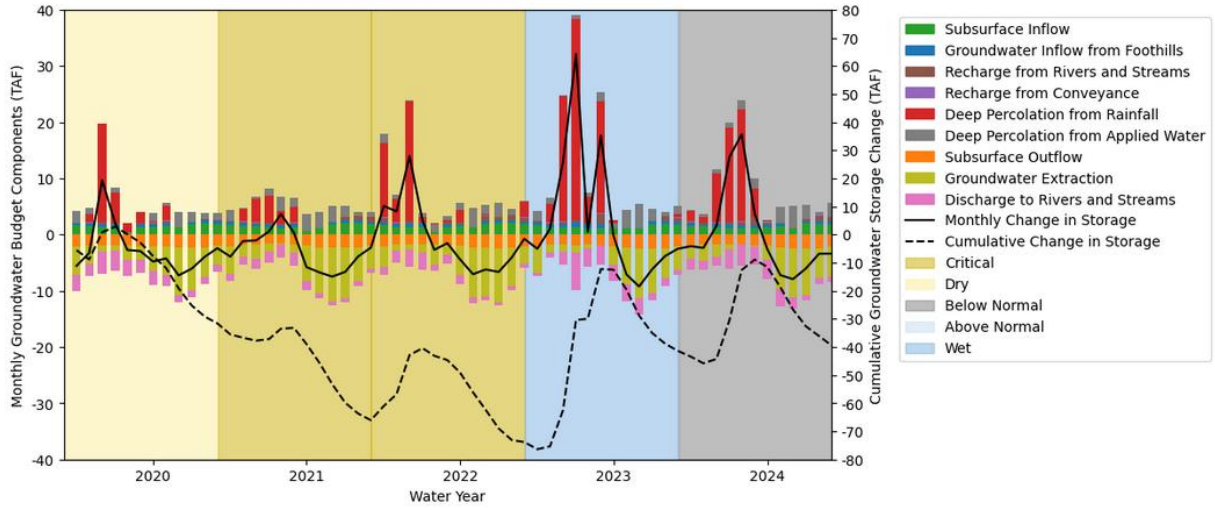


Figure 5-5. Monthly Groundwater Budget for the Wyandotte Creek Subbasin between WY 2020 and WY 2024.

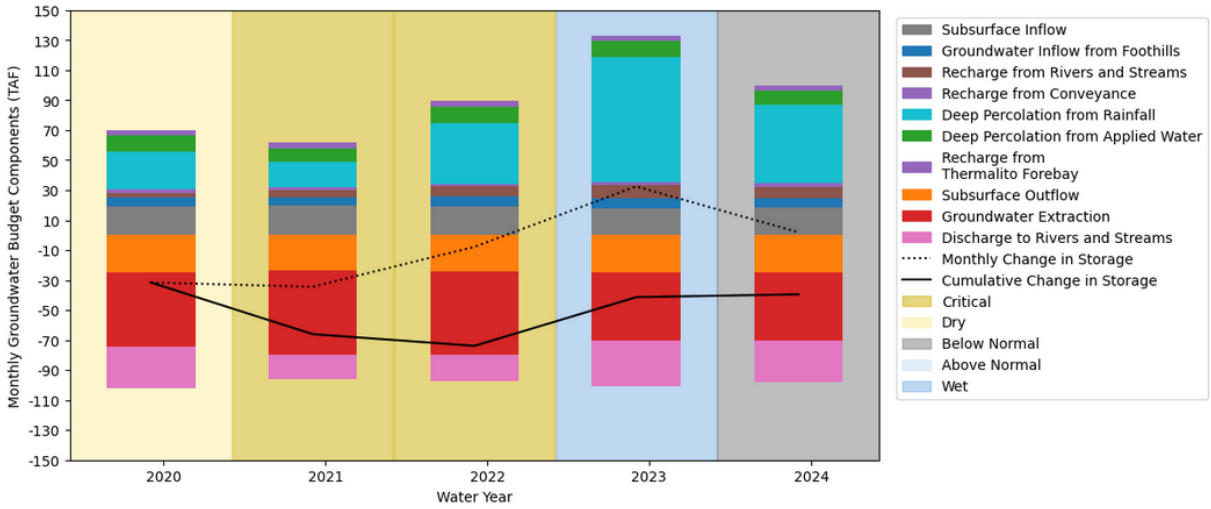


Figure 5-6. Annual Groundwater Budget for the Wyandotte Creek Subbasin between WY 2020 and WY 2024.

5.3.2 Changes to Land Use and Crop Pattern

Over the evaluation cycle (WY 2022 to 2026), land use and cropping patterns have not experienced substantial changes that would affect water use. The cities of Oroville and census-designated areas of Thermalito, South Oroville, Palermo, and Honcut are the primary population centers in the Wyandotte Creek Subbasin. Agriculture remains the predominant land use in the Subbasin. Agricultural uses are dominated by fruit and nut trees and rice fields.

In the WY 2022 Annual Report, land use trends in the Subbasin were examined based on Land IQ data[7] use classifications that were kept consistent with the BBGM land use classes. Due to the availability of Land IQ data, agricultural acreages were compared from 2018 to 2022. This comparison shows the change from a Below Normal (2018) to Critical (2022). Orchard deciduous crops, mainly young perennials, decreased by 1,100 acres and walnut orchard acreages increased by 400 acres. Fallowed land increased by 500 acres. Almonds increased by 900 acres and grain crops decreased by 400 acres. The remaining land use classes were largely unchanged. Increased walnut acreages are attributed to conversion of deciduous, almond, and grain crops. Overall, from 2018 to 2022 agricultural acreage increased by 400 acres.

5.3.3 Surface Water Supply Reliability

The Wyandotte Subbasin uses conjunctive water management, where more surface water is used in wet periods and more groundwater is used in dry periods. Groundwater is the primary water source in the Subbasin. Historical surface water supplies vary based on water year type and the primary source of surface water is the Feather River. Surface water supplies are relatively reliable in the Subbasin and represent approximately 20% of total water supplies.

Conjunctive water management leads to increases in groundwater storage during wet years and decreases in dry years. The surface water supply is relatively stable due to water management through reservoir operations, with some reduction during dry years. Groundwater is used in the Subbasin for agriculture and to offset reduction in surface water during dry years. The municipal and/or industrial sector (municipal and industrial use are not differentiated) predominantly uses surface water while agriculture predominantly uses groundwater for their water supply. During dry and critical years, agricultural groundwater extraction generally increases relative to long-term average demand to offset the effects of lower rainfall, reduced soil moisture, and/or increased ET associated with hotter, drier conditions. Groundwater is typically used to offset reduced surface water supplies for municipal, agricultural, and other sectors. During dry and critical years, the municipal sector also increases groundwater extraction to offset the reduction in surface water supply.

Groundwater users in the Subbasin benefit from generally stable and shallow groundwater level supported by the substantial recharge resulting from large volumes of surface water supplied throughout the Subbasin. Surface water supplies available to the Wyandotte Creek Subbasin are used, when available, for irrigation, agronomic practices, wetland habitat, and for the benefit of other recharge efforts and projects described in the GSP. Ongoing access to surface water supplies is crucial to preserving the sustainability of the Subbasin.

The “Regional Conjunctive Use” project (*Section 4.3.4*) aims to increase the usage of surface water in agricultural settings to allow groundwater levels in the Subbasin to recover, as needed. Agricultural users may need a dual irrigation system that allows them to use surface water and switch to groundwater when surface water is not available. Surface water would likely come from Lake Oroville or other water right holders in the Subbasin and upper watershed.

There is a projected decrease of groundwater in storage for the future conditions scenarios relative to the current conditions scenarios as described in the 2027 GSP, likely resulting from a combination of increased urban and rural residential demands that may be met by groundwater and reduced recharge due to increased runoff on developed lands. Climate change may lead to additional reductions in storage due to increased temperatures and potential reductions in surface water availability. Changes to surface water supply reliability would be dependent on droughts, reservoir operations, and climate change. In the 2022 GSP future climate change scenarios were run by the BBGM using climate change datasets provided by DWR (2030 Central Tendency and 2070 Central Tendency climate change datasets).

[7] LandIQ. 2023. Home. Retrieved January 26, 2023. Available at: https://www.landiq.com/

Scenarios results indicated that precipitation and streamflow would increase in comparison to the current conditions. Based on these results, the long-term surface water supply is relatively stable.

5.3.4 Updates of Sustainable Yield and Changes in Storage

Sustainable yield is the maximum quantity of water, calculated over a base period representative of long-term conditions in the Subbasin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result. In the 2022 GSP, the sustainable yield for the Wyandotte Creek Subbasin is estimated as 46,100 AFY, based on historical groundwater pumping averages of 47,100 AFY and an average annual decrease in storage of 1,000 AFY. The Wyandotte Creek Subbasin operates under conjunctive water management, where groundwater pumping may exceed these values during certain years, balanced by other years with reduced pumping so that the long-term average remains at or below the sustainable yield.

In the 2027 GSP, the sustainable yield has been updated to a 10-year rolling average based on measured and estimated groundwater extraction and annual change in storage calculated from observed groundwater level measurements. The change in groundwater storage is estimated based on the change in measured spring-to-spring groundwater levels at each RMS well, multiplied by the area of a Thiessen polygon surrounding that RMS well (defining a representative area for each RMS well) and a representative storage coefficient of 0.1 for the subbasin. In WY 2025, the 10-year rolling average sustainable yield and change in storage are 45,300 AFY and +4,600 AFY; respectively (as shown in **Table 5-2**).

The groundwater pumping estimated in the annual reports differs from the 2022 GSP (which is based on the BBGM v.1.0 estimates) due to different methodology. **Table 5-3** is consistent with the approach in the annual reports. The GSP annual reports estimate the groundwater pumping through measurements (municipal/industrial), calculations (rural residential), and estimates (agricultural). The five-year average in groundwater pumping is similar to the average from the BBGM.

Table 5-2. Wyandotte Creek Groundwater Extraction, Annual Groundwater Storage Change and Sustainable Yield (based on information obtained from GSP Annual Reports).

Water Year	Groundwater Extraction (AFY)	Annual Change in Storage (AFY)	Cumulative Change in Storage (AFY)	Sust. Yield 10 yr rolling avg
2000 (AN)	49,700	6,600	6,600	
2001 (D)	48,000	23,800	30,400	
2002 (D)	50,000	-6,800	23,600	
2003 (AN)	45,500	-4,600	19,000	
2004 (BN)	49,200	14,500	33,500	
2005 (AN)	40,400	-7,100	26,400	
2006 (W)	43,800	36,500	62,900	
2007 (D)	53,200	-28,800	34,100	
2008 (C)	57,300	600	34,700	
2009 (D)	48,900	-18,800	15,900	50,190
2010 (BN)	44,600	3,800	19,700	49,400
2011 (W)	38,900	7,600	27,300	46,870
2012 (BN)	52,700	3,300	30,600	48,150
2013 (D)	51,600	-12,000	18,600	48,020
2014 (C)	56,900	-13,600	5,000	45,980
2015 (C)	50,900	-4,600	400	47,280
2016 (BN)	43,000	12,400	12,800	44,790
2017 (W)	33,300	21,400	34,200	47,820
2018 (BN)	37,600	19,500	53,700	47,740
2019 (W)	38,700	-26,300	27,400	45,970
2020 (D)	50,300	-17,000	10,400	44,460
2021 (C)	46,300	-3,700	6,700	44,070
2022 (C)	45,700	-13,200	-6,500	41,720
2023 (W)	34,500	22,300	15,800	43,440
2024 (AN)	33,900	11,200	27,000	43,620
2025 (AN)	44,100	19,100	46,100	45,310

Table 5-3. Groundwater Pumping in Wyandotte Subbasin, WY 2021 to WY 2025.

Water Year	BBGM Groundwater Pumping (AF)	GSP Annual Report Groundwater Pumping (AF)
2021	55,900	46,300
2022	55,300	45,700
2023	45,400	34,500
2024	45,500	33,900
2025	N/A	44,100
5-Year Average (2021-2025)	50,500	40,900
2027 Sustainable Yield	43,600	45,300
Average / Sustainable Yield Percentage for (2022 / 2027)	110% / 116%	89% / 90%

5.3.5 Overdraft Evaluation

The water budget estimates based on the GSP Annual Reports indicate that the Wyandotte Subbasin is not currently or projected to experience overdraft conditions.

5.4 Model Updates

As described the technical memorandum regarding the "Summary of Analysis of BBGM Version 1.0, Update to BBGM Version 1.2, and Time Series Extension," the BBGM update focused on the following (Woodard & Curran, 2026):

- Revise model based on recommended improvements documented in the BBGM Version 1.0 (BCDWRC, 2021).
- Enhance the model's simulation of interbasin flows and stream-aquifer interaction, as included in the Sustainable Groundwater Management (SGM) Grant Program's Implementation Round 2 grants received by the Vina and Wyandotte Creek Groundwater Subbasins. The Sacramento River model boundary was identified as the primary area of focus for interbasin flows and stream-aquifer interaction, though Feather River was investigated as well.
- Extended BBGM time-series inputs through Water Year 2024.

Additional information regarding the modifications to the BBGM is available in the technical memorandum referenced above.

The BBGM needs further calibration and will be completed as feasible. Currently the difference between the updated BBGM results and observed data is significant enough that the sustainable yield and overdraft are being estimated via the GSP Annual reports methodology instead of the BBGM v.1.3. Model performance in the Wyandotte Creek Subbasin may be improved with additional groundwater level and streamflow monitoring, which has been implemented during this evaluation period.

SECTION 6: MONITORING NETWORKS EVALUATION (23 CCR §356.4(E))

This section meets the requirements for GSP Emergency Regulations §356.4(e):

> A description of the monitoring network within the basin, including whether data gaps exist, or if any areas within the basin are represented by data that does not satisfy the requirements of Sections 352.4 and 354.34(c). The description shall include the following:
>
> (1) An assessment of monitoring network function with an analysis of data collected to date, identification of data gaps, and the actions necessary to improve the monitoring network, consistent with the requirements of Section 354.38.
>
> (2) If the Agency identifies data gaps, the Plan shall describe a program for the acquisition of additional data sources, including an estimate of the timing of that acquisition, and for incorporation of newly obtained information into the Plan.
>
> (3) The Plan shall prioritize the installation of new data collection facilities and analysis of new data based on the needs of the basin.

6.1 Groundwater Levels

6.1.1 Overview of Existing Monitoring Network

The 2022 GSP identified thirteen wells that are monitored on a quarterly basis for groundwater levels by Butte County / DWR. A subset of nine wells was used as representative wells to set sustainable management criteria. During this evaluation cycle, three monitoring wells were added to the Wyandotte Creek Subbasin groundwater level monitoring network. The RMS network gained two wells (22B001M and 19D003M) and lost one (09N002M). Well 09N002M was removed from the RMS network and replaced by 22B001M. Well 22B001M is more representative of groundwater conditions in this area. Well 19D003M is the shallowest of a nested multi-completion well installed by DWR through their Technical Support Services Program in 2021. The 2027 broad groundwater level network has 32 wells while the RMS network has a total of 10 wells.

Table 6-1 includes the list of wells added to the groundwater level monitoring network and **Figure 6-2** shows the current groundwater level monitoring network (broad and RMS), as documented in the Amended GSP. DWR's Sustainable Groundwater Management (SGM) Grant Program funded the installation of five wells in 2026: M1, S1, S2, S7, and S10. These wells were not added to the groundwater level RMS network during this evaluation period, as there is insufficient historical data available to establish numeric SMC. During the next evaluation period, these new wells may be evaluated as candidates for expanding the RMS network.

6.1.2 Data Gaps and Enhancements

As noted in the 2022 GSP, the Wyandotte Creek Subbasin has a monitoring network for groundwater levels that is sufficient to meet the needs of implementing the GSP, though it does have data limitations related to characterizing and managing ISWs and GDEs. Additional monitoring wells can be incorporated to:

- Improve the density and spatial distribution of wells throughout the Subbasin

- Improve the network to understand Interconnected Surface Water and impacts on GDEs - There is limited data to analyze interaction of streams and pumping within the primary aquifer system. Additional wells and other monitoring networks may be installed, as appropriate, following the framework discussed in *Section 3.8.2* of the Amended GSP.

To address data gaps, five (5) shallow wells were installed near surface waters and potential GDEs in 2026 (**Figure 6-1**). Additionally, during the evaluation period the monitoring network was separated into groups based on depth, to highlight different monitoring goals: shallow, deep and both. “Shallow” wells observe water table conditions which are relevant to ISWs and GDEs, “deep” wells observe the deeper aquifer such as the movement of connate water, and “both” wells observe both the water table and deeper aquifer.

Density of groundwater level monitoring sites has increased since development of the 2022 GSP. The monitoring network in the 2022 GSP was more robust than the spatial density guidelines recommended by DWR’s best management practices, which ranged from 0.2 to 10 wells per 100 square miles [Heath 1976, Sophocleous 1983, Hopkins 1994 as cited by (DWR, 2016)]. Based on a Subbasin area of approximately 93 square miles and 21 monitoring wells, the monitoring well density is approximately 23 wells per 100 square miles.

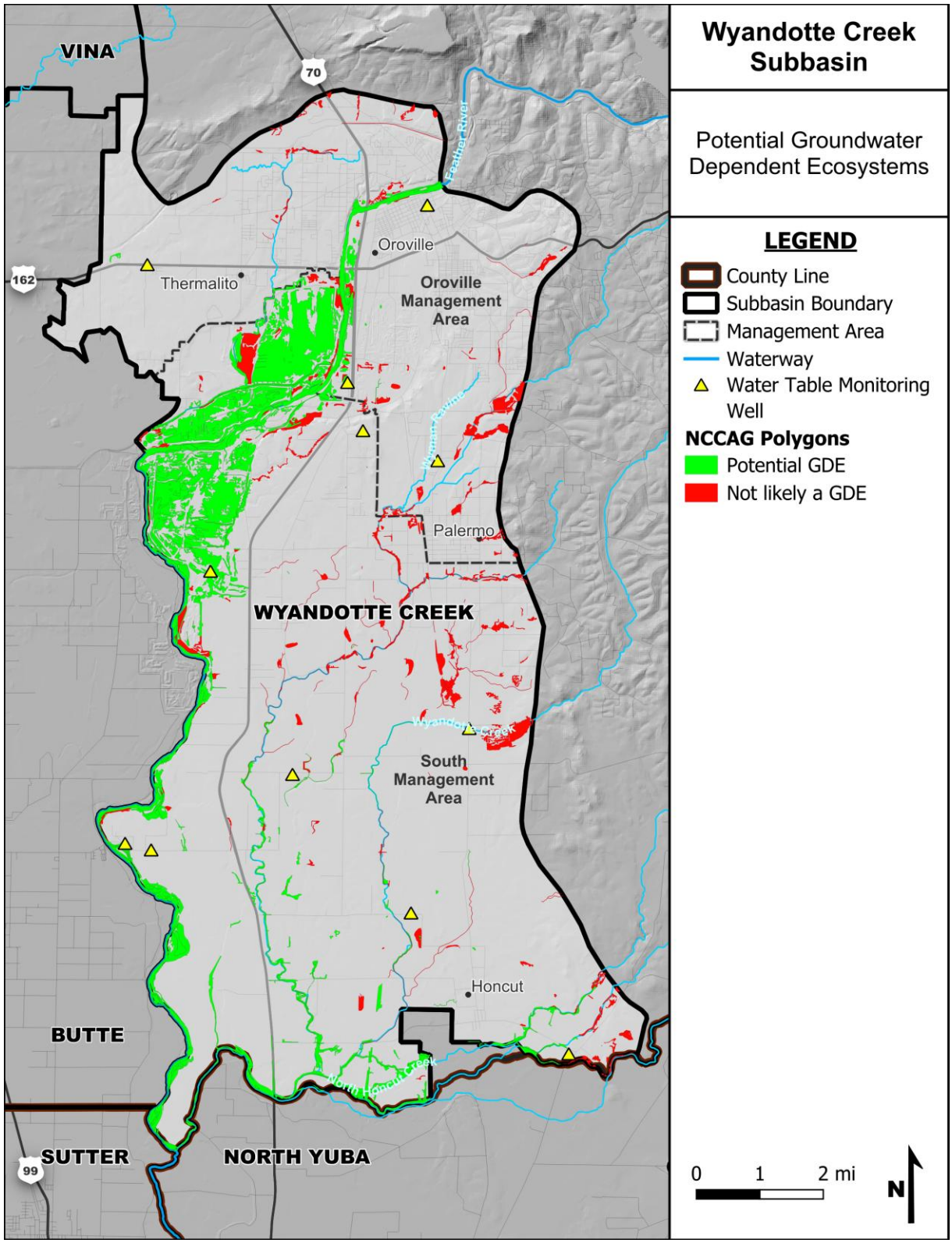


Figure 6-1. Groundwater Dependent Ecosystems and Tributaries in Relation to Existing and Newly Drilled Wells in 2026 Using Results from the Updated GDE Analysis.

Table 6-1. Revised Wyandotte Creek Subbasin Groundwater Level Broad Monitoring Network Wells.

Well ID	State Well Number[a]	Alias / Local Name	Monitoring Frequency	Multi-Completion (number of wells at site)	Well Type	Aquifer Category	Drill Depth	Date of First Meas.	RMS?
Wyandotte Creek – Oroville Management Area									
16Q001M	19N03E16Q001M	Par Four	Quarterly	No	Residential	Shallow	120	10/3/2000	Yes
32P001M	19N04E32P001M	Lincoln Rd. Mobile	Quarterly	No	Residential	Shallow	150	8/29/1959	Yes
PWS-01			Quarterly	No	Municipal	Shallow	186	2/1/1978	No
PWS-02			Quarterly	No	Municipal	Both	340	2/1/1978	No
PWS-03			Quarterly	No	Municipal	Shallow	150	2/1/1978	Yes
S1[b]			Continuous	Yes	Observation	Shallow		3/31/2026	No
Wyandotte Creek – South Management Area									
03D001M	17N03E03D001M	FR packing plant	Quarterly	No	Irrigation	Shallow	179	4/10/1947	No
13B002M	17N03E13B002M	Delucchi	Quarterly	No	Irrigation	Deep	320	3/20/2001	Yes
09N002M	17N04E09N002M	Colleen Duncan	Quarterly	No	Irrigation	Deep	325	3/20/2001	No[c]
22B001M	17N04E22B001M	Ramirez Rd	Quarterly	No	Residential	Shallow	80	3/8/1976	Yes[d]
25N001M[b]	18N03E25N001M	Cox Ln. wasp shed	Quarterly	No	Irrigation	Shallow	164	3/9/1976	Yes
308M001M	18N04E08M001M	Occidental Ave. Mr. Wheeler	Quarterly	No	Irrigation	Deep	350	5/2/1961	Yes
16C001M	18N04E16C001M	Louis Ave. / Citrus	Quarterly	No	Irrigation	Both	165	10/20/1947	Yes
19D001M[b]	18N04E19D001M	Bynum TSS deep	Daily	Yes	Observation	Deep	720	6/14/2021	No
19D002M[b]	18N04E19D002M	Bynum TSS middle	Daily	Yes	Observation	Deep	570	6/14/2021	No
19D003M[b]	18N04E19D003M	Bynum TSS Shallow	Daily	Yes	Observation	Shallow	200	6/14/2021	Yes[d]
31F001M	19N04E31F001M	Ophir	Quarterly	No	Observation	Shallow	200	10/3/2000	Yes

Well ID	State Well Number[a]	Alias / Local Name	Monitoring Frequency	Multi-Completion (number of wells at site)	Well Type	Aquifer Category	Drill Depth	Date of First Meas.	RMS?
M1[b]			Continuous	Yes	Observation	Shallow / Deep/ Deep	105 / 290 / 585	3/31/2026	No
S2[b]			Continuous	Yes	Observation	Shallow	50	3/31/2026	No
S7[b]			Continuous	Yes	Observation	Shallow	50	3/31/2026	No
S10[b]			Continuous	Yes	Observation	Shallow	50	3/31/2026	No

[a] The portion of the State Well Number shown in bold, underlined text is the RMS ID.

[b] New wells added to network for 2027 GSP. Wells have been equipped with pressure transducers for continuous groundwater level and temperature monitoring.

[c] Former RMS network well in 2022 GSP.

[d] New RMS network well in 2027 Amended GSP.

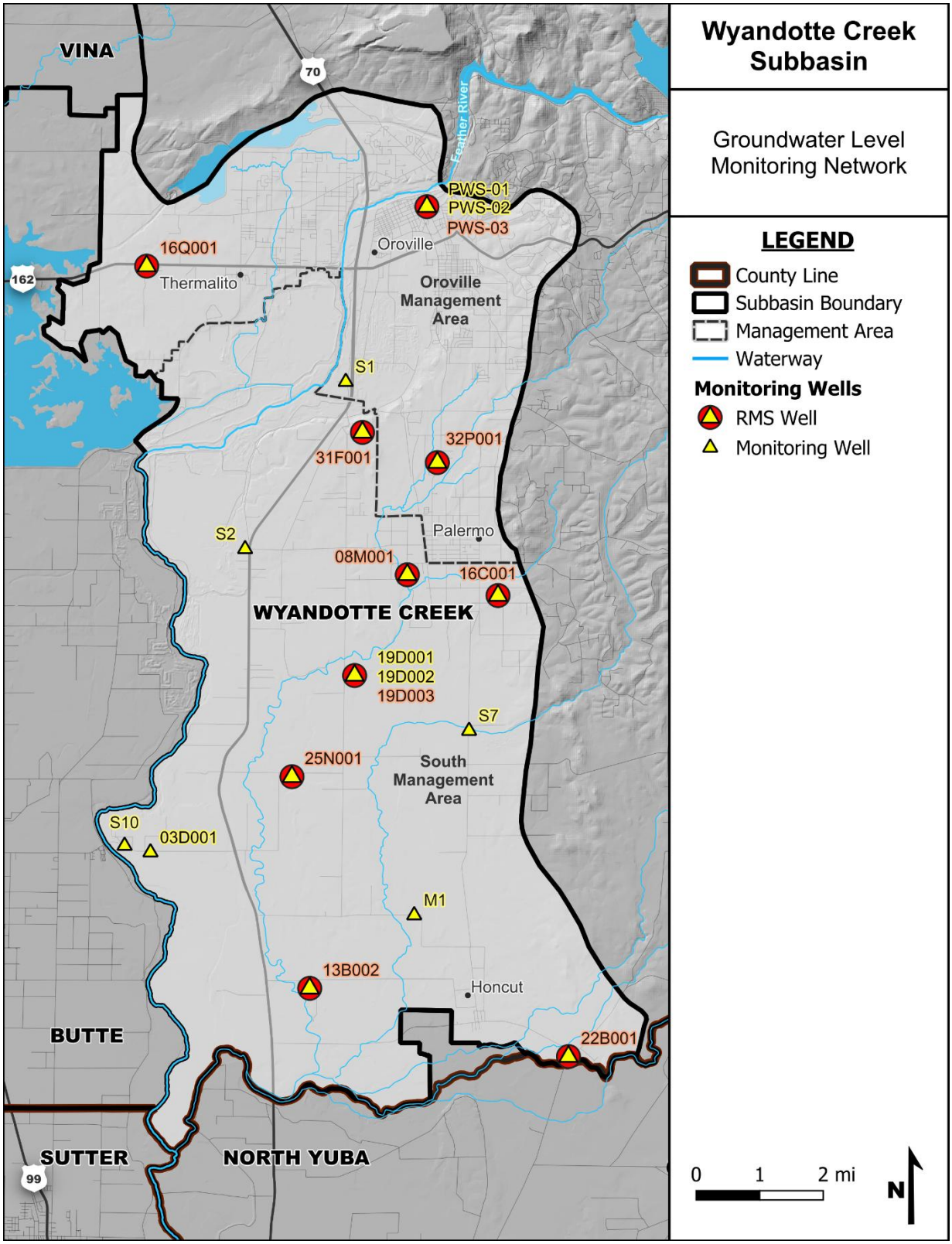


Figure 6-2. Groundwater Level Monitoring Network.

6.2 Groundwater Storage

Annual change in storage is calculated using observed groundwater level measurements. The change in groundwater storage is estimated based on the change in measured spring-to-spring groundwater levels at each GWL RMS well, multiplied by the area of a Thiessen polygon surrounding that RMS well (defining a representative area for each RMS well) and a representative storage coefficient of 0.1 for the Subbasin. The storage coefficient may be modified as the groundwater aquifer parameters for the shallow and deep aquifer layers are better understood. The groundwater level RMS wells will be used to calculate change in storage unless otherwise noted. Any changes to the set of wells used in the calculation will be identified in future Annual Reports or Periodic Evaluations. The 2027 GSP amends the 2022 GSP to allow for additional or alternative wells to be used to estimate groundwater storage as needed. As described in *Section 5.3.4*, this Periodic Evaluation uses RMS wells identified in the 2022 GSP to estimate change in groundwater storage to be consistent with Annual Reports submitted for Water Years 2022 through 2025.

6.3 Seawater Intrusion

Seawater intrusion is not an applicable sustainability indicator to the Wyandotte Creek Subbasin, as seawater intrusion is not present and is not likely to occur due to distance from the Pacific Ocean, bays, deltas, and inlets. Therefore, there is no monitoring network established for the seawater intrusion sustainability indicator.

6.4 Water Quality

6.4.1 Overview of Existing Monitoring Network

The Butte County Water & Resource Conservation monitors water quality across Butte County including within Wyandotte Creek Subbasin. As described in the County's 2025 Groundwater Quality Monitoring Update, four original RMS wells identified in the Wyandotte Creek GSP were not monitored throughout this evaluation period due to following reasons:

- Landowners denied access to two RMS wells: 28L001M in 2022 and 16Q001M in 2023.
- Inoperable pump prevented access to RMS well 13B002M.
- Water quality issues prevented measurements at RMS well PWS-02

The GSA has removed the wells above from the water quality RMS network due to the listed issues. A new multi-completion well was installed in 2021 with funding provided by DWR's technical support services. It is recommended that the shallow completion (19D003M) be incorporated into the GSP as a new Water Quality RMS well. The deeper completions have historically higher salinity that are not representative of conditions in the primary aquifer across the Subbasin.

The revised monitoring network includes four of the eight original RMS sites identified in the 2022 GSP. Two wells have been added to the RMS network, which have been monitored since 2022-2023 and are currently the only candidates that remain accessible. Well 06E002M was added to the water quality network in 2022. This well was historically measured for groundwater quality as part of the Butte County Basin Management Objective (BMO) program. One more additional well, 09N002M was added into the monitoring network in 2023. This well also serves as an existing RMS well for groundwater level monitoring in the Subbasin. As of WY 2025, there are currently six (6) completions across four (4) locations being monitored within Wyandotte Creek GSA (**Figure 6-3**). The updated water quality network is shown in **Table 6-2**.

The water quality in GAMA wells are also monitoring for constituents of concern (COC) and for the tracking of impacted groundwater due to contamination plumes or PMAs (Amended GSP Section 2.2.4). The GAMA wells are not included in the GSA water quality monitoring network but are tracked for current

and emerging water quality issues. GAMA wells are managed by other agencies to track water quality issues beyond the GSA, COC such as contamination plumes. The Amended GSP added three potential COC upon the recommendation of the State Water Resources Control Board: nitrate, perfluorooctanoic acid (PFOA), and perfluorooctanoic sulfonate (PFOS).

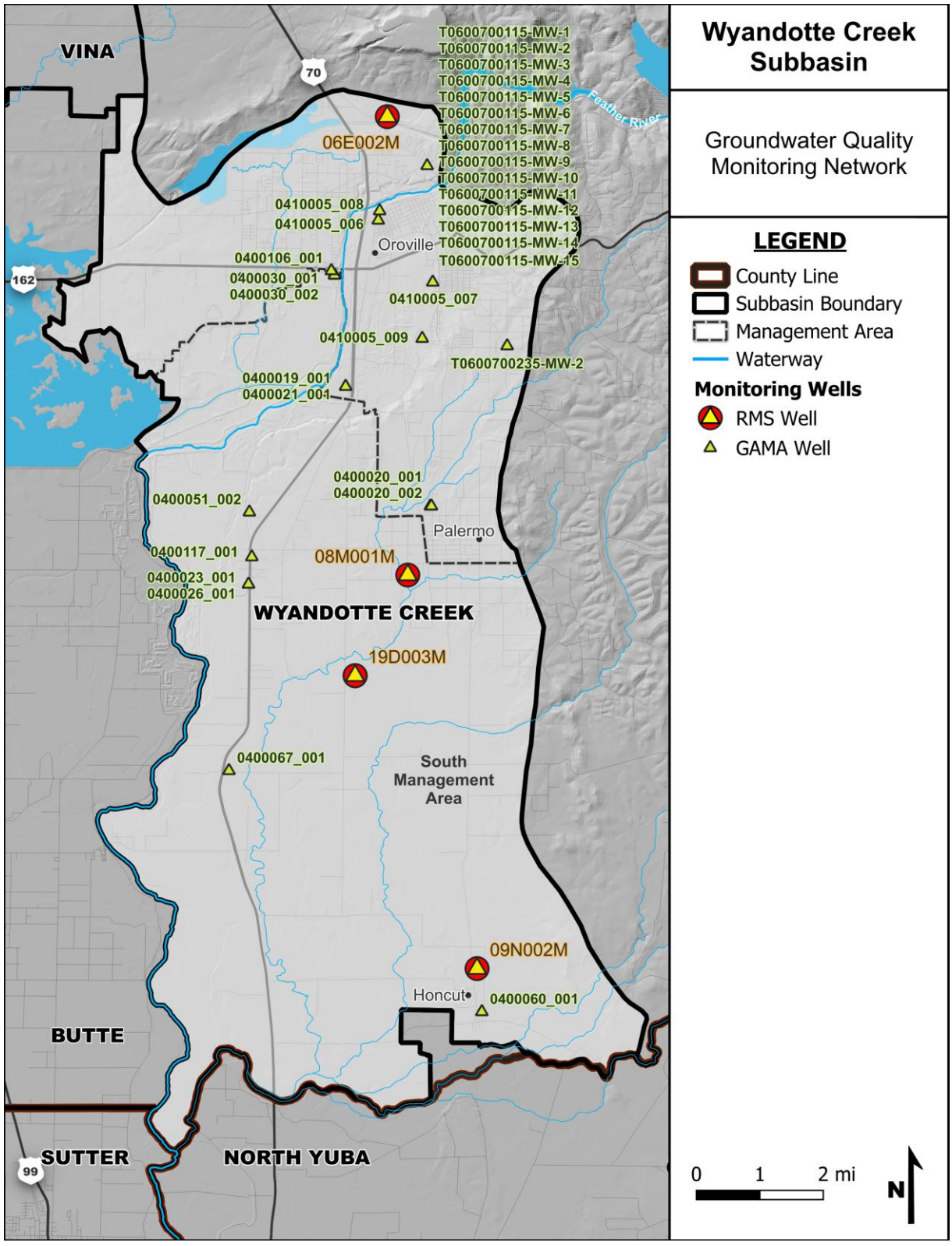


Figure 6-3. Water Quality Monitoring Network.

Table 6-2. Updated Water Quality Monitoring Network.

Local Name	State Well Number	Latitude	Longitude	Reference Point Elevation (ft)	Monitoring Entity	Screened Interval	Total Depth (ft)	Monitoring Frequency	RMS Well
08M001M	18N04E08M001M	39.4283	-121.5586	147.56	Butte County	168-204 208-244	656	Annual	Yes
06E002M	19N04E06E002M	39.53288	-121.566864	--	Butte County	110 – 130, 164 – 174	196	Annual	Yes[b]
09N002M	17N04E09N002M	39.3387	-121.5363	103.26	Butte County	100 – 112	325	Annual	Yes[b]
19D001M 19D002M 19D003M	18N04E19D001M[a] 18N04E19D002M[a] 18N04E19D003M[a]	39.40512	-121.57362	124.871 124.926 124.951	Butte County	700-720 430-450, 550-570 120-130, 190-200	744, 594, 220	Annual	Yes (19D003M only)

Notes:

[a] New nested well installed by DWR under TSS Program.

[b] New RMS well

6.4.2 Data Gaps and Enhancements

In the 2022 GSP, limitations to the original groundwater quality monitoring network included temporal data gaps and access issues. Temporal data gaps existed for water quality samples collected within the Wyandotte Creek – South RMS wells. The frequency of sampling proposed in the GSP was anticipated to provide consistent and comparable data to fill this data gap. During GSP development, Well 28L001M was already having access issues. Several wells were also missing well construction information. During implementation of the 2022 GSP, annual monitoring began in the network to address the temporal data gap.

The revised RMS network in the amended GSP continues to address the prior temporal data gap through annual monitoring but has decreased spatial coverage. Additionally, DWR's North Regional Office collected water quality samples at two wells near Palermo and Honcut to assess salinity, metals, and nutrient levels. Generally, levels were below limits with the exception for one well exceeded limit for TDS and dissolved boron and sulfate. These samples suggest the GSA's monitoring of electrical conductivity is currently sufficient.

6.5 Land Subsidence

6.5.1 Overview of Existing Monitoring Network

The subsidence monitoring network from the 2022 GSP used a group of established GPS monuments from the Sacramento Valley GPS Subsidence Monitoring Network, supplemented by InSAR data released by DWR. Undesirable results, measurable objectives, and minimum thresholds used the groundwater level network as a proxy. However, the GPS Subsidence Monitoring Network are no longer actively monitored within the Subbasin.

The DWR Recommended Corrective Action 4b recommended changing the monitoring network:

Establish sustainable management criteria for land subsidence for the Subbasin utilizing a monitoring network that directly measures land elevation change such as remote sensing data, survey monuments, or global positioning system stations.

In response to the DWR Recommended Action, in the amended GSP, subsidence is monitored using InSAR data and ground-truthed with available GPS subsidence station(s). Interferometric Synthetic Aperture Radar (InSAR) is a satellite-based remote sensing technique that measures vertical ground surface displacement changes at high degrees of measurement resolution and spatial detail. The subsidence RMS network consists of 21 monitoring wells and InSAR pixel pairs, ground-truthed with GPS subsidence station(s) where available. InSAR pixels are chosen near selected groundwater level monitoring sites in the RMS network. InSAR pixels and GPS subsidence stations are shown in **Table 6-3** and **Figure 6-4**. The Sacramento subsidence network is no longer active but included for reference.

Table 6-3. Land Subsidence RMS Monitoring Network.

RMS Well / InSAR Pixel[a]	Site Type	Latitude	Longitude	Years of Record	Measurement Type
Wyandotte Creek – Oroville Management Area					
16Q001M	InSAR pixel	39.4977	-121.6369	June 2015-Present	Vertical Ground Surface Displacement
32P001M	InSAR pixel	39.4540	-121.5503		
PWS-01	InSAR pixel	39.51234	-121.55461		
PWS-02	InSAR pixel	39.51234	-121.55461		
PWS-03	InSAR pixel	39.51234	-121.55461		
S1[a]	InSAR pixel	39.47207	-121.57766		
Wyandotte Creek – South Management Area					
03D001M	InSAR pixel	39.364	-121.6328	June 2015-Present	Vertical Ground Surface Displacement
13B002M	InSAR pixel	39.3336	-121.5853		
09N002M	InSAR pixel	39.3387	-121.5363		
22B001M	InSAR pixel	39.319	-121.5089		
25N001M[b]	InSAR pixel	39.3818	-121.59156		
08M001M	InSAR pixel	39.4283	-121.5586		
16C001M	InSAR pixel	39.4239	-121.5318		
19D001M	InSAR pixel	39.40512	-121.57362		
19D002M	InSAR pixel	39.40512	-121.57362		
19D003M	InSAR pixel	39.40512	-121.57362		
31F001M	InSAR pixel	39.4606	-121.5725		
M1[a]	InSAR pixel	39.35066	-121.55492		
S2[a]	InSAR pixel	39.43354	-121.60648		
S7[a]	InSAR pixel	39.39294	-121.53966		
S10[a]	InSAR pixel	39.36540	-121.64045		
PMO	GPS Station	39.433265	-121.60457	December 2021-Present	Vertical Ground Surface Displacement – Not an RMS

[a] Wells installed in 2026.

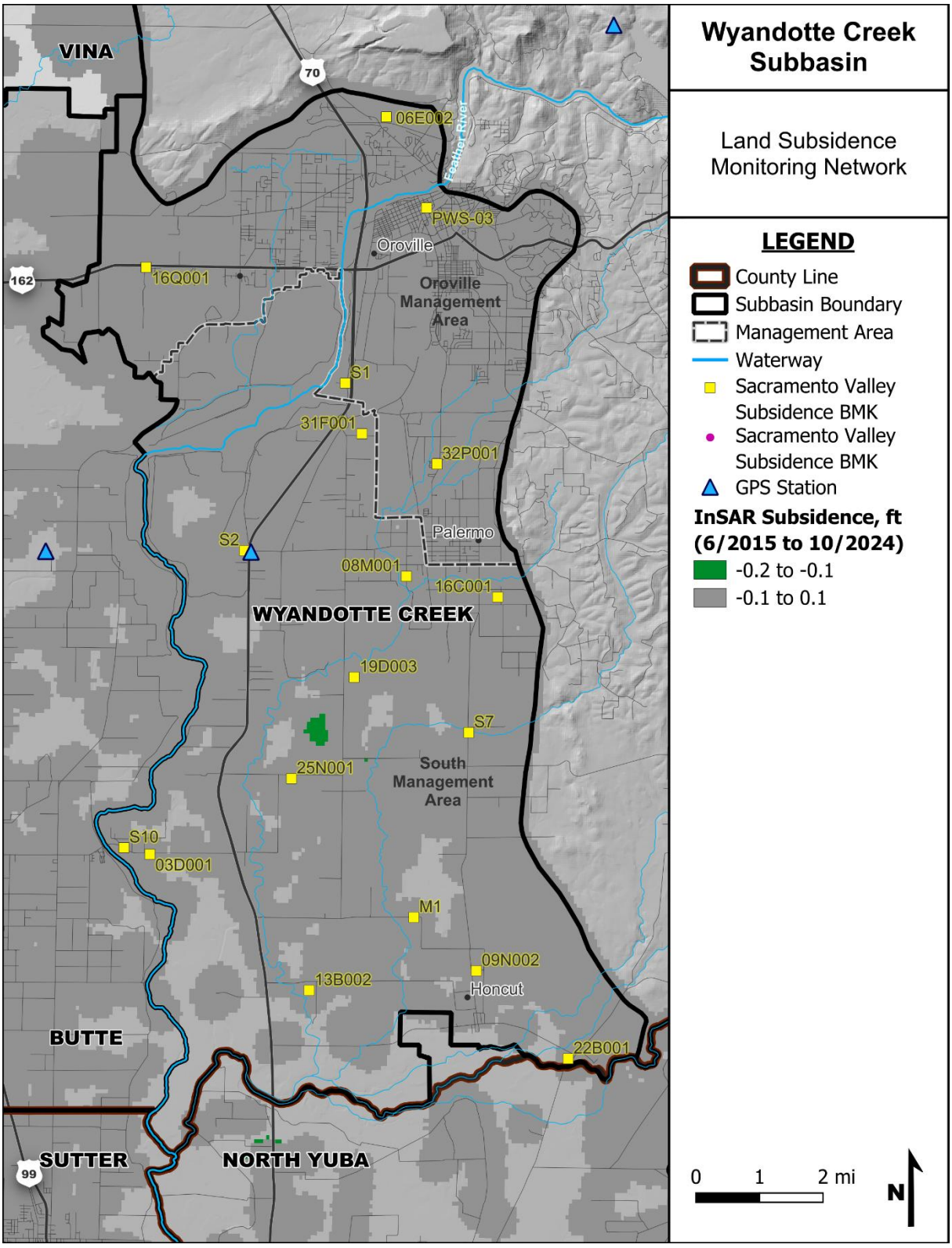


Figure 6-4. Subsidence Monitoring Network.

6.5.2 Data Gaps and Enhancements

In the 2022 GSP, limitations to the original subsidence monitoring network included temporal and spatial data gaps. The network relied on the GPS Subsidence Monitoring Network, which is no longer active and had six monuments in the Subbasin, with poor coverage in multiple areas. The frequency of measurement in the updated network and InSAR data is monthly, with regularly published annual changes in vertical displacement. The network nearly covers the entire subbasin (**Figure 6-4**).

The revised network of the amended GSP has addressed prior temporal and spatial data gaps through monthly monitoring that provide InSAR satellite vertical displacement data over nearly the entire Subbasin.

6.6 Interconnected Surface Water

6.6.1 Overview of Existing Monitoring Network

In the 2022 GSP, groundwater levels are used as a proxy for interconnected surface water, and the monitoring network was identical for both sustainability indicators. The ISW monitoring network also included three stream gages. The updated ISW broad network has a total of 14 wells, including the nine shallow wells in the groundwater level network and the five new shallow wells (including one multi-completion well), installed in 2026. The network has also been updated with additional stream gages, to a total of twelve stream gages. The current updated network is shown in **Table 6-4**, **Table 6-5** and **Figure 6-5**.

The 2027 ISW RMS network consists of three (3) monitoring wells, selected due to their proximity to existing stream gages and ISWs. RMS wells and SMCs are shown in *Section 4.9.4* of the amended GSP. The finalized ISW SMCs and networks will be enhanced by the shallow wells installed in 2026, for which the criteria are still in development and will be considered for the 2032 Periodic Evaluation.

The RMS selection process included the following:

3. Compiled a comprehensive list of possible monitoring wells.
4. Classified monitoring wells based on well lithology and screening intervals.
5. Reviewed data quality and condition of all possible monitoring wells (e.g., presence of oil).
6. Location has consistent, high-quality spring and fall measurements for at least the past 5 years.
7. Mapped beneficial users (ISWs).
8. Selected RMS based on proximity to sensitive beneficial uses/users of groundwater:
    a. ISW: within 0.5 miles of an identified ISW

6.6.2 Data Gaps and Enhancements

The 2022 GSP noted the lack of sufficient data to analyze interaction of streams and pumping within the primary aquifer system and the need to install additional wells. Five new shallow wells (including one multi-completion well) and five stream gages have been installed in 2026 to address this data gap, prioritizing areas near surface waters. The locations of the newly installed wells and gages were selected to:

- Better monitor surface bodies with known connections to the water table, such as the Feather River and Honcut Creek, Wyman Ravine, and Wyandotte Creek.
- Assess benefits of SGMA project implementation in critical watersheds, such as Wyman Ravine.

Table 6-4. Wyandotte Creek Subbasin Surface Water Stream Gauges.

Stream Monitored	Gage ID	Well Network	Measurement Frequency	Status	Start Date	End Date
Oroville Management Area						
Feather River	11406930	USGS	Daily	Inactive	10/1/1973	9/30/2024
Feather River	ORF	CDEC	Daily	Active	12/26/2019	Present
South Management Area						
Feather River	11406920	USGS	Daily	Active	11/16/1967	9/30/2024
Feather River	GRL/ A05165	CDEC/WDL	Hourly/ Continuous	Active	01/01/1984	Present
Honcut Creek	NHC/ A05189	CDEC/WDL	Continuous	Active	01/25/2018	Present
Honcut Creek	Honcut Creek Inflow	Yuba Water Agency	Continuous	Active	6/1/2021	Present
Honcut Creek	Honcut Creek Outflow	Yuba Water Agency	Continuous	Active	6/1/2021	Present
Wyman Ravine	SG5	GSA	Continuous	Active	3/31/2026	Present
Wyman Ravine	SG6	GSA	Continuous	Active	3/31/2026	Present
Wyandotte Creek	SG7	GSA	Continuous	Active	3/31/2026	Present
North Honcut Creek	SG8	GSA	Continuous	Active	3/31/2026	Present
Wyman Ravine	SG9	GSA	Continuous	Active	3/31/2026	Present

Table 6-5. Wyandotte Creek Subbasin ISW Monitoring Network Wells.

Well ID	State Well Number[a]	Monitoring Frequency	Multi-Completion (number of wells at site)	Well Type	Aquifer Category	Drill Depth	Date of First Meas.	Nearest Waterway	Distance to Nearest Waterway	RMS?
16Q001M	19N03E16Q001M	Quarterly	No	Residential	Shallow	120	10/3/2000	Thermalito Afterbay	0.51	No
32P001M	19N04E32P001M	Quarterly	No	Residential	Shallow	150	8/29/1959	Wyman Ravine Tributary	0.14	No
PWS-01		Quarterly	No	Municipal	Shallow	186	2/1/1978	Feather River	0.22	No
PWS-03		Quarterly	No	Municipal	Shallow	150	2/1/1978	Feather River	0.10	Yes
S1[b]		Quarterly	Yes	Observation	Shallow	70	3/31/2026	Feather River	0.29	No
03D001M	17N03E03D001M	Quarterly	No	Irrigation	Shallow	179	4/10/1947	Feather River	0.37	Yes
22B001M	17N04E22B001M	Quarterly	No	Residential	Shallow	80	3/8/1976	Wilson Creek	0.17	Yes
25N001M	18N03E25N001M	Quarterly	No	Irrigation	Shallow	164	3/9/1976	Wyman Ravine	0.58	No
19D003M	18N04E19D003M	Quarterly	Yes	Observation	Shallow	200	6/14/2021	Wyman Ravine	0.28	No
31F001M	19N04E31F001M	Quarterly	No	Residential	Shallow	200	10/3/2000	Feather River	0.90	No
M1[b]		Continuous	Yes	Observation	Shallow	105	3/31/2026	Wyandotte Creek	0.19	No
S2[b]		Continuous	Yes	Observation	Shallow	50	3/31/2026	Feather River	0.40	No
S7[b]		Continuous	Yes	Observation	Shallow	50	3/31/2026	Wyandotte Creek	0.03	No
S10[b]		Continuous	Yes	Observation	Shallow	50	3/31/2026	Feather River	0.18	No

[a] The portion of the State Well Number shown in bold, underlined text is the RMS ID.

[b] Wells installed in 2026. Wells equipped with pressure transducers for continuous groundwater level and temperature monitoring.

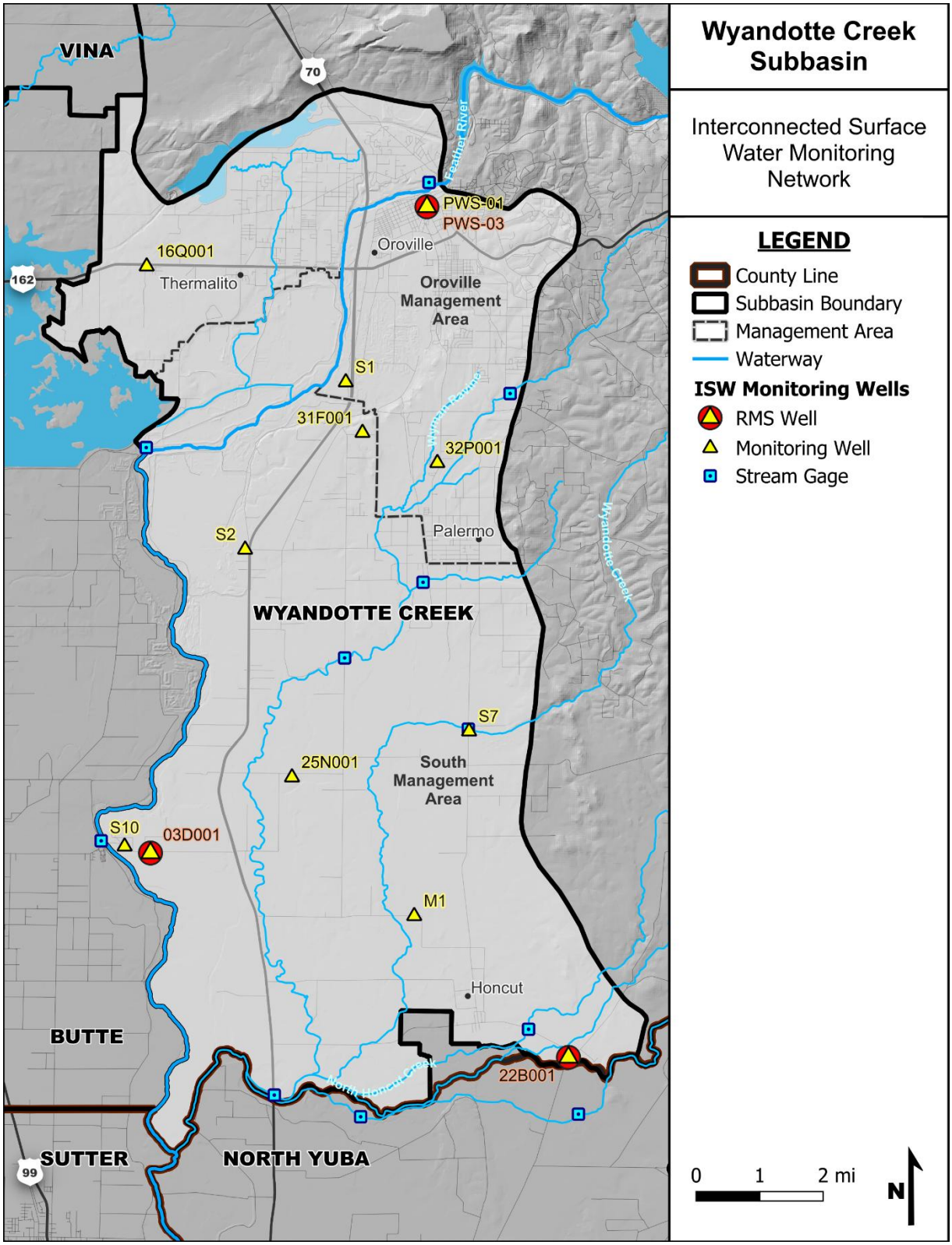


Figure 6-5. Interconnected Surface Water Monitoring Network.

SECTION 7:GSA AUTHORITIES AND ENFORCEMENT ACTIONS (23 CCR §356.4(G)-(H))

This section meets the requirements of GSP Emergency Regulations §356.4:

> (g) A description of relevant actions taken by the Agency, including a summary of regulations or ordinances related to the Plan.
>
> (h) Information describing any enforcement or legal actions taken by the Agency in furtherance of the sustainability goal for the basin.

7.1 Relevant Actions

Butte County staff, who serve as members of the Wyandotte Creek GSA Management Committee, have cooperated with the Butte County Department of Development Services in the 2040 General Plan Update. Specifically, staff along with the Water Commission have made suggested revisions to the Water Resources Element and applicable General Plan Goals, Policies, and Actions. These updates will ensure that the GSP is supported by the General Plan. The 2040 general plan update was adopted in March 2023.

In WY 2023, the GSA adopted a property-related service fee to fund its operations and implementation costs to comply with SGMA. Additional information is available on the GSA website.

Butte County is currently in the process of updating their well ordinance. A public input survey is open until August 21, 2026, and the adoption of these updates will take place by late 2027 or early 2028.

7.2 Enforcement or Legal Actions

The Wyandotte Creek GSA has not taken any enforcement or legal action as part of GSP or SGMA implementation since adoption of the 2022 GSP.

SECTION 8: OUTREACH, ENGAGEMENT, AND COORDINATION WITH OTHER AGENCIES (23 CCR §356.4(J))

This section fulfills the requirements of GSP Emergency Regulations §356.4(j):

> Where appropriate, a summary of coordination that occurred between multiple Agencies in a single basin, Agencies in hydrologically connected basins, and land use agencies.

8.1 Outreach and Engagement

The methods described in the Plan for outreach and engagement activities relevant to implementation are being maintained. Public engagement efforts include Wyandotte Creek Advisory Committee (WAC) meetings, which are held at semi-annually or greater[8]. **Table 8-1** details key meeting topics discussed during each meeting since February 2022, the start of the evaluation period. These topics include PMAs, annual reports, DWR recommended actions, and SMC revisions. The public and WAC members are encouraged to comment at WAC meetings.

Several WAC meetings discuss PMA implementation, including updates, prioritization and grant funding. Discussions include potential impacts on beneficial users and benefits to GSP implementation.

Table 8-1. List of Wyandotte Creek WAC Meetings Since February 2022.

Meeting Title	Date	Location	Key Meeting Topics
WAC Meeting	April 7, 2022	• Thermalito Water & Sewer District Office • Virtual (Zoom)	Review of the 2021 Water Year Annual Report for the Wyandotte Creek Subbasin
WAC Meeting	Sept 1, 2022	Thermalito Water and Sewer District	Discussion and possible recommendation regarding Projects and Management Actions and the Sustainable Groundwater Management Implementation Grant
WAC Meeting	Nov 3, 2022	• Butte County HR Training Room-East • Virtual (Zoom)	Discussion and possible recommendation regarding Projects and Management Actions and the Sustainable Groundwater Management Implementation Grant
WAC Meeting	May 4, 2023	Butte County HR Training Room-East	• Presentation and Overview of the 2022 Annual Report • Update on the Wyandotte Creek GSA Long-Term Funding Project
WAC Meeting	Oct 5, 2023	Butte County Human Resources East Training Room	• User Classification and Appeal Process Discussion • Update on the Approach to Implement the Sustainable Groundwater Management Grant Funded Project

[8] https://www.wyandottecreekgsa.com/wyandotte-creek-advisory-committee-meetings

Meeting Title	Date	Location	Key Meeting Topics
			• Update on Annual Report Timeline and Approaches
WAC Meeting	May 2, 2024	Butte County Public Health, Klamath Room	• Introduction of new WAC members, GSA Program Manager, and management committee member. • Charter Review and Launching the New Phase of the Advisory Committee • User Classification Change Request and Appeal Policy Update • 2023 Annual Report Presentation • SGMA Grant Projects Update
WAC Meeting	Nov 7, 2024	Butte County Public Health, Klamath Room	• Discussion And Potential Recommendations on Proposed New Monitoring Network Locations • Discussion and Potential Recommendation on SGM Grant Budget Amendment – Reallocation of Component 5 Fund • SGM Grant Projects Progress Report
WAC Meeting	April 3, 2025	Butte County Human Resources East Training Room	• SGM Grant Projects Progress Report • GSP Periodic Evaluation and Amendments Discussion • Regional Conjunctive Use Project Update & Discussion
WAC Special Meeting	Sept 4, 2025	Butte County Human Resources East Training Room	• Introductions of New Wyandotte Creek Advisory Committee (WAC) Members and Management Committee Member • Presentation on the Wyandotte Creek Subbasin Status Report • Presentation of the Sustainable Groundwater Management (SGM) Grant Projects Progress Report • Presentation on the Groundwater Sustainability Plan (GSP) Periodic Evaluation and Amendments: Water Quality • Presentation Groundwater Sustainability Plan (GSP) Periodic Evaluation and Amendments: Interconnected Surface Waters (ISWS)
WAC Meeting	Nov 6, 2025	Butte County Department of Employment and Social Service	• Presentation on Groundwater Levels • Introduction to Updated Wyandotte Creek GSA Fee Study
WAC Meeting	June 4, 2026	Butte County Public Health, Truckee Room	• Presentation on Groundwater Levels Sustainable Management Criteria

8.1.1 Comments and Responses

During initial GSP development, a draft GSP was distributed to the WAC and Interested Parties list and published to the Wyandotte Creek GSA website. The comment period was open from September 9, 2021, to October 24, 2021. During the public review, the Wyandotte Creek GSA held a public workshop that allowed for both in-person and virtual/Zoom attendance on October 20, 2021. The GSA Board heard additional comments and considered final revisions during the Public Hearing of the GSP on November 18, 2021. Comments were received from the Audubon California, Clean Water Action, Clean Water Fund, Local Government Commission, The Nature Conservancy, American Rivers and Union of Concerned Scientists, California Department of Fish and Wildlife (CDFW), and Audubon California. The received comments are included in *Appendix 1-E* to the 2022 GSP and comments were addressed and incorporated into the final 2022 GSP as directed by the GSA Board.

The GSP evaluation period held by DWR following submittal of the 2022 GSP resulted in comment letters from the following entities (included in *Appendix E* of the Amended GSP):

- Audubon California,
- Clean Water Action/Clean Water Fund, Union of Concerned Scientists, Audubon California, CivicWell (formerly Local Government Commission), The Nature Conservancy, and,
- California Department of Fish and Wildlife (CDFW).

These comment letters were reviewed by the GSA and considered during GSP implementation. Meetings of the WAC continued to be held following submittal of the 2022 GSP, at least semi-annually. Interested parties were notified and encouraged to attend to provide comments on the final GSP and engage in efforts for further GSP development and GSP implementation.

8.2 Responsibilities of GSA Boards

The Wyandotte Creek GSA Board is the final decision-maker for the Wyandotte Creek Subbasin and the governing body. The Wyandotte Creek GSA Board serves as the policy-making role for SGMA implementation. All GSA Board meetings are subject to the Brown Act and are noticed and open to the public. Periodic SGMA and GSP-related updates are provided during meetings as needed.

The Wyandotte Creek Advisory Committee (WAC) provides input and recommendations to Wyandotte Creek GSA Board on GSP development and implementation as well as other items outlined in its Charter. Meetings of the WAC are detailed in **Table 8-1**. Notice is provided to the Interested Persons (IP) email list for all GSA meetings with additional GSP- or SGMA-related information conveyed through the IP email list as needed.

8.3 Coordination with Other Agencies

The Wyandotte Creek GSA has participated in inter-agency coordination during the evaluation period. GSA representatives participate in quarterly meetings of the Groundwater Task Force through Northern California Water Association (NCWA), where representatives from subbasins across the Sacramento Valley coordinate on regional water management. GSA staff and members of the consulting team have participated in CV-SALTS webinars and have responded to CV-SALTS requests for GSA input. GSA representatives have also participated in the Inter-Basin Coordination Analysis and Modeling Project to evaluate and compare GSPs, Butte Basin Groundwater Model (BBGM) updates and enhancements, and inter-basin flow evaluation with a regional model. Inter-basin coordination meetings with adjacent subbasins to the Subbasin are shown in **Table 8-2**.

Table 8-2. List of Interbasin Coordination Meetings During GSP Implementation Period to Date Since February 2022.

Meeting Title	Date	Location	Key Meeting Topics
North American Subbasin Interbasin Coordination	August 4, 2022	Virtual (Microsoft Teams)	Updates on groundwater conditions and monitoring, groundwater substitution transfers, groundwater modeling activities, and projects and management actions
North American Subbasin Interbasin Coordination	August 16, 2023	Virtual (Microsoft Teams)	Status of each subbasin (including sustainable management criteria and past and future grant activities), groundwater substitution transfers, and characterization of interconnected surface waters
Wyandotte Creek Subbasin Interbasin Coordination	May 1, 2024	Virtual (Microsoft Teams)	Planned monitoring/modeling activities to address interconnected surface waters, GDEs, and domestic users; Overview of monitoring activities near Honcut Creek; Collaboration opportunities
Part 2: Feather River Corridor Results	August 7, 2025	Virtual (Microsoft Teams)	Joint GSP Evaluation for the Feather River Corridor covering Butte, Wyandotte Creek, North Yuba, and Sutter Subbasins.
Part 3: Inter-basin Flow Evaluation with Regional Model	August 28, 2025	Virtual (Microsoft Teams)	Focused on groundwater and stream-aquifer modeling across subbasin boundaries.

SECTION 9: OTHER INFORMATION (23 CCR §356.4(K))

This section fulfills the requirements for the GSP Emergency Regulations §356.4(k):

> Other information the Agency deems appropriate, along with any information required by the Department to conduct a periodic review as required by Water Code Section 107033.

9.1 Consideration of Adjacent Basins (23 CCR §356.4(j))

Wyandotte Creek GSA representatives participate in quarterly meetings of the Groundwater Task Force through NCWA, where representatives from subbasins across the Sacramento Valley coordinate on regional water management. Interbasin coordination meetings have been held with the North Yuba, Sutter, and North American Subbasins to discuss boundary conditions, monitoring along subbasin boundaries, compare SMC along subbasin boundaries, and discuss PMAs (**Table 8-2**).

The SMCs in the amended GSP were revised to be more consistent with SMCs in neighboring subbasin, adjusted for local conditions. The revised groundwater level SMCs have been revised to more closely resemble the SMCs of neighboring Butte Subbasin. The revised water quality and subsidence SMC is consistent with the SMCs from the neighboring Butte Subbasin. Based on the analysis, management of the adjacent subbasins will not prevent the Wyandotte Creek Subbasin from maintaining its sustainability goal.

Wyandotte Creek GSA representatives participated in the Inter-Basin Coordination Analysis and Modeling Project to evaluate and compare GSPs, Butte Basin Groundwater Model (BBGM) updates and enhancements, and inter-basin flow evaluation with a regional model. This project's efforts focused on establishing common understanding of inter-basin flows, ISW conditions, and basin boundary conditions for subbasins along the Feather River Corridor (Wyandotte Creek, Butte, North Yuba, and Sutter Subbasins.

9.2 Challenges of SGMA Implementation in the Subbasin

Challenges during SGMA implementation include data gaps, data limitations, financial resource limitations, and drought. Data gaps significantly impact the water quality and interconnected surface water sustainability indicators, where the water quality RMS network only has data since 2022 and the GSA does not have sufficient data to finalize ISW SMCs. Data limitations include issues with monitoring network sites that required removal from the network, such as a landowner request to remove a well from the network, or the termination of DWR monitoring of subsidence monuments. PMAs and other GSP implementation activities required outside funding through DWR's Sustainable Groundwater Management (SGM) Grant Program. WY 2022 was a critical year type, followed by several above normal and wet years. In general, groundwater levels dropped in WY 2022 but recovered in subsequent years. Drought will always be a challenge for continued SGMA implementation and protecting beneficial users. The GSA will continue its public outreach to stakeholders for data access, continue its data collection during the new evaluation period, and seek additional funding, where needed for GSP implementation.

9.3 Legal Challenges or Adjudication

There have been no legal challenges or matters involving the Wyandotte Creek GSA as it relates to implementation of the Wyandotte Creek Subbasin GSP. There has been no indication of a potential adjudication.

SECTION 10: SUMMARY OF PROPOSED OR COMPLETED REVISIONS TO PLAN ELEMENTS (23 CCR §356.4(I))

This section fulfills the requirements of GSP Emergency Regulations §356.4(i):

> A description of completed or proposed Plan amendments.

10.1 DWR's Recommended Corrective Actions

The GSA reviewed the recommended corrective actions identified in DWR's 2023 Determination Letter for the Wyandotte Creek Subbasin GSP and determined that a Plan Amendment was necessary. The Approved status of the 2022 GSP included five recommended corrective actions from DWR. The Wyandotte Subbasin GSP was amended to address DWR's recommended actions, incorporate new information collected during the evaluation period, and update relevant information up to WY 2026. The following revisions to the Amended GSP were made:

- *Recommended Corrective Action 1*: Revised the water quality sustainable management criteria and definition of undesirable results. Updated and expanded the water quality network. Reviewed documentation of contamination plumes in the Subbasin. Added three potential constituents of concern.
- *Recommended Corrective Action 2*: Updated and expanded the groundwater level network. Completed the domestic well risk assessment. Updated the inventory of domestic wells. The non-dry year condition has been removed from the definition of undesirable results for the groundwater level SI.
- *Recommended Corrective Action 3*: The non-dry year condition has been removed from the definition of undesirable results for water quality.
- *Recommended Corrective Action 4*: The definition of undesirable results and SMCs have been revised for the subsidence SI. The monitoring network for subsidence has been revised.
- *Recommended Corrective Action 5*: The ISW well and stream gage network has been revised and expanded. The BBGM has been updated and provided new ISW results. Updated groundwater ecosystem delineations.

The amended 2027 GSP was approved by the Wyandotte Creek Board of Directors on Date TBD, 2026. As shown in **Table 8-1,** outreach and engagement to interested stakeholders was conducted at WAC meetings. Eleven meetings from 2022 to 2026 included discussion of this Periodic Evaluation and Amended GSP where WAC members and the public were invited to provide comments. A public comment period on the draft Periodic Evaluation and Amended GSP took place from XX to XX, 2026, where stakeholders and interested parties could submit comments. Public comments were received from XX on XX, 2026. Public comments were reviewed by the GSA and incorporated into the final Amended GSP or identified for further evaluation. Responses to comments received for the Amended GSP were added to Appendix E of the Amended GSP.

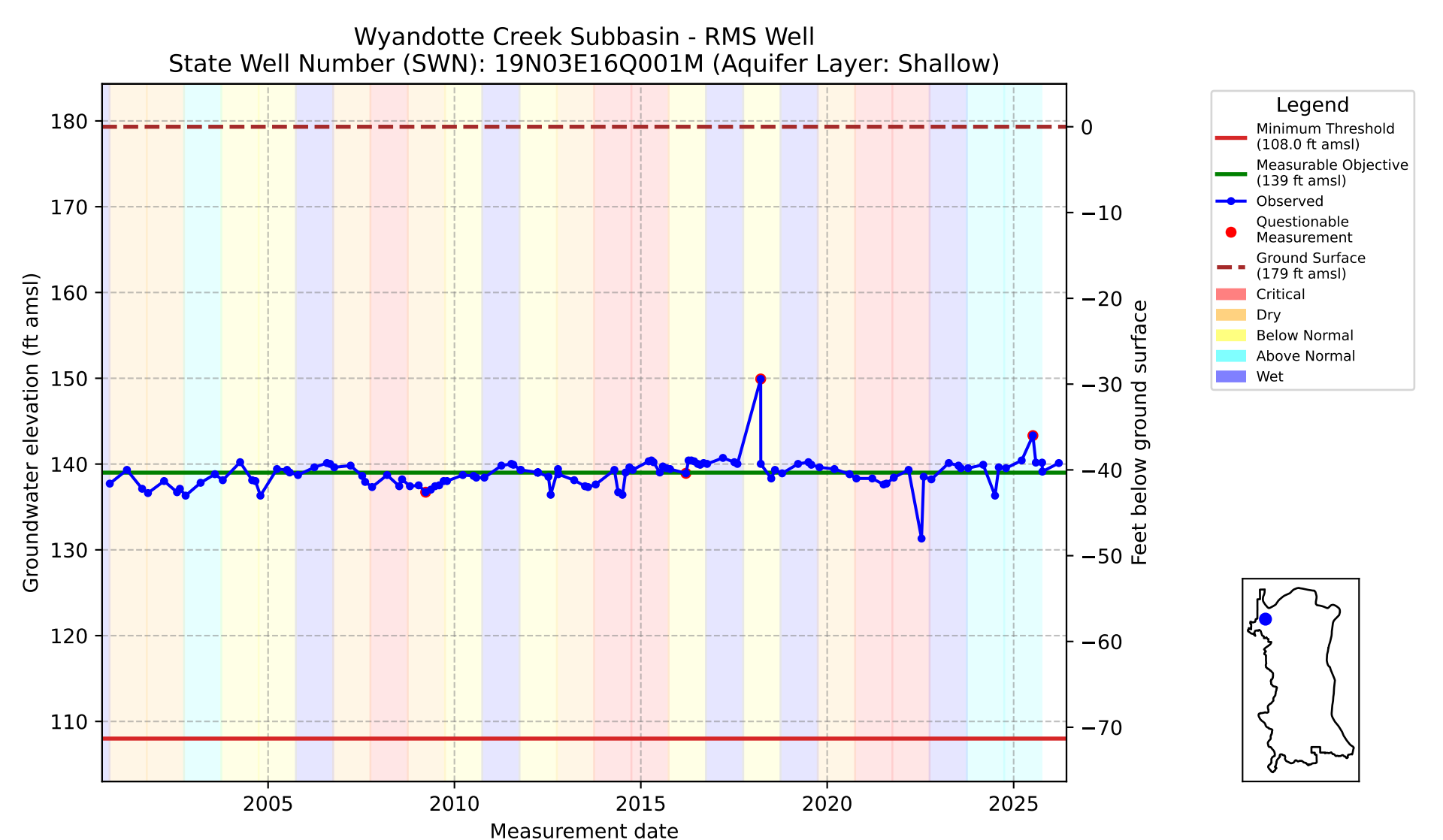
During the next evaluation period (2027 to 2032), the Wyandotte Creek Subbasin GSA will implement the Amended GSP, including new monitoring networks, continued PMA implementation, and collecting data to fill data gaps. Additional data will continue to be collected, particularly for considering ISW SMCs in the next Periodic Evaluation. Annual Reports will provide implementation progress updates, track the advancement towards the sustainability goal, and evaluate the state of the Subbasin relative to sustainable management criteria.

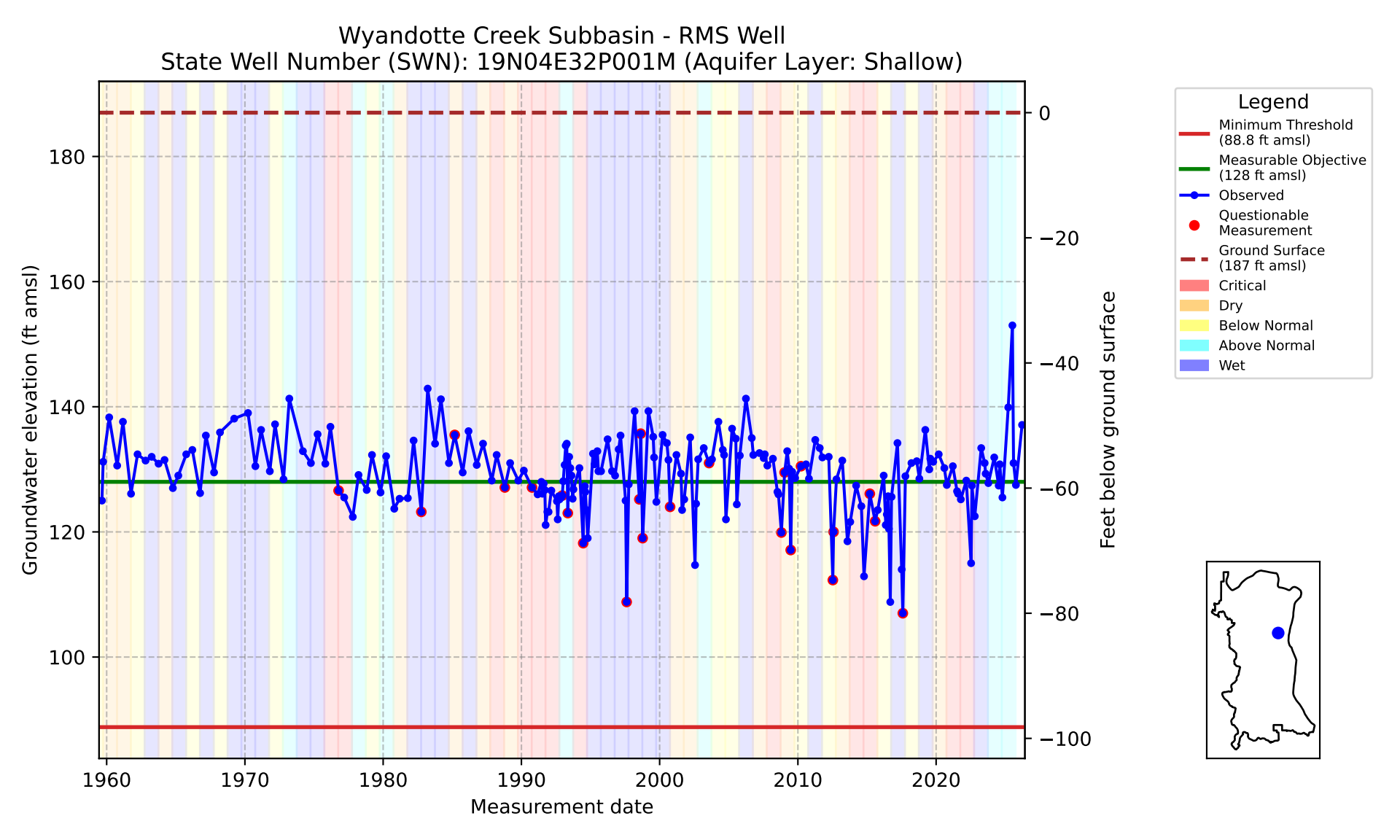
10.2 Specific Revisions to the Plan Elements

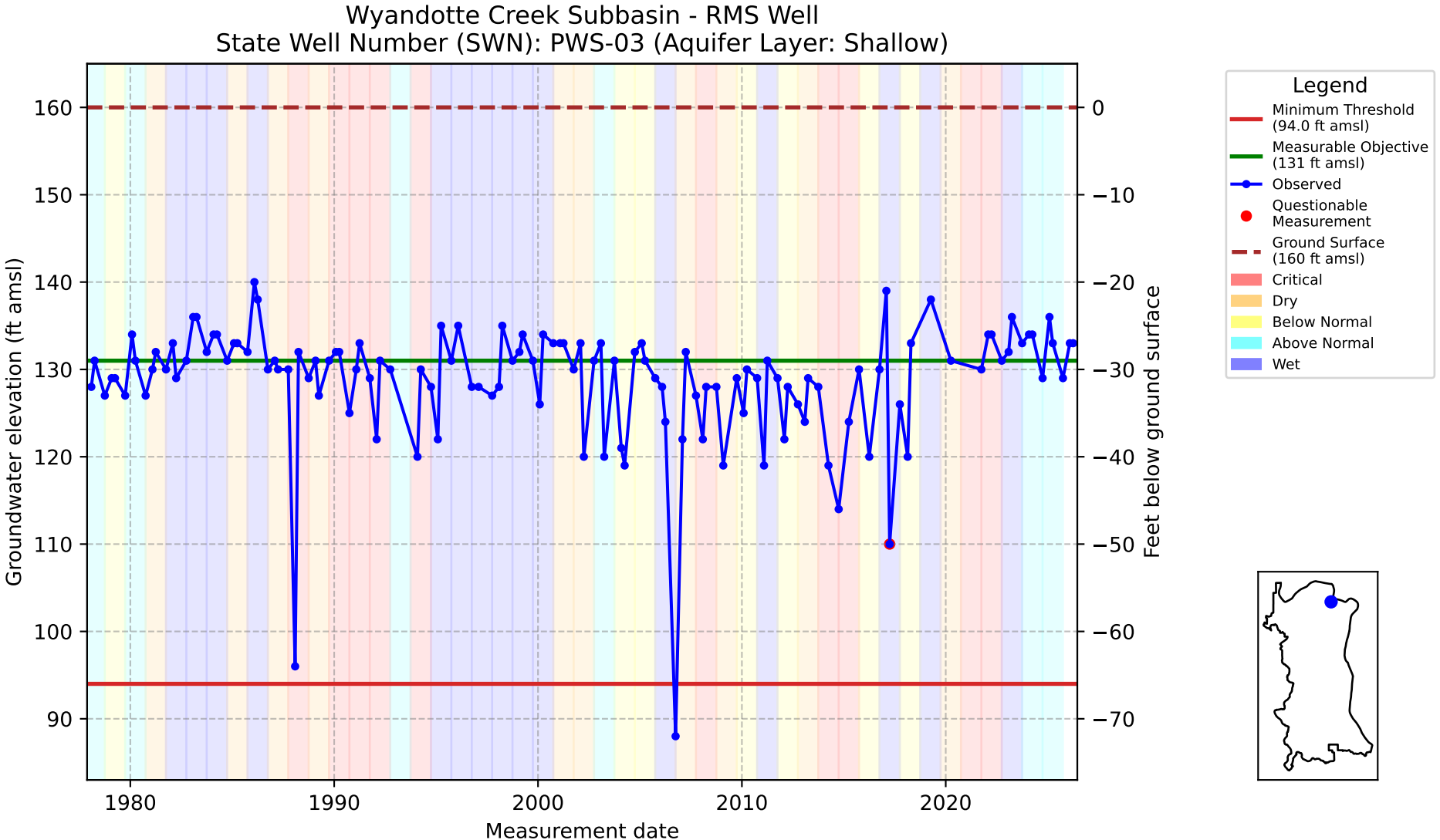
The amended GSP includes revisions to the following sections:

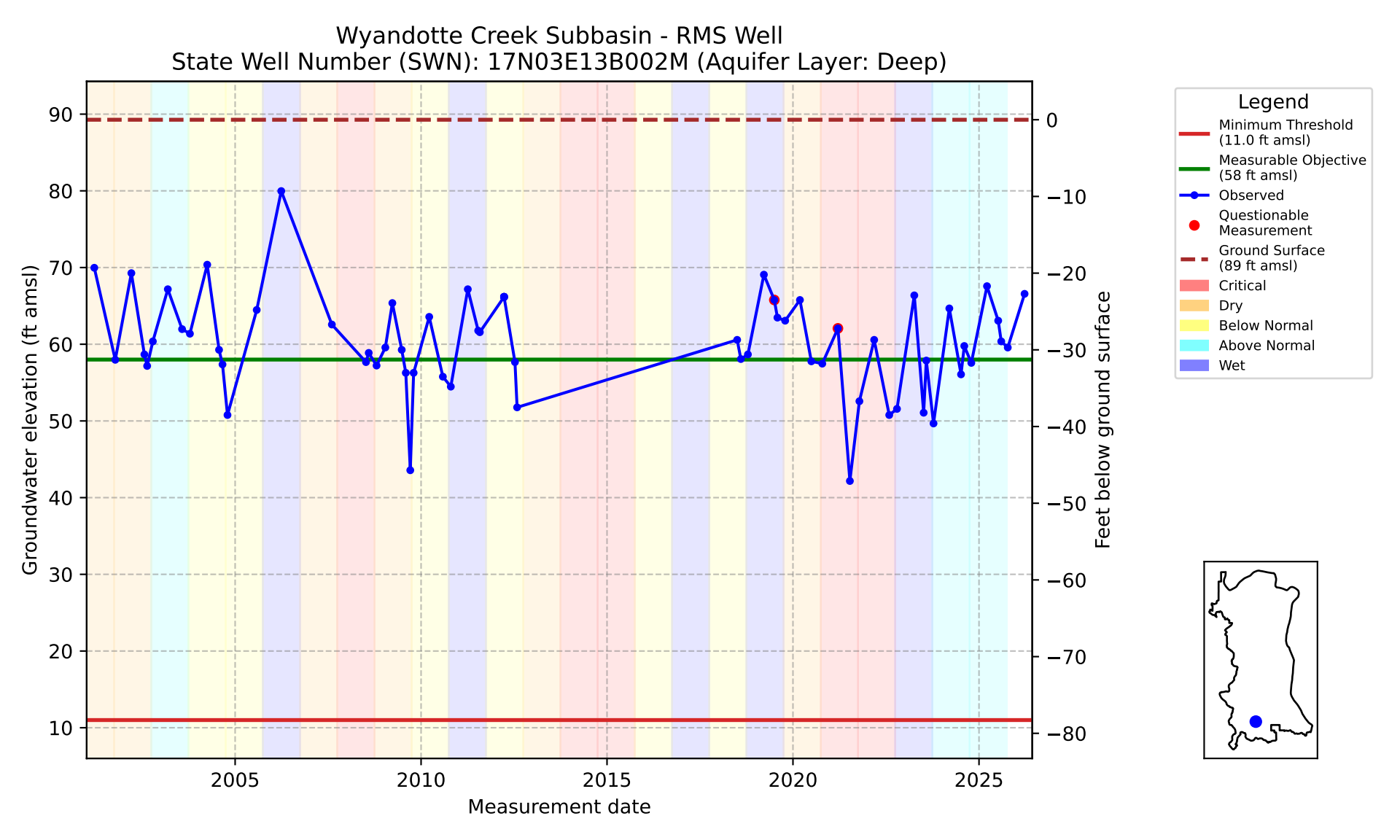
- Executive Summary: Updates to the SMCs and monitoring networks have been added to the Executive Summary.
- Section 2 - Basin Setting: Sections in the Basin Setting chapter have been amended with new data from the implementation period.
    - The groundwater quality section (Section 2.2.4) has been revised to reflect updated groundwater monitoring and revised description of contamination plumes in the Subbasin.
    - The subsidence section (Section 2.2.5) has been updated to reflect changes to the monitoring programs.
    - The interconnected surface water section (Section 2.2.6) has been updated to reflect new data and updated results.
    - The groundwater dependent ecosystem (Section 2.2.7) has been updated to describe the method and results of a new desktop analysis revising the identification of GDEs.
    - The sustainable yield estimate (Section 2.3.6) has been updated based on 10-year rolling average using measured and estimated groundwater extraction and annual change in storage calculated from observed groundwater level measurements.
- Section 3 - Sustainable Management Criteria: Section 3 and the description of undesirable results and SMCs have undergone major revisions for groundwater levels, water quality, subsidence, and interconnected surface water. The revisions reflect the GSA response to the DWR recommended actions and filling of data gaps.
- Section 4 - Monitoring Networks: Section 4 has undergone major updates to the monitoring networks and representative monitoring sites for groundwater level, water quality, subsidence, and interconnected surface water. The revisions reflect the GSA response to the DWR recommended actions and filling of data gaps.
- Section 5 – Project and Management Actions: Section 5 has been reorganized to classify projects into four categories based on project status: Completed, In-Progress, Potential, and Other. Projects in the “other” category are potentially led by other agencies and not critical to achieving sustainability.

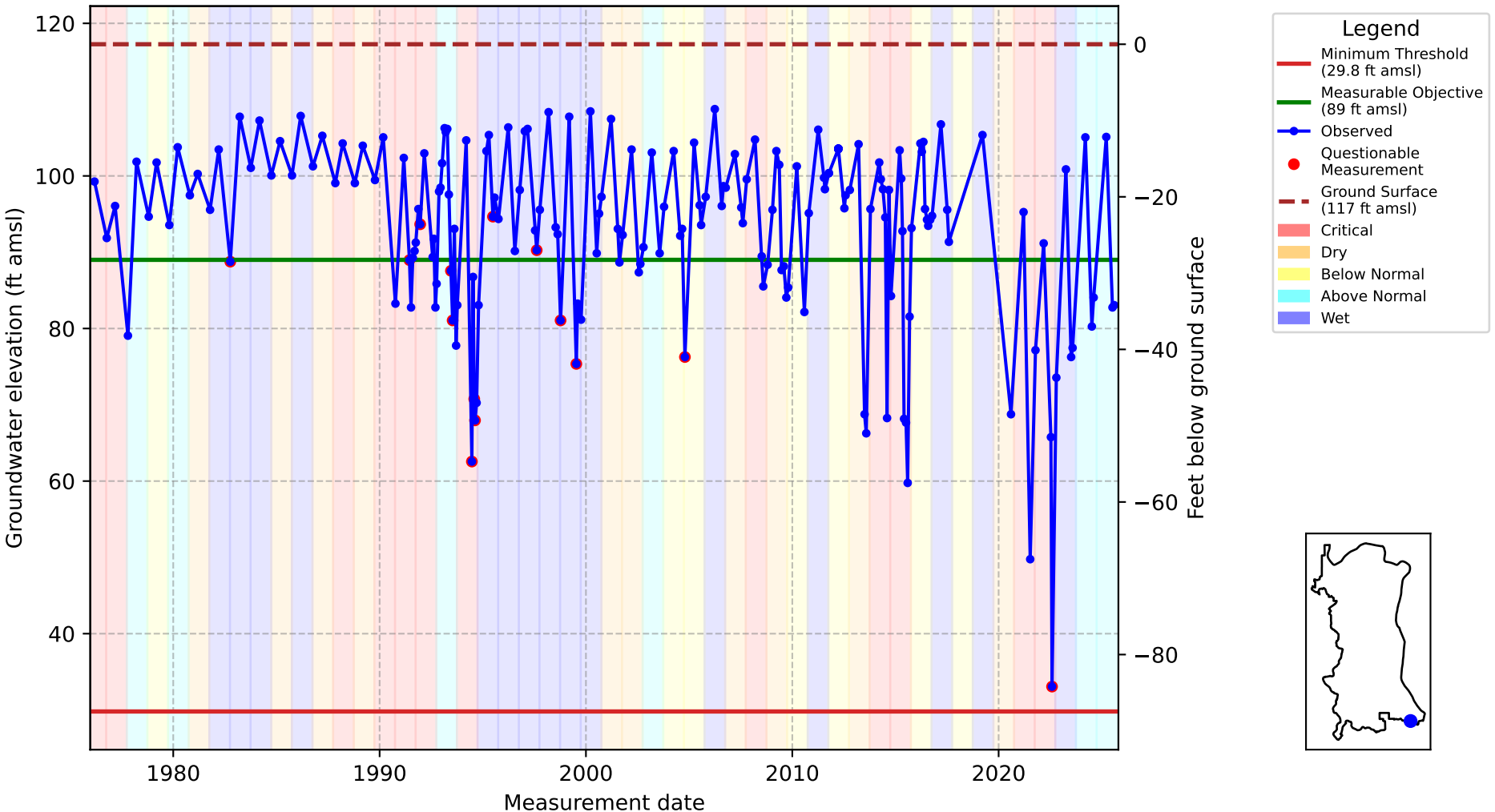
Attachment A. Hydrographs for ten groundwater level RMS wells

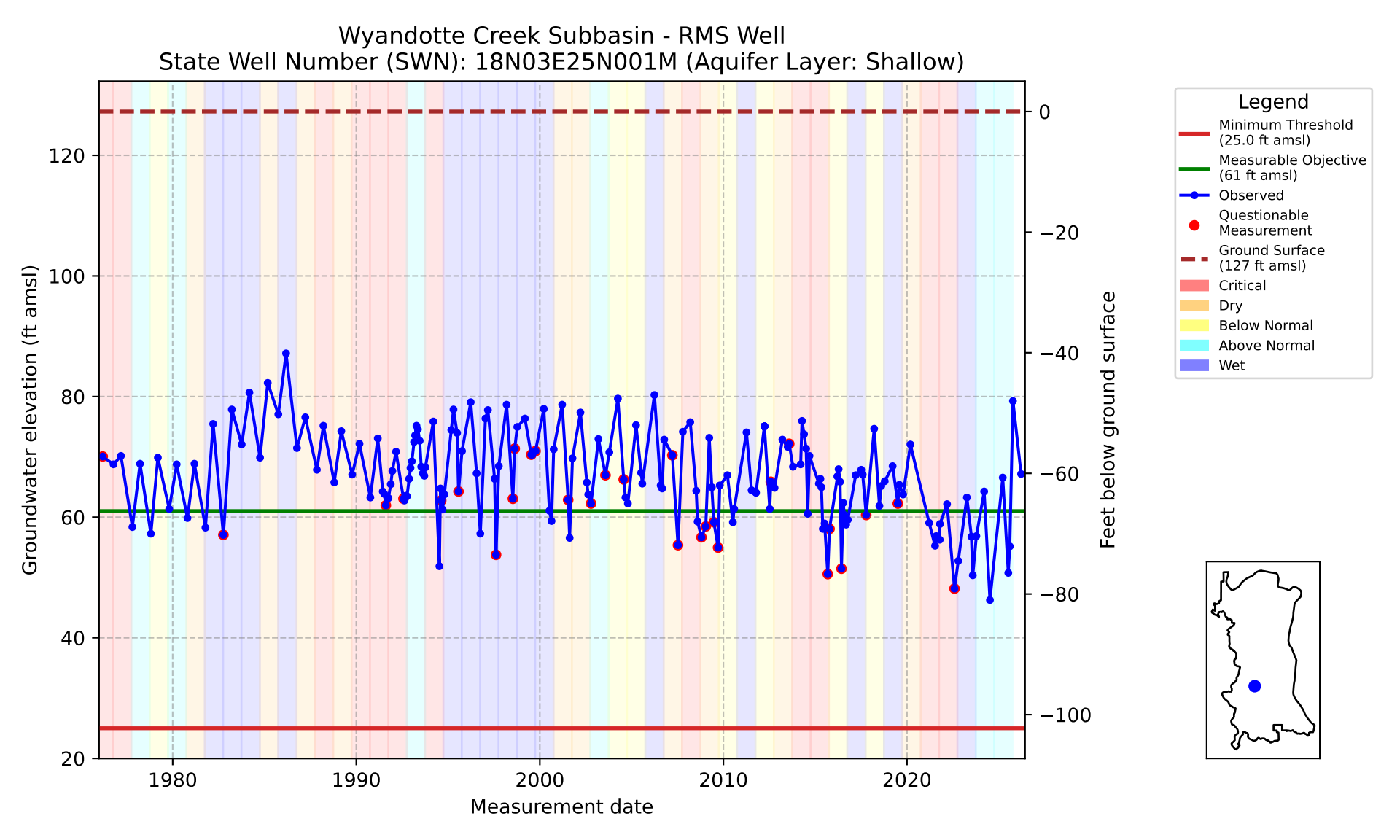

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 19N03E16Q001M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
180
170
160
150
140
130
120
110
0
−10
−20
−30
−40
−50
−60
−70
2005
2010
2015
2020
2025
Legend
Minimum Threshold (108.0 ft amsl)
Measurable Objective (139 ft amsl)
Observed
Questionable Measurement
Ground Surface (179 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

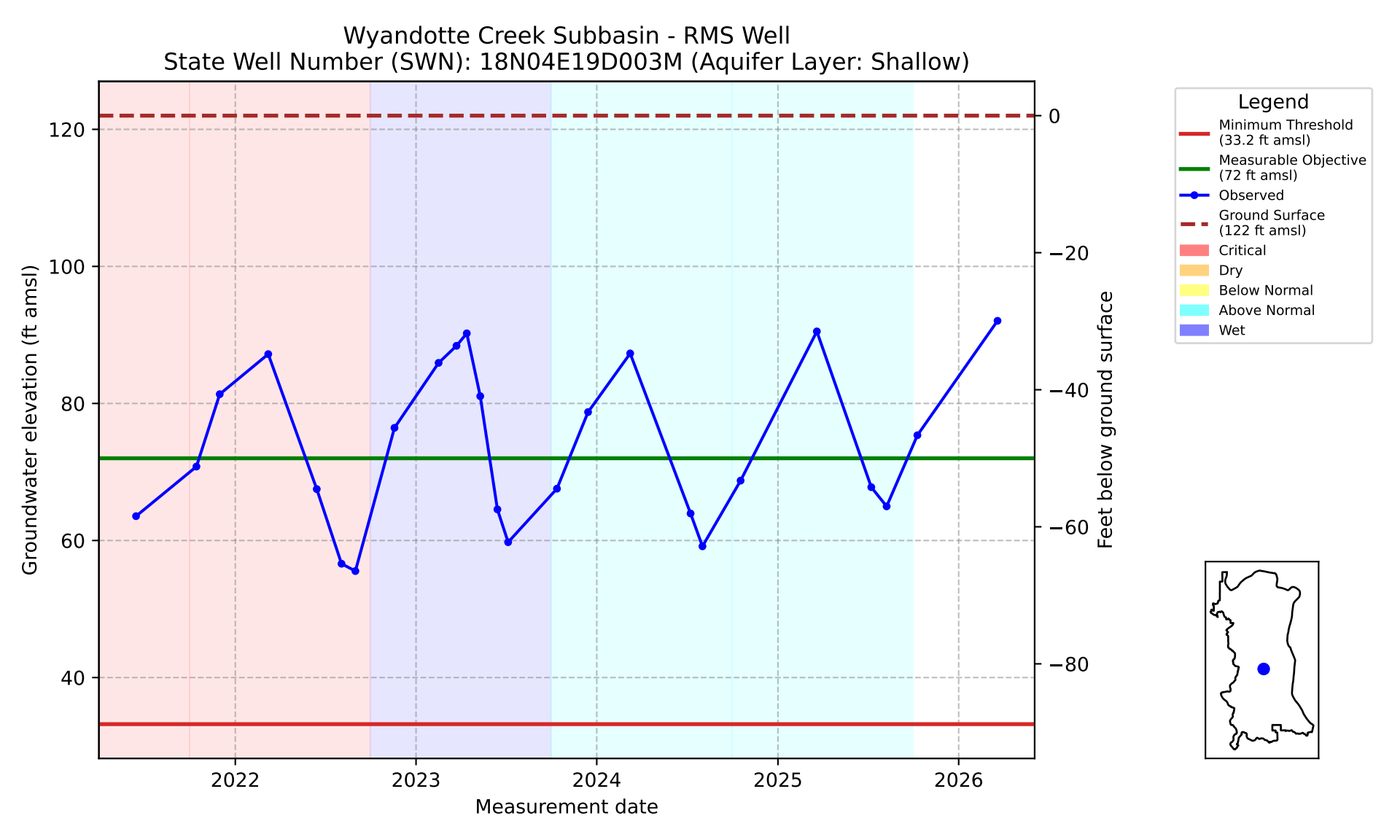

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 19N04E32P001M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
180
160
140
120
100
0
−20
−40
−60
−80
−100
1960
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (88.8 ft amsl)
Measurable Objective (128 ft amsl)
Observed
Questionable Measurement
Ground Surface (187 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

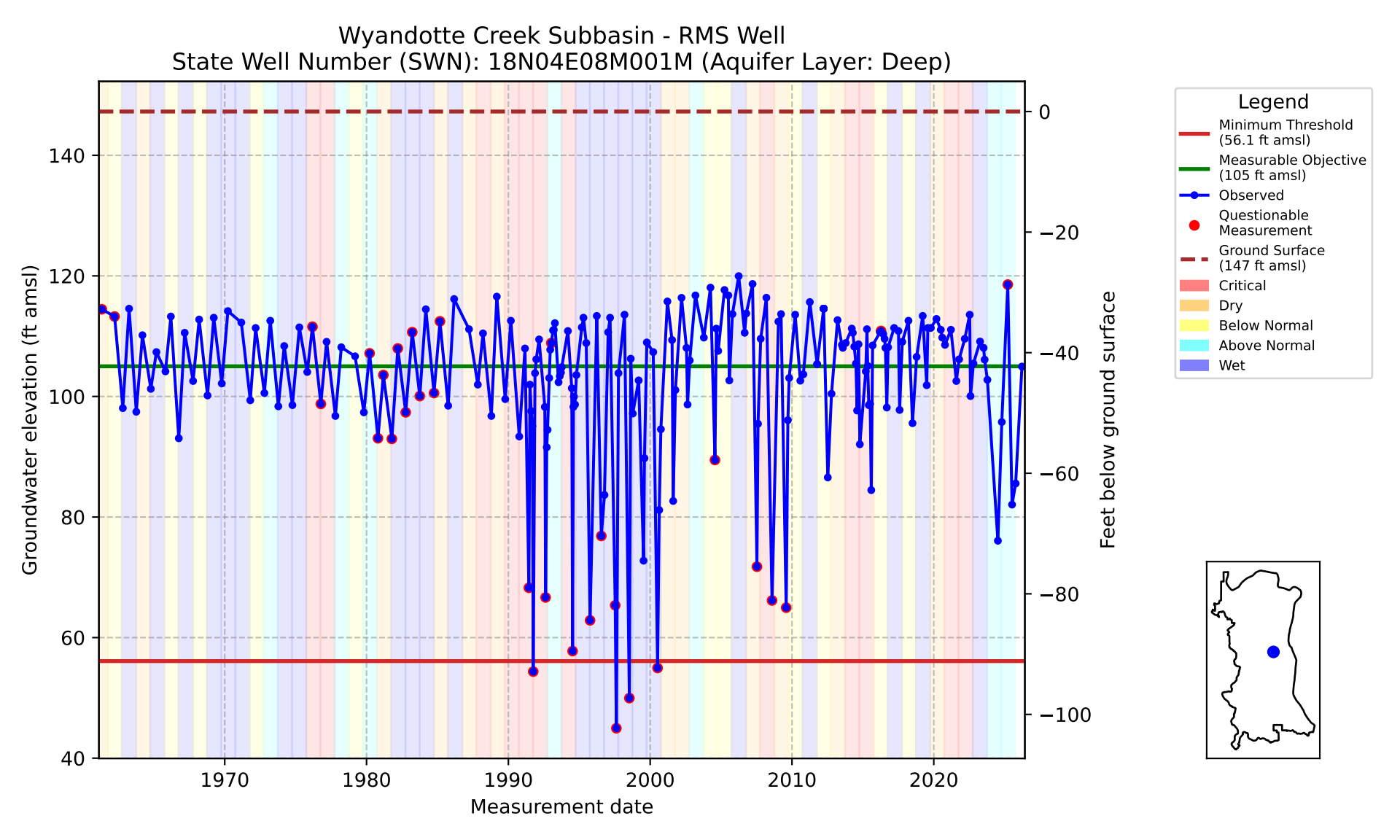

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): PWS-03 (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
150
140
130
120
110
100
90
0
−10
−20
−30
−40
−50
−60
−70
1980
1990
2000
2010
2020
Legend
Minimum Threshold (94.0 ft amsl)
Measurable Objective (131 ft amsl)
Observed
Questionable Measurement
Ground Surface (160 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

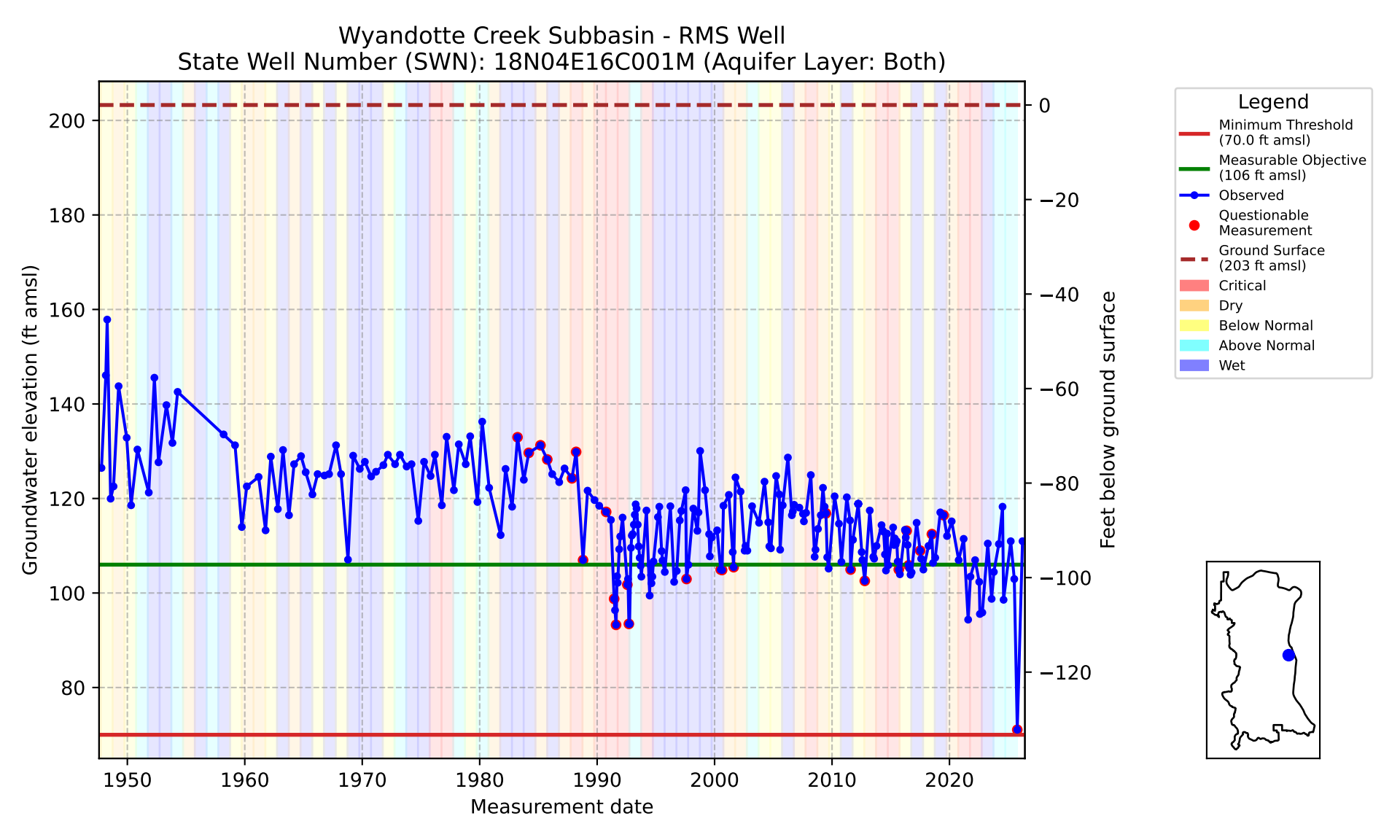

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 17N03E13B002M (Aquifer Layer: Deep)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
90
80
70
60
50
40
30
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
2005
2010
2015
2020
2025
Legend
Minimum Threshold (11.0 ft amsl)
Measurable Objective (58 ft amsl)
Observed
Questionable Measurement
Ground Surface (89 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

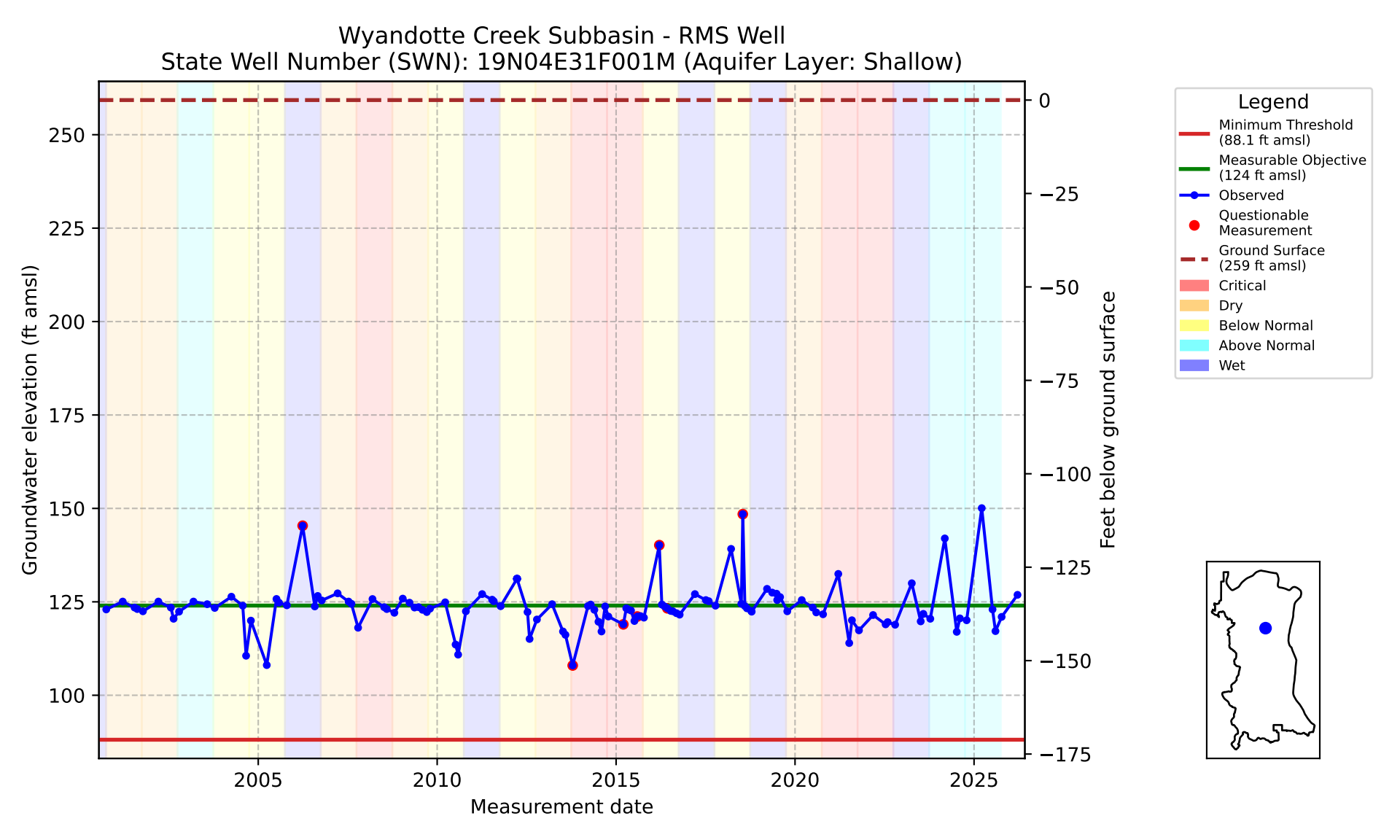

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 17N04E22B001M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
120
100
80
60
40
0
−20
−40
−60
−80
1980
1990
2000
2010
2020
Legend
Minimum Threshold (29.8 ft amsl)
Measurable Objective (89 ft amsl)
Observed
Questionable Measurement
Ground Surface (117 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 18N03E25N001M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
120
100
80
60
40
20
0
−20
−40
−60
−80
−100
1980
1990
2000
2010
2020
Legend
Minimum Threshold (25.0 ft amsl)
Measurable Objective (61 ft amsl)
Observed
Questionable Measurement
Ground Surface (127 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

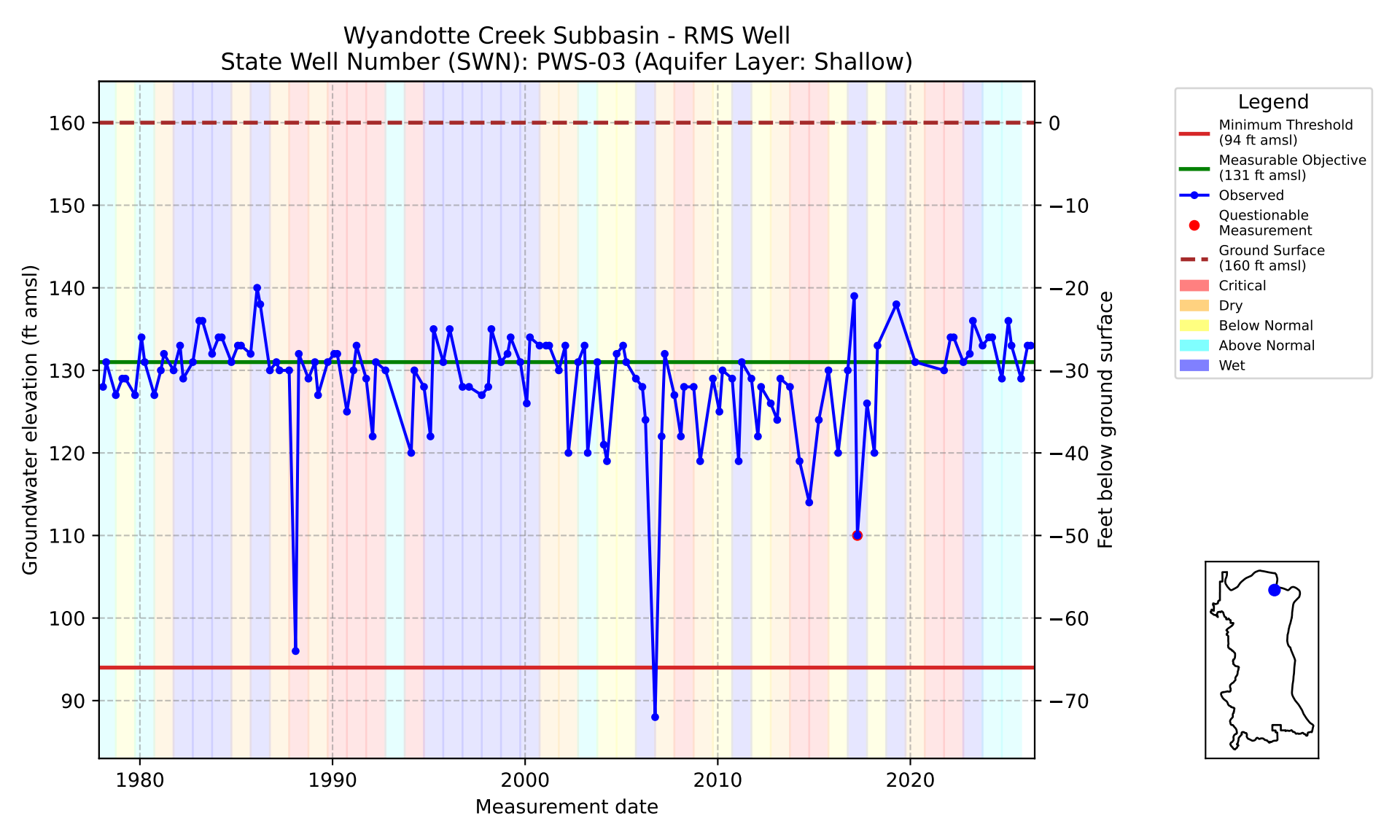

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 18N04E19D003M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
120
100
80
60
40
0
−20
−40
−60
−80
2022
2023
2024
2025
2026
Legend
Minimum Threshold (33.2 ft amsl)
Measurable Objective (72 ft amsl)
Observed
Ground Surface (122 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

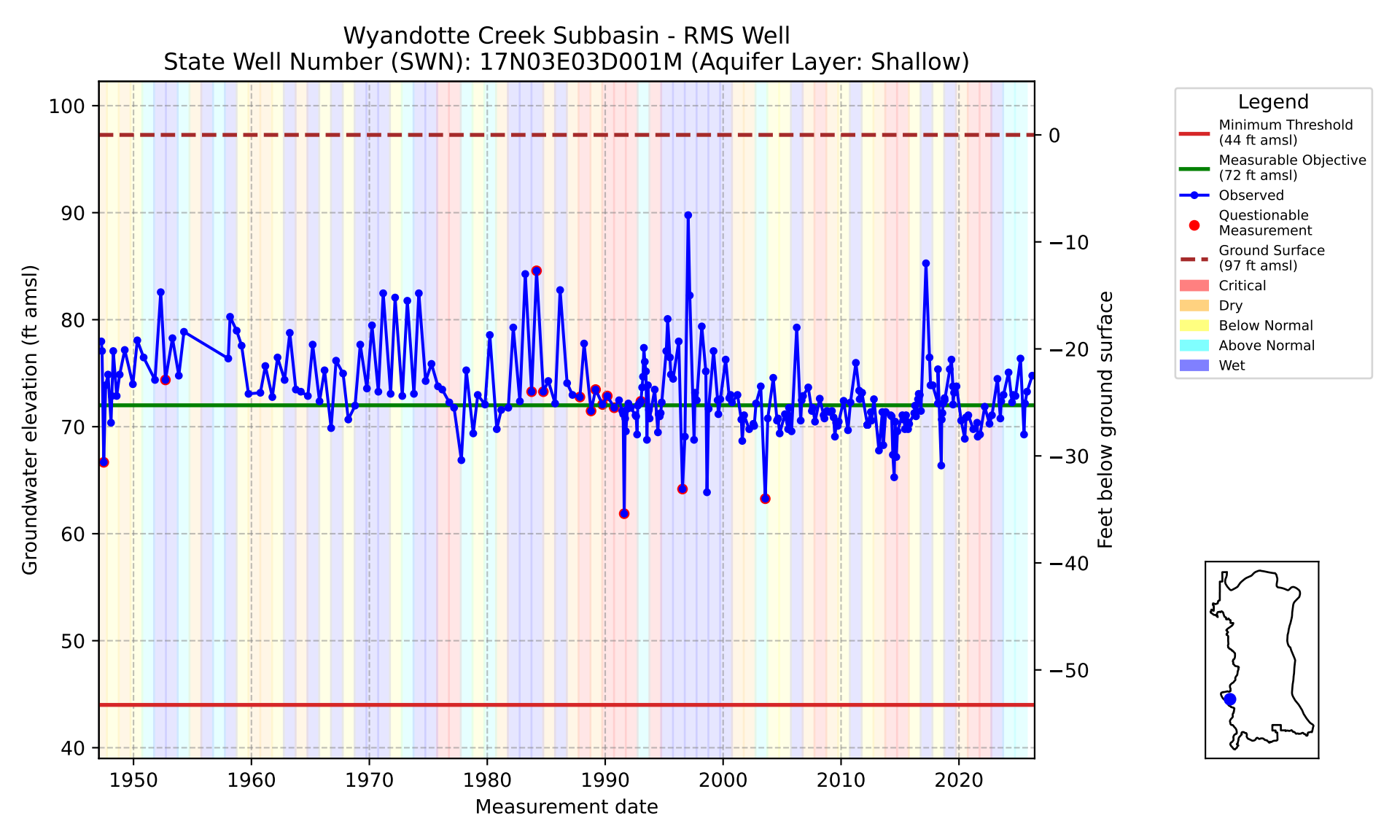

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 18N04E08M001M (Aquifer Layer: Deep)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
140
120
100
80
60
40
0
−20
−40
−60
−80
−100
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (56.1 ft amsl)
Measurable Objective (105 ft amsl)
Observed
Questionable Measurement
Ground Surface (147 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

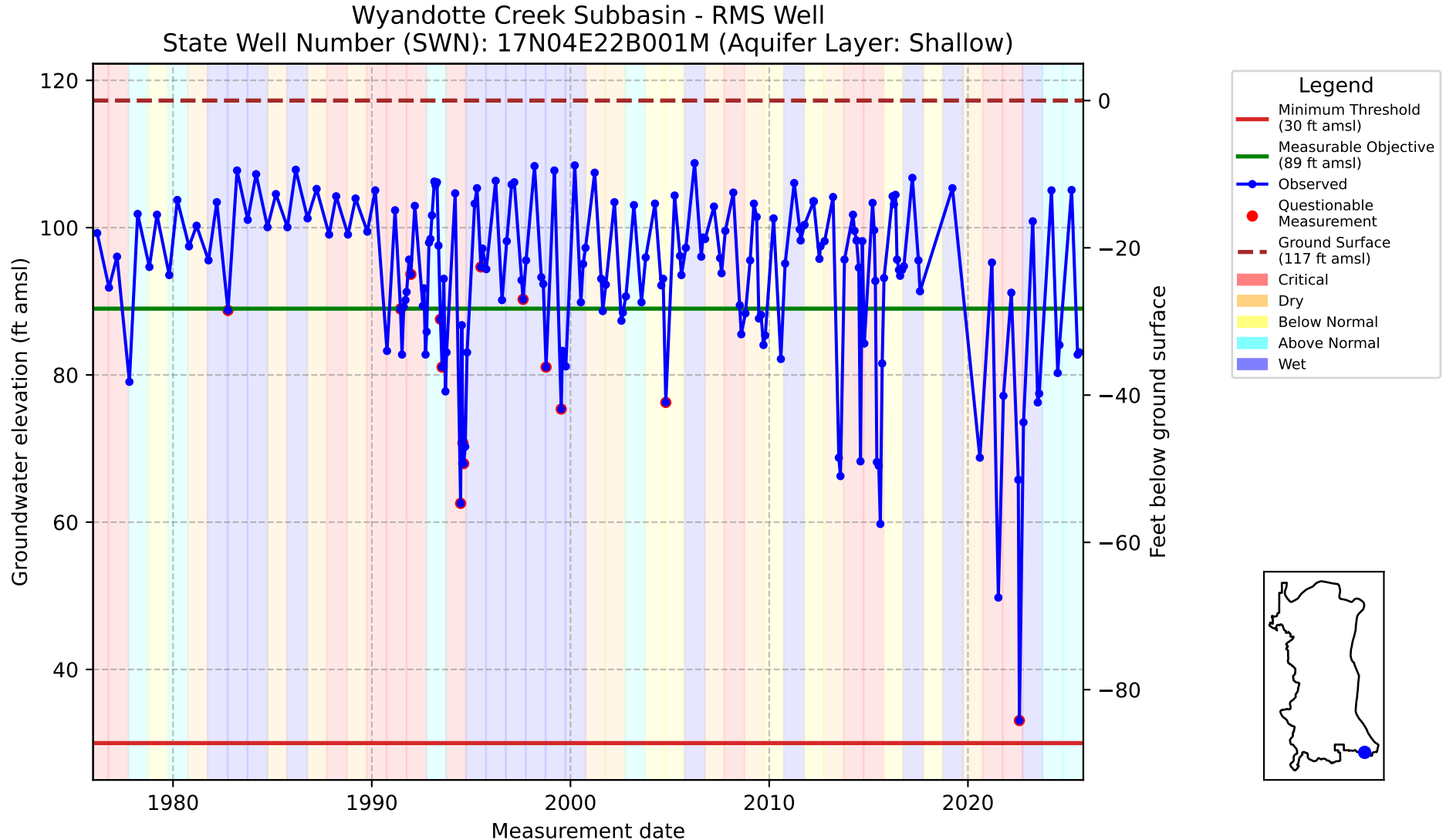

Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 18N04E16C001M (Aquifer Layer: Both)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
200
180
160
140
120
100
80
0
−20
−40
−60
−80
−100
−120
1950
1960
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (70.0 ft amsl)
Measurable Objective (106 ft amsl)
Observed
Questionable Measurement
Ground Surface (203 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 19N04E31F001M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
250
225
200
175
150
125
100
0
−25
−50
−75
−100
−125
−150
−175
2005
2010
2015
2020
2025
Legend
Minimum Threshold (88.1 ft amsl)
Measurable Objective (124 ft amsl)
Observed
Questionable Measurement
Ground Surface (259 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

Attachment B. Hydrographs for three interconnected surface water RMS wells


Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): PWS-03 (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
150
140
130
120
110
100
90
0
−10
−20
−30
−40
−50
−60
−70
1980
1990
2000
2010
2020
Legend
Minimum Threshold (94 ft amsl)
Measurable Objective (131 ft amsl)
Observed
Questionable Measurement
Ground Surface (160 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 17N03E03D001M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
100
90
80
70
60
50
40
0
−10
−20
−30
−40
−50
1950
1960
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (44 ft amsl)
Measurable Objective (72 ft amsl)
Observed
Questionable Measurement
Ground Surface (97 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Wyandotte Creek Subbasin - RMS Well
State Well Number (SWN): 17N04E22B001M (Aquifer Layer: Shallow)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
120
100
80
60
40
0
−20
−40
−60
−80
1980
1990
2000
2010
2020
Legend
Minimum Threshold (30 ft amsl)
Measurable Objective (89 ft amsl)
Observed
Questionable Measurement
Ground Surface (117 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet