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MEMORANDUM

To: All Stakeholders

From: Christina Buck, Assistant Director, Butte County Department of Water and Resource Conservation [providing technical staff support to the Vina GSA]

Date: June 18, 2026

Subject: Consideration of a Strawman Proposal: Approach to Addressing the Groundwater Level Sustainability Indicator in the Periodic Evaluation in Response to DWR Recommended Corrective Actions

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Background

The Vina Groundwater Sustainability Plan (GSP) was adopted in December 2021 by the Vina Groundwater Sustainability Agency (GSA) and Rock Creek Reclamation District GSA and subsequently reviewed and approved by the California Department of Water Resources (DWR) in July 2023. DWR approved the GSP and found that the plan substantially complied with SGMA and the GSP Regulations, while also identifying Recommended Corrective Actions (RCAs) to be considered by the GSAs for the first Periodic Evaluation or addressed through amendments to the GSP. The first Periodic Evaluation is due in January 2027.

This memo and the attached strawman proposal are provided to support stakeholder discussion regarding how the GSAs could address 1) DWR's RCAs related to chronic lowering of groundwater levels, and 2) incorporate new information developed to address data gaps as described in the 2022 GSP. A "strawman" proposal is an initial draft created to jump-start discussion and identify potential weaknesses or areas for improvement, serving as a starting point for collaborative refinement. Staff is using this approach with the different topics of the RCAs and it is intended to provide a reasonable starting point with supporting information to give the Boards and stakeholders enough information and detail to be able to weigh various options and provide recommended direction. Viewpoints in the subbasin regarding the groundwater level sustainability indicator vary widely from strongly held opinions that the 2022 GSP minimum thresholds (MTs) are too low and would result in unacceptable impacts to domestic well users and the environment (such as deeply rooted Valley Oaks) while other equally strongly held opinions recognize the MTs as an element of an adopted and approved GSP with no DWR requirement for change. Given these widespread perspectives, the

strawman proposal provides details around the potential development of a middle of the road option between no change and a comprehensive MT revision.

There are essentially two key choices for the GSA Boards to consider:

1. **Whether or not to revise the RMS monitoring network.** This directly influences the assessment of impacts on beneficial users, as requested in the RCA. Consideration of revising the monitoring network is driven by 1) Replacement of at least two RMS wells in the Vina South Management Area (due to frequent questionable measurements and/or location outside of the subbasin) and, 2) Improved representativeness of the network based on new information available since the adoption of the 2022 GSP.
2. **Whether or not to make changes to the SMC (MT etc.).** This goes beyond the scope of the RCA, but the GSA may want to consider some changes in light of the new data and information available and due to some stakeholder expressed concerns regarding impacts to domestic wells and groundwater dependent ecosystems. In addition, there are inter-subbasin differences in MT levels between Vina and neighboring subbasins near subbasin boundaries.

Purpose of this Memo

The purpose of this memo is to solicit input on a strawman proposal for addressing groundwater level RCAs in the 2027 Periodic Evaluation and any possible associated GSP amendments. Board direction from the Joint GSA Board meeting on December 10, 2025, requested staff to bring back more information regarding potential changes to the Groundwater Level network. The strawman proposal makes strategic updates to the groundwater level Representative Monitoring Site (RMS) network, assigns Sustainable Management Criteria (SMC) (including MTs and Measurable Objectives) to any new RMS wells by utilizing the 2022 GSP methodology, documents the resulting potential impacts to beneficial uses and users, and introduces a local management level approach for consideration of groundwater dependent ecosystem (GDE)-areas.

The proposed approach is intended to acknowledge the 2022 GSP as an adopted and DWR-approved plan, while also acknowledging required 5-Year Periodic Evaluations and DWR's continuing oversight role and possible needs for adaptive management. The RCAs provide an opportunity to use new information developed since GSP adoption to improve documentation, refine the monitoring network, and clarify how groundwater level SMC relate to domestic wells, environmental users, and public water systems.

Why are we reconsidering aspects of the Groundwater Level Sustainability Indicator?

The 2022 GSP was adopted after a significant public process and was approved by DWR. DWR's approval also included RCAs providing direction to provide sufficient information regarding the "potential impacts to various beneficial uses and users of groundwater related to the chronic lowering of groundwater level minimum thresholds". Since GSP adoption, the GSAs have developed new information (funded by the SGM Grant program) to help better

understand beneficial users in the subbasin, including an updated domestic well inventory, additional analysis of existing monitoring wells, and technical work related to groundwater dependent ecosystems. This information is being developed in response to DWR's request for further documentation and to address data gaps described in the 2022 GSP, and to document that currently the subbasin is avoiding undesirable results. The Periodic Evaluation is the time to assess whether new information and responsiveness to DWR's RCAs warrant any changes to the groundwater level monitoring network or SMC or whether documentation of these topics is sufficient.

Why consider a change to the Groundwater Level RMS network?
Representative Monitoring Site (RMS) wells are the specific wells used to measure groundwater levels against the GSP's Sustainable Management Criteria, including MTs, Measurable Objectives (MOs), and Interim Milestones (IMs) for the Groundwater Level Sustainability Indicator. In plain terms, these are the wells used to answer the question: **Are groundwater levels staying within the range the GSP says is acceptable and reflective of sustainable groundwater management?** Because RMS wells determine regulatory and compliance significance, they need to be reliable, representative, and useful for evaluating conditions that matter to beneficial users. Since adoption of the GSP, three of the RMS wells have been identified as regularly having questionable measurements or missing data (23N01W10E001M, 20N02E09L001M, 21N01E21C001M) and one of the wells is located just outside of the southern subbasin boundary (20N01E10C002M). Removing these wells from the GWL RMS network would lead to the need to supplement the network with additional wells to fill the gaps. Butte County staff, providing technical support to the GSA, conducted a monitoring network evaluation to identify additional existing wells that may provide improved spatial coverage and better alignment with domestic well depths.

It is not the intent to update the RMS network simply to make the network larger. Rather, the purpose is to make the network more representative and more reflective of conditions in relation to beneficial users. Expanding the network is also responsive to stakeholder feedback received in Fall 2025, where all groups expressed interest in transparency around RMS selection; domestic well and environmental stakeholders emphasized protectiveness, while agricultural stakeholders emphasized data-driven decision-making and flexibility. See Attachment B for more detailed summary of stakeholder feedback regarding the groundwater level sustainability indicator.

Relevant Context

Groundwater levels are a central SGMA sustainability indicator and are also used to understand several other sustainability indicators, including reduction of groundwater storage and linkages of land subsidence to groundwater level change. The 2022 GSP focused Groundwater Level SMC on protecting domestic well reliability and managing long-term groundwater level declines through implementation of projects and management actions. While DWR approved the GSP, as previously referenced, they also identified groundwater level issues that should be addressed and evaluated in the first Periodic Evaluation.

Current 2022 GSP Approach

The 2022 GSP identified 17 groundwater level RMS wells across the Vina North, Vina Chico, and Vina South Management Areas. These RMS wells have been assigned Groundwater Level sustainability indicator MTs, MOs, and IMs. The 2022 GSP approach used domestic well reliability as a key basis for Groundwater Level MTs and generally set MTs by using a graphing method setting MTs in relation to domestic well depths within a representative area (RMS polygon).

Since adoption of the GSP, additional review has identified several RMS wells that may warrant removal or replacement due to questionable measurements, missing data, or boundary location. At the same time, Butte County has a robust broad network of groundwater level monitoring wells within the Vina Subbasin that can be evaluated for possible inclusion of wells with historical data as additional or replacement RMS wells.

DWR Recommended Corrective Action Related to Groundwater Levels

DWR approved the Vina Subbasin GSP in July 2023 and identified RCAs to be considered as part of the first Periodic Evaluation.

Provided below is Recommended Corrective Action 3, as stated in the Determination Letter:

Provide sufficient information regarding criteria used to identify significant and unreasonable conditions, undesirable results, and the potential impacts to various beneficial uses and users of groundwater related to the chronic lowering of groundwater level minimum thresholds. The GSAs should address the following items:

a. *Revise the definition of undesirable results and language pertaining to significant and unreasonable lowering of groundwater level to remove the non-dry year condition or discuss how extractions and recharge will be managed as necessary to ensure that reductions in groundwater levels or storage during dry years are offset by increases in groundwater levels or storage during other years within the sustainable management criteria for the chronic lowering of groundwater levels.*
b. *Provide information on impacts to domestic wells during projected conditions where minimum thresholds are exceeded but undesirable results do not occur and also quantify domestic wells that will be impacted by the proposed minimum threshold. Furthermore, the GSAs should evaluate the impacts of proposed minimum thresholds on other beneficial uses and users, such as public and small water systems and environmental users and users.*
c. *Evaluate how the proposed minimum thresholds for the chronic lowering of groundwater levels may impact other sustainability indicators (e.g., groundwater storage, depletion of interconnected surface water, etc.).*

New Information Available Since the 2022 GSP

Since adoption of the 2022 GSP, the GSAs, Butte County staff, and consultant teams have developed new information directly relevant to groundwater levels and beneficial uses and users within the scope of the Data Gap Identification and Data Improvement Project funded through the SGM Grant program awarded to the Vina GSA in 2024. New relevant information includes

the following technical memos and reports (available at https://www.vinagsa.org/periodic-evaluation-supporting-documents):

- **Groundwater level monitoring network evaluation**. Butte County staff, providing technical support to the GSA, evaluated the existing monitoring network based on access reliability, measurement history and data quality, well construction, alignment with local domestic well depths, domestic well density, and geographic distribution. This evaluation identified wells that appear suitable for RMS designation, wells that could be considered, and wells that should not be used as RMS.
  - Periodic Evaluation Supporting Documents – Butte County Evaluation
- **Domestic well survey and risk assessment**. Larry Walker Associates (LWA) refined the domestic well inventory used during development of the 2022 GSP using the Online System for Well Completion Reports (OSWCR) and manual review of location information. Using this information, LWA then estimated domestic wells at risk at existing MTs.
  - Periodic Evaluation Supporting Documents – Domestic Well Survey & Risk Assessment
- **GDE technical study**. Environmental Science Associates (ESA), a subconsultant on the LWA team, conducted a technical study to refine the GSP's evaluation and understanding of likely groundwater dependent ecosystems (GDEs) within the Subbasin using depth-to-groundwater and rooting depth thresholds.
  - Periodic Evaluation Supporting Documents – GDE Technical Study
- **Shallow groundwater network evaluation**. Several efforts have developed and utilized shallow groundwater data, stream gages, AEM information, model results, and other lines of evidence related to understanding regional shallow groundwater conditions relevant to GDEs and interconnected surface water.
  - Periodic Evaluation Supporting Documents – Monitoring Network Assessment using AEM Data
  - Periodic Evaluation Supporting Documents – LWA TM Groundwater Monitoring Network Enhancements
- **Inter-basin coordination and neighboring subbasin comparisons**. Regional coordination and the Joint GSP Evaluation Tech Memo provide context for how neighboring subbasins have approached monitoring networks, SMC, and MTs.
  - Periodic Evaluation Supporting Documents – Joint Groundwater Sustainability Plan Evaluation (Sacramento River Corridor)
  - North Sacramento River Corridor Inter-Basin Coordination | Butte County, CA

Local Management Level (LML)

As a middle-of-the-road option between maintaining the existing MT framework without change and undertaking a comprehensive revision to MTs, staff is introducing the concept of Local Management Levels (LMLs) for discussion. The concept is informed, in part, by the approach used in the Yuba Subbasins' Groundwater Sustainability Plan (GSP), but the description below is provided as an example of how this other basin has defined and used LMLs, not as a direct proposed methodology for the Vina Subbasin (for application to Vina, see the strawman in Attachment A).

In the Yuba Subbasins GSP, Local Management Levels are locally defined, non-regulatory management triggers that are separate from, and generally set above, the Sustainable

Groundwater Management Act (SGMA) MT. Yuba characterized LMLs as the lowest groundwater levels that are locally preferred for management purposes, while recognizing that groundwater levels below an LML may not necessarily constitute significant and unreasonable conditions under SGMA. In other words, the LML does not define an undesirable result; instead, it serves as an earlier warning point intended to prompt evaluation and adaptive management before groundwater levels decline to the regulatory MT.

Yuba's LML approach appears to have been motivated primarily by local groundwater management considerations, including the desire to provide an early management trigger in a conjunctively managed basin and to account for shallow domestic well vulnerability. If groundwater levels approach or fall below an LML, the Yuba GSP does not require a fixed automatic response. Instead, it establishes a response framework in which the condition is flagged, the cause is investigated, the advisory committee is consulted, and the GSAs determine appropriate follow-up actions. These actions may include increased monitoring, coordination with local agencies or water managers, additional study, alternate water supplies, recharge, or localized management changes.

For the Vina Subbasin strawman, staff is introducing the LML concept as a possible way to more clearly define adaptive management under different observed groundwater level conditions, particularly in areas where stakeholders have raised concerns regarding groundwater dependent ecosystems (GDEs). Under this concept, LMLs could provide a local warning trigger without requiring a comprehensive revision to the MTs. For example, in GDE-sensitive areas, an LML could be set at a defined level below the MO, such as 10-20 feet below the MO, recognizing that the MO represents the groundwater level condition the GSAs are seeking to maintain over time. Reaching the LML in these areas would not define an undesirable result, but it would trigger investigation, monitoring, evaluation, and consideration of appropriate adaptive management actions already in the GSP and as directed by the GSA Boards. It should be noted this would be added as a precautionary adaptive management step, not in response to an observed problem in the subbasin. Current groundwater conditions are above historical lows throughout the subbasin and groundwater level trends in several very shallow wells with historical data show relatively stable conditions over the past 15 or more years.

Matrix of Options and Considerations – Groundwater Level Sustainability Indicator

The GSAs may consider a range of potential approaches for addressing Groundwater Level Recommended Corrective Actions (RCAs) in the Periodic Evaluation. The strawman proposal is a middle of the road option, one of a potential range of options that fall between a "limited change approach" that leaves the monitoring network and Sustainable Management Criteria (SMC) unchanged and a "comprehensive change approach" that broadly revises MTs. The table below is intended to frame the policy and technical tradeoffs for discussion and incorporates both key policy decisions: **1. Whether or not to revise the RMS monitoring network, and 2. Whether or not to make changes to the SMC (MT etc.).**

Table 1. Matrix of Options and Considerations

Approach Option	What it would do	Advantages	Key Considerations
No Monitoring Network or SMC Change ("Option 3" on December 10, 2025 Board agenda).	Retain the 2022 GSP groundwater level RMS network and SMC with limited narrative updates; document new information and continue monitoring. Quantify/describe impacts to domestic wells, and other beneficial uses/users including small water systems. Explain how the current network is limited in representing groundwater conditions relative to GDEs (includes only two shallow wells).	Maintains the 2022 GSP approach and avoids reopening technical and policy decisions. Lowest near-term effort.	May not adequately address DWR RCA 3. Does not resolve Butte County staff analysis that some 2022 GSP RMS wells have data quality concerns (specifically, wells with numerous questionable measurements), are located outside of the subbasin, or have limitations in how accurately the well represents conditions in the polygon. This Option may be viewed as insufficient by DWR. Does not take into consideration stakeholders' input and concerns about potential impacts to domestic wells and GDEs.
Targeted Refinement Approach (Strawman Proposal, see Attachment A)	Make strategic RMS network updates; assign MTs and MOs to new RMS wells using the 2022 GSP comparable methodology; quantify domestic well impacts by proposed RMS polygon; adjust impact analysis by explicitly adjusting for ground surface elevation changes across a polygon; and establish a 'Local Management Level' in GDE-sensitive areas to trigger additional evaluation and adaptive management.	Establishes more representative wells and polygons. Addresses key components of DWR RCA 3 while maintaining continuity with the adopted GSP. Provides a concrete response to GDE concerns without revisiting basin-wide MTs. Creates an early-warning management tool tied to the MO. LML could be defined and clarified to remove the threat of it being a new regulatory hook.	Approach does take into consideration some stakeholders' concerns regarding potential impacts to domestic wells and GDEs by identifying triggers for further evaluation, although some stakeholders may maintain that this option doesn't go far enough in protecting domestic wells and GDEs. Other stakeholders may be concerned that LMLs could become de facto regulatory thresholds. Could be documented in Periodic Evaluation or the GSP could be amended to reflect changes.

Approach Option	What it would do	Advantages	Key Considerations
Expand the RMS network and change the methodology of setting MTs utilizing approach of neighboring subbasins, which effectively raises MTs ("Option 2" previously discussed conceptually during the Fall 2025 stakeholder meetings)	Make strategic RMS network updates; Revise groundwater level MTs to historical low groundwater elevations minus a 20- to 25-foot buffer, while also updating the RMS network to address concerns regarding potential impacts to domestic wells and potentially GDEs. This is conceptually similar to approaches adopted in neighboring subbasin GSPs (ex. Corning, Colusa, Butte subbasin).	Provides a more protective threshold than the 2022 GSP approach and may better address concerns from domestic well and environmental stakeholders. More reproducible MT method because it is tied to observed historical low conditions with a defined buffer. Helps address differences between adjacent subbasin MTs and alleviates concerns that management of one basin does not impact another.	GSP amendment would be needed. Would represent a significant policy shift from the 2022 GSP and requires amending the GSP. May require substantial technical updates of analyses, descriptions, hydrographs, and technical appendices in the GSP as well as other current potential amendments being considered. Substantially addresses the RCA, but it goes well beyond the requirements of the RCA by changing management approach of the subbasin. Would be opposed by stakeholders who believe the adopted GSP remains appropriate.

Requested Input and Next Steps

This memo and strawman proposal are provided to prompt discussion, stakeholder input, and Board consideration of the groundwater level approach for the Periodic Evaluation and any associated GSP amendments. The strawman proposal approach includes actions to show clear progress by updating the Groundwater Level RMS network, documenting beneficial user impacts, clarifying representativeness and data gaps, and adding a 'Local Management Level' concept for GDE-sensitive areas, while maintaining continuity with the core 2022 GSP groundwater level SMC approach.

Stakeholders may wish to consider the following questions as they review the strawman proposal:

- Should Local Management Levels (LML) be used in GDE-sensitive areas, and are 10-20 feet below the MO the appropriate starting point for those local management triggers?
- What additional information, maps, or tables would help stakeholders and the Boards evaluate the tradeoffs?

The Vina Stakeholder Advisory Committee and the Vina GSA and Rock Creek Reclamation District GSA Boards will consider this topic as part of the 2027 Periodic Evaluation process at upcoming meetings in June, July and August.

Comments and questions may be directed to cbuck@buttecounty.ca.gov.

Attachments

A. Groundwater Level Strawman Proposal
B. Stakeholder Feedback received during Fall 2025 Meetings

Attachment A

Groundwater Level Strawman Proposal for Discussion

The following strawman proposal is intended to frame and support discussion and solicit stakeholder input. A 'strawman' proposal is meant to kickstart discussion, identify weaknesses, and generate additional ideas and this is one proposed approach for the 2027 Periodic Evaluation and any associated GSP amendments. It is a starting point and is not written as final GSP or Periodic Evaluation language. The details of this strawman proposal can be explored using this linked dashboard:

Link: 2027 RMS Dashboard

A similar dashboard was originally created by the Agricultural Groundwater Users of Butte County (AGUBC). The Dashboard has been revised and adapted by the Larry Walker Associates team to reflect the strawman proposal described below. It is very useful for exploring the data and visualizing the network and graphs of groundwater level data.

Proposed Groundwater Level Strawman Approach Overview

The strawman proposal is intended to respond to the California Department of Water Resources (DWR) Recommended Corrective Action (RCA) 3 while maintaining continuity with the adopted and DWR-approved 2022 GSP and introducing additional consideration of groundwater dependent ecosystems. It has the following main components:

- Change the Groundwater Level RMS network from 17 wells to 29 wells (keeping 11, removing six, and adding 18) to make the network more representative of conditions relative to beneficial users (domestic wells, and shallow groundwater relevant to potential groundwater dependent ecosystems).
- Consistent with the 2022 GSP approach, assign representative areas to RMS wells using three management areas (North, Chico, South).
- Carry forward adopted 2022 GSP Minimum Threshold (MT), Measurable Objective (MO), and 2027 Interim Milestone (IM) values for RMS wells retained from the 2022 network.
- Assign MT, MO, and 2027 IM values to new RMS wells using a method developed to align the resulting values with the general range and intent of the SMC levels established in the 2022 GSP.
- Quantify domestic well sensitivity at the MT by polygon, management area, and Subbasin total, including results with and without a ground-surface-elevation adjustment.
- Introduce the concept of developing a Local Management Level (LML) of 10-20 feet below the existing MO in Groundwater Dependent Ecosystem (GDE) sensitive areas as local adaptive management trigger to create the option of developing early actions the GSAs may take if conditions reach the LML before an exceedance of the MT.

1. Proposed 2027 Groundwater Level RMS Network

The proposed 2027 Groundwater Level RMS network would change the Groundwater Level RMS network from 17 wells to 29 RMS well across representative polygons defined in the Vina

North and Vina South Management Areas. This would retain 11 wells from the 2022 network, remove six wells, and add 18. Consistent with the 2022 GSP approach, the proposed strawman would use a polygon approach within Vina Subbasin Management Areas. Under this method, the Vina North Management Area includes 13 RMS (and associated polygons), the Vina Chico Management Area is one integrated management area polygon with four California Water Service-Chico (Cal Water) wells serving as the RMS (consistent with the 2022 GSP), and the Vina South Management Area includes 12 RMS (and associated polygons).

The single polygon approach in the Vina Chico management area recognizes that Chico is served by a municipal water supplier, Cal Water, and can be represented as one area. This is consistent with the approach taken in the 2022 GSP.

Table 1 summarizes proposed 2027 RMS wells and representative polygons in each management area. Table 2 (at the end of the document) lists the specific RMS wells and their characteristics (well name, location, well depth, screening intervals).

Table 1. Summary of Proposed 2027 groundwater level RMS network

Management area / network	RMS polygons	RMS Well Count	Notes
North	13	13	Includes three RMS wells physically located in Chico but assigned to the North network; their representative polygons are clipped to the North.
Chico	1	4	Four Cal Water wells (same as in 2022 GSP), with removal of well 28J003 (due to age of well which shows evidence of actively caving in). Management area treated as a whole (no polygons)
South	12	12	Twelve RMS wells in the South Management Area for SMC evaluation.
Subbasin total	26	29	Method for strawman SMC and domestic-well impact tables.

2. Assign Comparable 2022 SMC for New RMS Wells

The SMC are assigned to the proposed 2027 RMS network using two approaches. First, for RMS wells retained from the 2022 GSP, the adopted 2022 GSP MT, MO, and 2027 IM values are carried forward unchanged. Second, for wells that are new to the RMS network, SMC are calculated using a method developed to maintain consistency with the adopted 2022 GSP SMC framework. This method was developed to assign MT, MO, and 2027 IM values that are generally comparable to the range, spacing, and groundwater-level relationships reflected in the adopted 2022 GSP SMC.

Under this comparability method, the average spring groundwater level (ASGWL) is calculated for each well as the mean of groundwater elevation measurements in February, March, and April, excluding questionable measurements, across the available DWR record. For each management area, the average offset between the ASGWL and the adopted 2022 GSP MT, MO, and 2027 IM values is calculated using retained 2022 RMS benchmark wells. These management-area offsets are then applied to each new 2027 RMS well based on its assigned representative area within the RMS network, such as the north or south area, rather than solely on the well's physical location. This approach is intended to provide internally consistent SMC

values for newly added RMS wells while maintaining continuity with the adopted 2022 GSP framework.

Table 3 lists the proposed MT, MO and IM for each RMS well based on the methodology described above.

3. Domestic Well Impact Evaluation

DWR RCA 3 asks the GSAs to "quantify domestic wells that will be impacted by the proposed minimum threshold…and evaluate impacts of proposed minimum thresholds on other beneficial uses and users, such as public and small water systems and environmental uses and users." The following updates will be made to the domestic well impact assessment using the proposed 2027 RMS network. Results are presented by RMS polygon, by Management Area, and as a Subbasin total.

The domestic well count is strictly presented as a sensitivity analysis at a hypothetical at-MT condition the basin has never reached and not as a forecast of future dry wells. Groundwater conditions are currently on average about 71 feet above MT levels (according to the 2025 Annual Report). The analysis estimates how many domestic wells would have well-bottom elevations above the applicable MT under the hypothetical at-MT condition if groundwater levels were at the MT level in each polygon. Given all other SMC criteria (established MOs and IMs), it should be noted that it is not the intent of the GSAs to manage groundwater levels to MT conditions. On the contrary, the GSAs will manage groundwater levels to the MOs, which are well above the MTs. It should also be noted that groundwater levels do not decline uniformly across the basin (as the analysis suggests), and thus most wells identified in the sensitivity analysis would not necessarily require mitigation.

Table 4 shows domestic well counts with and without a ground-surface-elevation adjustment. Without the adjustment, a domestic well is counted if its well-bottom elevation is above the applicable polygon Minimum Threshold (MT). With the adjustment, wells located at a higher ground surface elevation than the Representative Monitoring Site (RMS) well are evaluated using an adjusted MT that accounts for that elevation difference; wells located lower than the RMS well are not adjusted downward.

This approach helps account for higher-elevation areas, including the eastern edge and foothill-transition areas, where a lower-elevation RMS well may not fully represent local conditions. Table 4 summarizes results by RMS polygon, management area, and Subbasin total. Figure 1 shows the proposed 2027 RMS polygons, domestic well counts, and wells above the MT using the elevation-adjusted method.

4. Public Water Systems, Small Water Systems, and Other Beneficial Users

The DWR RCA also states that the PE should describe how groundwater level SMC relate to public water systems and small water systems. Where possible, small water systems will be identified, mapped and compared to MTs to assess impacts. This information will be included in the Periodic Evaluation.

5. Environmental Users and GDE-Sensitive Local Management Levels

The GDE Technical Study provides a new foundation for considering environmental users than was available during development of the 2022 GSP. The study identified likely GDEs under typical spring conditions, documented that likely GDEs are concentrated in the northwestern

portion of the Subbasin, and found that groundwater connectivity throughout the Subbasin varies significantly by season and drought condition. It is worth noting that some stakeholders have called into question several aspects of the study's conclusions, specifically expressing concern with the magnitude of reduction and spatial distribution of reclassified GDES that exclude GDE sites and species. Other stakeholder comments expressed concern that the study was overly inclusive and inflated potential impacts to GDEs.

All parties agree uncertainty remains in characterizing the dependency of deep-rooted vegetation (such as Valley Oaks) on regional groundwater. The varied stakeholder response to this uncertainty ranges from a precautionary approach to a "monitor, investigate and adapt" approach. In the Vina subbasin, the risk to vegetative health of groundwater level declines in identified shallow monitoring wells is not well understood or established. This is due to historically limited shallow groundwater data, but also the lack of baseline vegetation health data. Questions remain regarding how dependent unirrigated, deep-rooted trees in the Chico urban forest are on shallow groundwater; to the extent they are dependent on shallow groundwater, a key question relevant to the GSAs is to what extent does groundwater pumping driven changes in water levels in the principal aquifer have the potential to impact them verses more localized conditions such as shallow perched water or nearby recharge from creeks or local drainages and changes in water availability driven by drought. There is not sufficient information/data to tease apart causation of vegetation stress due to drought impacts that reduce precipitation derived available soil moisture (an undeniably important source of water for unirrigated vegetation) and declines in groundwater levels that also occur during dry years. Management of groundwater needs to consider these complicating factors, and fortunately in the Vina subbasin management is not responding to observed negative impacts to unirrigated/native vegetation, but is seeking to put appropriate monitoring in place so that if observed conditions change driven by future pumping and/or hydrologic conditions, these relationships are better understood and appropriate adaptive management activities can occur.

Therefore, in areas identified by the GDE Technical Study as likely GDE areas or areas where shallow groundwater conditions may be important to GDE health, the GSAs could establish a non-regulatory Local Management Level (LML). GDE-sensitive areas where additional local management attention may be warranted are identified particularly along the Sacramento River corridor and in the City of Chico area where appropriate. The LML concept would remain a non-regulatory management overlay rather than a MT or undesirable result criterion. The LML would be set at 10-20 feet below the applicable MO for the relevant RMS well. This is intended to formalize the concept that the Subbasin is intended to be managed toward MOs, not allowed to decline to MTs before management action occurs. The MTs for the five selected RMS wells range from 61 feet to 67 feet below the MOs (9E001, 27L001, 36P001, 20K001, and 32E001).

Five 2027 RMS sites identified as representing regional shallow groundwater conditions and that are located in GDE-sensitive areas are identified on Figure 2. These are the RMS wells that would have identified LMLs since they are appropriate for comparing groundwater conditions to groundwater dependent ecosystem characteristics. It is important to note that other groundwater level RMS wells do not necessarily represent shallow groundwater conditions supporting GDEs and therefore comparing their MTs or observed groundwater levels to rooting depths of GDEs is not applicable.

If groundwater levels reach or fall below an LML in a GDE-sensitive area, the GSAs would investigate/evaluate local conditions. Potential actions may include:

- Conducting additional GDE field monitoring, including evaluation of vegetation condition, canopy health, species composition, regeneration, invasive species, and other indicators of ecological condition;

- Evaluating shallow groundwater conditions and available NDVI or other remote-sensing information to determine whether observed changes appear related to groundwater levels, surface water conditions, applied water, land use change, drought, pests, invasive species, or other factors;
- Increasing the frequency of shallow groundwater monitoring in the area, where appropriate;
- More actively pursuing recharge projects in the area to support shallow groundwater conditions, where feasible and consistent with water availability, landowner participation, permitting, and funding;
- Evaluating temporary irrigation or other support for high-priority GDEs during drought, where legally, practically, and financially feasible;
- Coordinating with resource agencies, neighboring subbasins, the City of Chico, landowners, and other affected parties where GDEs, urban canopy, or surface water systems extend beyond a single GSA management decision.

  Figure 2 shows likely GDEs from the GDE Technical Study, RMS wells that are also identified as wells representing shallow groundwater conditions, and proposed LML locations at five RMS wells.

6. Adaptive Management and Future Refinement

The 2022 GSP acknowledges and describes data gaps relevant to the GSAs' management of the subbasin and describes an adaptive management approach. The GSAs would continue to adaptively manage the Subbasin and reconsider aspects of the GSP as needed as additional monitoring data, stakeholder input, regional coordination, and DWR feedback become available. This approach recognizes that the 2027 Periodic Evaluation is an important milestone, but not the final opportunity to refine the GSP. Each 5 year periodic evaluation requires the GSAs to self assess implementation considering current conditions and new information and is an opportunity to respond and revisit plan elements, monitoring, and projects and management actions as needed.

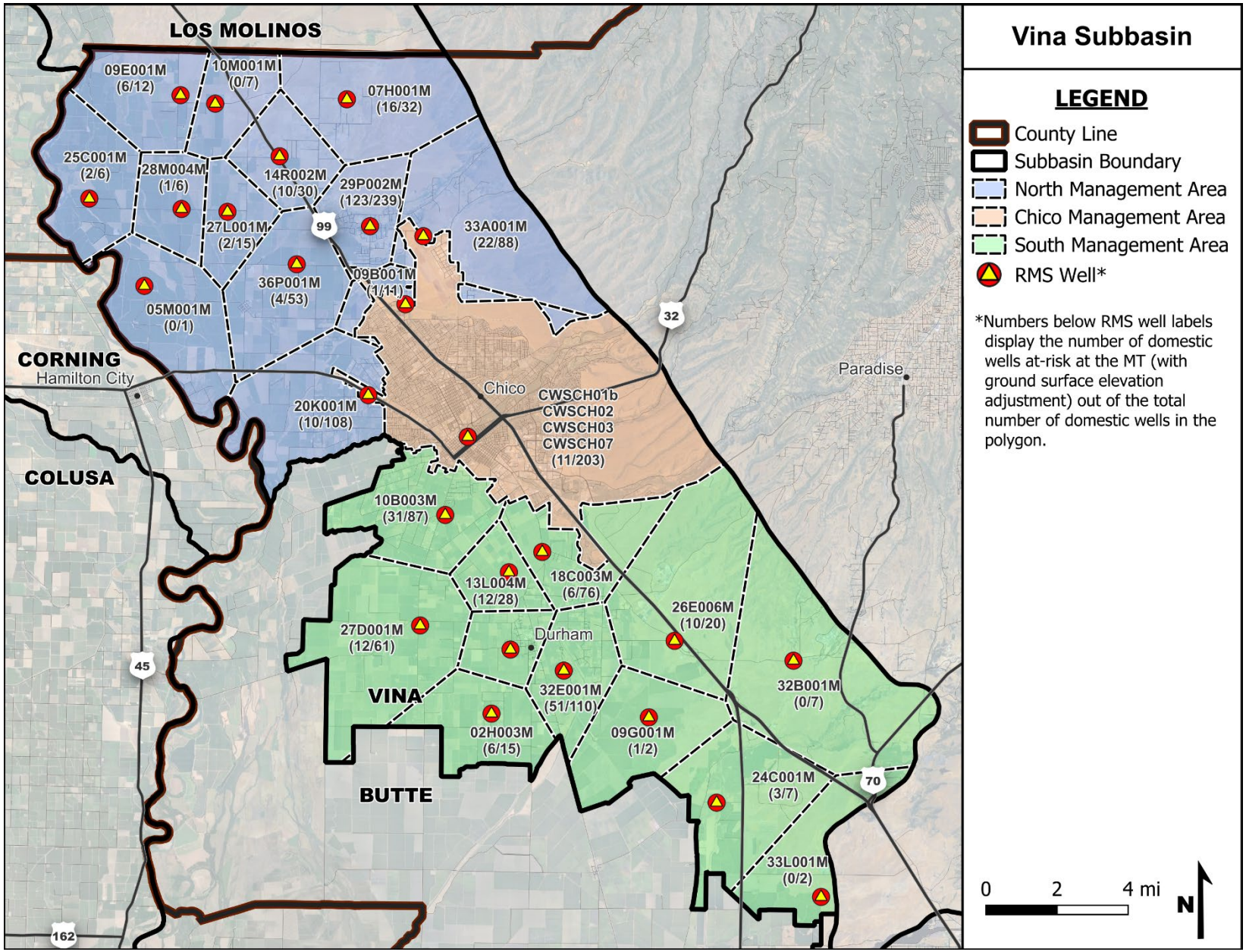


Figure 1. Vina Groundwater Level Monitoring Network RMS wells showing RMS zones, with number of domestic wells with depths above the MT (with ground surface elevation adjustment) and total domestic well count

Table 2. Proposed 2027 RMS wells in Vina Subbasin.

Index	RMS Well	SWN	Site Code	MA	Latitude	Longitude	Well Depth (ft)	Top Perforation (ft amsl)	Bottom Perforation (ft amsl)
1	25C001M	23N02W25C001M	398222N1220401W001	North	39.82220	-122.0401	243		
2	36P001M	23N01W36P001M	397972N1219297W001	North	39.79720	-121.9297	165		
3	05M001M	22N01W05M001M	397871N1220100W001	North	39.78711	-122.0100	200		
4	07H001M	23N01E07H001M	398648N1219049W002	North	39.86482	-121.9049	195	115	195
5	09E001M	23N01W09E001M	398651N1219930W001	North	39.86510	-121.9930	110		
6	28M004M	23N01W28M004M	398188N1219912W003	North	39.81877	-121.9912	207	120	165
7	10M001M	23N01W10M001M	398619N1219746W001	North	39.86194	-121.9746	220	90	200
8	27L001M	23N01W27L001M	398180N1219669W001	North	39.81800	-121.9669	102	65	102
9	14R002M	23N01W14R002M	398411N1219399W001	North	39.84105	-121.9399	183		
10	29P002M	23N01E29P002M	398133N1218913W001	North	39.81332	-121.8913	265		
11	33A001M	23N01E33A001M	398097N1218630W001	North[1]	39.80970	-121.8631	506	53	506
12	20K001M	22N01E20K001M	397445N1218905W001	North[1]	39.74450	-121.8905	110		
13	09B001M	22N01E09B001M	397818N1218718W001	North[1]	39.78180	-121.8718	156	84	156
14	CWSCH01b		397284N1218374W001	Chico	*39.72849*	*-121.8375*	>600		
15	CWSCH02		397284N1218374W002	Chico	*39.72849*	*-121.8375*	>600		
16	CWSCH03		397284N1218374W003	Chico	*39.72849*	*-121.8375*	>600		
17	CWSCH07		397284N1218374W004	Chico	*39.72849*	*-121.8375*	<600		
18	24C001M	20N02E24C001M	395812N1217026W001	South	39.58120	-121.7026	155	124	134
19	18C003M	21N02E18C003M	396820N1217970W003	South	39.68200	-121.7970	240	130	200
20	26E006M	21N02E26E006M	396468N1217263W004	South	39.64680	-121.7263	179	105	150
21	10B003M	21N01E10B003M	396963N1218486W001	South	39.69630	-121.8486	525	320	503
22	27D001M	21N01E27D001M	396511N1218607W001	South	39.65110	-121.8607	112		
23	13L004M	21N01E13L004M	396735N1218144W003	South	39.67348	-121.8144	353	240	340
24	25K001M	21N01E25K001M	396420N1218128W001	South	39.64200	-121.8128	93		
25	02H003M	20N01E02H003M	396158N1218221W001	South	39.61576	-121.8222	201	70	180
26	32E001M	21N02E32E001M	396339N1217845W001	South	39.63383	-121.7845	184	62	92
27	09G001M	20N02E09G001M	396154N1217391W001	South	39.61546	-121.7391	202	130	180

Index	RMS Well	SWN	Site Code	MA	Latitude	Longitude	Well Depth (ft)	Top Perforation (ft amsl)	Bottom Perforation (ft amsl)
28	32B001M	21N03E32B001M	396396N1216634W001	South	39.63958	-121.6634	57	13	57
29	33L001M	20N03E33L001M	395435N1216466W001	South	39.54357	-121.6467	101	13	101

1. RMS well is located in Chico MA but is representative of a portion of North MA.

Table 3. 2027 RMS zones and Sustainable Management Criteria (SMC) (explore on the Dashboard)

Index	RMS Well	MA	MT	MO	IM 2027	SMC Source[2]	Average GWL (ft amsl)	MA Average GWL-MT Difference (ft)	MA Average GWL-MO Difference	MA Average GWL-IM Difference	RMS Polygon Acreage
1	25C001M	North	50	130	130	2022 GSP					5,850
2	36P001M	North	45	108	110	2022 GSP					7,088
3	05M001M	North	31	115	116	2022 GSP					7,541
4	07H001M	North	72	136	140	2022 GSP					8,272
5	09E001M	North	68	135	136	Comparable	159	91	24	22	5,311
6	28M004M	North	51	118	120	Comparable	142	91	24	22	3,359
7	10M001M	North	71	138	140	Comparable	162	91	24	22	3,522
8	27L001M	North	55	121	123	Comparable	146	91	24	22	3,166
9	14R002M	North	66	132	134	Comparable	157	91	24	22	3,975
10	29P002M	North	61	127	129	Comparable	152	91	24	22	3,896
11	33A001M	North[1]	72	125	128	2022 GSP					9,963
12	20K001M	North[1]	48	115	117	Comparable	139	91	24	22	8,147
13	09B001M	North[1]	46	113	115	Comparable	137	91	24	22	1,966
14	CWSCH01b	Chico	85	106	107	2022 GSP					29,718
15	CWSCH02	Chico	85	105	108						
16	CWSCH03	Chico	85	108	109						
17	CWSCH07	Chico	85	95	97						
18	24C001M	South	18	77	81	2022 GSP					7,861
19	18C003M	South	65	130	132	2022 GSP					5,244

Index	RMS Well	MA	MT	MO	IM 2027	SMC Source[2]	Average GWL (ft amsl)	MA Average GWL-MT Difference (ft)	MA Average GWL-MO Difference	MA Average GWL-IM Difference	RMS Polygon Acreage
20	26E006M[3]	South	36	95	97	2022 GSP[3]					11,480
21	10B003M	South	10	64	67	Comparable	102	92	30	28	6,650
22	27D001M	South	23	84	87	Comparable	115	92	30	28	10,825
23	13L004M	South	21	82	85	Comparable	113	92	30	28	2,713
24	25K001M	South	21	83	85	Comparable	113	92	30	28	2,748
25	02H003M	South	11	73	75	Comparable	103	92	30	28	5,200
26	32E001M	South	30	91	93	Comparable	122	92	30	28	4,534
27	09G001M	South	25	87	89	Comparable	117	92	30	28	6,521
28	32B001M	South	133	195	197	Comparable	225	92	30	28	14,225
29	33L001M	South	26	87	90	Comparable	118	92	30	28	5,186

1. RMS well is located in Chico MA but is representative of a portion of North MA.
2. Wells with source 'Comparable' are calculated by (1) calculating average spring groundwater level, (2) calculating average difference between 2022 RMS wells' average spring groundwater levels and SMCs, and (3) taking the difference between calculations (1) and (2).
3. 2022 GSP had 26E005. 26E006 has been selected to be more representative, but the same 2022 GSP SMC are assigned.

Table 4. Domestic well counts per RMS zone with well depths above the MT for elevation adjusted and not adjusted

Index	RMS Well	MA	MT (ft amsl)	Total Domestic Wells	Domestic Wells above MT (elevation adjusted)	Domestic Wells above MT (no adjustment)	Difference
1	25C001M	North	50	6	2	2	0
2	36P001M	North	45	53	4	9	5
3	05M001M	North	31	1	0	0	0
4	07H001M	North	72	32	16	19	3
5	09E001M	North	68	12	6	6	0
6	28M004M	North	51	6	1	1	0
7	10M001M	North	71	7	0	1	1
8	27L001M	North	55	15	2	2	0
9	14R002M	North	66	30	10	12	2
10	29P002M	North	61	239	123	128	5
11	33A001M	North[1]	72	88	22	56	34
12	20K001M	North[1]	48	108	10	10	0
13	09B001M	North[1]	46	11	1	2	1
14	CWSCH01b	Chico	85	203	11	30	19
15	CWSCH02	Chico					
16	CWSCH03	Chico					
17	CWSCH07	Chico					
18	24C001M	South	18	7	3	4	1
19	18C003M	South	65	76	6	9	3
20	26E006M	South	36	20	10	10	0
21	10B003M	South	10	87	31	32	1
22	27D001M	South	23	61	12	13	1
23	13L004M	South	21	28	12	12	0
24	25K001M	South	21	27	9	10	1
25	02H003M	South	11	15	6	6	0
26	32E001M	South	30	110	51	53	2
27	09G001M	South	25	2	1	1	0
28	32B001M	South	133	7	0	0	0
29	33L001M	South	26	2	0	2	2
Vina North Total				608	197	248	51
Chico Total				203	11	30	19
Vina South Total				442	141	152	11
Subbasin Total				1253	349	430	81

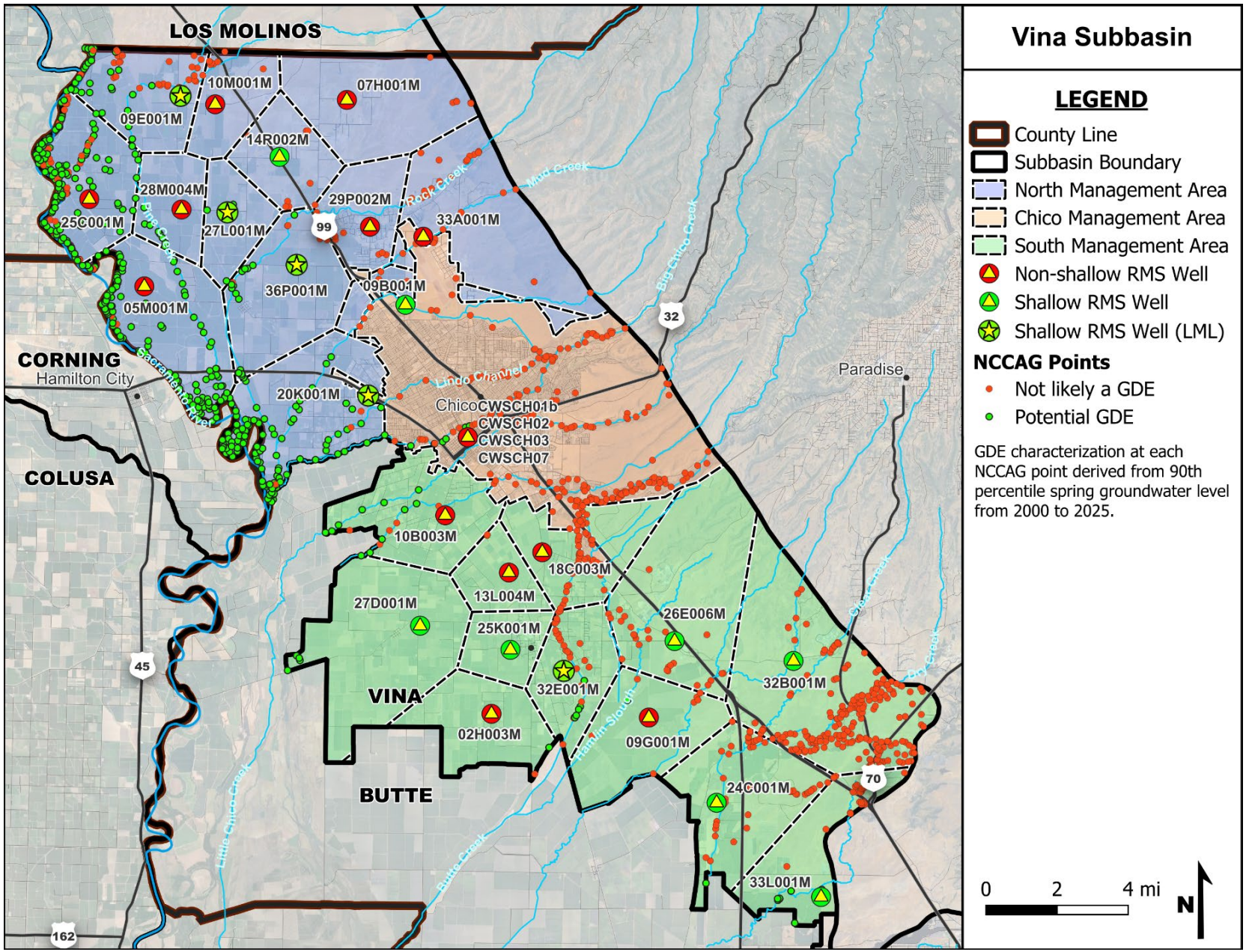
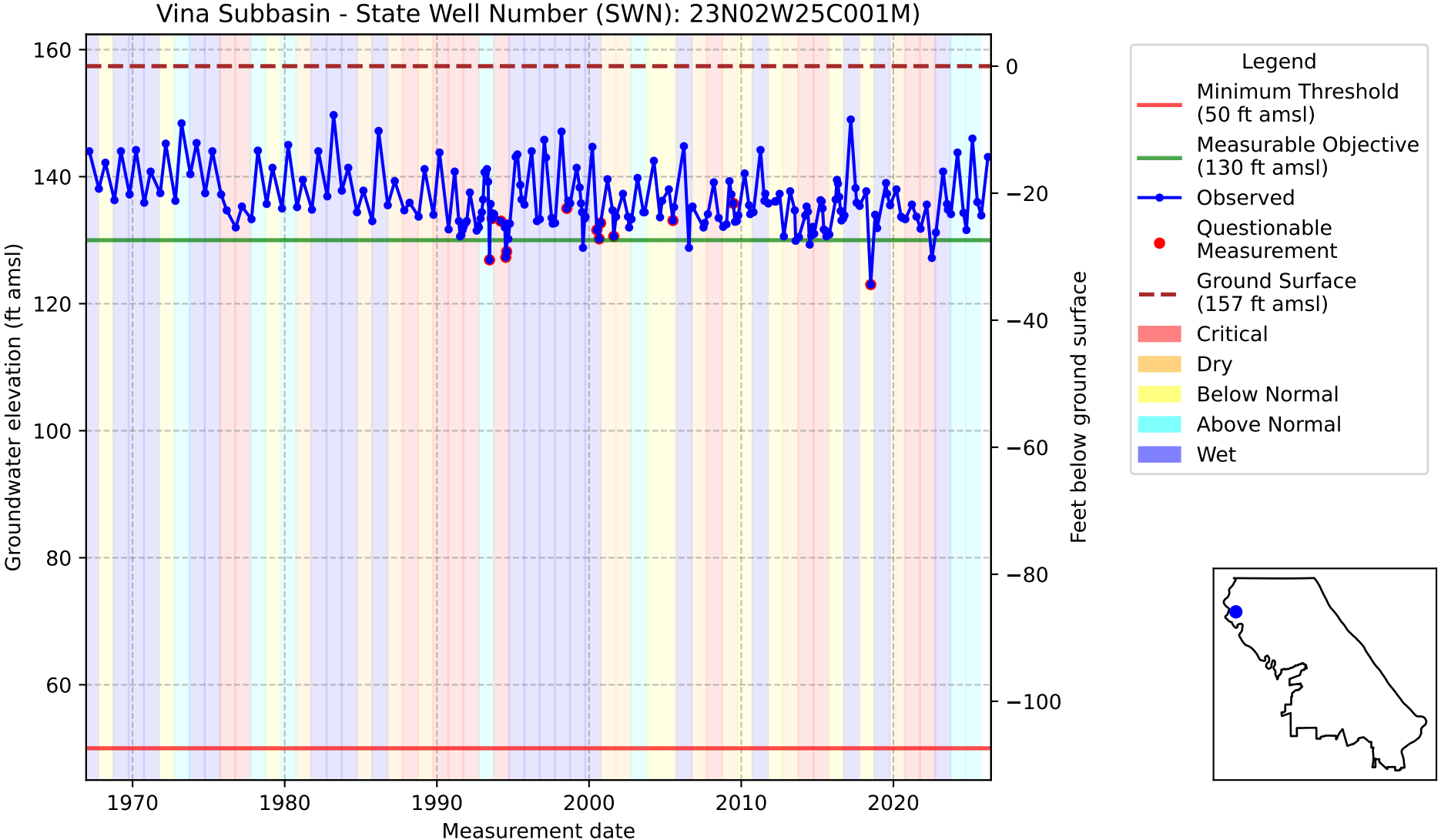
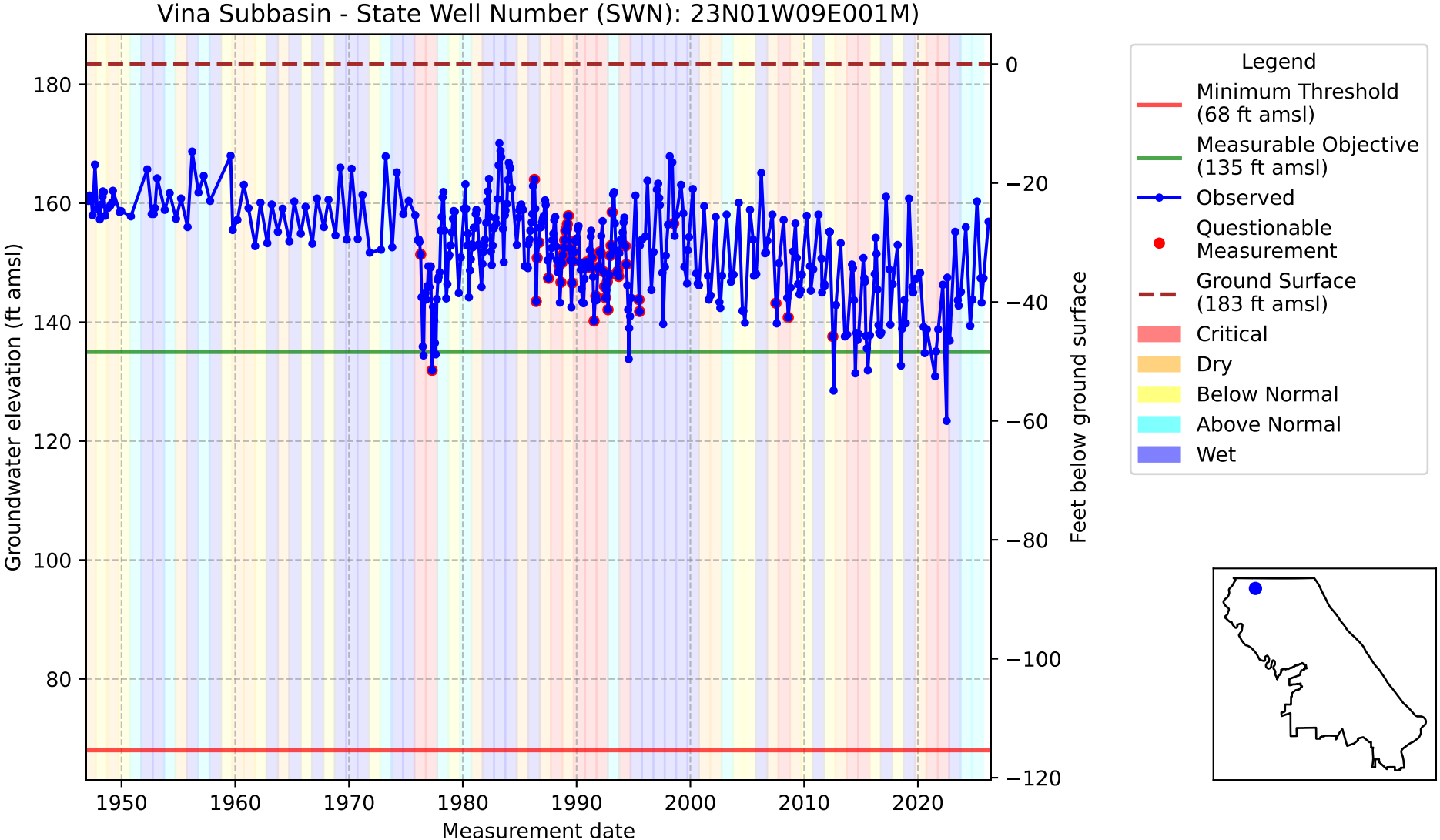
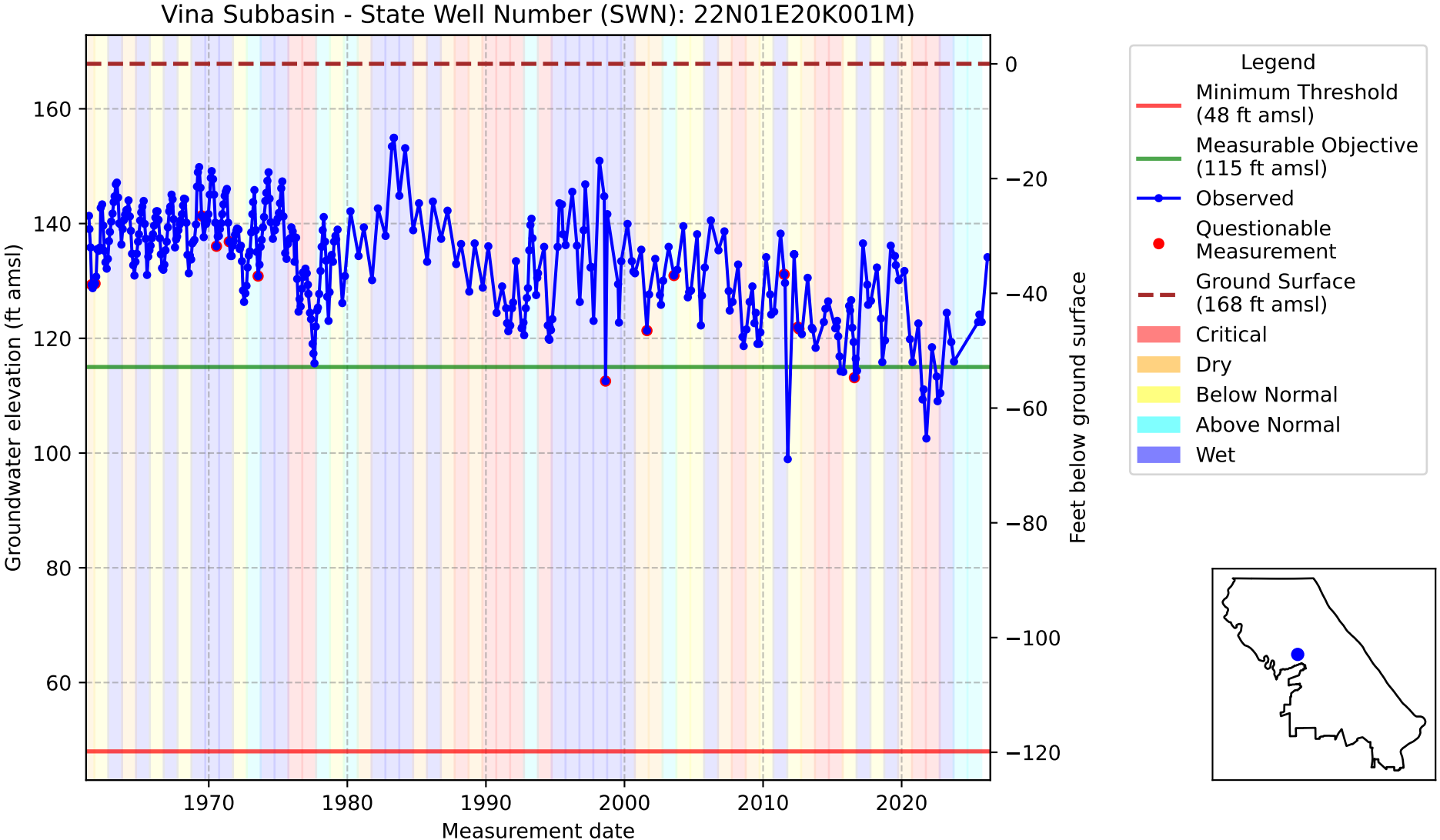


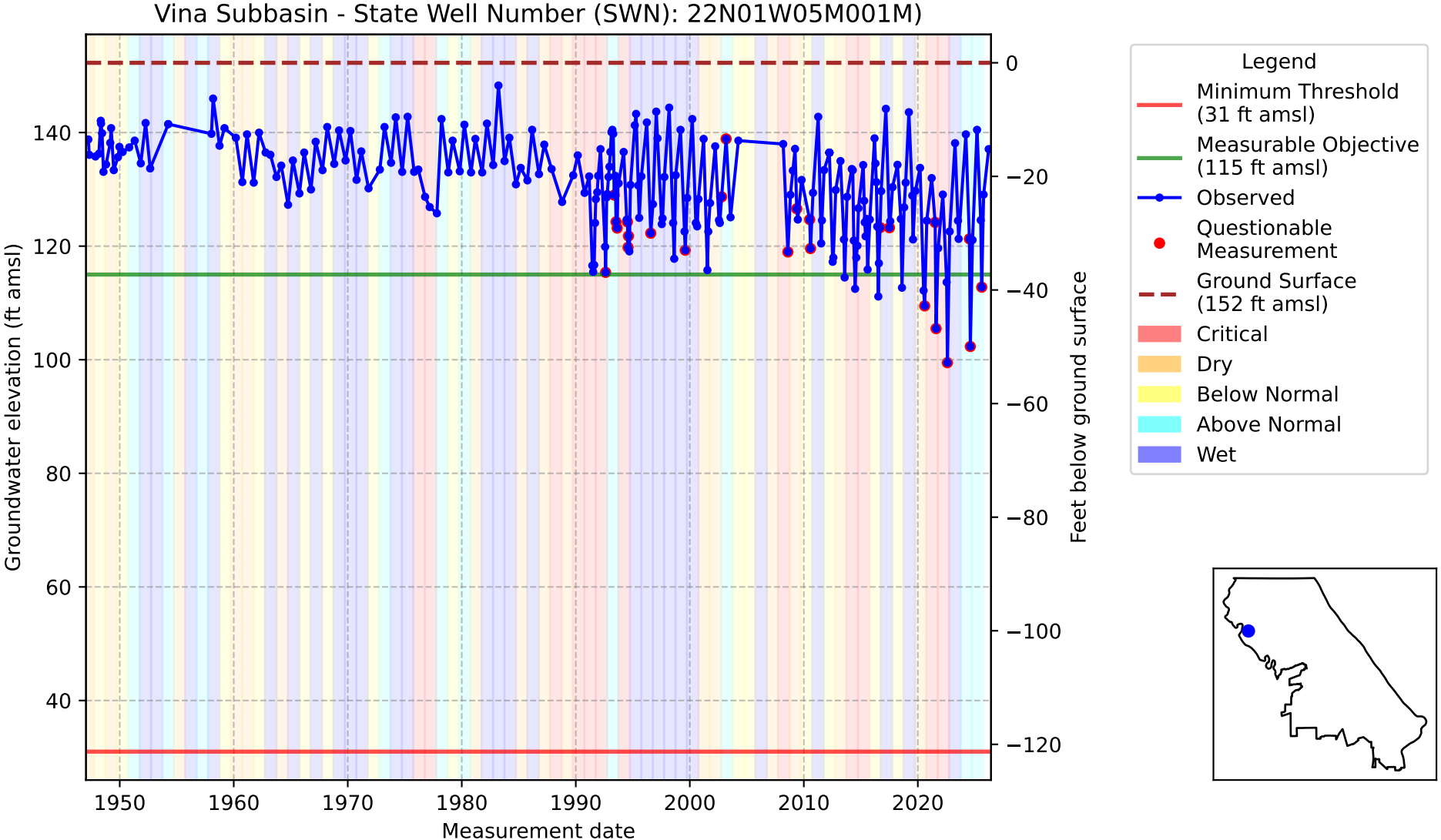
Figure 2. Vina Groundwater Level RMS Monitoring Network showing RMS zones, wells identified as shallow RMS wells, and RMS wells assigned an LML.

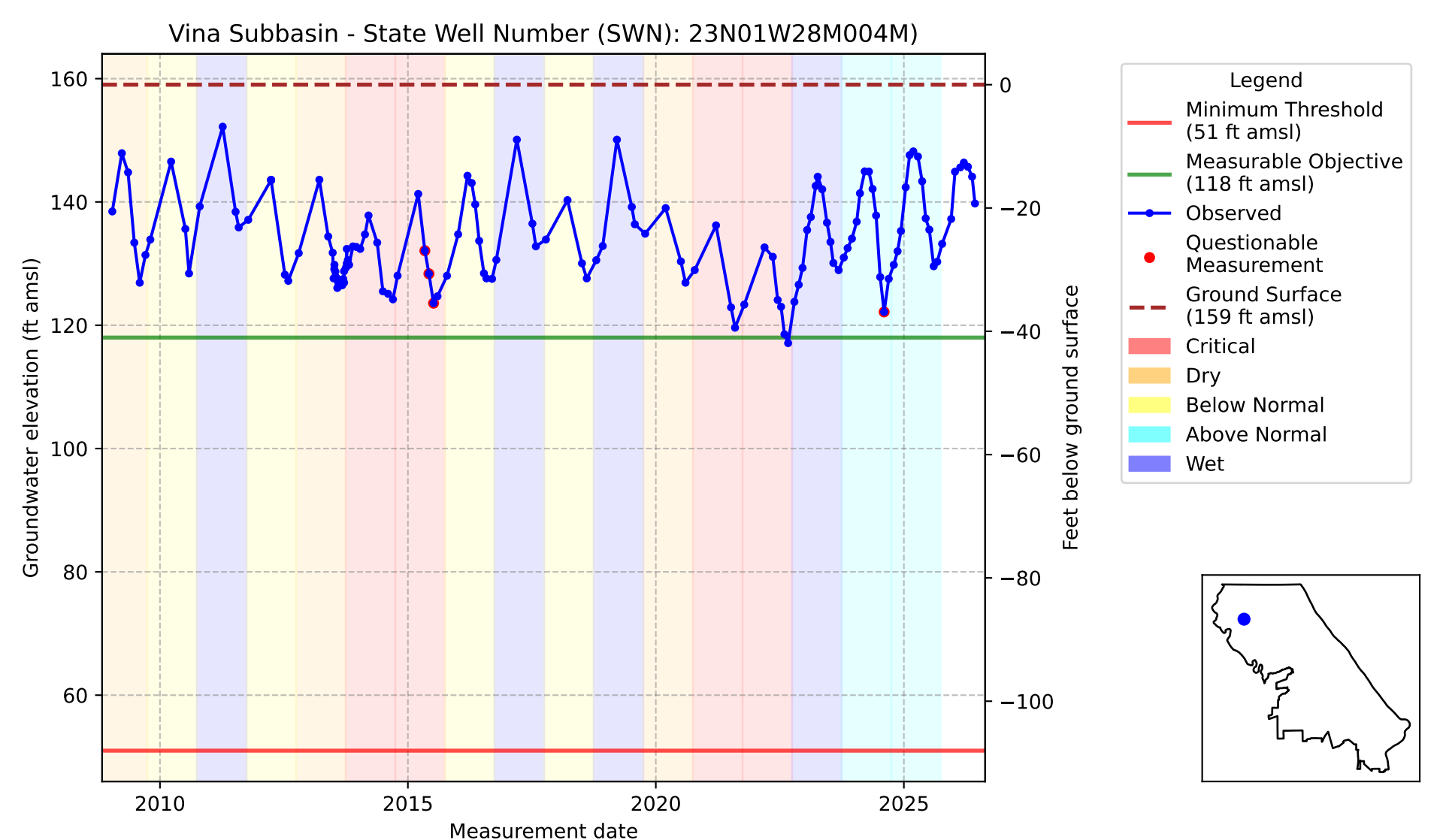
Hydrographs – 2027 RMS Network with 2022 GSP or Comparable MT

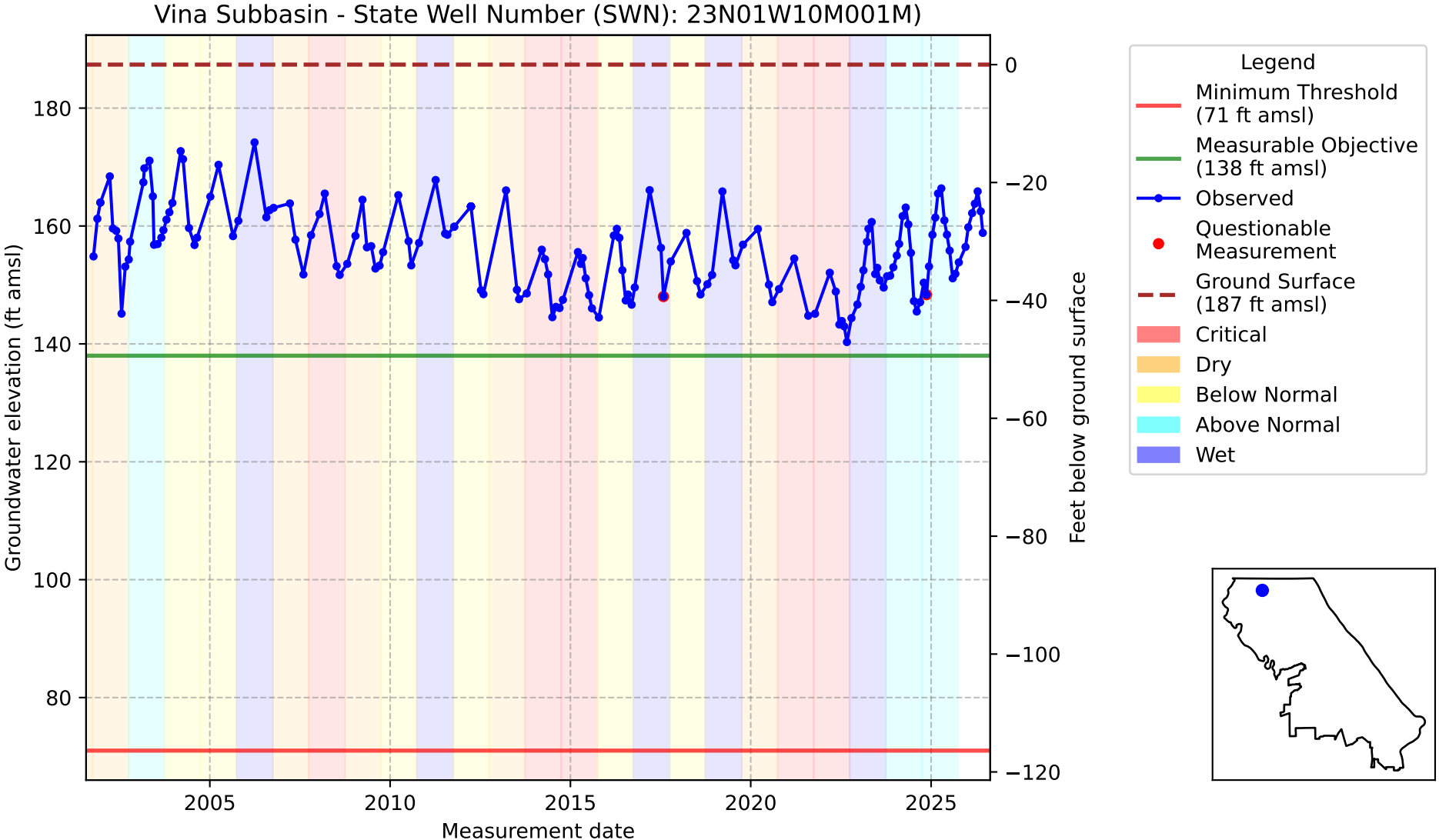

Vina Subbasin - State Well Number (SWN): 23N02W25C001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
140
120
100
80
60
0
−20
−40
−60
−80
−100
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (50 ft amsl)
Measurable Objective (130 ft amsl)
Observed
Questionable Measurement
Ground Surface (157 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

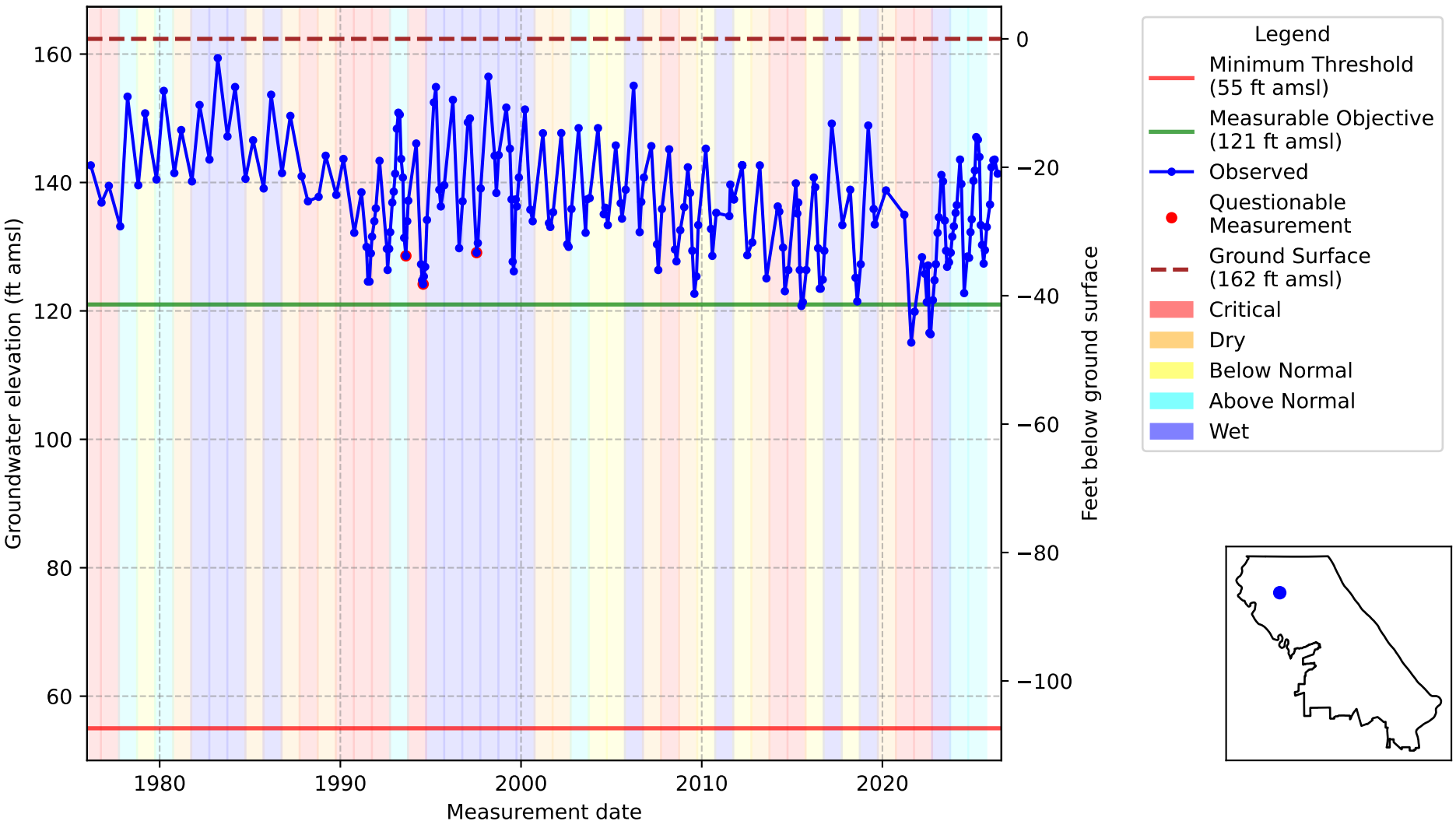

Vina Subbasin - State Well Number (SWN): 23N01W09E001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
180
160
140
120
100
80
0
−20
−40
−60
−80
−100
−120
1950
1960
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (68 ft amsl)
Measurable Objective (135 ft amsl)
Observed
Questionable Measurement
Ground Surface (183 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

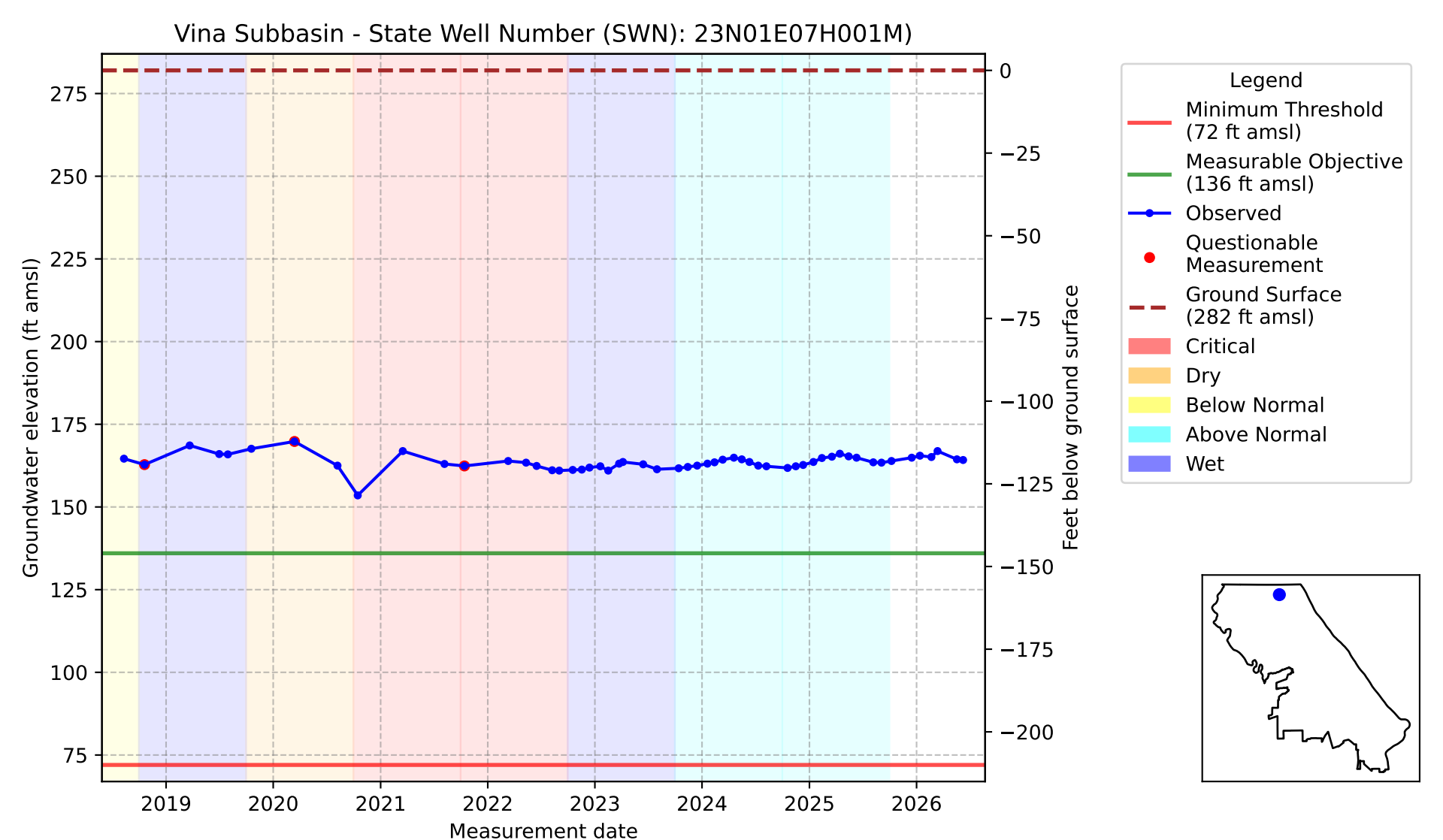

Vina Subbasin - State Well Number (SWN): 22N01E20K001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
140
120
100
80
60
0
−20
−40
−60
−80
−100
−120
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (48 ft amsl)
Measurable Objective (115 ft amsl)
Observed
Questionable Measurement
Ground Surface (168 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

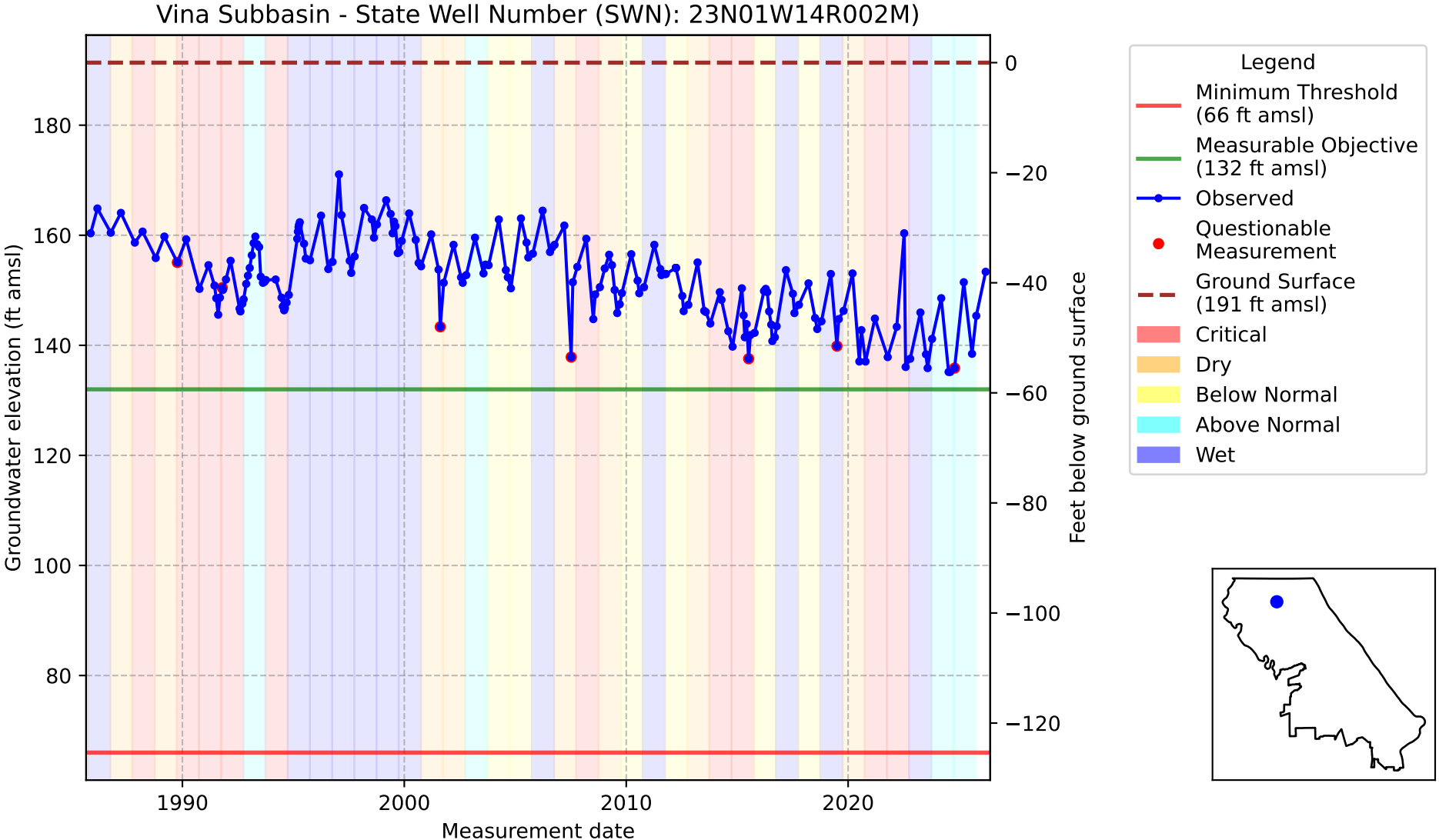

Vina Subbasin - State Well Number (SWN): 22N01W05M001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
140
120
100
80
60
40
0
−20
−40
−60
−80
−100
−120
1950
1960
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (31 ft amsl)
Measurable Objective (115 ft amsl)
Observed
Questionable Measurement
Ground Surface (152 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

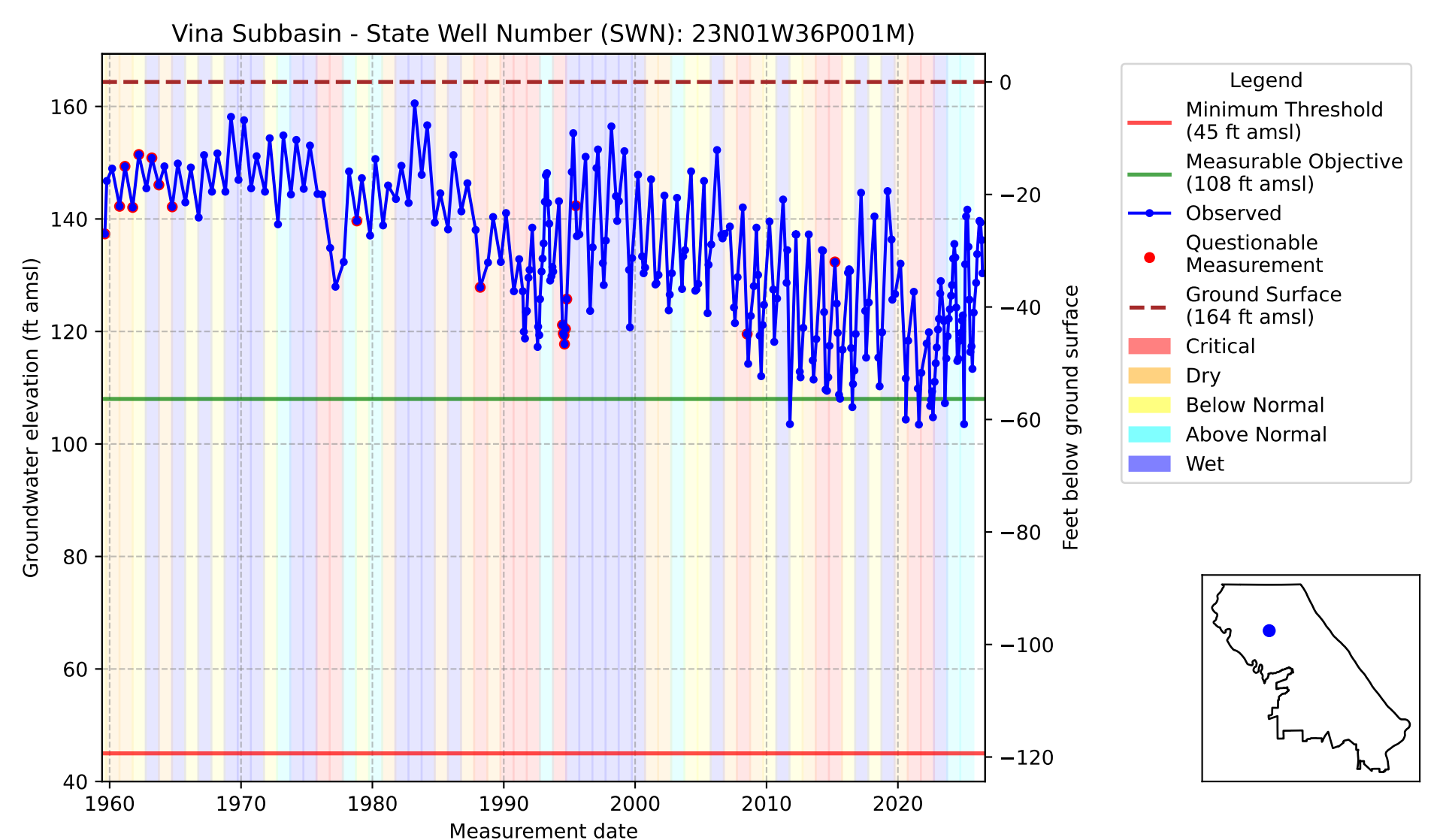

Vina Subbasin - State Well Number (SWN): 23N01W28M004M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
140
120
100
80
60
0
−20
−40
−60
−80
−100
2010
2015
2020
2025
Legend
Minimum Threshold (51 ft amsl)
Measurable Objective (118 ft amsl)
Observed
Questionable Measurement
Ground Surface (159 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

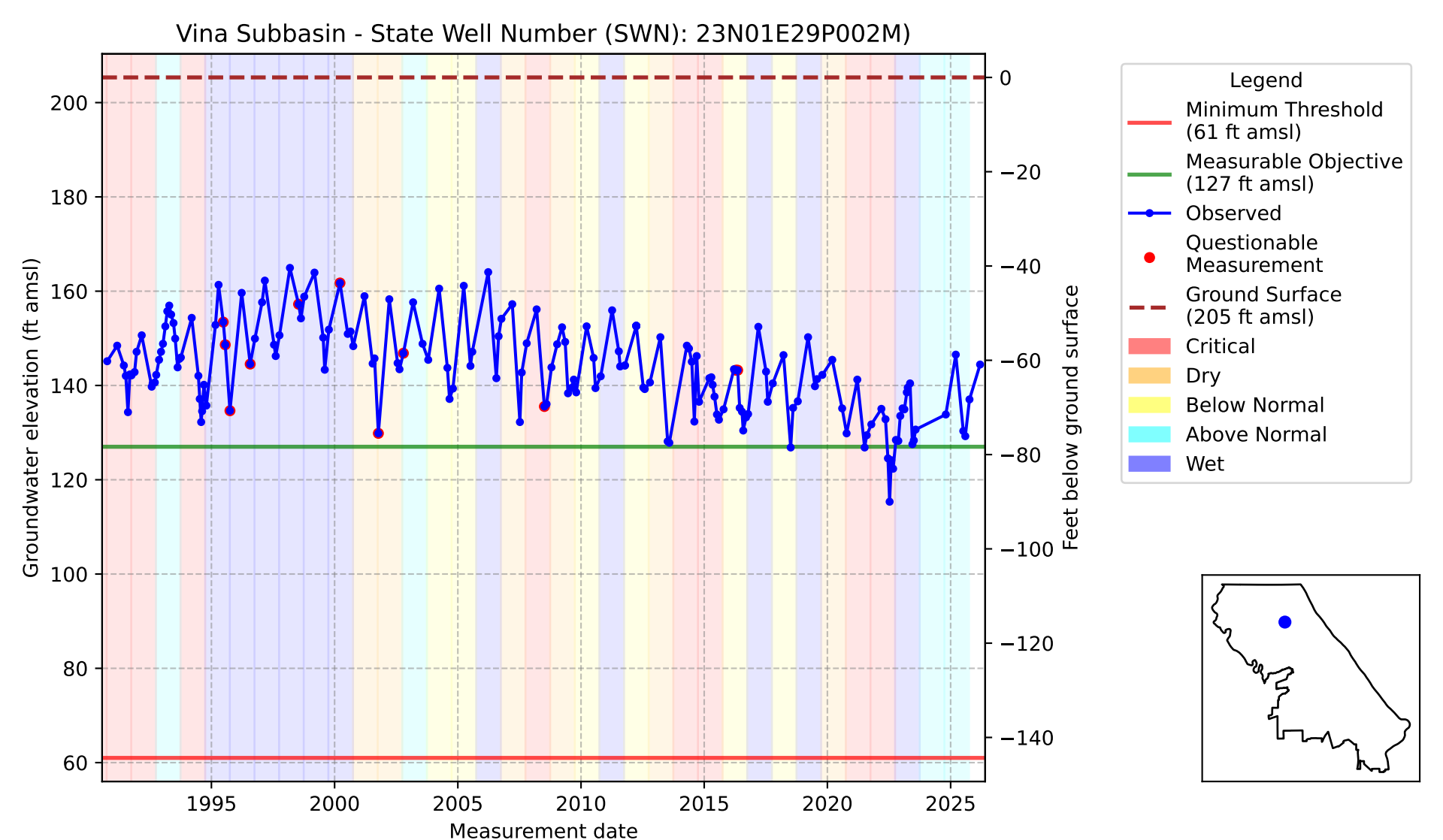

Vina Subbasin - State Well Number (SWN): 23N01W10M001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
180
160
140
120
100
80
0
−20
−40
−60
−80
−100
−120
2005
2010
2015
2020
2025
Legend
Minimum Threshold (71 ft amsl)
Measurable Objective (138 ft amsl)
Observed
Questionable Measurement
Ground Surface (187 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

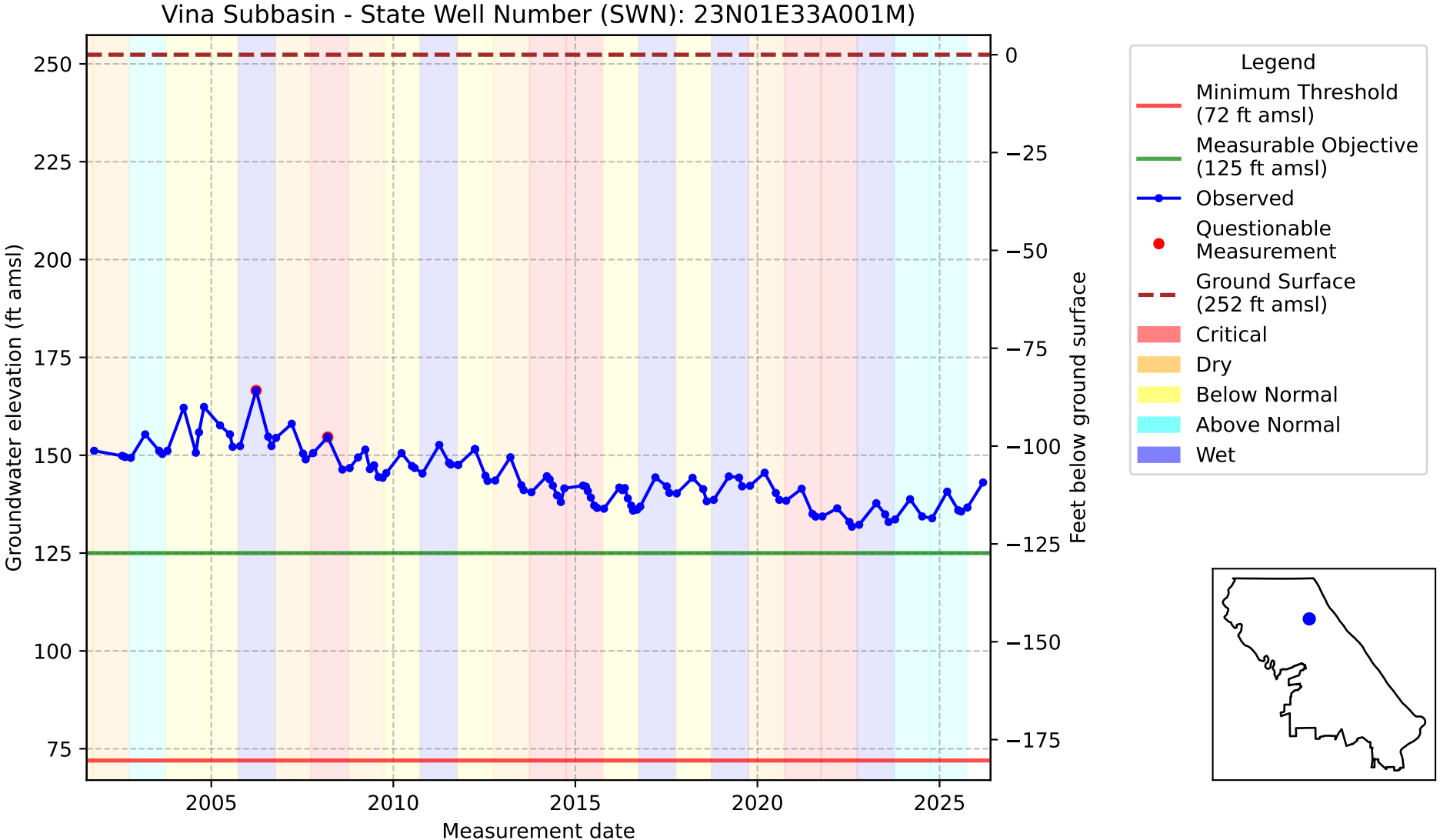

Vina Subbasin - State Well Number (SWN): 23N01W27L001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
140
120
100
80
60
0
−20
−40
−60
−80
−100
1980
1990
2000
2010
2020
Legend
Minimum Threshold (55 ft amsl)
Measurable Objective (121 ft amsl)
Observed
Questionable Measurement
Ground Surface (162 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

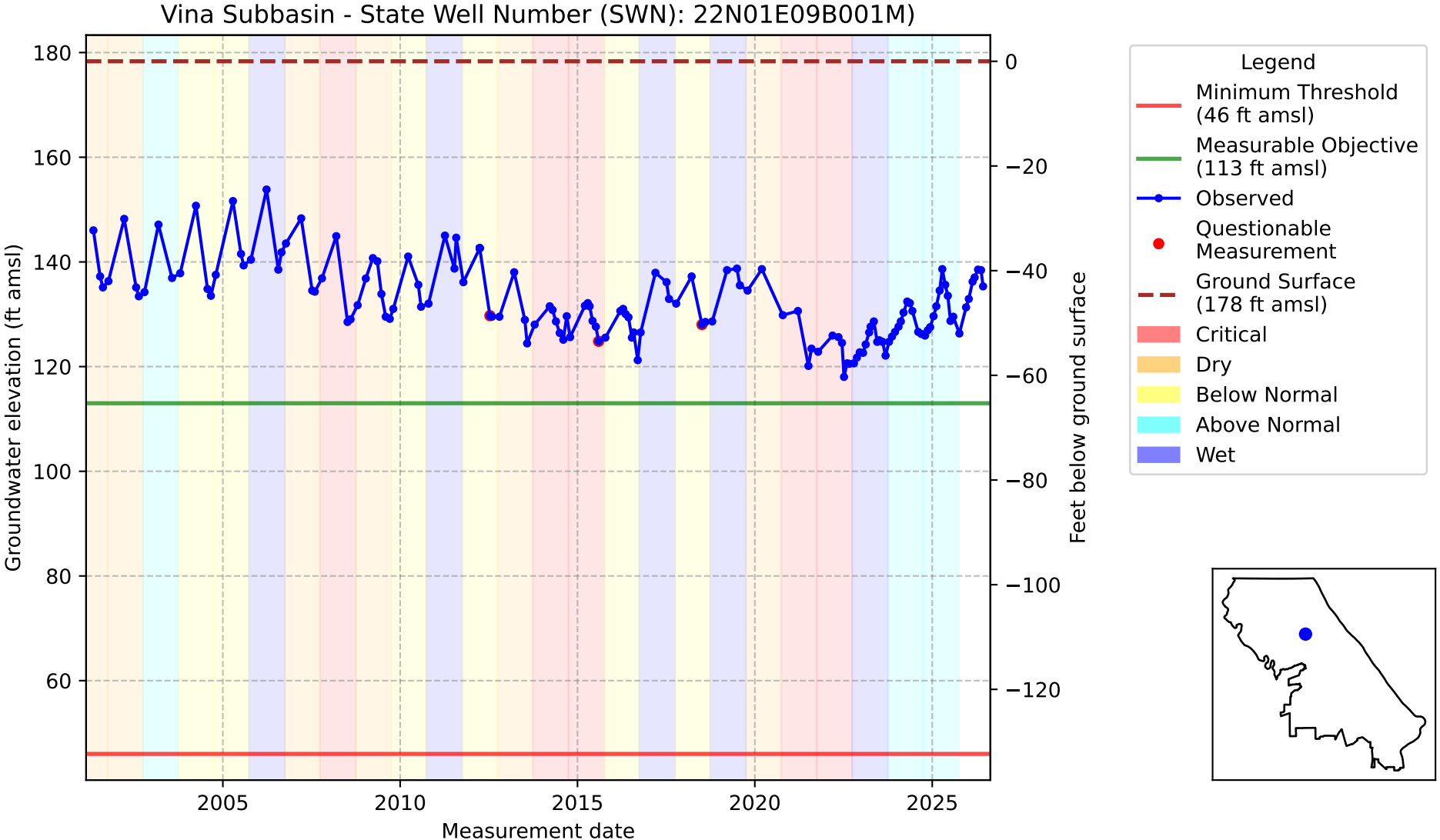

Vina Subbasin - State Well Number (SWN): 23N01E07H001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
275
250
225
200
175
150
125
100
75
0
−25
−50
−75
−100
−125
−150
−175
−200
2019
2020
2021
2022
2023
2024
2025
2026
Legend
Minimum Threshold (72 ft amsl)
Measurable Objective (136 ft amsl)
Observed
Questionable Measurement
Ground Surface (282 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

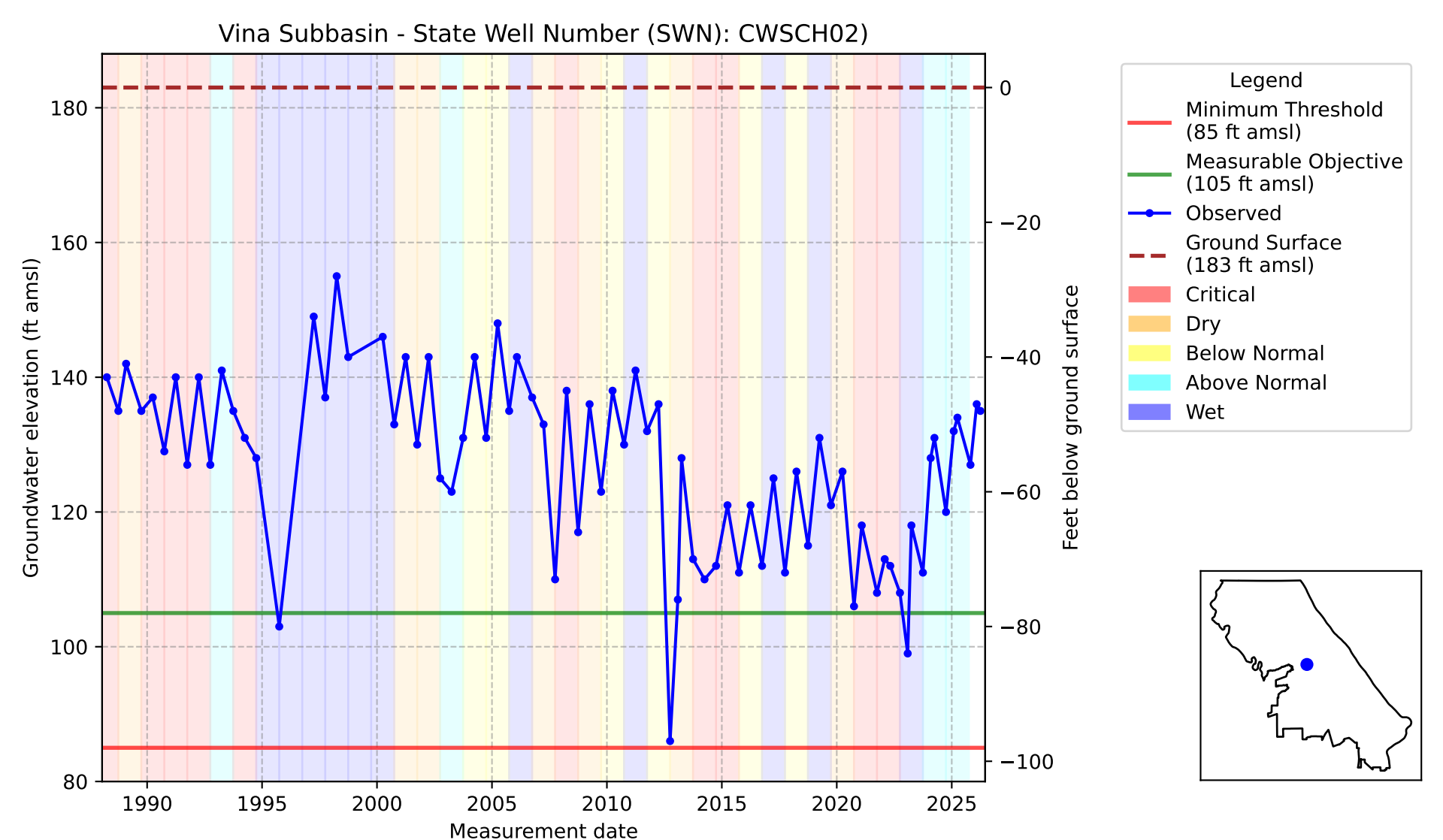

Vina Subbasin - State Well Number (SWN): 23N01W14R002M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
180
160
140
120
100
80
0
−20
−40
−60
−80
−100
−120
1990
2000
2010
2020
Legend
Minimum Threshold (66 ft amsl)
Measurable Objective (132 ft amsl)
Observed
Questionable Measurement
Ground Surface (191 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

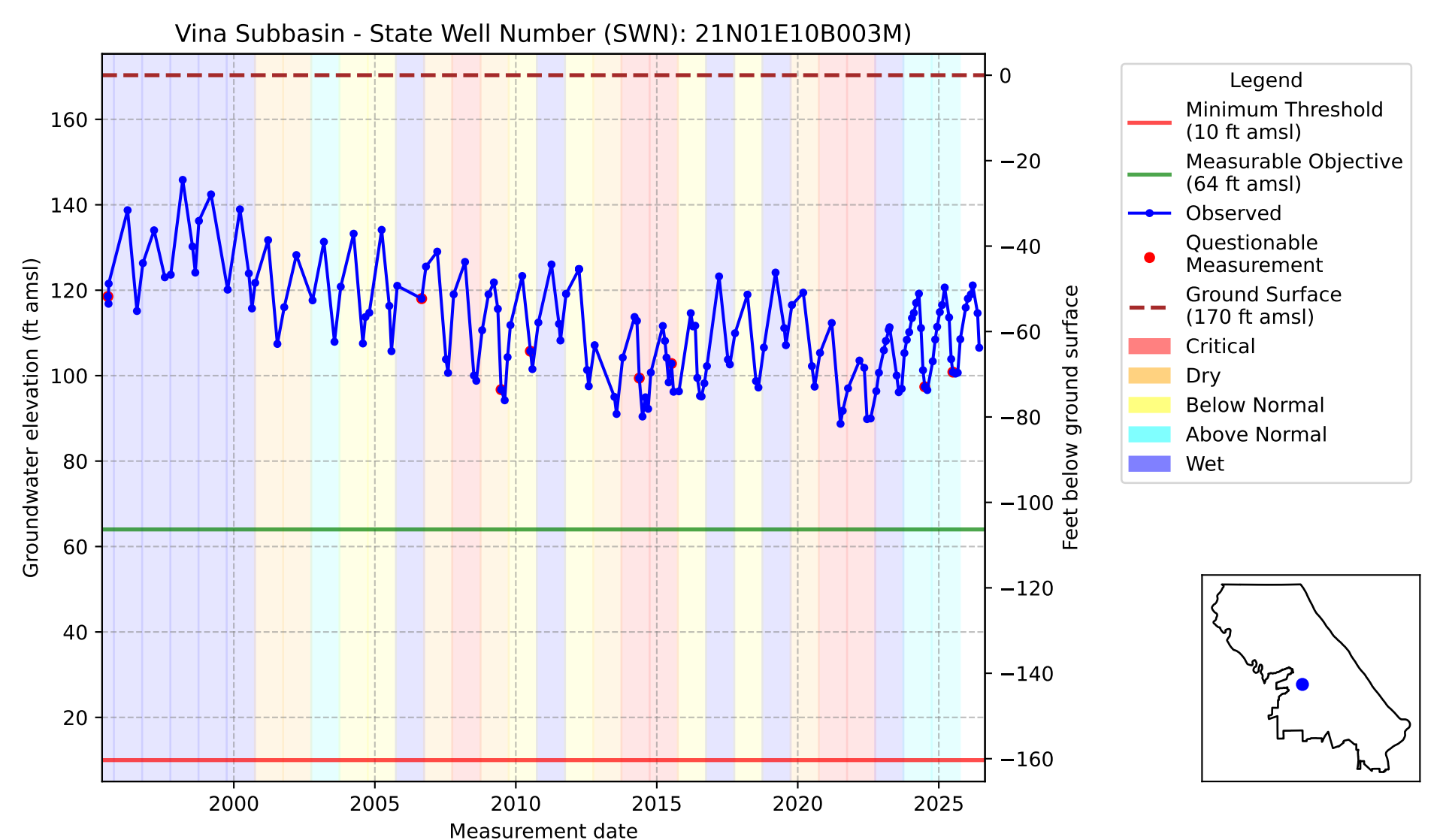

Vina Subbasin - State Well Number (SWN): 23N01W36P001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
140
120
100
80
60
40
0
−20
−40
−60
−80
−100
−120
1960
1970
1980
1990
2000
2010
2020
Legend
Minimum Threshold (45 ft amsl)
Measurable Objective (108 ft amsl)
Observed
Questionable Measurement
Ground Surface (164 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

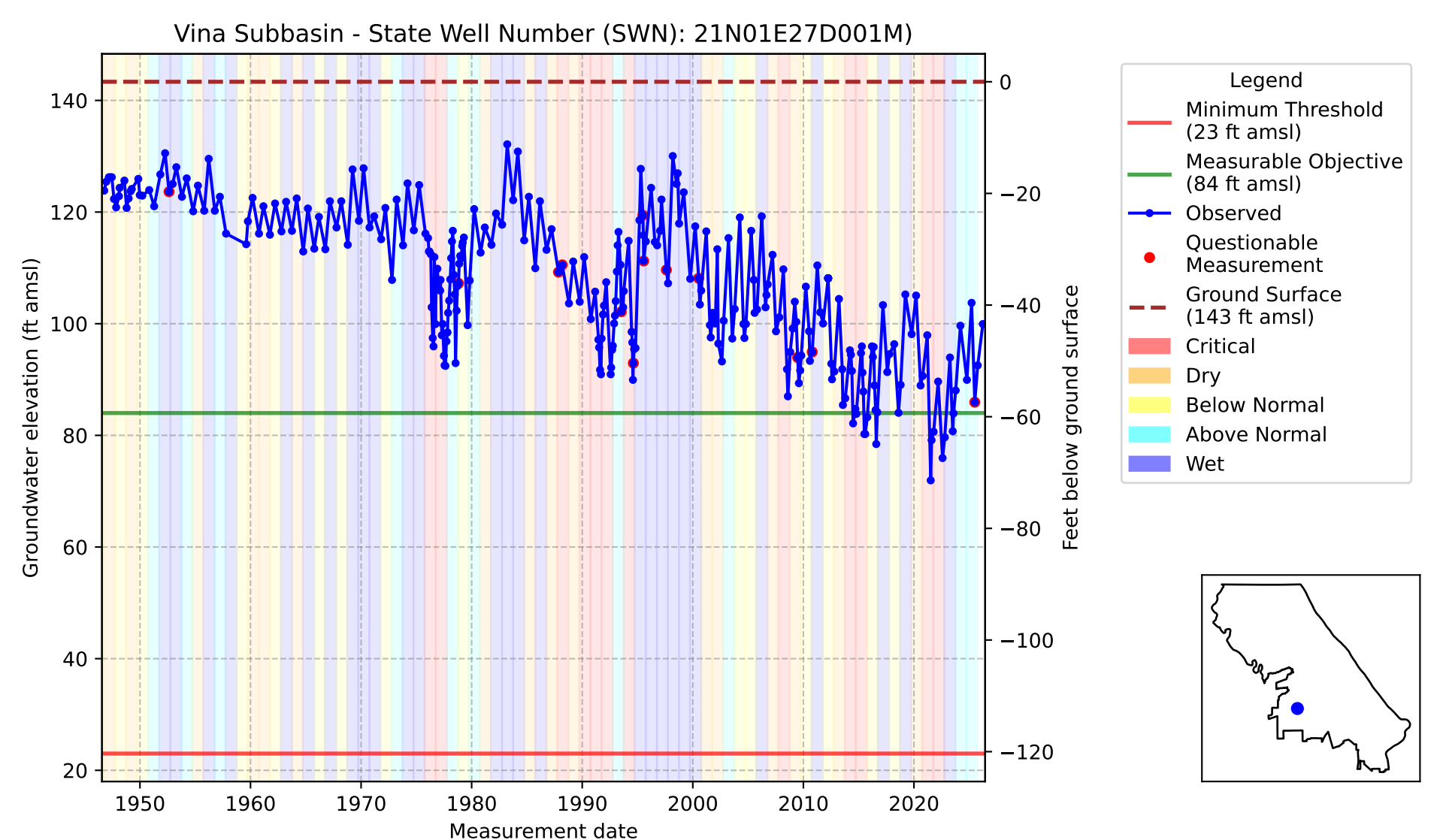

Vina Subbasin - State Well Number (SWN): 23N01E29P002M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
200
180
160
140
120
100
80
60
0
−20
−40
−60
−80
−100
−120
−140
1995
2000
2005
2010
2015
2020
2025
Legend
Minimum Threshold (61 ft amsl)
Measurable Objective (127 ft amsl)
Observed
Questionable Measurement
Ground Surface (205 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Vina Subbasin - State Well Number (SWN): 23N01E33A001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
250
225
200
175
150
125
100
75
0
−25
−50
−75
−100
−125
−150
−175
2005
2010
2015
2020
2025
Legend
Minimum Threshold (72 ft amsl)
Measurable Objective (125 ft amsl)
Observed
Questionable Measurement
Ground Surface (252 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Vina Subbasin - State Well Number (SWN): 22N01E09B001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
180
160
140
120
100
80
60
0
−20
−40
−60
−80
−100
−120
2005
2010
2015
2020
2025
Legend
Minimum Threshold (46 ft amsl)
Measurable Objective (113 ft amsl)
Observed
Questionable Measurement
Ground Surface (178 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Vina Subbasin - State Well Number (SWN): CWSCH02)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
180
160
140
120
100
80
0
−20
−40
−60
−80
−100
1990
1995
2000
2005
2010
2015
2020
2025
Legend
Minimum Threshold (85 ft amsl)
Measurable Objective (105 ft amsl)
Observed
Ground Surface (183 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Vina Subbasin - State Well Number (SWN): 21N01E10B003M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
160
140
120
100
80
60
40
20
0
−20
−40
−60
−80
−100
−120
−140
−160
2000
2005
2010
2015
2020
2025
Legend
Minimum Threshold (10 ft amsl)
Measurable Objective (64 ft amsl)
Observed
Questionable Measurement
Ground Surface (170 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet


Vina Subbasin - State Well Number (SWN): 21N01E27D001M)
Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
140
120
100
80
60
40
20
0
−20
−40
−60
−80
−100
−120
1950
1960
1970
1980
1990
2000
2010
2020
Legend
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Ground Surface (143 ft amsl)
Critical
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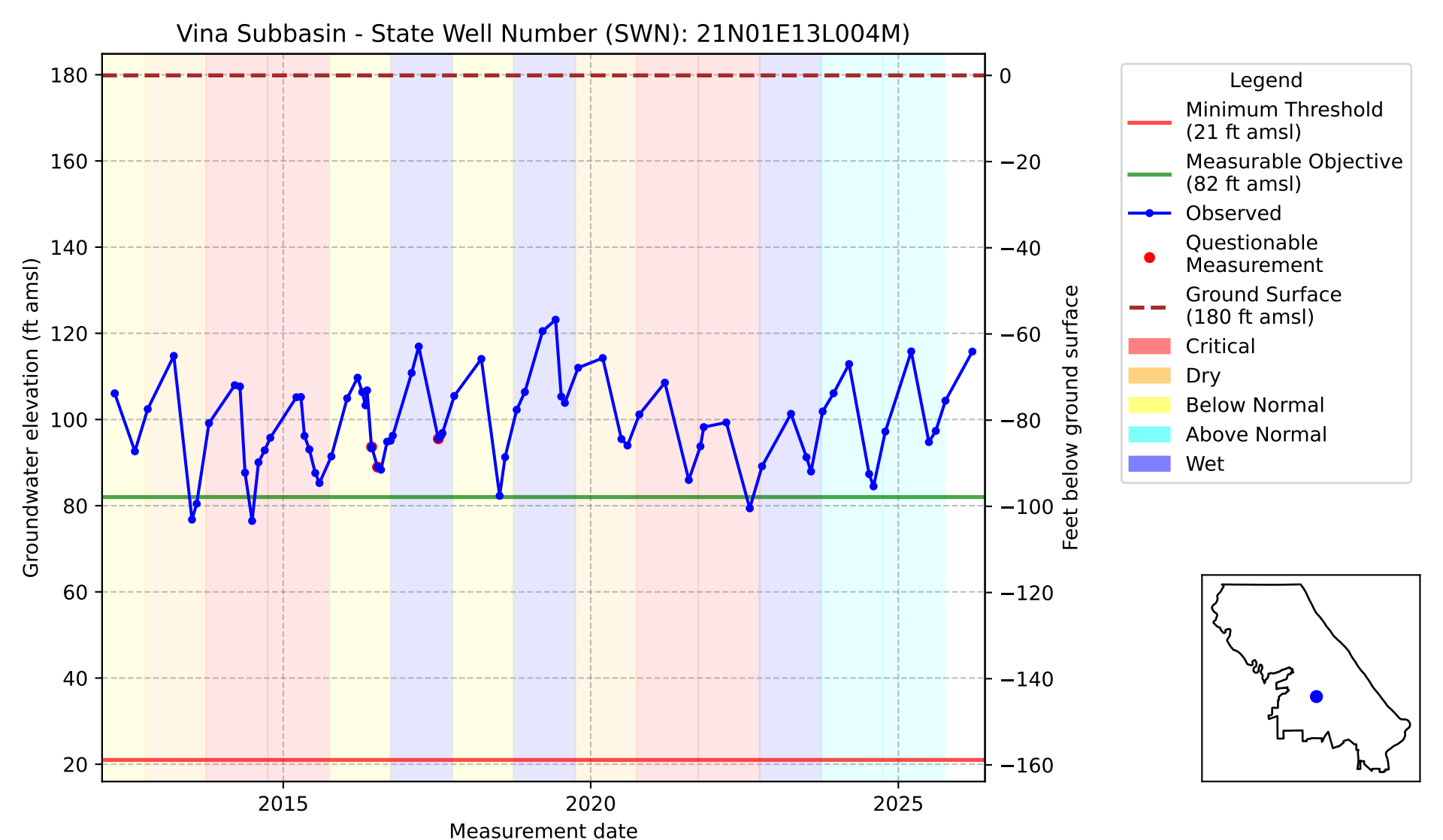
Above Normal
Wet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Feet below ground surface
Measurement date
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160
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100
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60
40
20
0
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−40
−60
−80
−100
−120
−140
−160
2015
2020
2025
Legend
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Questionable Measurement
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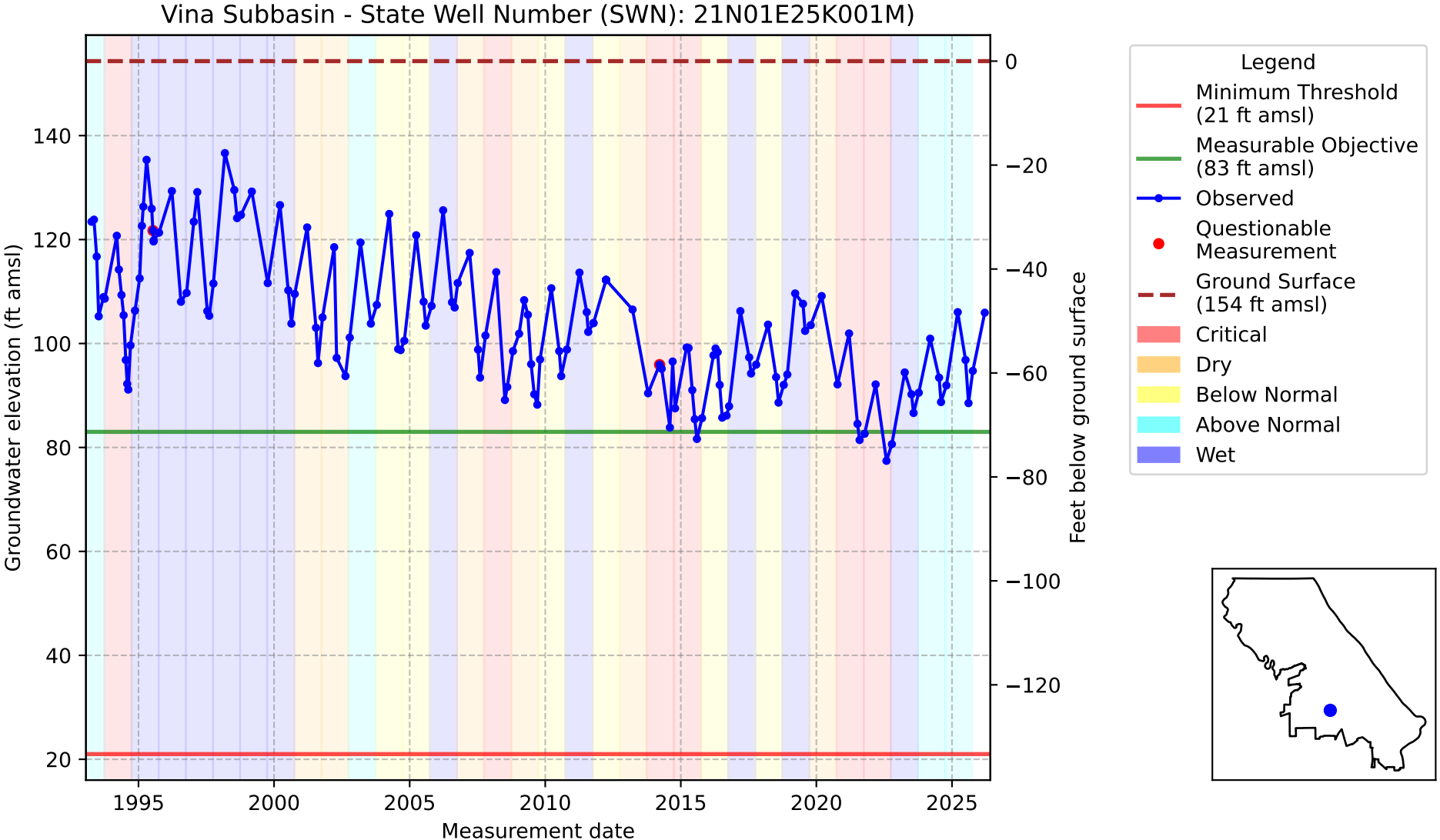
Above Normal
Wet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Feet below ground surface
Measurement date
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120
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60
40
20
0
−20
−40
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−80
−100
−120
1995
2000
2005
2010
2015
2020
2025
Legend
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Questionable Measurement
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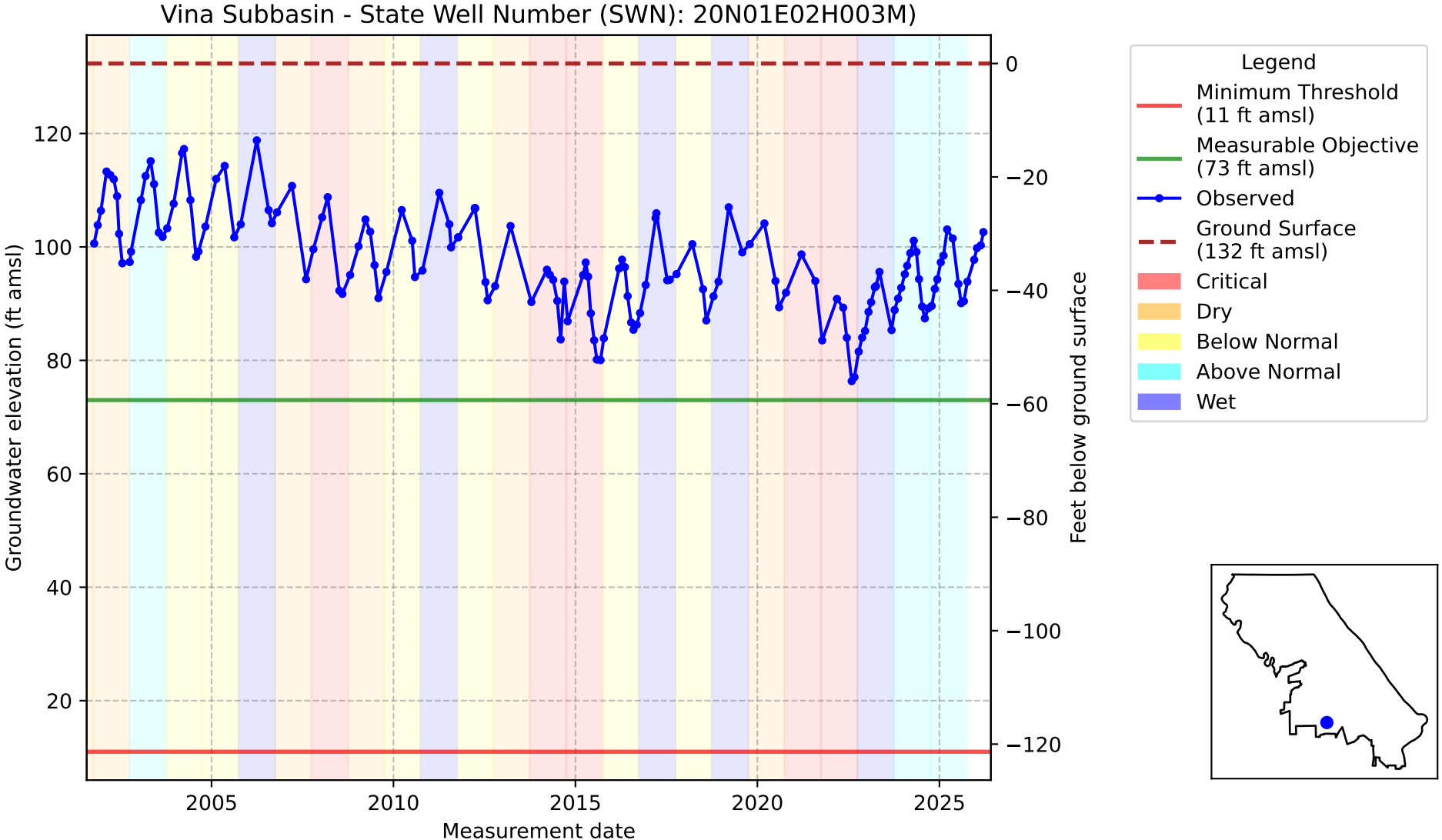
Dry
Below Normal
Above Normal
Wet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Feet below ground surface
Measurement date
120
100
80
60
40
20
0
−20
−40
−60
−80
−100
−120
2005
2010
2015
2020
2025
Legend
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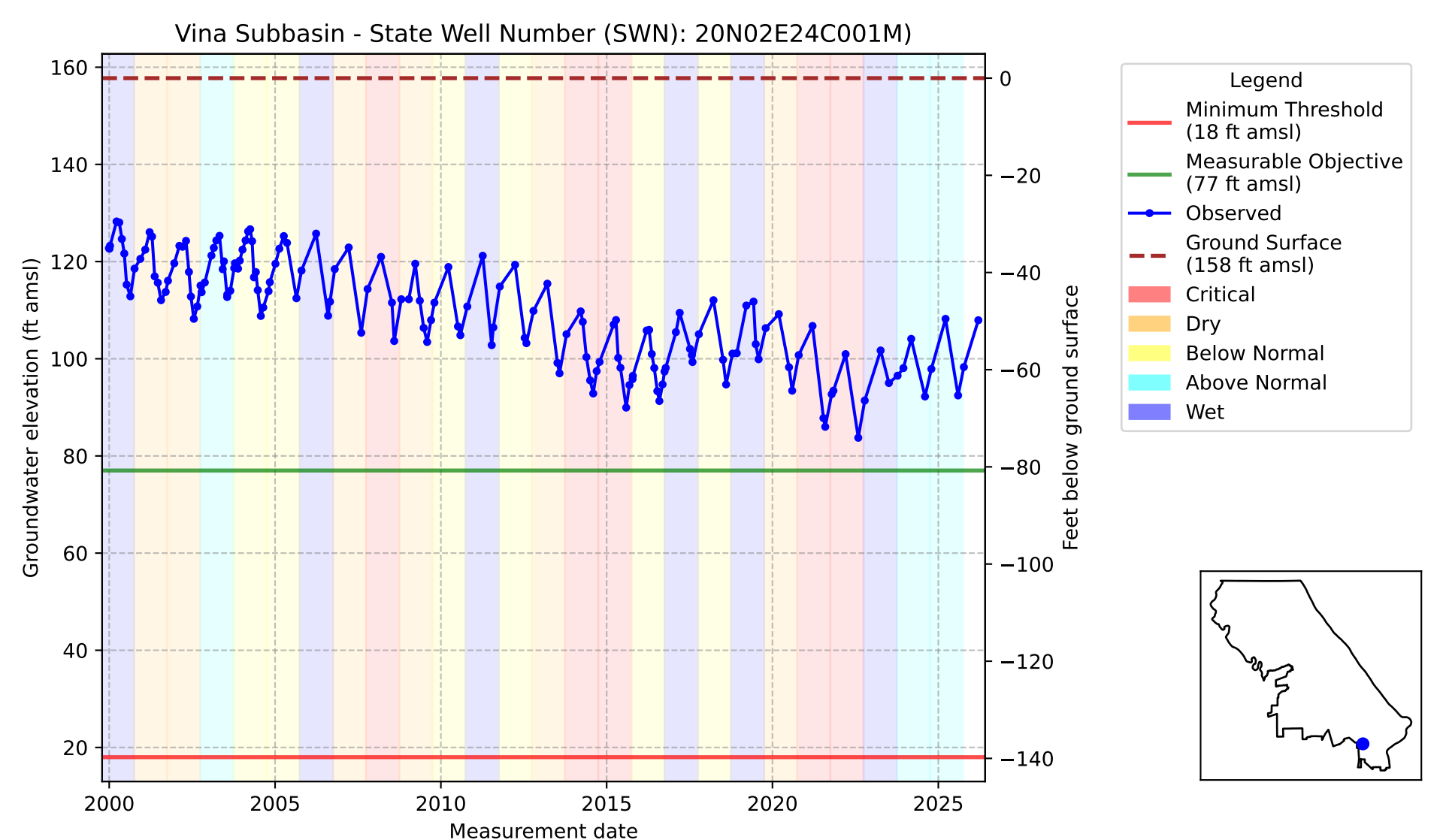
Observed
Ground Surface (132 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Feet below ground surface
Measurement date
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140
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80
60
40
20
0
−20
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−60
−80
−100
−120
−140
2000
2005
2010
2015
2020
2025
Legend
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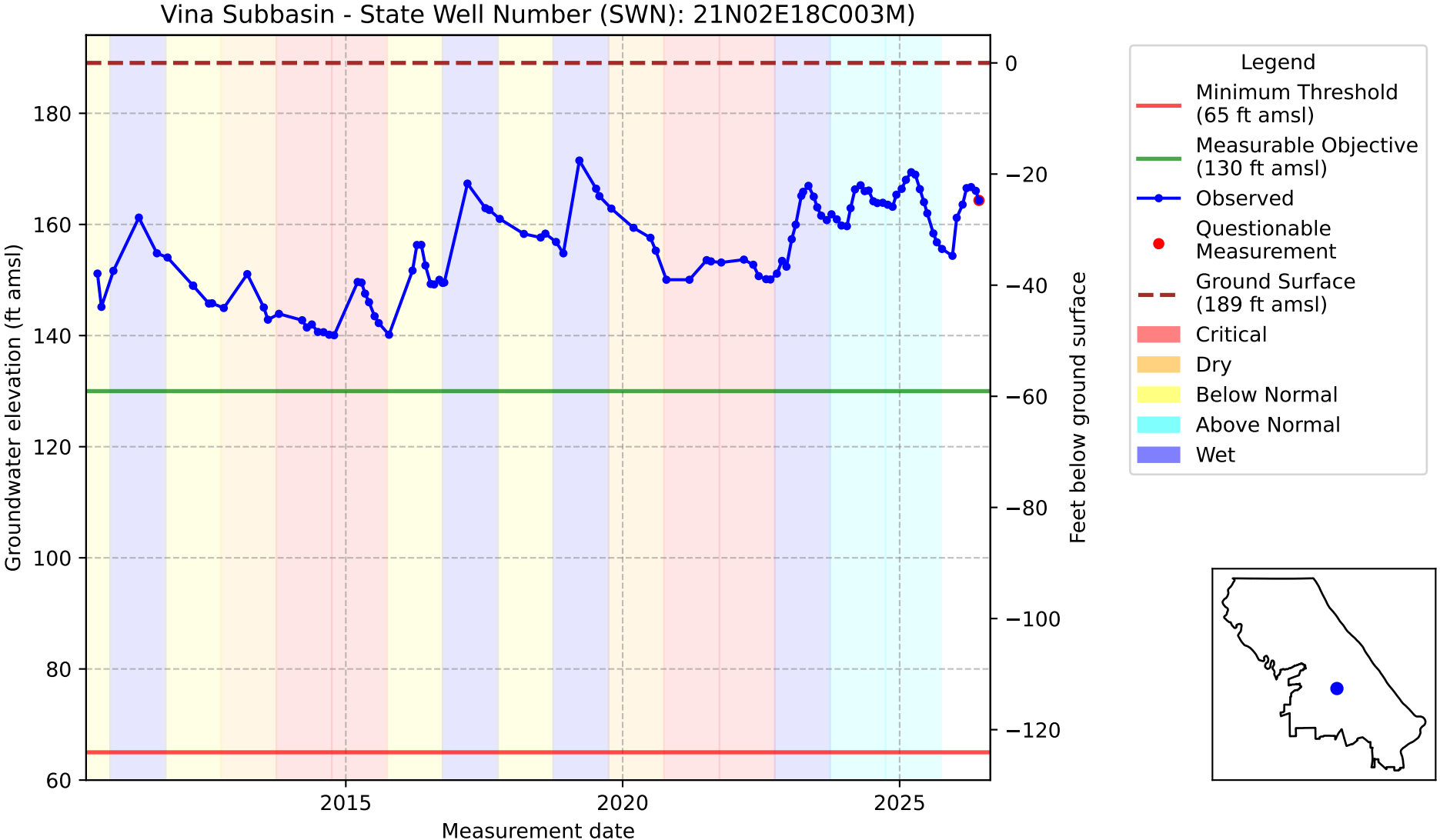
Measurable Objective (77 ft amsl)
Observed
Ground Surface (158 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Feet below ground surface
Measurement date
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160
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120
100
80
60
0
−20
−40
−60
−80
−100
−120
2015
2020
2025
Legend
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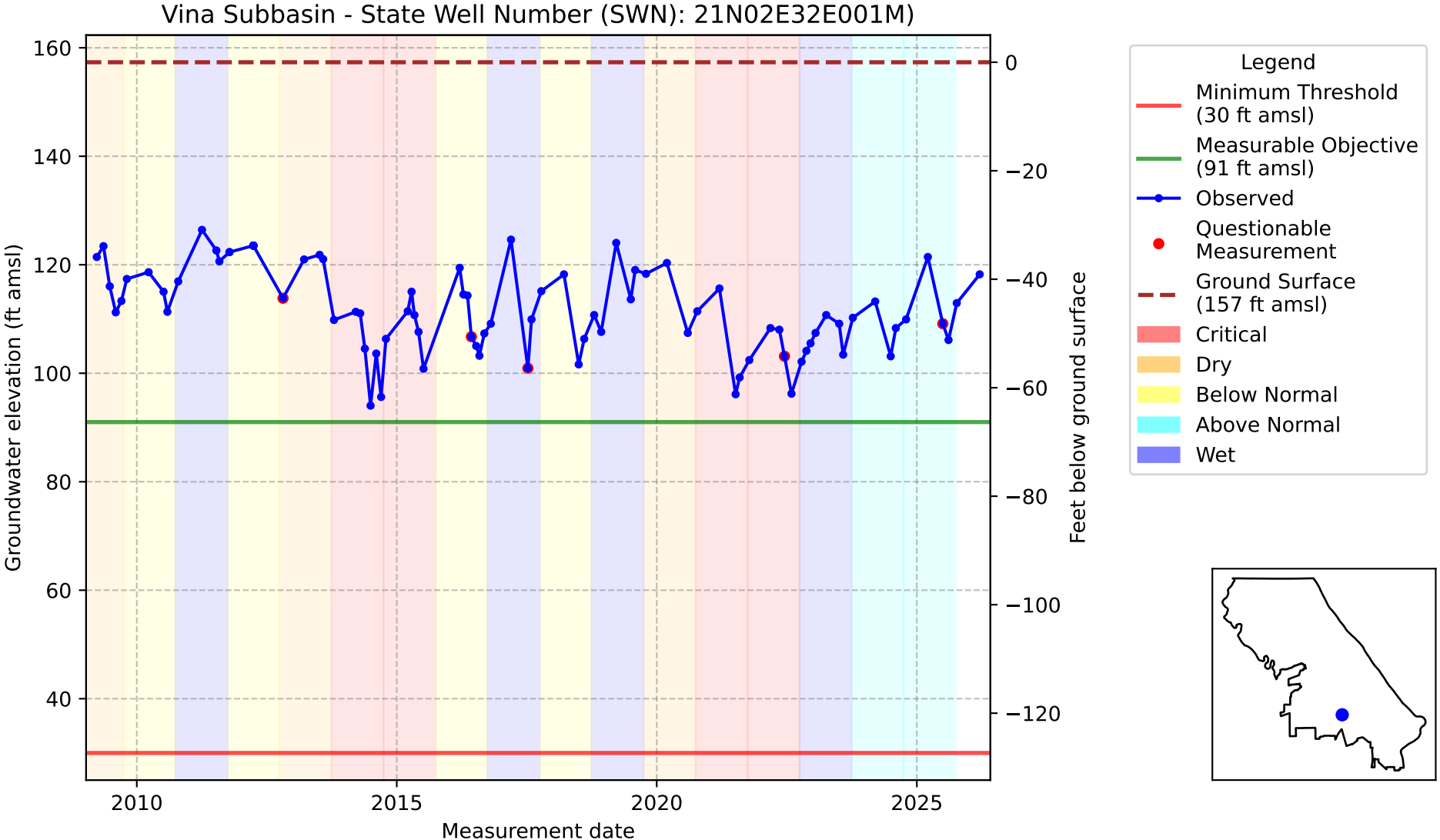
Observed
Questionable Measurement
Ground Surface (189 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Feet below ground surface
Measurement date
160
140
120
100
80
60
40
0
−20
−40
−60
−80
−100
−120
2010
2015
2020
2025
Legend
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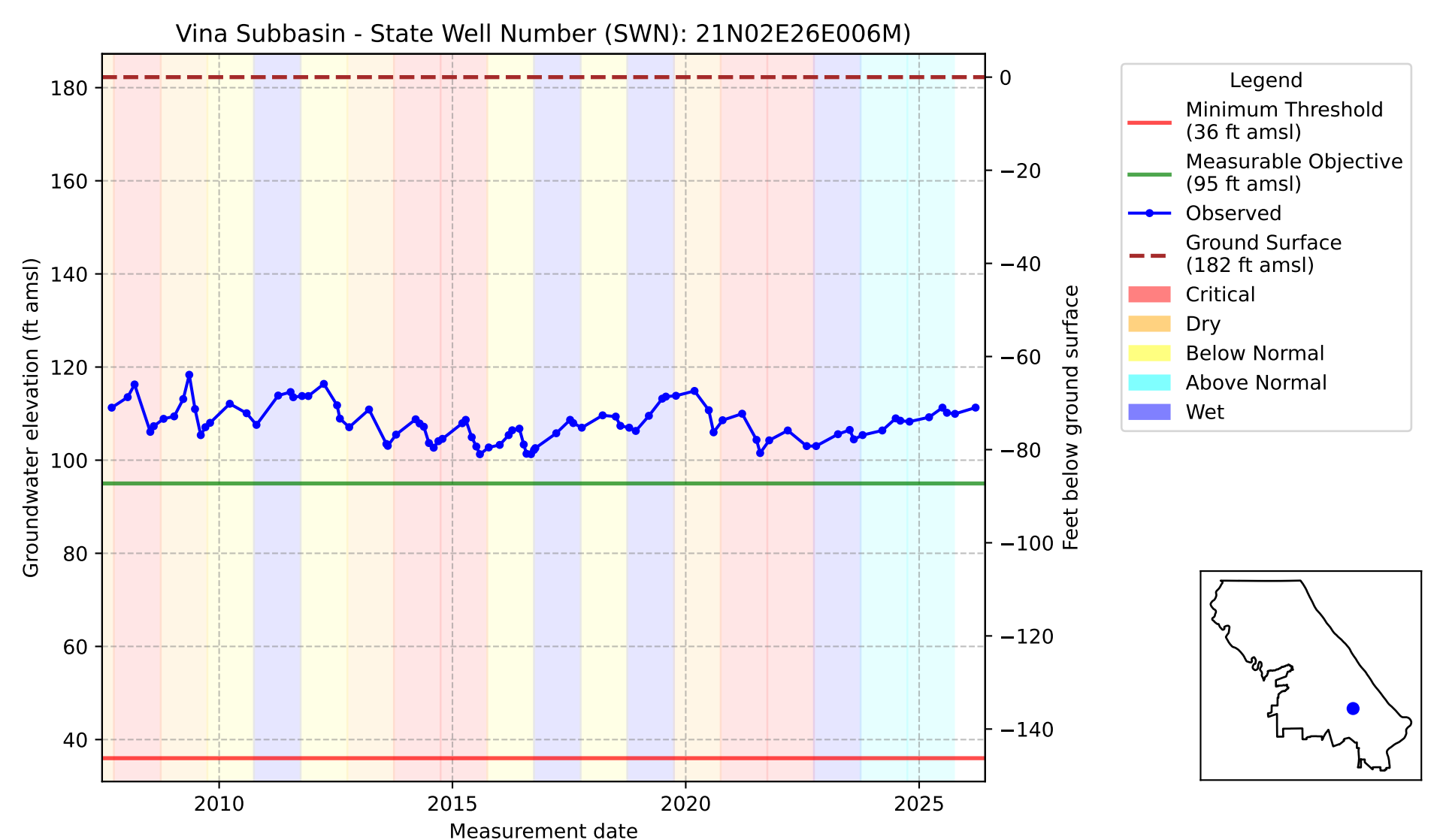
Measurable Objective (91 ft amsl)
Observed
Questionable Measurement
Ground Surface (157 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
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160
140
120
100
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60
40
0
−20
−40
−60
−80
−100
−120
−140
2010
2015
2020
2025
Legend
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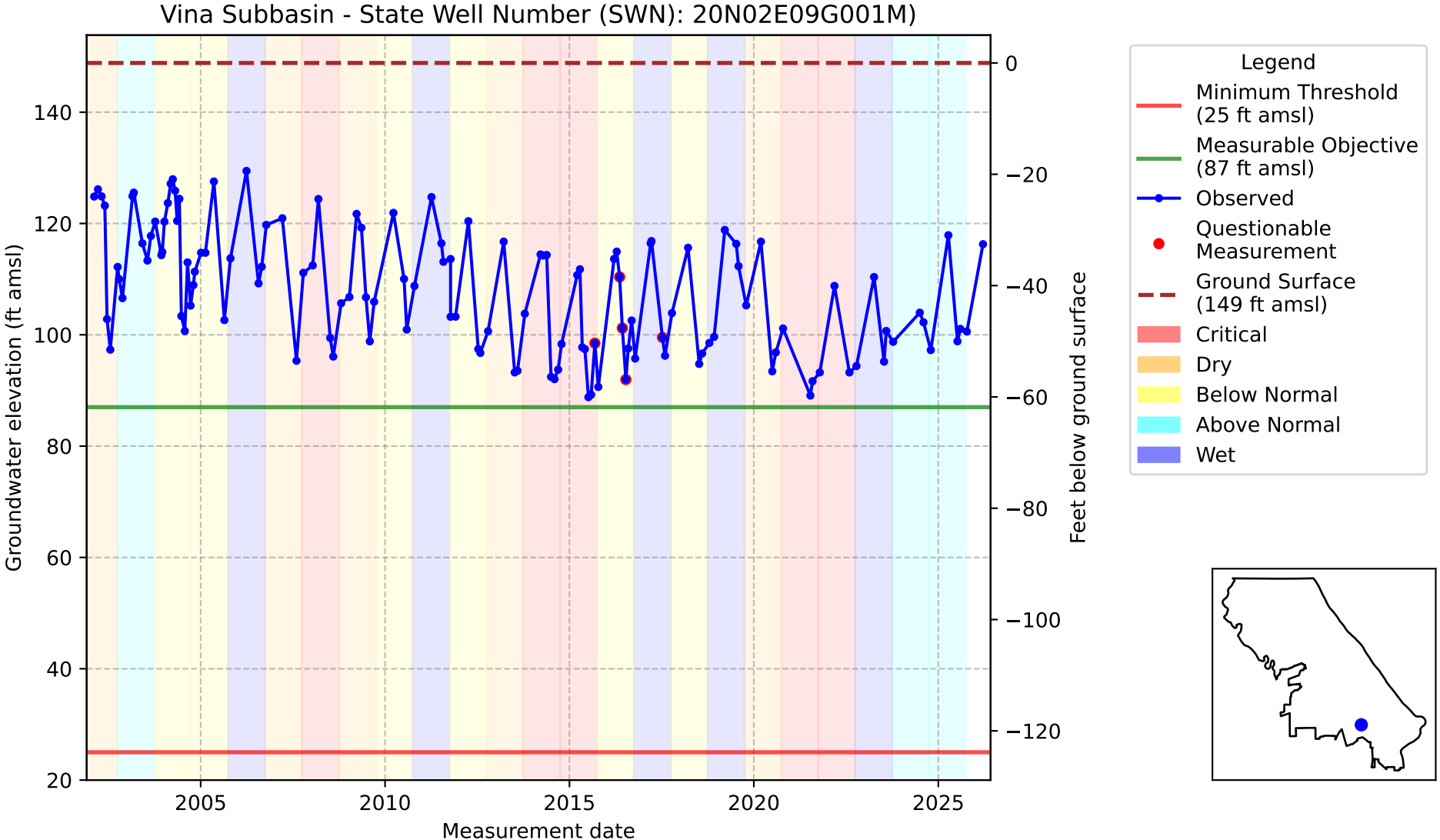
Observed
Ground Surface (182 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Feet below ground surface
Measurement date
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120
100
80
60
40
20
0
−20
−40
−60
−80
−100
−120
2005
2010
2015
2020
2025
Legend
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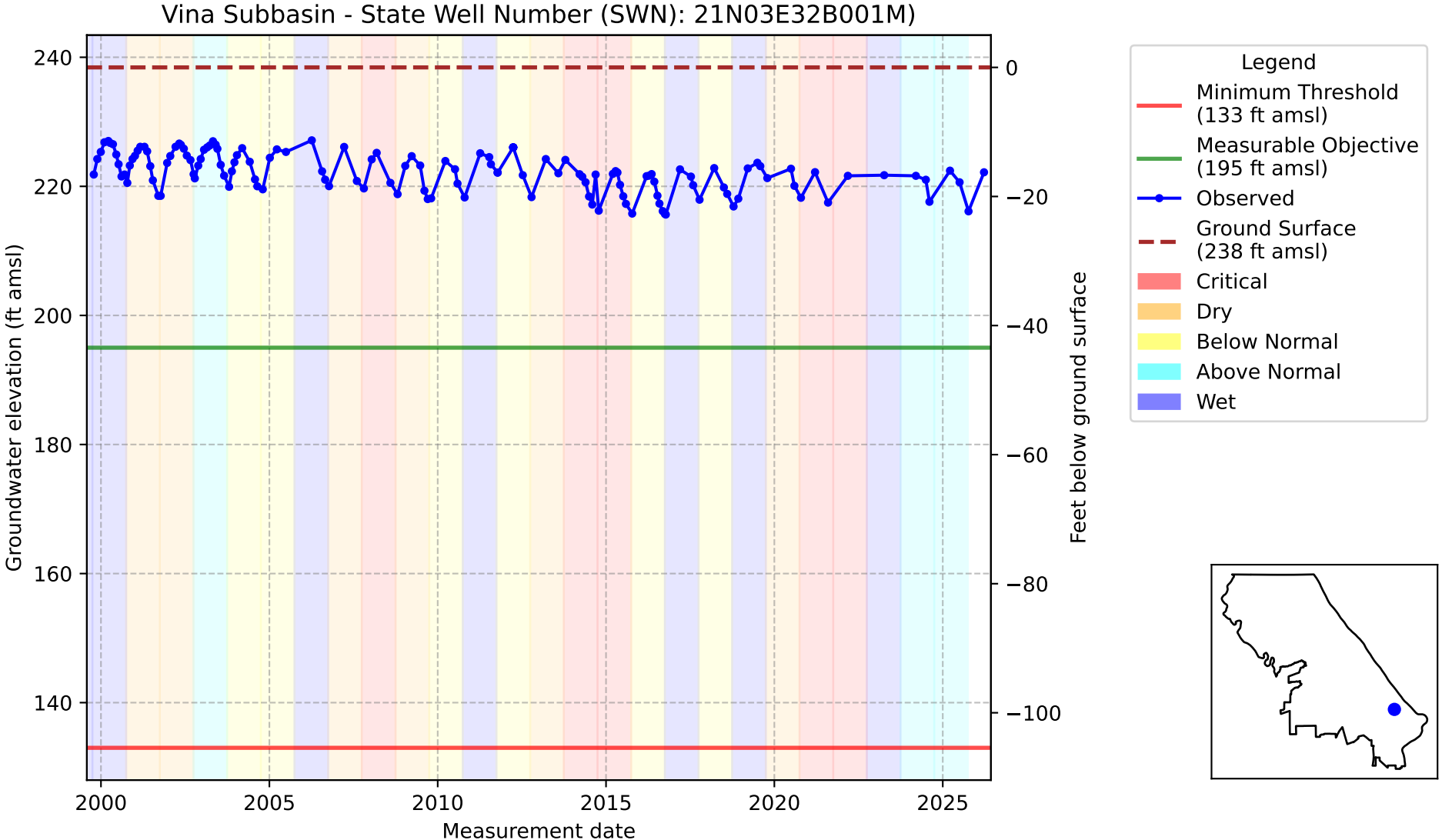
Measurable Objective (87 ft amsl)
Observed
Questionable Measurement
Ground Surface (149 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
240
220
200
180
160
140
0
−20
−40
−60
−80
−100
2000
2005
2010
2015
2020
2025
Legend
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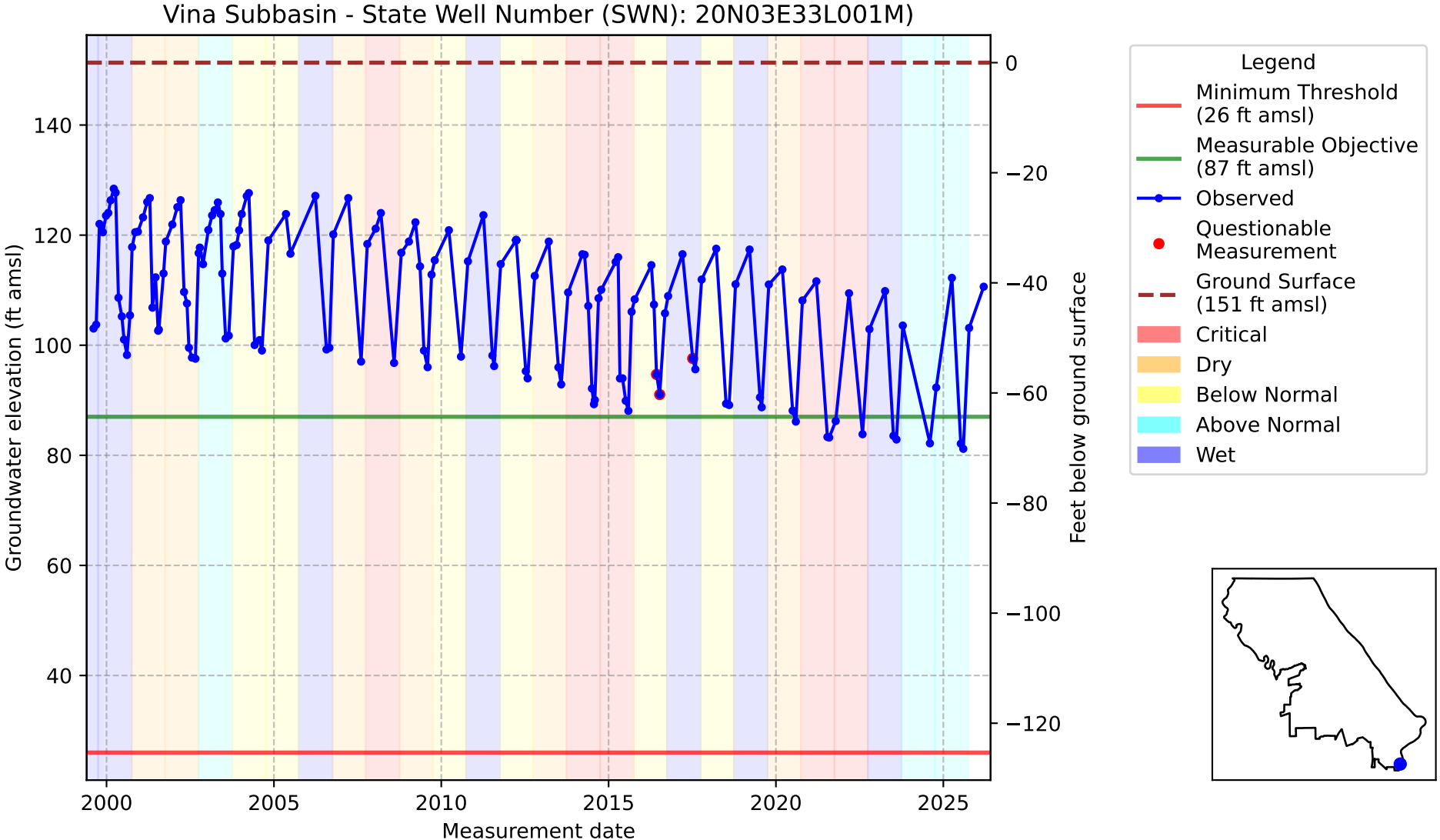
Measurable Objective (195 ft amsl)
Observed
Ground Surface (238 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
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120
100
80
60
40
0
−20
−40
−60
−80
−100
−120
2000
2005
2010
2015
2020
2025
Legend
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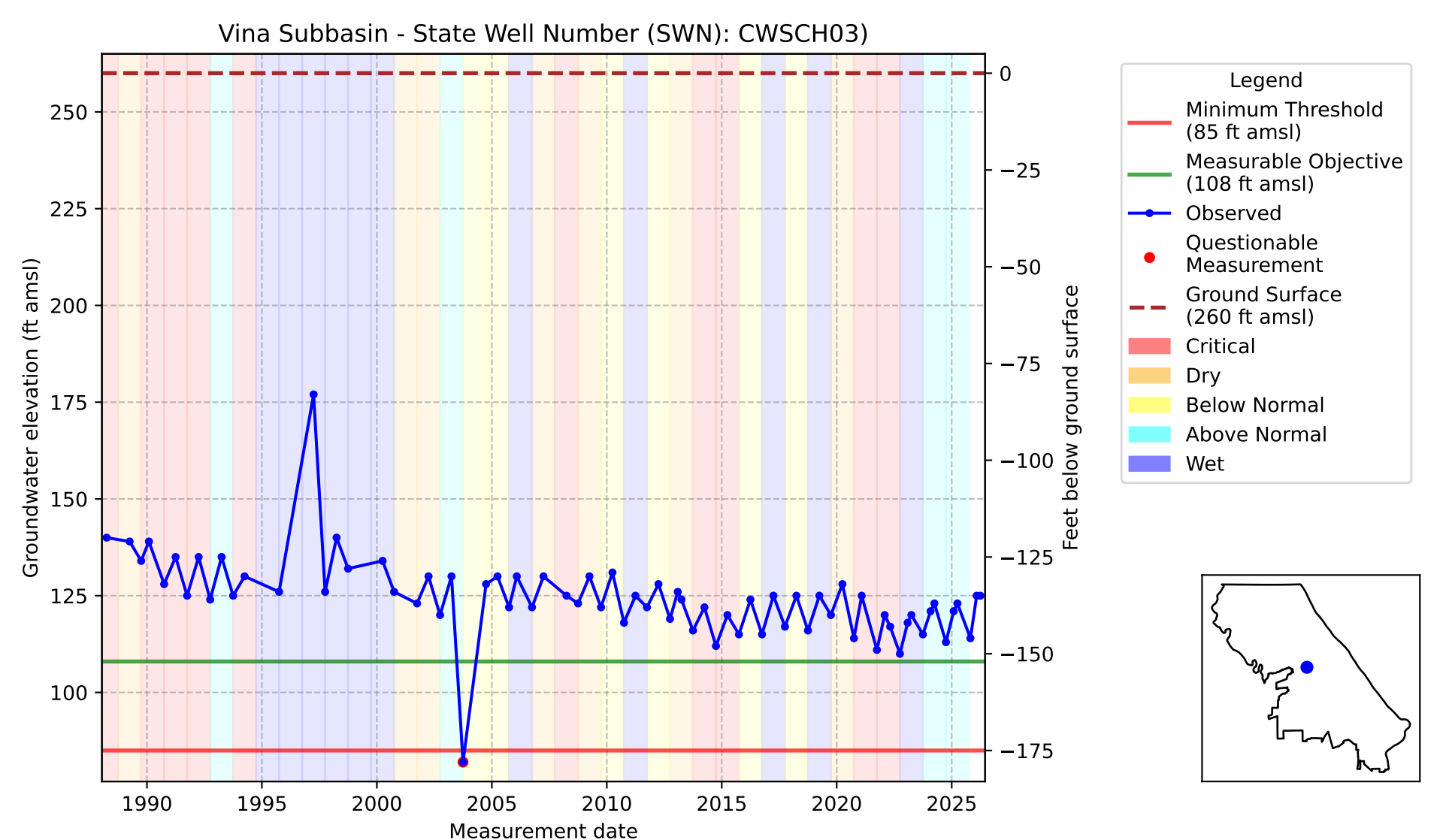
Measurable Objective (87 ft amsl)
Observed
Questionable Measurement
Ground Surface (151 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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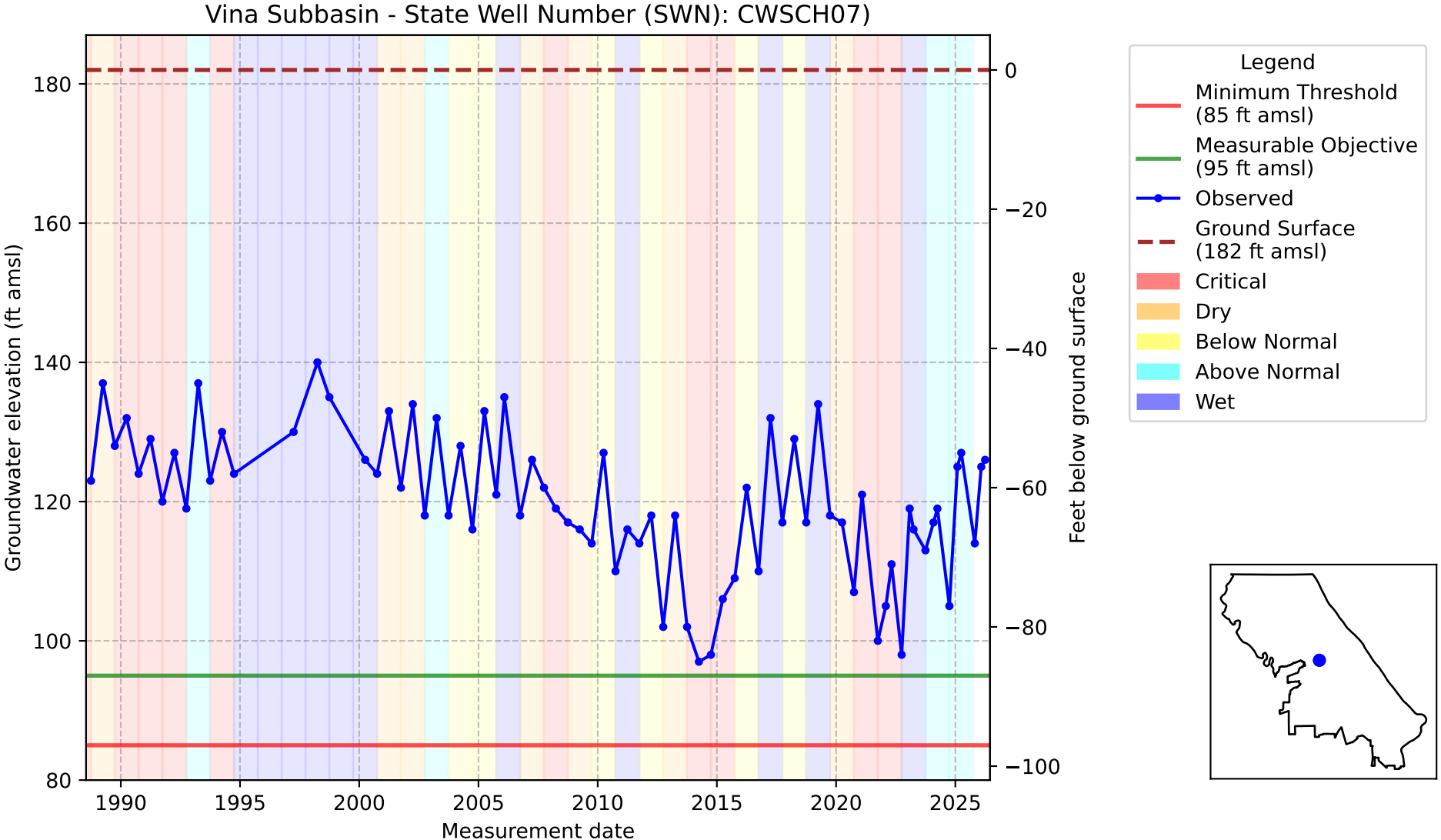
Feet below ground surface
Measurement date
250
225
200
175
150
125
100
0
−25
−50
−75
−100
−125
−150
−175
1990
1995
2000
2005
2010
2015
2020
2025
Legend
Minimum Threshold (85 ft amsl)
Measurable Objective (108 ft amsl)
Observed
Questionable Measurement
Ground Surface (260 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Groundwater elevation (ft amsl)
Feet below ground surface
Measurement date
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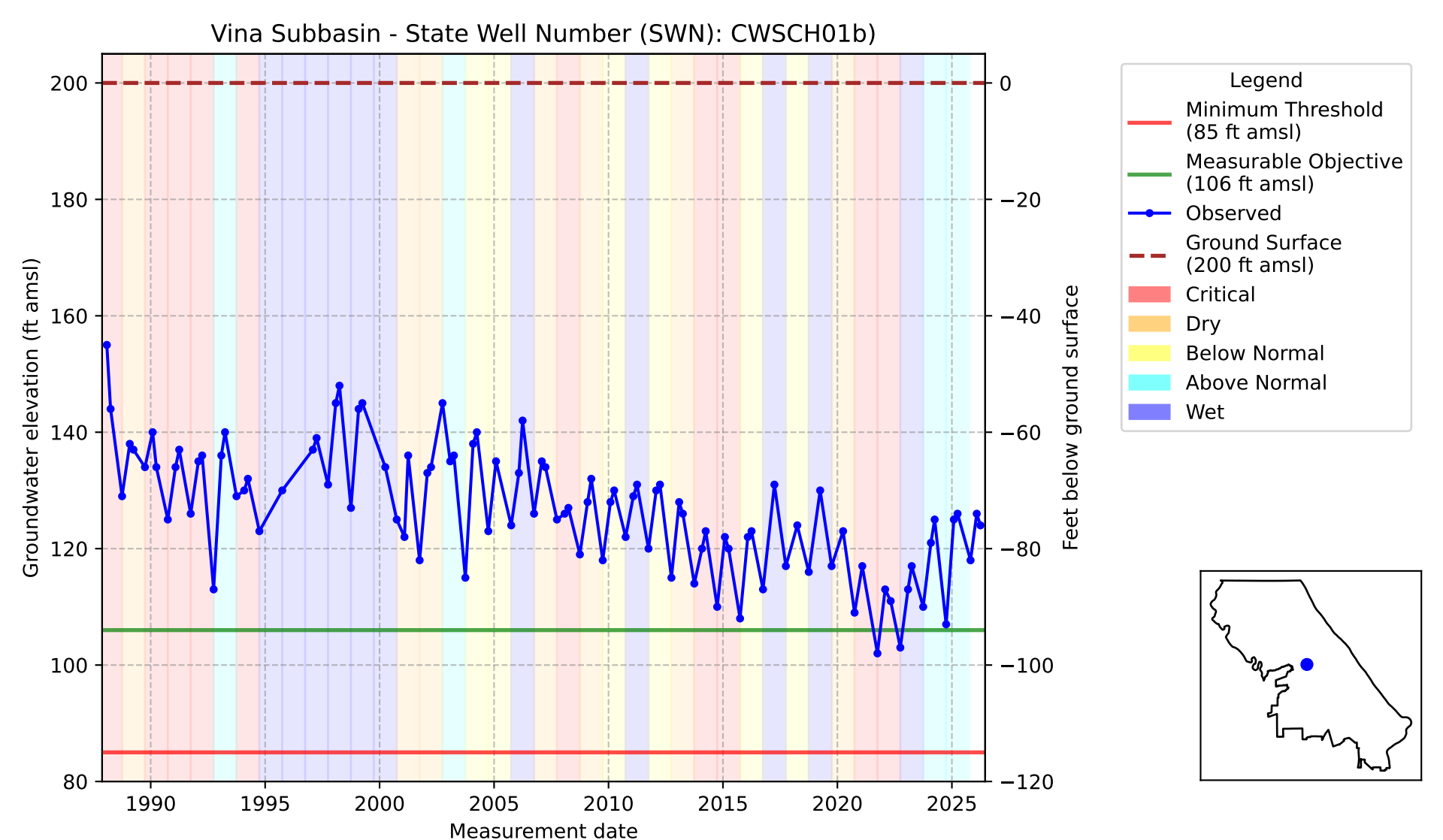
160
140
120
100
80
0
−20
−40
−60
−80
−100
1990
1995
2000
2005
2010
2015
2020
2025
Legend
Minimum Threshold (85 ft amsl)
Measurable Objective (95 ft amsl)
Observed
Ground Surface (182 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet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Feet below ground surface
Measurement date
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120
100
80
0
−20
−40
−60
−80
−100
−120
1990
1995
2000
2005
2010
2015
2020
2025
Legend
Minimum Threshold (85 ft amsl)
Measurable Objective (106 ft amsl)
Observed
Ground Surface (200 ft amsl)
Critical
Dry
Below Normal
Above Normal
Wet

Attachment B

Stakeholder Feedback received during Fall 2025 Meetings

Complete Meeting Summaries from the Fall 2025 stakeholder meetings are available in the Vina GSA Board and Rock Creek Reclamation District GSA, December 10, 2025 packet materials. The staff memo summary is included below.

To: Vina GSA Board and Rock Creek Reclamation District GSA
From: Becky Fairbanks, GSA Project Manager
Date: December 10, 2025
Subject: GSP Periodic Evaluation Stakeholder Meetings Feedback

Purpose

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

Background

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

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

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

(1) Provide informational updates on groundwater sustainability planning and management activities, with a particular focus on the approach to groundwater level (GWL) and interconnected surface water (ISW) sustainable management criteria (SMC) for the upcoming GSP Periodic Evaluation, and
(2) Dedicate space to hear each individual stakeholder group's input, thoughts, concerns, and priorities on those topics.

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

Summary of Stakeholder Meetings

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

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

Stakeholder Discussion Questions

The following questions were posed to each group:

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

Local Expert Group Meeting – October 14, 2025

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

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

LEG Recommendations and Considerations:

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

Environmental Stakeholder Meeting – October 27, 2025

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

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

Environmental Group Recommendations and Considerations:

- Raise Minimum Thresholds to provide stronger protection for GDEs and ISWs.
- Use ecological indicators—such as valley oaks—as proxies when setting MTs and developing SMCs.
- Evaluate rooting depths of groundwater-dependent vegetation (including urban forests) to establish environmentally protective thresholds.
- Expand or refine GDE mapping to include valley oak woodlands and urban canopy areas not captured by current TNC datasets.
- Consider using valley oak trees or other keystone species as biological monitoring points.
- Increase opportunities for integrated public and stakeholder meetings rather than holding isolated group discussions.

- Continue communication and transparency in responding to prior environmental comment letters and technical input.

Domestic Well Users Meeting – October 27, 2025

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

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

Domestic Well User Recommendations and Considerations:

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

Agricultural Stakeholder Meeting – November 13, 2025

The Agricultural Representatives discussion centered on the implications of proposed updates to the Representative Monitoring Site (RMS) networks, Sustainable Management Criteria (SMC), and the domestic well inventory. Participants sought clarity on why RMS updates are needed if the current GSP was approved by DWR, and asked detailed questions about representativeness, data reliability, and how RMS wells are selected and validated. There was strong interest in ensuring the GSA maintains flexibility—both in MT methodologies and in future plan amendments—to avoid locking the basin into restrictive criteria before data gaps are fully addressed.

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

Agricultural Group Recommendations and Considerations:

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

Vina GSA Stakeholder Advisory Committee Feedback:

Minimum Thresholds and RMS Network

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

The SHAC received the summary of Stakeholder Meetings' Recommendations and Considerations detailed in this Memo at their December 3, 2025 meeting and were asked to provide additional feedback based on the various perspectives of each stakeholder group to share with the Board. SHAC expressed broad support for continuing to evaluate all three MT-setting approaches presented by staff: 1) recalculating MTs using the updated domestic well inventory and revised RMS polygons, 2) applying a historical-minimum with buffer approach, and 3) considering retention of the current MTs and monitoring network as a reference point. Members emphasized that additional data and side-by-side comparisons will be critical to making informed decisions.

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

Domestic Well Mitigation Program Framework

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