Sierra Valley Groundwater Basin GSP Annual Report Water Year 2023

Sierra Valley Groundwater Management District

PLUMAS COUNTY 1854 CALIFORNIA

Certification

This report was prepared in accordance with generally accepted professional hydrogeologic principles and practices. This report makes no other warranties, either expressed or implied as to the professional advice or data included in it. This report has not been prepared for use by parties or projects other than those named or described herein. It may not contain sufficient information for other parties or purposes.

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Acronyms and Abbreviations

Acronym	Definition
AF	acre-feet
AFY	acre-feet per year
amsl	above mean sea level
Basin	Sierra Valley groundwater basin
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
DBS&A	Daniel B. Stephens & Associates, Inc.
DWR	[CA] Department of Water Resources
ft	feet
GSA	Groundwater Sustainability Agency
GDE	Groundwater Dependent Ecosystem
GSP	Groundwater Sustainability Plan
LWA	Larry Walker Associates
MAR	Managed Aquifer Recharge
MFFR	Middle Fork Feather River
mi	mile
MO	Measurable Objective
MT	Minimum Threshold
PLSS	Public Land Survey System
PMA	Project and Management Action
RMP	Representative Monitoring Point
SGMA	Sustainable Groundwater Management Act
SMC	Sustainable Management Criteria
SVGMD	Sierra Valley Groundwater Management District
SVHSM	Sierra Valley Hydrogeologic System Model
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
WLE	water level elevation
WCR	Well Completion Report
WY	water year

Executive Summary

Water year (WY) 2023 was a wet year for California. Precipitation for WY 2023 in the Sierra Valley groundwater basin (the Basin) totaled 33.32 inches, or approximately 147.4% of the historical average. Average change in observed water levels in the upper and lower aquifers in the Basin from Fall 2022 to Fall 2023 was +9.64 ft and +17.84 ft, respectively. Change in groundwater in storage was estimated to be +24,245 acre-ft (AF) using the Sierra Valley Hydrogeologic System Model (SVHSM). Total groundwater extractions in the Basin totaled 6,557 AF. An estimated 46,179 AF of surface water was used, with approximately 1,527 AF (3%) imported into the Basin from the Little Truckee River diversion. A total of 52,737 AF of water was used beneficially in the basin during WY 2023.

On July 27, 2023 DWR announced that the Sierra Valley GSP was approved. According to the DWR staff report provided with the GSP approval letter, "the Plan includes the required components of a GSP, demonstrates a thorough understanding of the Subbasin based on what appears to be the best available science and information, sets well explained, supported, and reasonable sustainable management criteria to prevent undesirable results as defined in the Plan, and proposes a set of projects and management actions that will likely achieve the sustainability goal defined for the Subbasin." The SVGMD appreciates the thorough review and suggested improvements by DWR staff, and continues its work implementing the GSP and achieving groundwater sustainability in the basin.

The SVGMD was awarded over $8M in grant funding from DWR, CDFW, and the Plumas Watershed Forum. These funds will be used for GSP implementation, planning and permitting a managed aquifer recharge project in the Badenough-Smithneck Creek area, and agricultural irrigation efficiency improvements and an additional recharge project in the Little Last Chance area (north of Vinton).

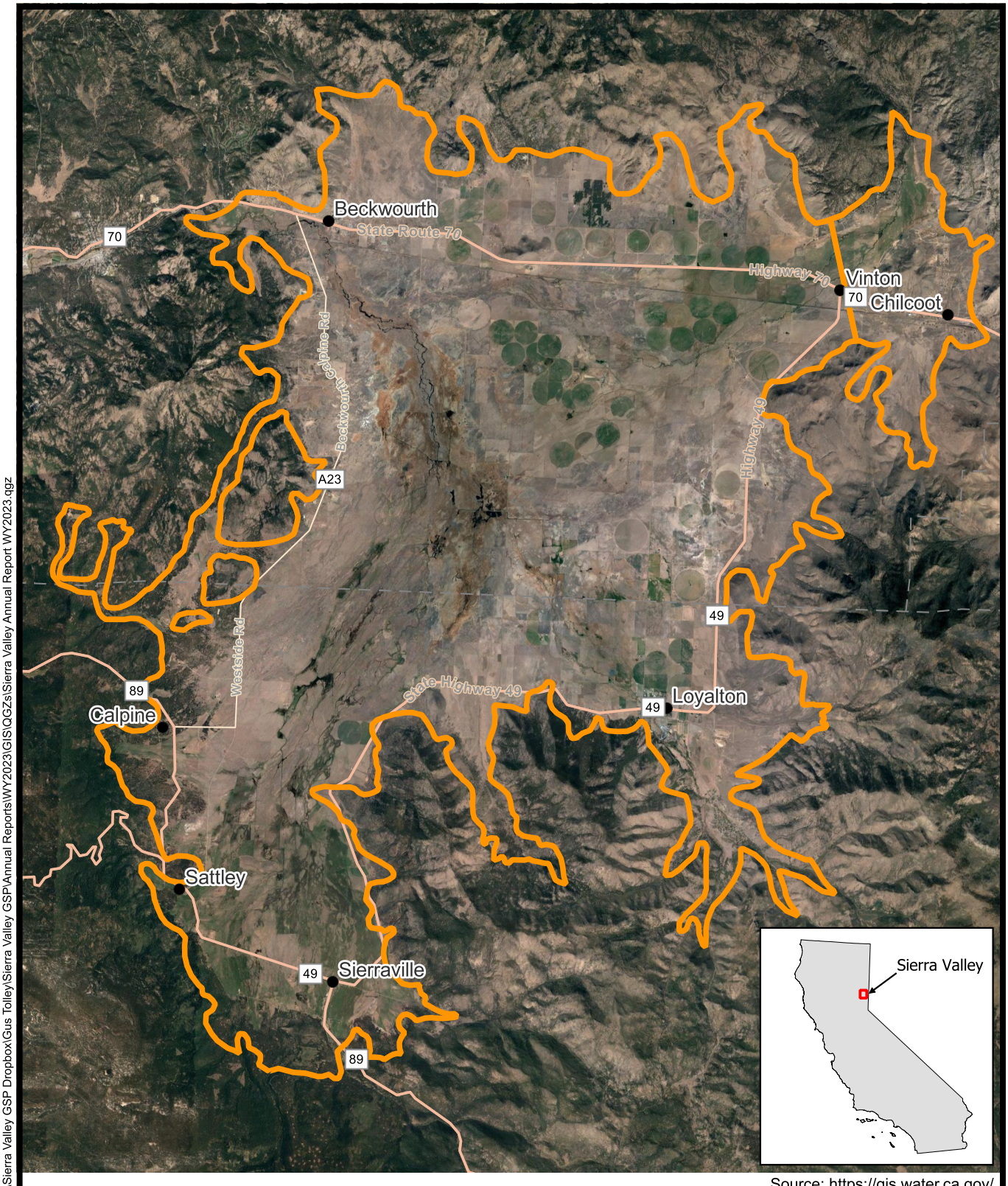
1. Introduction

The Sierra Valley groundwater basin (the Basin) is comprised of the Sierra Valley subbasin (5-012.01) and Chilcoot subbasin (5-012.02). Both subbasins are managed as a single basin cooperatively by the Sierra Valley Groundwater Management District (SVGMD) and Plumas County, which act as the Groundwater Sustainability Agencies (GSAs) for the Basin. Since its inception in 1980, the SVGMD has monitored groundwater levels and installed flow meters to monitor pumping on all high-capacity wells (those capable of pumping 100 gallons/minute (gpm) or more). Additionally, the District requires permits for constructing new wells or repairing existing wells. New wells may not cause adverse impacts to groundwater in the Basin; new wells are prohibited in a designated area of the Basin where groundwater levels are declining. Similarly, development projects in the Basin that will extract groundwater must obtain a determination by SVGMD that sufficient groundwater is available for the proposed project.

Following the submittal of the Sierra Valley Groundwater Sustainability Plan (GSP) on January 28th, 2022, the GSAs are required to submit an annual report for the preceding water year (October 1 through September 30) to DWR by April 1st (23 CCR §356.2).The annual report provides a summary of hydrologic conditions and water use in the Basin (Figure 1) using observed data from monitoring networks and/or estimated using best available methods. This WY 2023 annual report provides a brief summary of Basin water use and changes in groundwater storage during the period from October 1st, 2022 to September 30th, 2023 and context for conditions relative to sustainable management criteria (SMC).

This document has been prepared in accordance with the requirements for annual reports as identified in the Sustainable Groundwater Management Act (SGMA). More detailed analysis and discussion of long-term hydrologic trends will be included in the periodic evaluation of the GSP the GSAs are required to perform at least every five years (23 CCR §356.2).

For additional clarification or more detailed information on the basin plan area or conditions, please refer to the Sierra Valley GSP (https://sgma.water.ca.gov/portal/gsp/preview/125). It is important to note that data gaps and missing information continue to be a focus as the GSAs gather additional information for better analysis and decisions.



Source: https://gis.water.ca.gov/

Explanation

- City or Town
- Groundwater Basin Boundary

0 1 2 mi

N

Sierra Valley Groundwater Management District

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SIERRA VALLEY GSP ANNUAL REPORT

Location Map and Groundwater Basin Boundary

Figure 1

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2. Groundwater Elevations

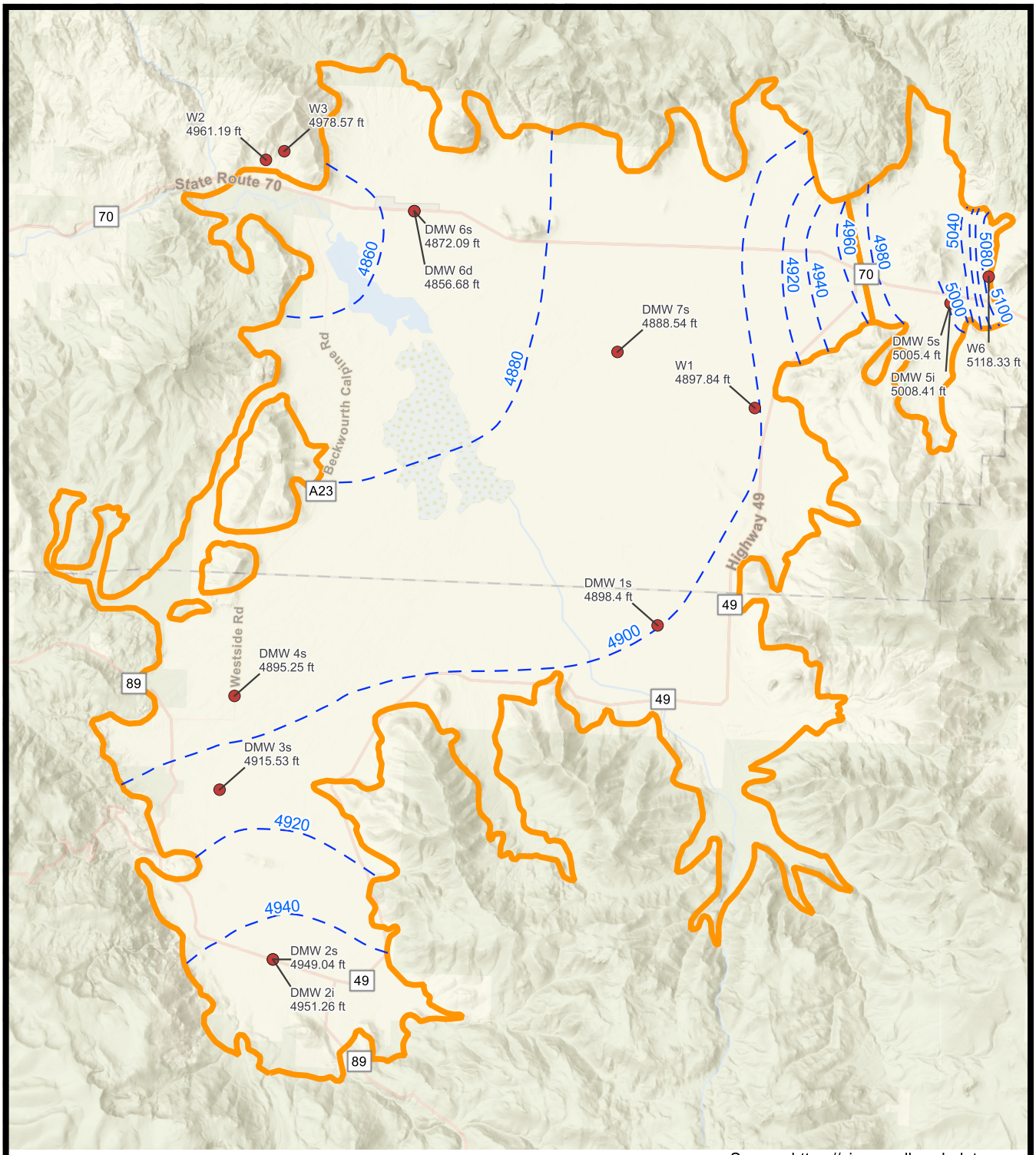
Groundwater elevation contour maps for the upper and lower aquifers in the spring of 2023 are shown in Figure 2 and Figure 3, respectively, and for the upper and lower aquifers in the fall of 2023 in Figure 4 and Figure 5, respectively. These maps depict the seasonal high (spring) and low (fall) water level elevations for the two principal aquifers (upper and lower) in the Basin. Spring and fall water level elevations are defined as observations within a 50-day period centered on April 1st or October 1st. If a well has multiple observations within this period, then the value collected nearest to April 1st or October 1st is used.

Observed spring groundwater elevations in the upper aquifer (Figure 2) ranged from 4,856.68 to 5,118.33 ft above mean sea level (amsl), with an average elevation of 4,942.61 ft amsl. Spring groundwater elevations for the lower aquifer (Figure 3) ranged from 4,794.73 to 5,118.33 ft amsl, with an average elevation of 4,893.99 ft amsl. Groundwater elevations in the fall for the upper aquifer (Figure 4) ranged from 4,788.85 to 5,175.01 ft amsl, with an average elevation of 4,934.65 ft amsl. Fall observations from the lower aquifer (Figure 5) showed groundwater elevations ranged from 4,788.85 to 5,099.43 ft amsl, with an average elevation of 4,876.60 ft amsl.

Flow patterns in the Basin are complex and heavily influenced by the spatial distribution of recharge, spatial distribution of aquifer hydraulic properties, location and orientation of faults that act as groundwater flow barriers, and groundwater pumping. On the west side of the Basin flow is generally from south to north, towards the surface water outlet of the Basin located to the northwest, which is the headwaters of the Middle Fork Feather River (MFFR). Flow on the east side of the Basin is generally from the margins of the Basin towards the pumping center located in the vicinity of wells W5 and DMW 7 (see Figure 3 for location or search via the online database management system (DMS) at https://sierra-valley.gladata.com/).

Observed groundwater elevation changes from October 2022 to October 2023 in the upper aquifer ranged from -1.82 to +58.50 ft with an average change of +9.64 ft. For the lower aquifer groundwater elevation changes ranged from -2.20 to +58.50 ft with an average of +17.84 ft.

The reporting metric "SMC Status" was developed to better compare groundwater elevations observed at representative monitoring points (RMP) in the context of their unique SMC. This metric describes groundwater elevations relative to the "operational range" of the well and allows for normalized reporting of groundwater elevations at RMPs. The operational range is



Source: https://sierra-valley.gladata.com

Explanation

- Well Name
  Groundwater Elevation (ft amsl)
- Water Level Contour (ft amsl)
- Groundwater Basin Boundary

0 1 2 mi

N

Notes:
1. Groundwater elevations averaged for nested monitoring wells screened in the same aquifer.
2. Many wells inaccessible in Spring 2023 due to deep snow.

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SIERRA VALLLEY GSP ANNUAL REPORT

Groundwater Elevations
Upper Aquifer Spring 2023

Figure 2

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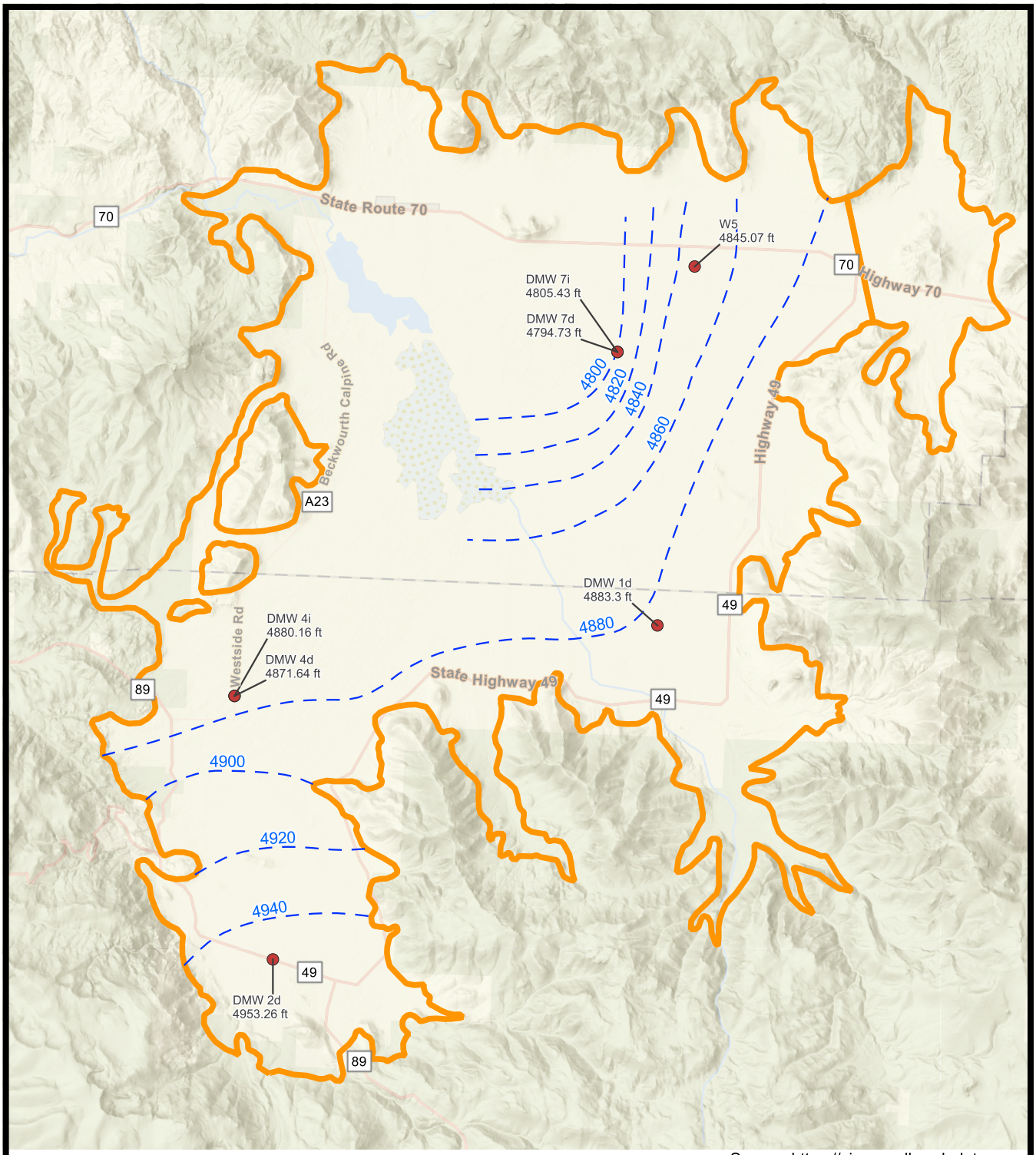

Source: https://sierra-valley.gladata.com

Explanation

- Well Name
  Groundwater Elevation (ft amsl)
- Water Level Contour (ft amsl)
- Groundwater Basin Boundary

0 1 2 mi

N

Notes:
1. Groundwater elevations averaged for nested monitoring wells screened in the same aquifer.
2. Many wells inaccessible in Spring 2023 due to deep snow.

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Groundwater Elevations
Lower Aquifer Spring 2023

Figure 3

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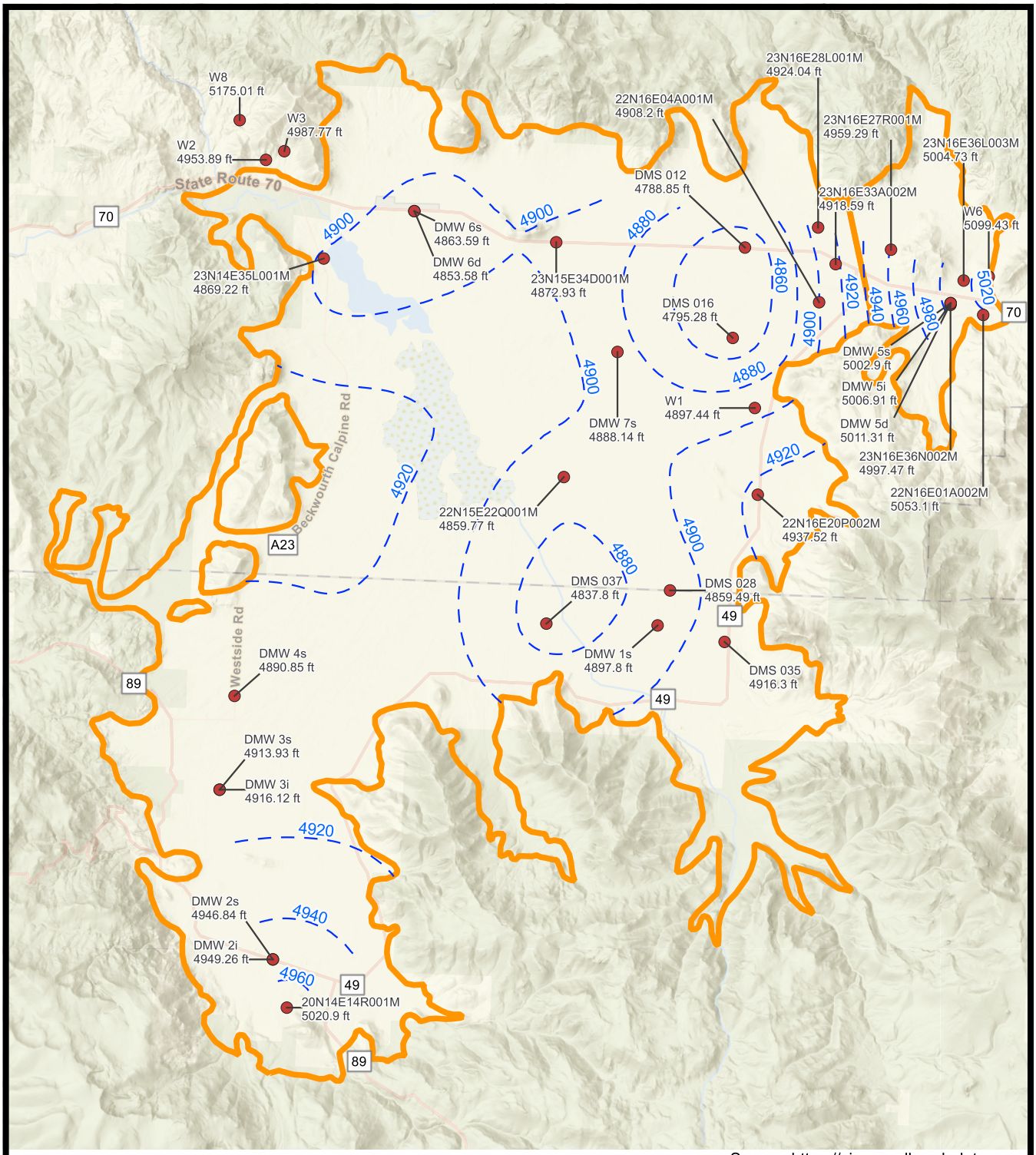

Source: https://sierra-valley.gladata.com

Explanation

- Well Name
  Groundwater Elevation (ft amsl)
- Water Level Contour (ft amsl)
- Groundwater Basin Boundary

Notes:
1. Groundwater elevations averaged for nested monitoring wells screened in the same aquifer.

0 1 2 mi

N

SIERRA VALLEY GSP ANNUAL REPORT

Groundwater Elevations
Upper Aquifer Fall 2023

Figure 4

Sierra Valley Groundwater Management District

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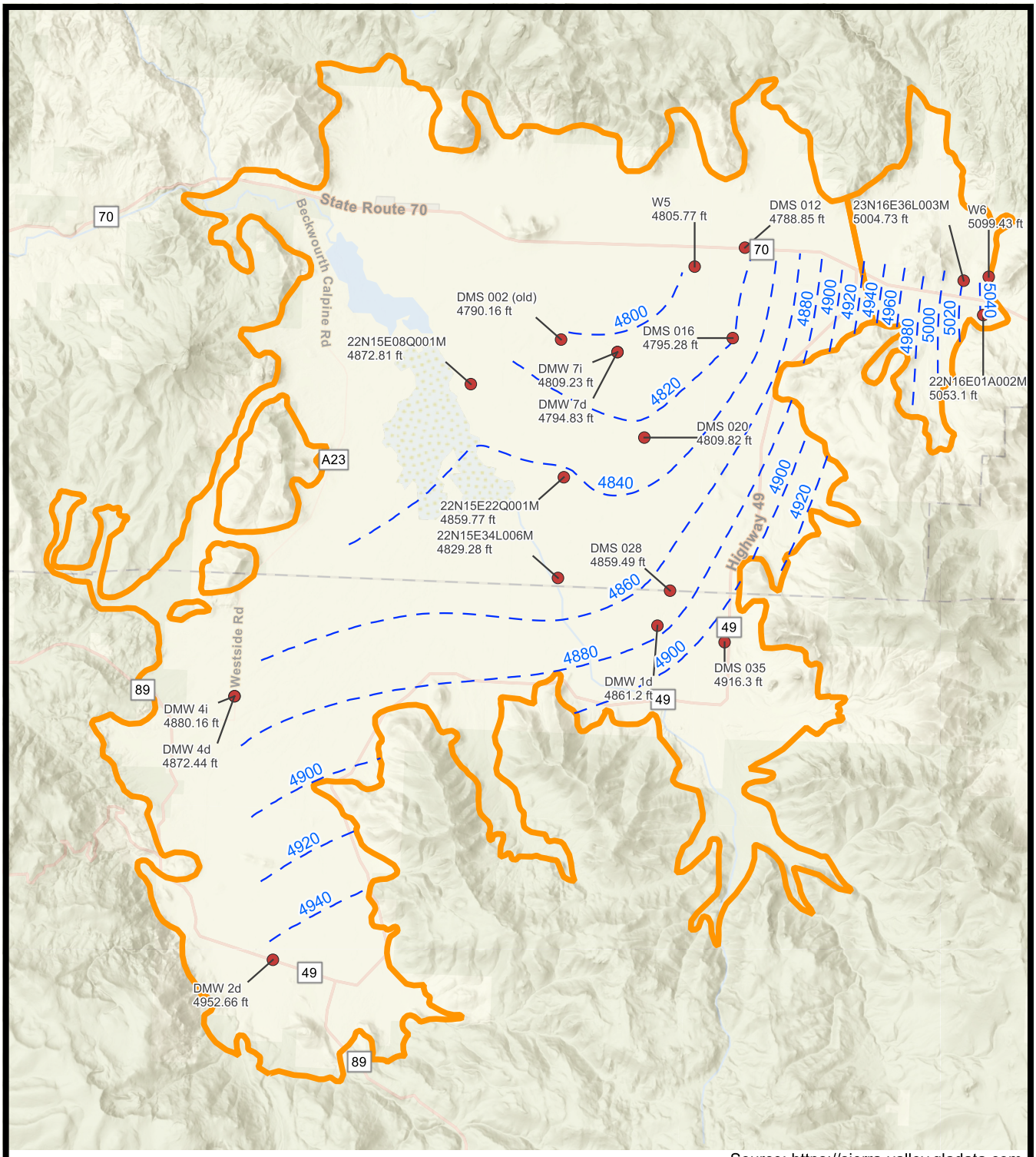

Source: https://sierra-valley.gladata.com

Explanation

- Well Name
  Groundwater Elevation (ft amsl)
- Water Level Contour (ft amsl)
- Groundwater Basin Boundary

0 1 2 mi

N

Notes:
1. Groundwater elevations averaged for nested monitoring wells screened in the same aquifer.

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Groundwater Elevations
Lower Aquifer Fall 2023

Figure 5

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defined as the elevation range between the measurable objective (MO) and minimum threshold (MT) for each RMP. SMC Status was classified into the following categories:

- Near or Above MO: Water levels equal to or greater than 75% of the operational range
- Within Central Operational Range: Water levels within 25% to 75% of operational range
- Near MT: Water levels less than 25% of operational range but above MT
- At or Below MT: Water levels at or below MT

Figure 6 shows an example of this metric applied to the hydrograph of well 22N15E34L006M. Figure 7 and Figure 8 show the spatial distribution of SMC Status for spring water level observations in the upper and lower aquifer, respectively. Fall SMC Status for the upper and lower aquifer is shown in Figure 9 and Figure 10, respectively. Hydrographs for all RMPs can be found in Appendix A.

Groundwater conditions in the spring were near or above the MO for each RMP in both the upper and lower aquifers except for DMW 4i, where water levels were at about 65% of the operational range. Elevated water levels from the spring generally persisted into the fall due to increased recharge from the very wet water year. In the upper aquifer in the fall 75% of RMPs were near or above the MO, 21% were within the central operational range, 4% were near the MT, and 0% of RMPs were at or below the MT. Fall conditions for the lower aquifer showed 62% of RMPs were near or above the MO, 31% were within the central operational range, 0% near the MT, and 8% (1 well) of RMPs were at or below the MT.

It is unclear why water levels in 22N15E08Q001M declined below the minimum threshold, but it is one of three wells in the basin that did not show increases in water levels from Fall 2022 to Fall 2023. The other two wells were 22N15E34L006M and 23N16E36N002M. There did not appear to be a definitive spatial pattern for these declines nor in the SMC Status in the spring or fall nor for the upper or lower aquifer.

3. Groundwater Extractions

The Sierra Valley Groundwater Management District (SVGMD) meters all active large-capacity non-municipal wells (defined as wells that produce 100+ gallons per minute or wells with a casing diameter of 6 inches or greater) in the Basin.

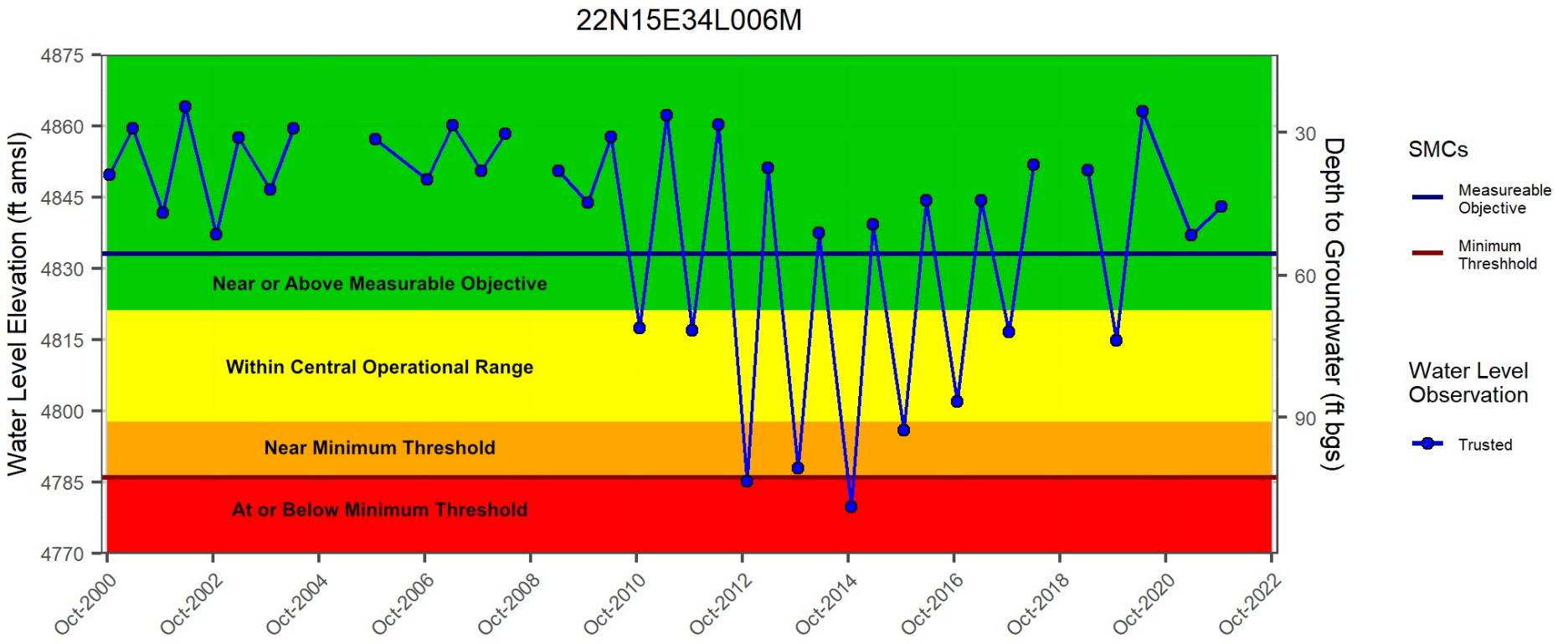

Figure 6

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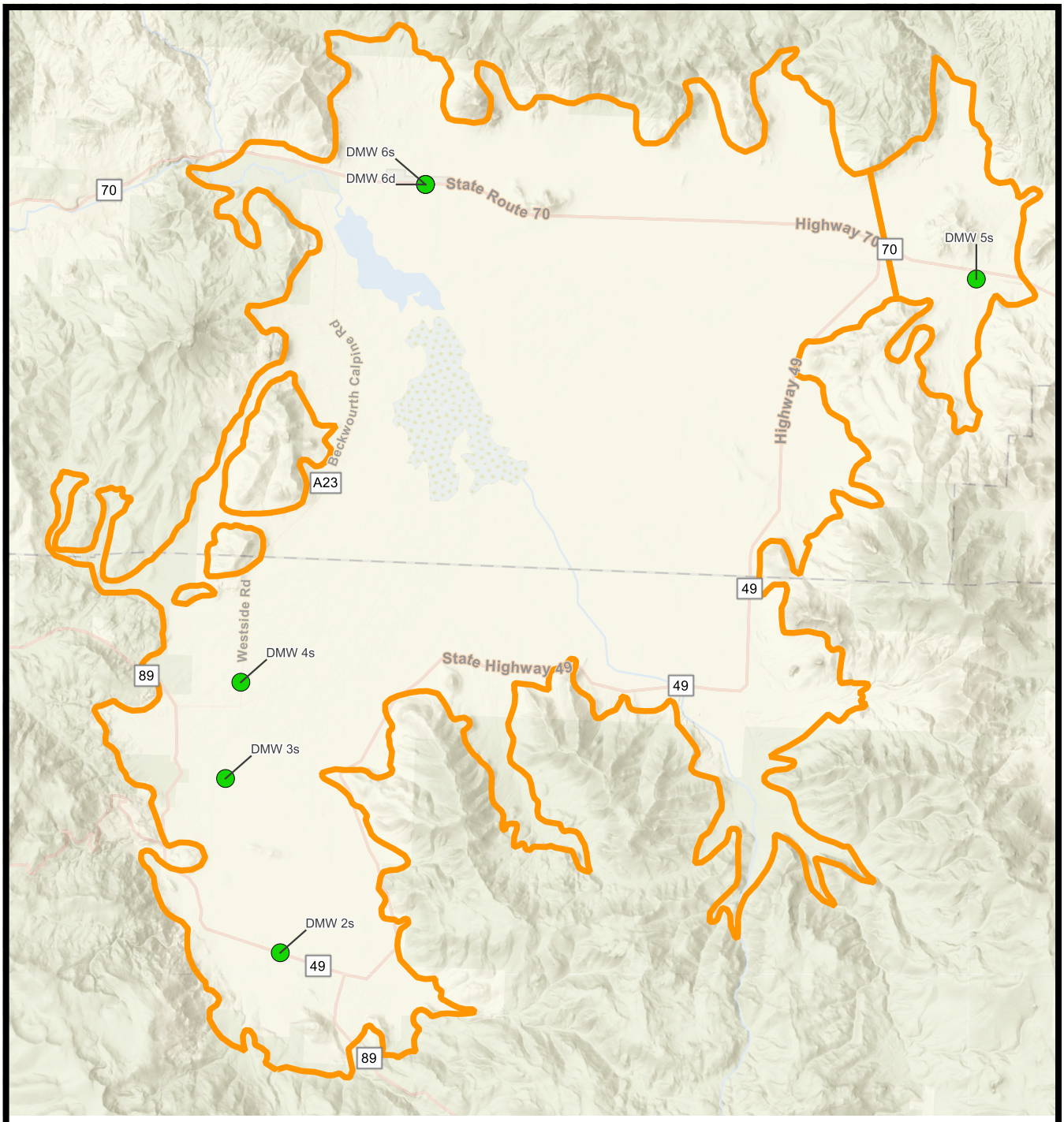
Example SMC Status Categories



Explanation

SMC Status

- Near or Above Measureable Objective
- Within Central Operational Range
- Near Minimum Threshold
- At or Below Minimum Threshold

Groundwater Basin Boundary

N

0 1 2 mi

Notes:
1. See Figure 6 for SMC Status definition.
2. Many wells inaccessible in Spring 2023 due to deep snow.

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SIERRA VALLEY GSP ANNUAL REPORT

Sustainable Management Criteria Status
Upper Aquifer Spring 2023

Figure 7

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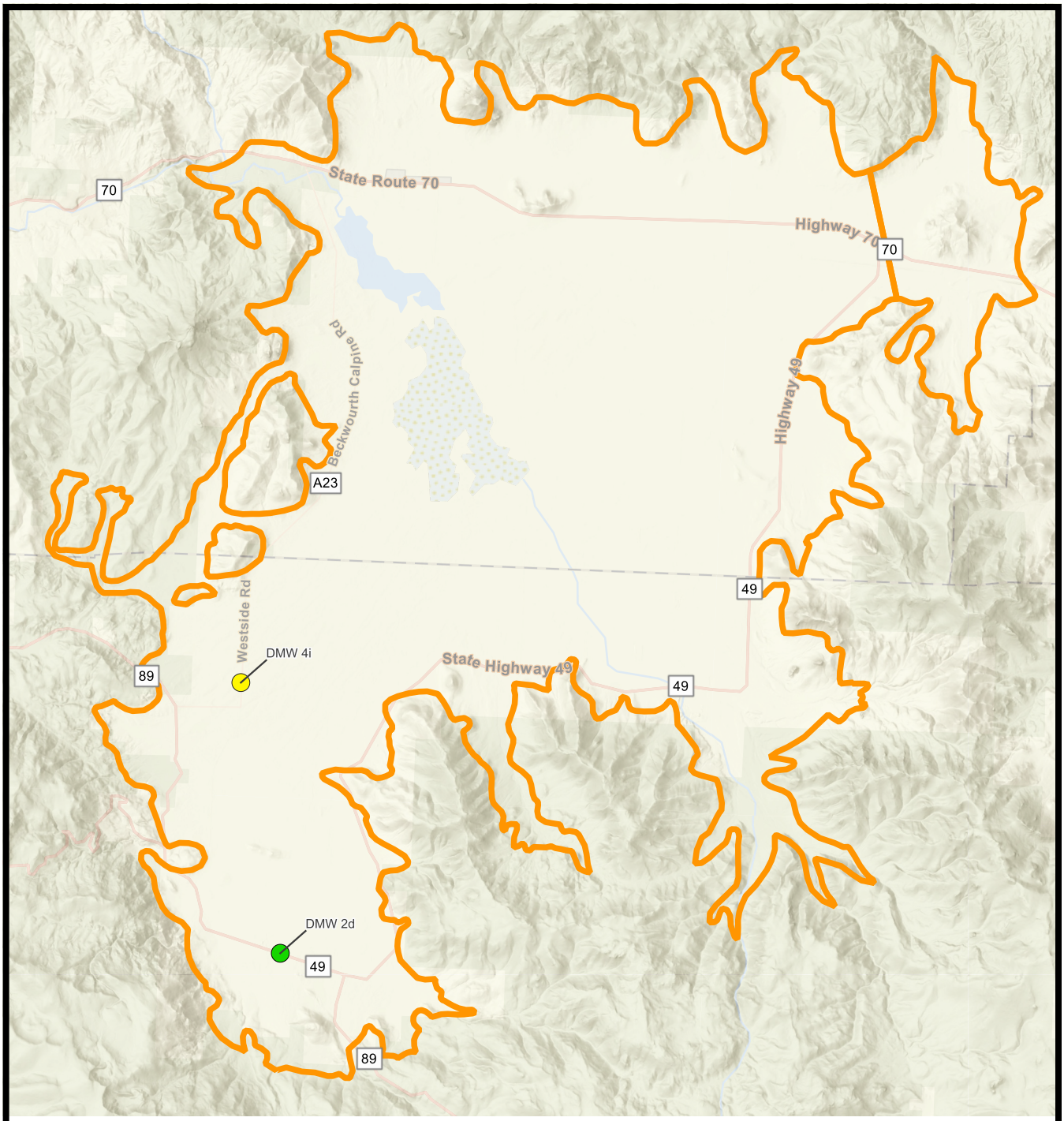

Explanation

SMC Status

- Near or Above Measureable Objective
- Within Central Operational Range
- Near Minimum Threshold
- At or Below Minimum Threshold

Groundwater Basin Boundary

N

0 1 2 mi

Notes:
1. See Figure 6 for SMC Status definition.
2. Many wells inaccessible in Spring 2023 due to deep snow.

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Sustainable Management Criteria Status
Lower Aquifer Spring 2023

Figure 8

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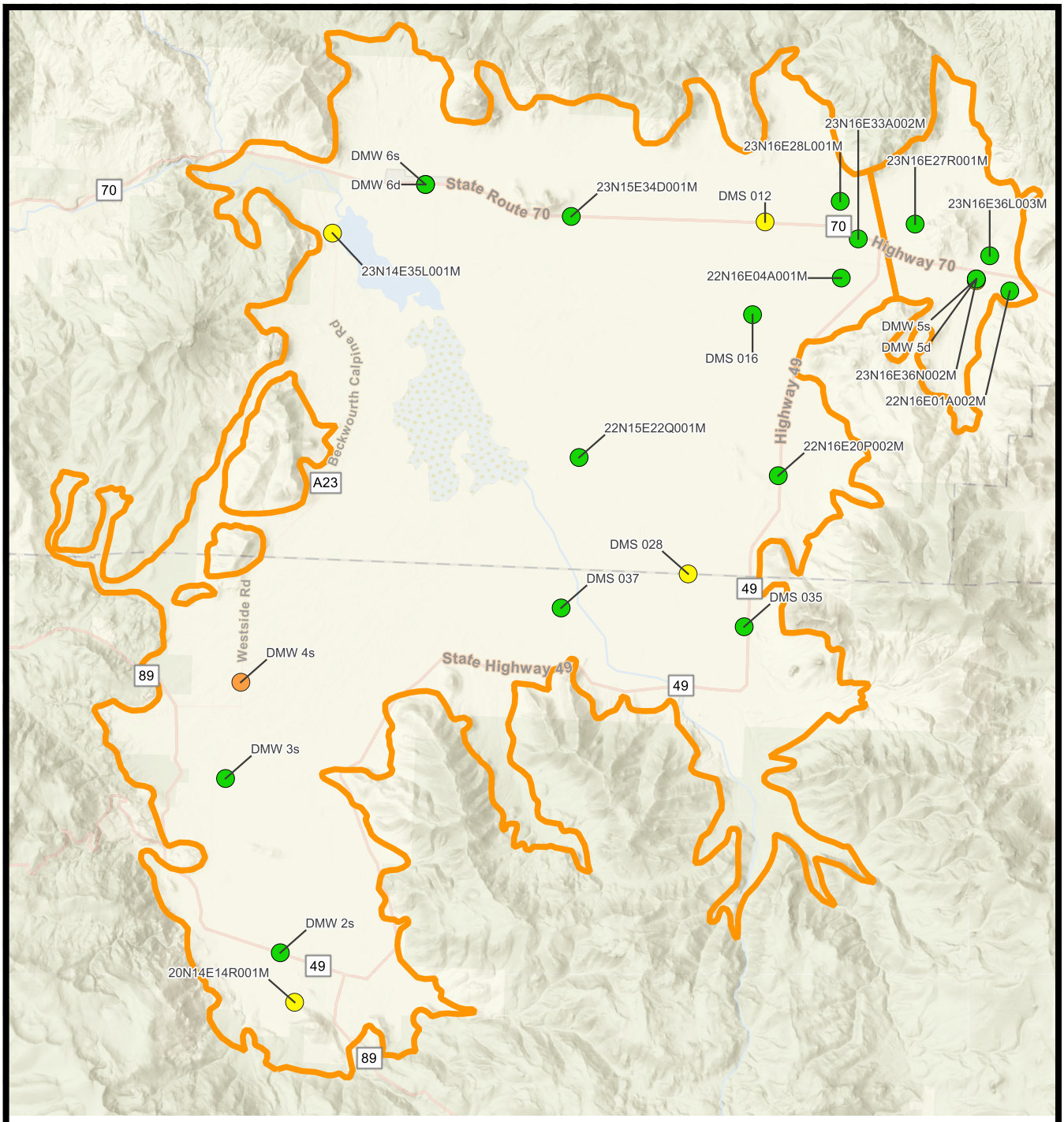

Explanation

SMC Status Fall Upper Aquifer

- Near or Above Measureable Objective
- Within Central Operational Range
- Near Minimum Threshold
- At or Below Minimum Threshold

Groundwater Basin Boundary

N

0 1 2 mi

Notes:
1. See Figure 6 for SMC Status definition.

SIERRA VALLEY GSP ANNUAL REPORT

Sustainable Management Criteria Status
Upper Aquifer Fall 2023

Figure 9

Sierra Valley Groundwater Management District

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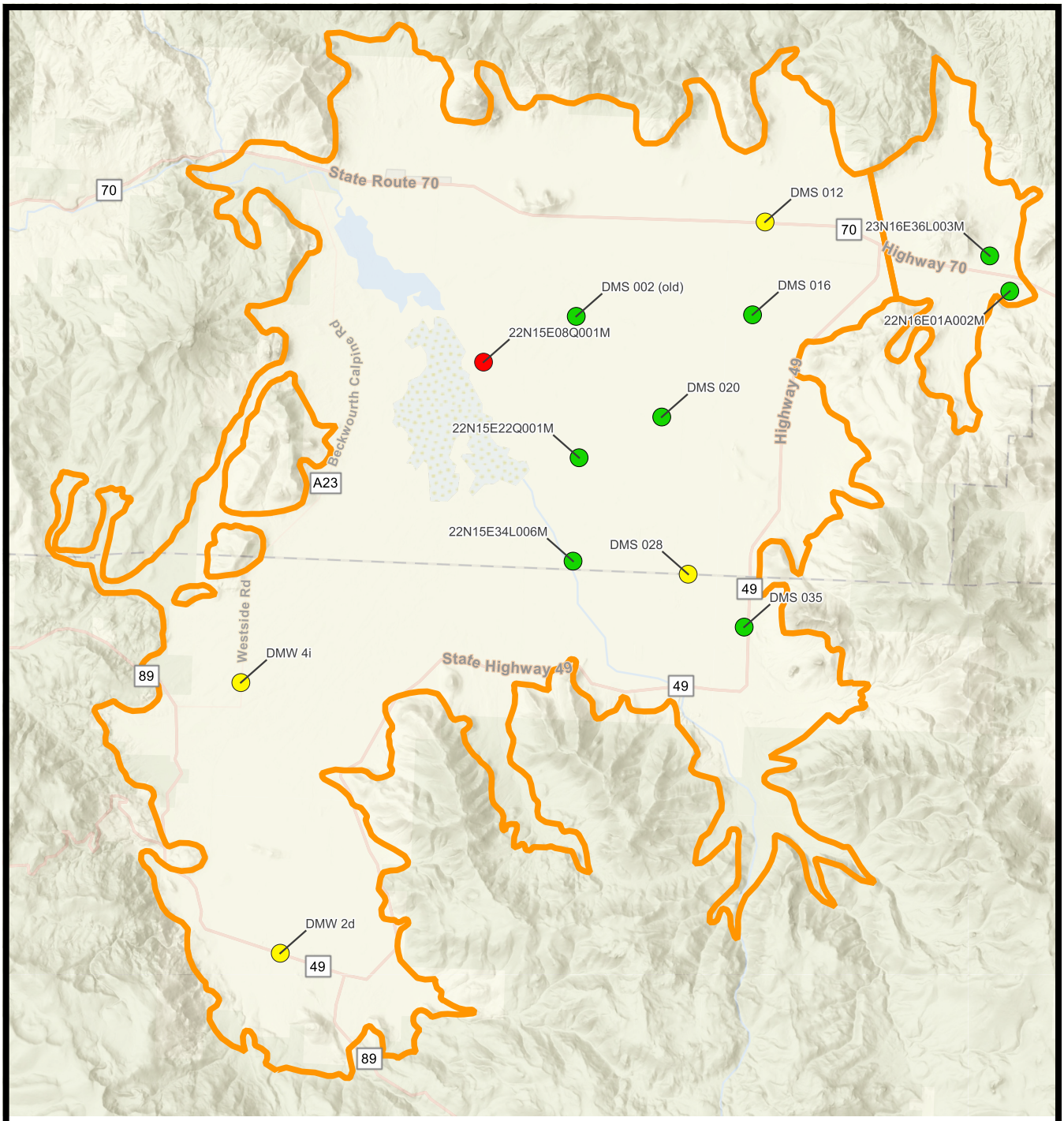

Explanation

SMC Status

- Near or Above Measureable Objective
- Within Central Operational Range
- Near Minimum Threshold
- At or Below Minimum Threshold

Groundwater Basin Boundary

N

0 1 2 mi

Notes:
1. See Figure 6 for SMC Status definition.

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Sustainable Management Criteria Status
Lower Aquifer Fall 2023

Figure 10

Municipal pumping is measured on a monthly basis by the respective entity and reported to SVGMD. Municipal pumping from Sierra County Water Works District #1 (Calpine) is included in the groundwater extraction volumes presented in this Annual Report despite the wells being located just outside of the Basin boundary and predominantly screened in bedrock. Inclusion or exclusion of annual groundwater extractions from the Calpine wells would not materially change any conclusions due to the relatively small annual extraction volume of approximately 50 acre-ft/yr (AFY).

The number of domestic wells has been estimated using two methods:

- Well Completion Reports (WCRs) - available from DWR
- County Parcel Coverage with Use Code Indicator and Description

For the first method, some assumptions were made because the well completion reports do not differentiate between inactive and active wells. The number of wells has been assessed based on assumed useful well life of 30 to 40 years. For the second method, county parcel coverage was provided by Sierra and Plumas counties and it identifies 'residential' parcels. Assumptions included counting for one domestic well per residential parcel. Parcels within a public water supply system boundary have been excluded.

Between the two methods, approximately 385 domestic wells are active in the basin. The majority of domestic wells are located along the margins of the valley and, based on available well log information, typically screened in fractured bedrock. Although groundwater extractions from fractured bedrock aquifers are not subject to SGMA regulations, estimated groundwater extractions from domestic wells have been included in the reported groundwater and total water use volumes presented in this report. Assuming 1 AFY of water use (approximately twice the statewide average per capita water use and half the maximum amount to be classified as a de minimis user), the estimated domestic water use is about 385 AF in the valley. This estimated volume and the underlying assumptions will be further refined during GSP implementation.

Estimated groundwater extractions for WY 2023 grouped by water use sector and measurement method are shown in Table 1. Groundwater pumping within each public land survey system (PLSS) section (1 mi^2) shows the spatial distribution of agricultural (Figure 11), municipal and

Table 1. Groundwater Extractions

Sector	Method	GW Extraction Volume (AF)	Accuracy (%)	Range (AF)
Agriculture	Totalizer	5,526	± 5	5,250 - 5,803
Municipal, Industrial, and Domestic	Totalizer	646	± 5	613 - 678
	Estimated	385	± 20	308 - 462
Total		**6,557**		**6,171 - 6,943**

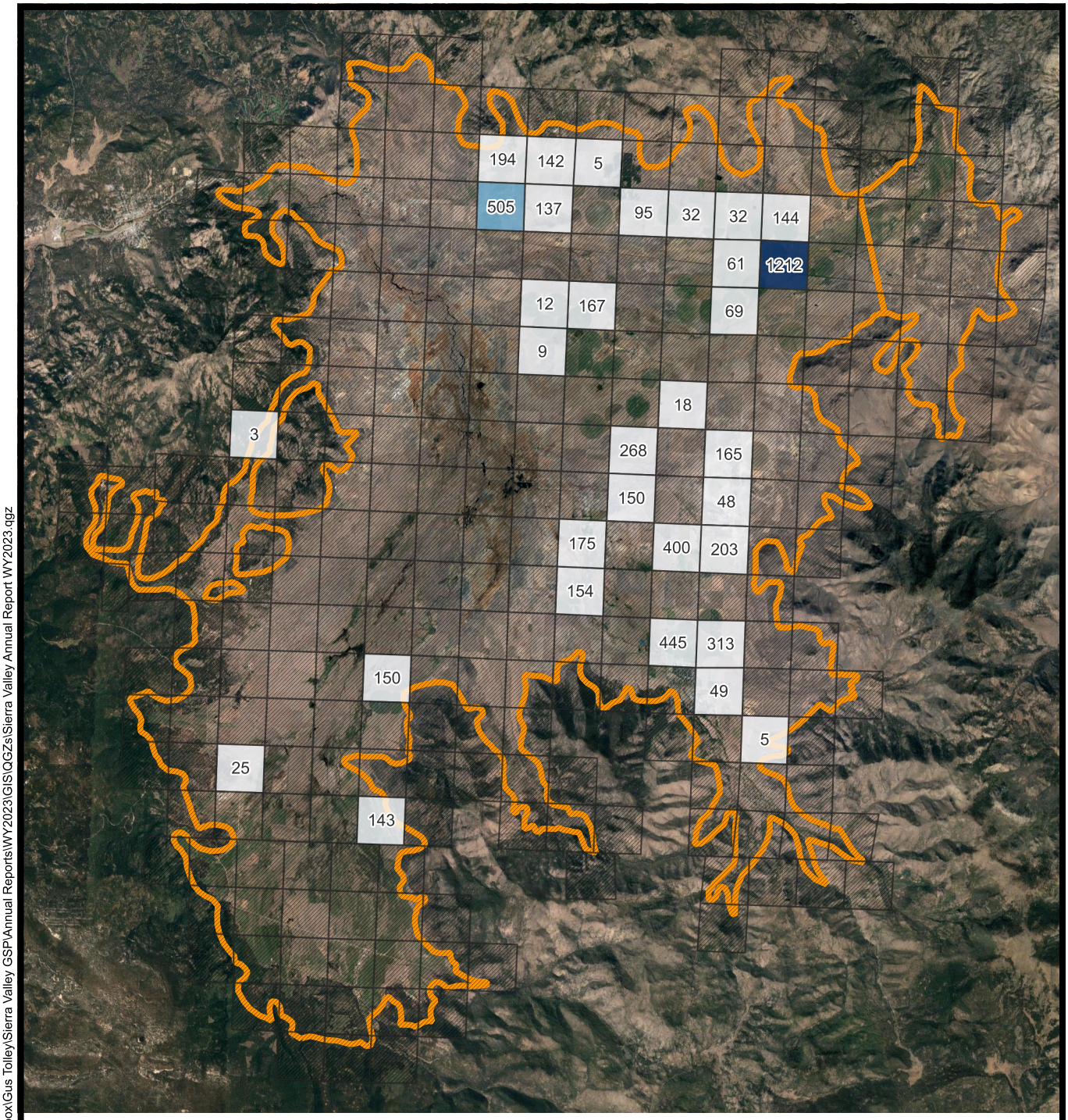
industrial (Figure 12), and total (Figure 13) groundwater extractions within the Basin. In total, groundwater pumping equaled 6,557 AF. Agricultural beneficial uses accounted for about 84 percent of estimated total groundwater extractions for WY 2023.

4. Surface Water Supply

Surface water used in the Basin is grouped by source and measurement method and summarized in Table 2. Surface water is sourced from streams that enter Sierra Valley along the margin, releases from Frenchman Reservoir and Lake Davis, and imported water from the Little Truckee River. Observed flow rates for releases from Lake Davis and Frenchman Reservoir, and imports from the Little Truckee River are available from the Sierra Valley Watermaster.

All imported water from the Little Truckee River diversion is used beneficially for agricultural purposes, as are all contract and water right releases from Frenchman Reservoir (diverted from Little Last Chance Creek). Up to 800 AFY is diverted from Big Grizzly Creek (fed by releases from Lake Davis) to flood irrigate the Ramelli Ranch, owned by the Plumas National Forest. Specific diversion data for Ramelli Ranch are not currently available, but reduction of the diversion volume is not common (Joe Hoffman, personal communication).

Flow data for streams entering Sierra Valley are sporadic and diversion volumes are generally not reported. Total diversion volume from ungauged local streams was calculated as the difference between total surface water use estimated using SVHSM and reported inflows from the Little Truckee River diversion, Frenchman Reservoir, and Lake Davis.



Explanation

Extraction Volume (AF)

- No Extractions
- 0 - 500
- 500 - 1,000
- 1,000 - 1,500

Groundwater Basin Boundary

0 1 2 mi

N

Notes:
1. Annual groundwater pumping aggregated by PLSS sections.
2. Labels indicate volume pumped in AF.
3. Agricultural pumping totaled 5,526 AF.

Sierra Valley Groundwater Management District

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SIERRA VALLEY GSP ANNUAL REPORT
Groundwater Extractions WY 2023
Agricultural

Figure 11

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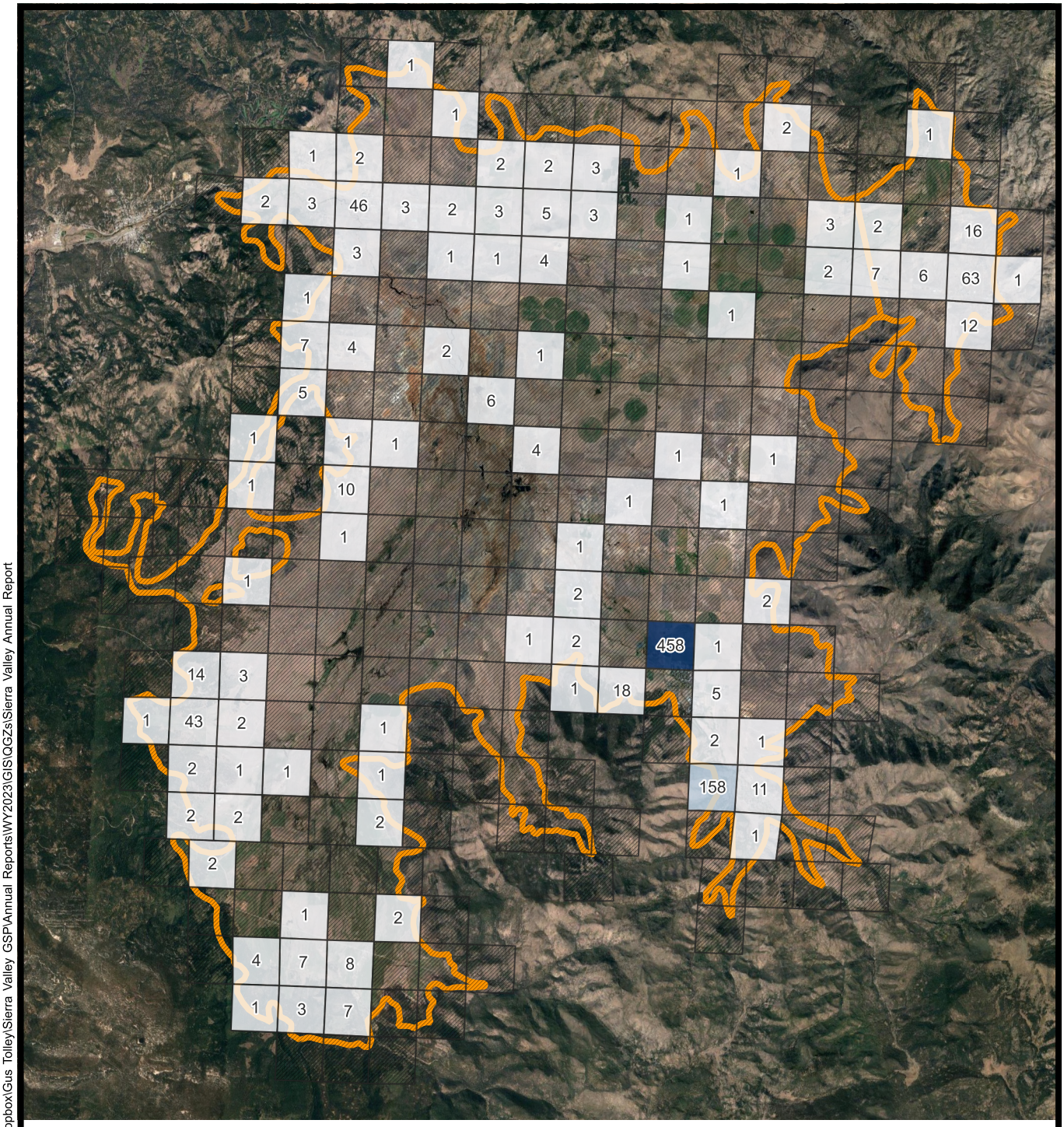

Explanation

Extraction Volume (AF)

- No Extractions
- 0 - 100
- 100 - 200
- 200 - 300
- 300 - 400
- 400 - 500
- Groundwater Basin Boundary

0 1 2 mi

N

Notes:
1. Annual groundwater pumping aggregated by PLSS sections.
2. Labels indicate volume pumped in AF.
3. Municipal, industrial, and domestic pumping totaled 1,031 AF.

Sierra Valley Groundwater Management District

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SIERRA VALLEY GSP ANNUAL REPORT

Groundwater Extractions WY 2023

Municipal, Industrial, and Domestic

Figure 12

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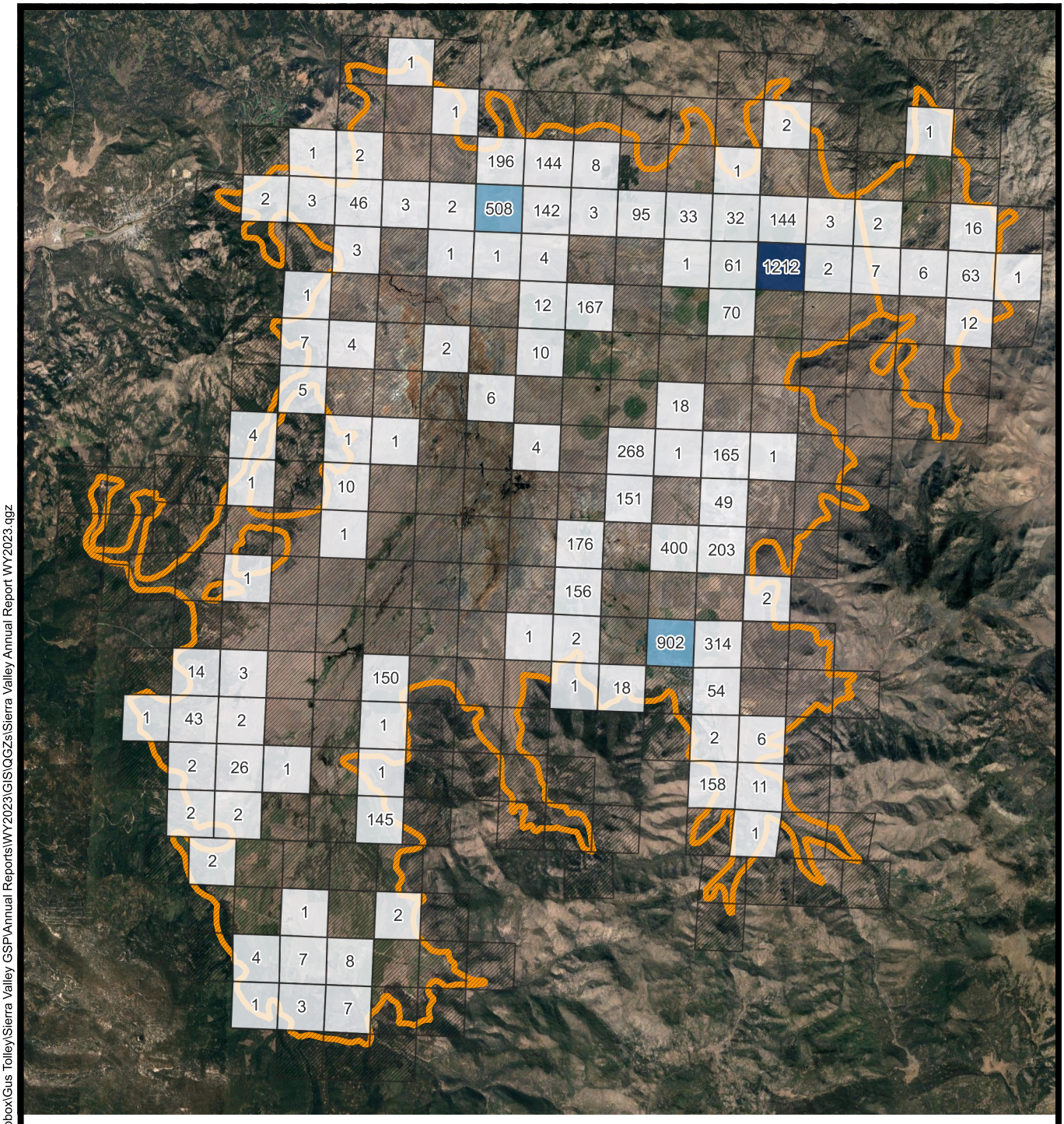

Explanation

Pumping (Total)

- No Extractions
- 0 - 500
- 500 - 1000
- 1000 - 1500

GroundwaterBasin Boundary

0 1 2 mi

N

Notes:
1. Annual groundwater pumping aggregated by PLSS sections.
2. Labels indicate volume pumped in AF.
3. Total groundwater pumping volume was 6,557 AF.

Sierra Valley Groundwater Management District

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SIERRA VALLEY GSP ANNUAL REPORT
Groundwater Extractions WY 2023
Total

Figure 13

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Table 2. Surface Water Use

Surface Water Source	Method	Annual Volume Used (AF)	Accuracy (%)	Range (AF)
Local Imported Supplies	Weir	1,527	± 5	1,450 - 1,603
Local Supplies	Weir	8,448	± 5	8,025 - 8,870
	Estimated from model results and reported diversion data[1]	35,405	± 20	28,324 - 42,486
	Estimated from previously reported diversions	800	± 33	536 - 800[a]
Total		**46,180**		**38,335 - 53,759**

1. Total diversion volume from ungauged local streams not estimated in WY 2021 GSP annual report

a. Upper limit established as 800 AFY

Imports from the Little Truckee River diversion totaled approximately 1,527 AF for WY 2023. Contract and water right releases from Frenchman Reservoir and Lake Davis were about 8,448 AF and 800 AF, respectively. Diversions from ungauged streams entering the Basin were estimated to be 35,405 AF. Total volume of surface water used in the Basin during WY 2023 was estimated to be 46,180 AF. Surface water use is uncertain due to lack of flow and diversion data for most streams that enter Sierra Valley, which limits model calibration efforts. Improvement of surface water diversion observations from local streams would help fill this data gap.

5. Total Water Use

Total water use in the Basin is grouped by water use sector and measurement method and shown in Table 3. Total water volumes used in the Basin during WY 2023 was estimated to be 52,737 AF.

Table 3. Total Water Use

Sector	Method	Total Annual Volume (AF)	Accuracy (%)	Range (AF)
Agriculture	Totalizer	5,526	± 5	5,250 - 5,803
	Weir	9,975	± 5	9,475 - 10,473
	Estimated from model results and reported diversion data[1]	35,405	± 20	28,324 - 42,486
	Estimated from previously reported diversions	800	± 33	536 - 800[a]
Agriculture Subtotal	-	51,706	-	43,585 - 59,562
Municipal, Industrial, and Domestic	Totalizer	646	± 5	613 - 678
	Estimated	385	± 20	308 - 462
Municipal, Industrial, and Domestic Subtotal	-	1,031	-	921 - 1,140
Total		**52,737**		**44,506 - 60,702**

1. Total diversion volume from ungauged local streams not estimated in WY 2021 GSP annual report

a. Upper limit established as 800 AFY

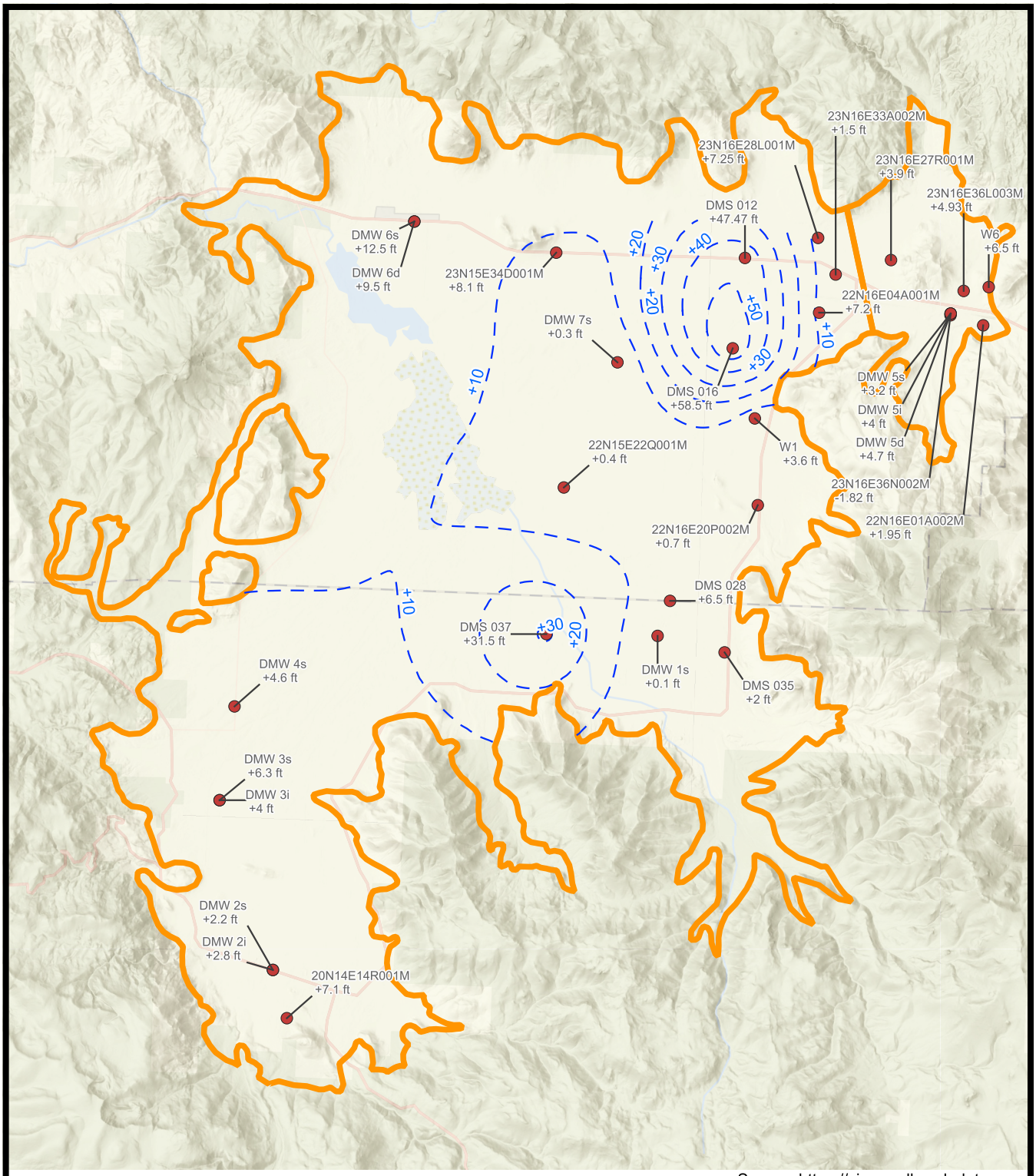
As discussed in Section 4 above, flow data for streams entering Sierra Valley is sporadic and surface water diversion volumes are not well-reported. Therefore, total water use is estimated using the best available data and tools.

6. Change in Groundwater Storage

Observed changes in water levels from Fall 2022 to Fall 2023 for the upper and lower aquifers are shown in Figure 14 and Figure 15, respectively. Volumetric change in groundwater storage for the Basin was estimated using the Sierra Valley Hydrogeologic System Model (SVHSM).

Total change in groundwater in storage in the Basin over WY 2023 was estimated to be +24,245 AF. A positive change in annual storage is expected due to exceptionally wet conditions for WY 2023.

Figure 16 shows annual groundwater pumping and change in storage, along with cumulative storage since the start of WY 2000. Cumulative storage is reported as the total change in storage relative to October 1st, 1999, which is the beginning of the SVHSM historical simulation



Source: https://sierravalley.gladata.com

Explanation

- Well Name
  Change in Water Level (ft)
- Groundwater Elevation Change Contour (ft)
- Groundwater Basin Boundary

0 1 2 mi

N

Notes:
1. Groundwater elevation changes averaged for nested monitoring wells screened in the same aquifer.

Sierra Valley Groundwater Management District

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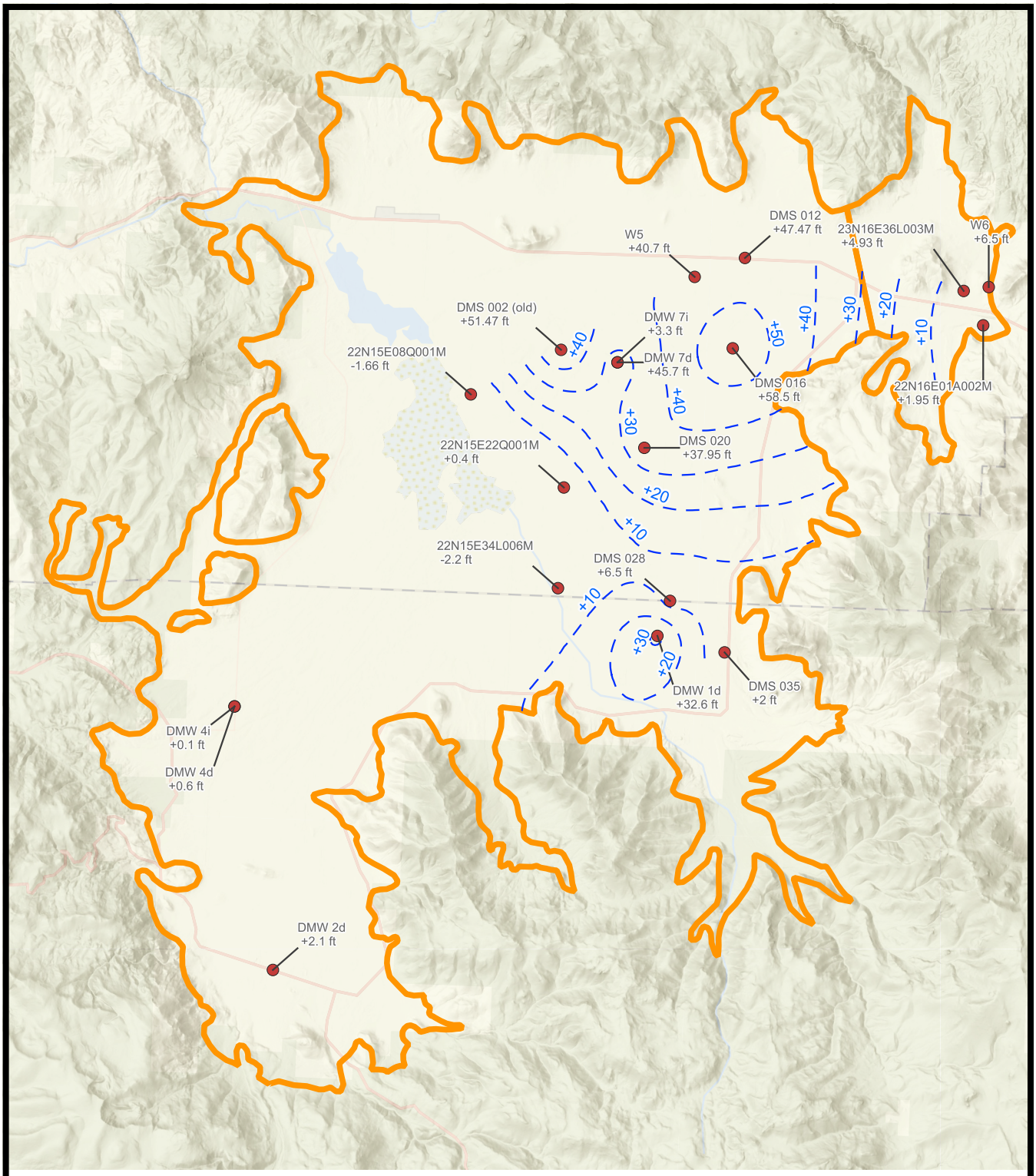
SIERRA VALLEY GSP ANNUAL REPORT

Change in Groundwater Elevations
Upper Aquifer Fall 2022 - Fall 2023

Figure 14

DB23.1406.00 C:\Users\500\Sierra Valley GSP Dropbox\Gus Tolley\Sierra Valley GSP\Annual Reports\WY2023\GIS\QGZs\Sierra Valley Annual Report WY2023.qgz



Explanation

- Well Name
  Change in Water Level (ft)
- Groundwater Elevation Change Contour (ft)
- Groundwater Basin Boundary

0 1 2 mi

N

Source: https://sierravalley.gladata.com

Notes:
1. Groundwater elevation changes averaged for nested monitoring wells screened in the same aquifer.

Sierra Valley Groundwater Management District

02/10/2024

SIERRA VALLEY GSP ANNUAL REPORT

Change in Groundwater Elevations
Lower Aquifer Fall 2022 - Fall 2023

Figure 15

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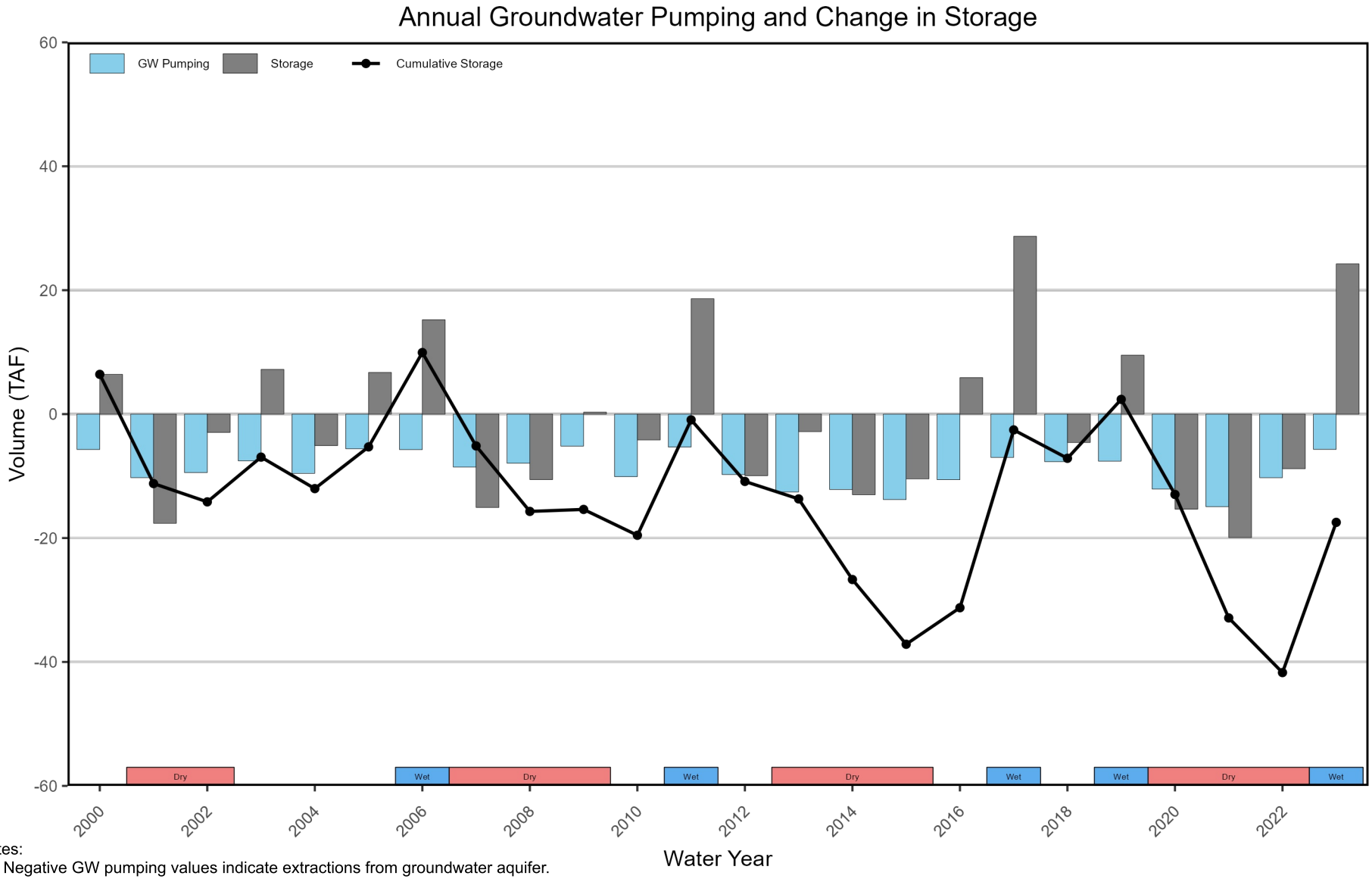


Notes:
1. Negative GW pumping values indicate extractions from groundwater aquifer.
2. Positive storage values indicate increasing groundwater levels.
3. Change in storage values estimated using Sierra Valley Hydrogeologic System Model (SVHSM).
4. Red and blue colored bars at bottom of grpah indicate dry/critical and wet water year types, respectively, from Sacramento Valley Water Year Hydrologic Classification Indices.

Figure 16

Sierra Valley Groundwater Management District

02/10/2024

SIERRA VALLEY GSP ANNUAL REPORT

Groundwater Pumping and Change in Storage

WY 2000-2023

period. Through WY 2023, cumulative change in groundwater in storage since WY 2000 is estimated to be -17,468 AF.

7. Progress Towards GSP Implementation

The Sierra Valley GSP provided seven Tier I (existing) and 12 Tier II (potential) Projects and Management Actions (PMAs) to achieve sustainability goals (see Chapter 4 of the Sierra Valley GSP: https://www.sierravalleygmd.org/files/e88626a57/Chapter+4+Projects+and+Management+Actions.pdf). The sections below describe actions taken for securing funding, starting, continuing, or completing PMAs identified in the GSP.

7.1 GSP Implementation Grant Applications and Awards

Since the WY 2022 GSP Annual Report was submitted, three grant applications totaling $8,014,577 were awarded to the SVGMD by DWR, CDFW, and the Plumas Watershed Forum to support GSP implementation and groundwater sustainability projects in the basin. A summary of the scope and status of these grants as of February 12th, 2024 is shown in Table 4. The SVGMD is also awaiting determinations on 2023 California Department of Food and Agriculture (CFDA) Multi-benefit Land Repurposing Program grant applications to assess fit with creating multiple benefits while keeping land in production.

7.2 DWR Technical Support Services Monitoring Well Request

The SVGMD applied for an additional groundwater monitoring well through the DWR Technical Support Services Program. The location of this new multi-depth completion (nested) monitoring well has not been finalized but is planned to be located approximately 1,200 ft south of the intersection of Highway 49 and Smithneck Road east of Loyalton to support the upcoming managed aquifer recharge (MAR) project funded through a CDFW grant (see Section 7.1 above and Table 4). This new monitoring well is expected to be completed in WY 2025.

7.3 Subsidence Monitoring

In September and October 2022, 16 surface elevation monuments were installed and surveyed in. One of the monuments (Point 1) was found to be disturbed and has been removed from the subsidence monitoring network. These monuments will be re-surveyed periodically in the future

Table 1. Summary of recent Sierra Valley groundwater sustainability grant applications

FUNDER AND GRANT TITLE	SCOPE	AMOUNT REQUESTED	STATUS AS OF FEBRUARY 13, 2023
California Department of Fish and Wildlife (CDFW) *Sierra Valley Groundwater Recharge Multi-Benefit Project*	The focus is on planning and permitting activities related to the Badenaugh-Smithneck recharge proposal. This includes CEQA compliance, feasibility studies and other actions required for project construction.	$1,342,577	**Awarded and grant agreement fully executed.** **Work Starting Q1 2024.**
Plumas Watershed Forum *Sierra Valley Groundwater Recharge and Irrigation Efficiency Project*	The focus is on agricultural irrigation efficiency and a recharge project in the Little Last Chance area.	~~$1,547,000~~ $1,222,000	**Revised budget submitted to Plumas Watershed Forum 11/14/2023. Awarded and grant agreement fully executed.** **Work starting Q1 2024.**
California Department of Water Resources (DWR) *Sierra Valley GSP Implementation and Planning*	Funding to assist with all aspects of GSP implementation including data collection and data management, annual reports, five-year updates to the GSP, projects and management actions, and grant administration.	$5,450,000	**Awarded, grant agreement under review**

to ground-truth subsidence observations collected remotely by satellites (InSAR). See Appendix B for monument locations.

7.4 Well Flow Meter Standardization

All high-capacity groundwater irrigation wells in the basin are now equipped with the same type of totalizing flow meter for measurement consistently. Readings are checked on a monthly basis during the irrigation season (mid-March through October). In WY 2023, two flow meters were found to provide inaccurate readings and were replaced under warranty, while a third required reprogramming. Minimal pumping data was lost as a result of these activities.

7.5 Irrigation Review & LEPA Irrigation Efficiency Demonstration Program

A low energy precision application (LEPA) irrigation system demonstration was planned on the Roberti Ranch for Sping 2023. Unfortunately, there was extensive winter crop damage on the pivot equipped with LEPA, which required replanting of the crop. As a result, a comparison of water use between conventional mid-height sprinklers and a LEPA cannot be made for 2023. It is possible that a comparison can be completed in the Spring of 2024 if budget allows.

7.6 DMS Maintenance

The SVGMD has continued to maintain and update the Sierra Valley DMS (Sierra-Valley.gladata.com), which provides stakeholders access to all available groundwater data in the subbasin, excluding pumping data, using a user-friendly, map-based web interface. Groundwater levels are typically uploaded on a monthly basis.

8. References

McGinley & Associates. 2022a. Review of Potential Water Supply Augmentation Projects and Management Actions, Sierra Valley, Sierra and Plumas County, California. Technical Report. https://bit.ly/40mgIfS

McGinley & Associates. 2022b. Sierra Valley Groundwater Management Plan 2022 Monitoring Networks Expansion O&M Manual, Sierra Valley, Sierra and Plumas County, California. Technical Report. https://bit.ly/3K9ZoVM

McGinley & Associates. 2022c. Sierra Valley Irrigation Review & LEPA Irrigation Efficiency Demonstration Program, Sierra Valley, Sierra and Plumas County, California. Technical Report. https://bit.ly/3lLVIjO

Sierra Valley Groundwater Management District (SVGMD). 2022a. Sierra Valley Subbasin Groundwater Sustainability Plan. https://sgma.water.ca.gov/portal/gsp/preview/125

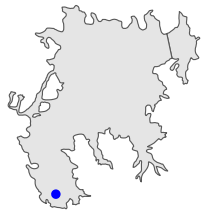
Sierra Valley Groundwater Management District (SVGMD). 2022b. DMS Technical Memorandum. Appendix 2-1 of Sierra Valley Subbasin Groundwater Sustainability Plan. https://www.sierravalleygmd.org/files/51e7b778f/Appendix+2-1+DMS+Tech+Memo.pdf

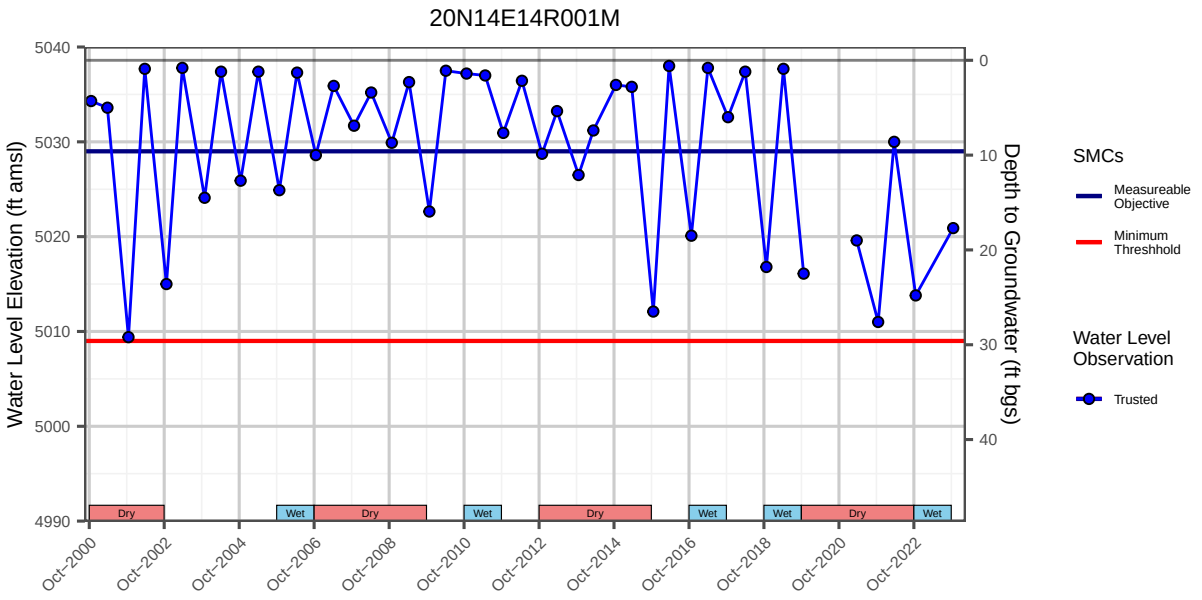
Sierra Valley Groundwater Management District (SVGMD). 2022c. Sierra Valley Hydrogeologic System Model and Water Budget Report. Appendix 2-7 of Sierra Valley Subbasin Groundwater Sustainability Plan. https://www.sierravalleygmd.org/files/5e6d7e8c6/Appendix+2-7+SVHSM+Model_Water+Budget+Report.pdf

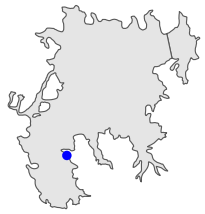
Sierra Valley Groundwater Management District (SVGMD). 2022d. Sierra Valley Groundwater Basin GSP Annual Report Water Year 2021. Technical Report. https://www.sierravalleygmd.org/files/f538cd202/Submitted+Annual+Report+4-1-22.pdf

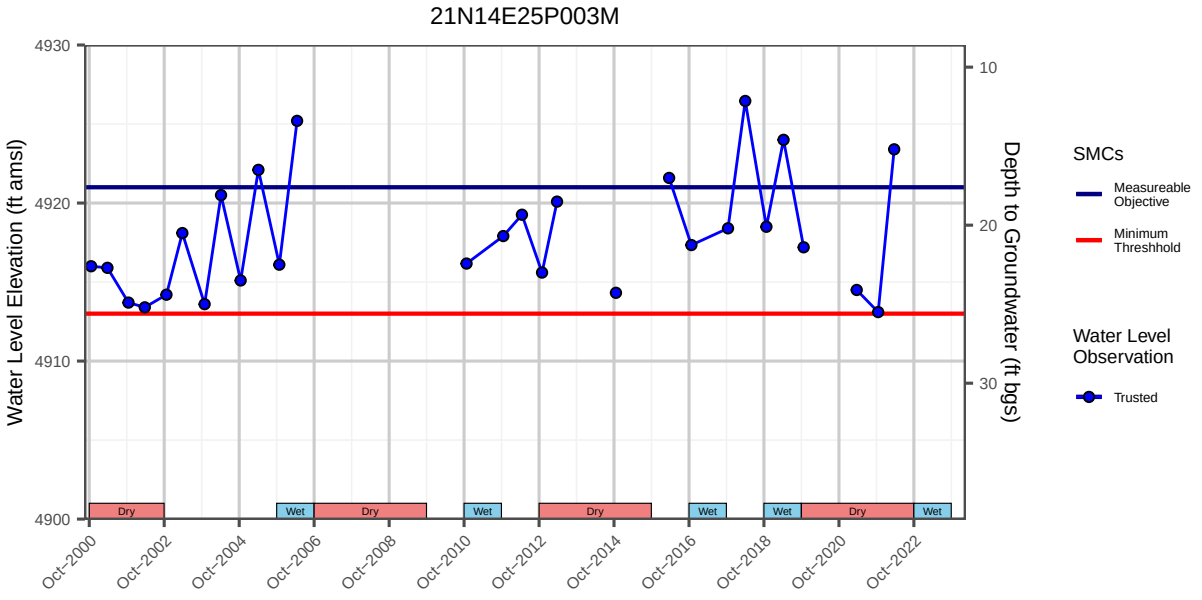
Appendix A

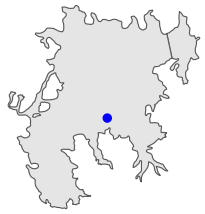
Representative Monitoring Point Hydrographs

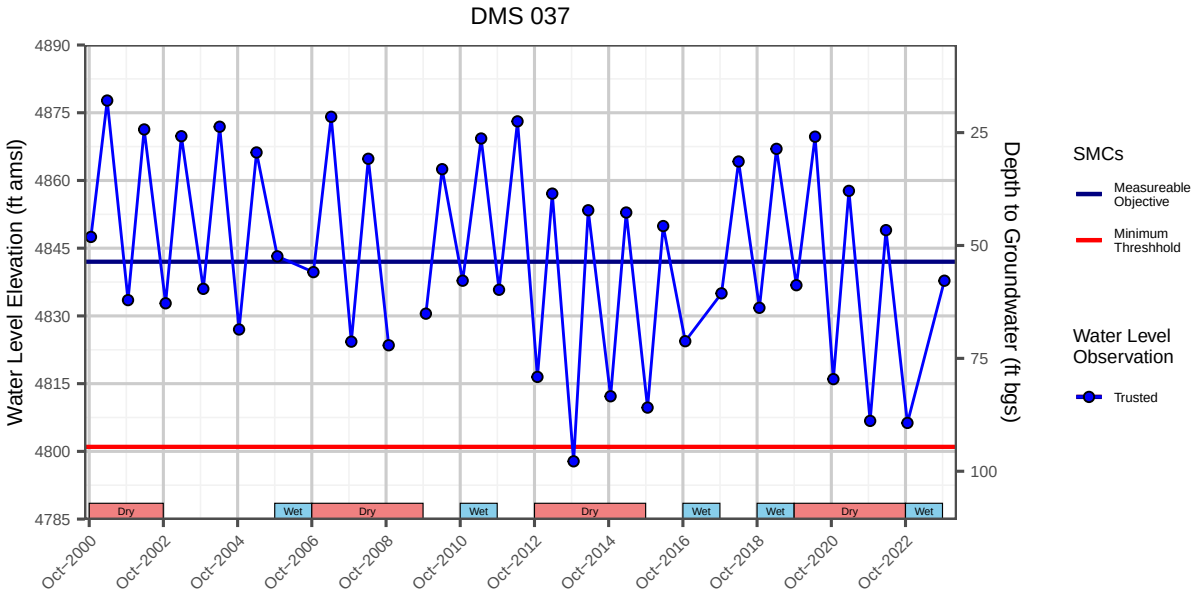



20N14E14R001M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
5040
5030
5020
5010
5000
4990
0
10
20
30
40
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

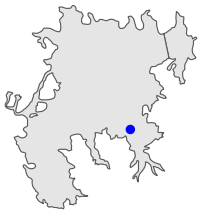


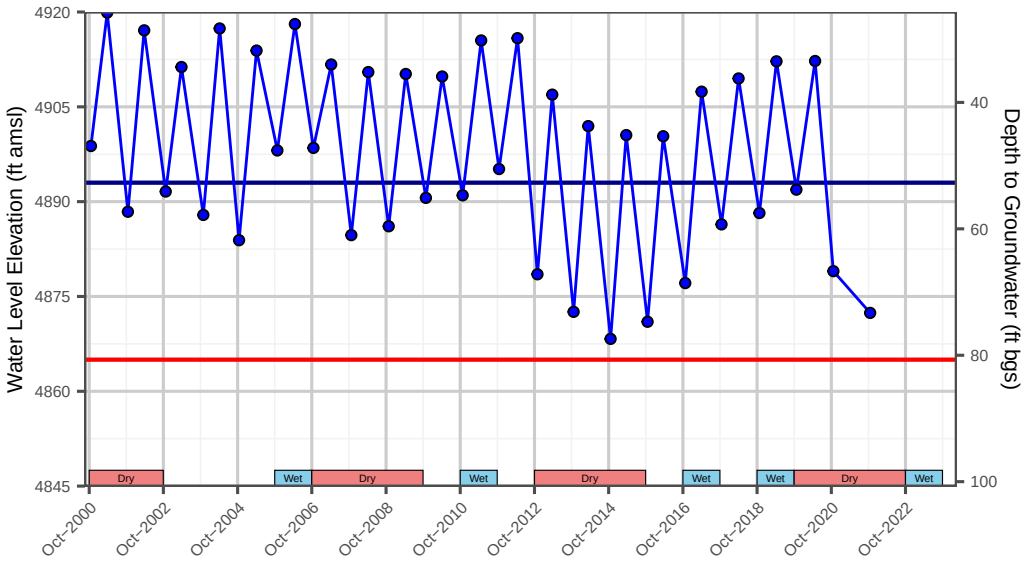

21N14E25P003M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4930
4920
4910
4900
10
20
30
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted




DMS 037
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4890
4875
4860
4845
4830
4815
4800
4785
25
50
75
100
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

DMS 030

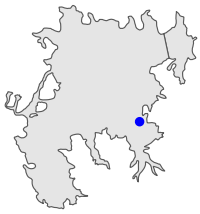


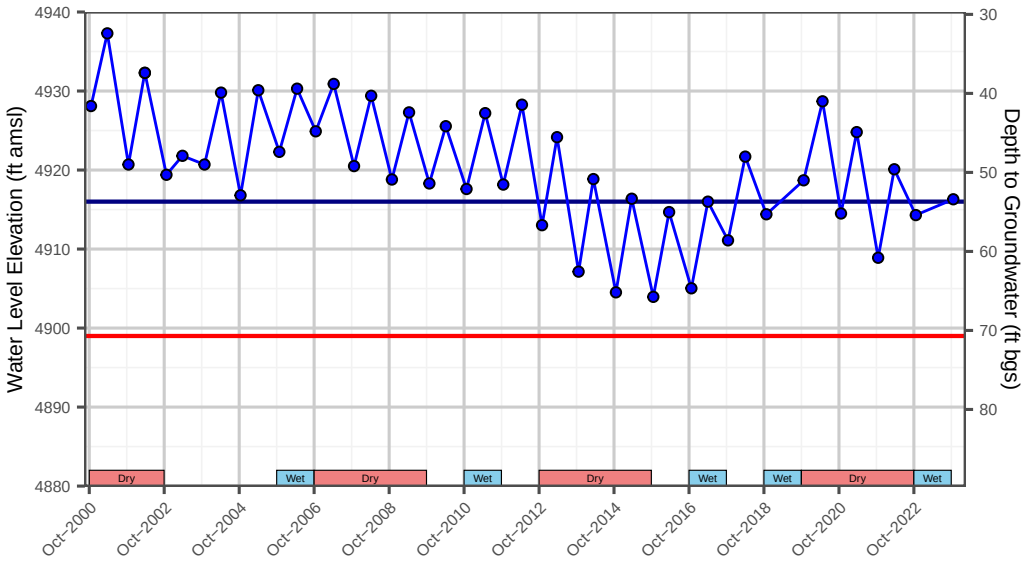


SMCs
- Measureable Objective
- Minimum Threshhold

Water Level Observation
- Trusted

DMS 035

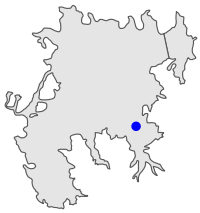


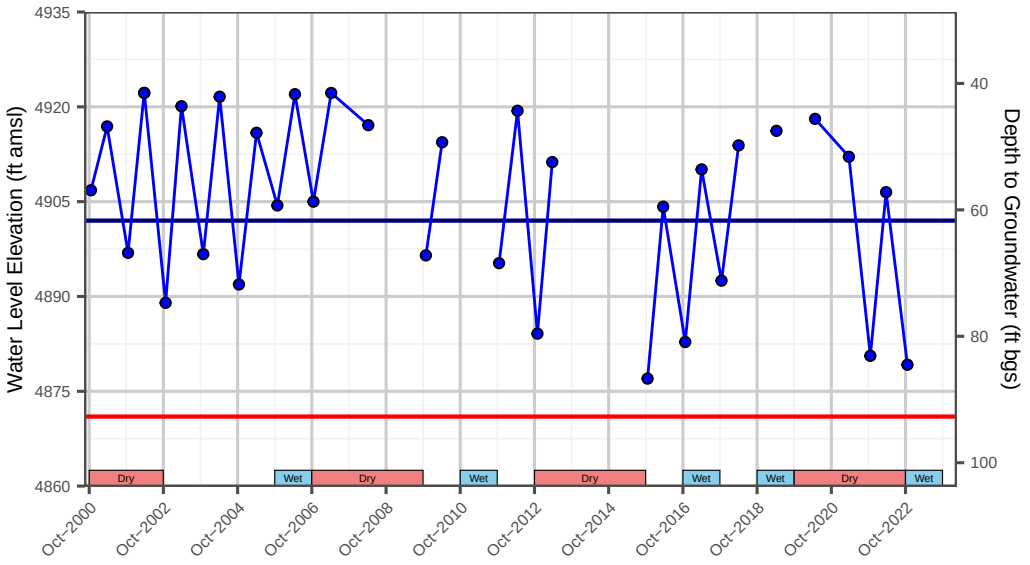


SMCs
- Measureable Objective
- Minimum Threshhold

Water Level Observation
- Trusted

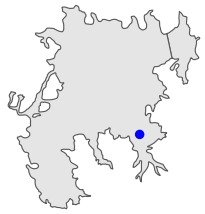
DMS 034

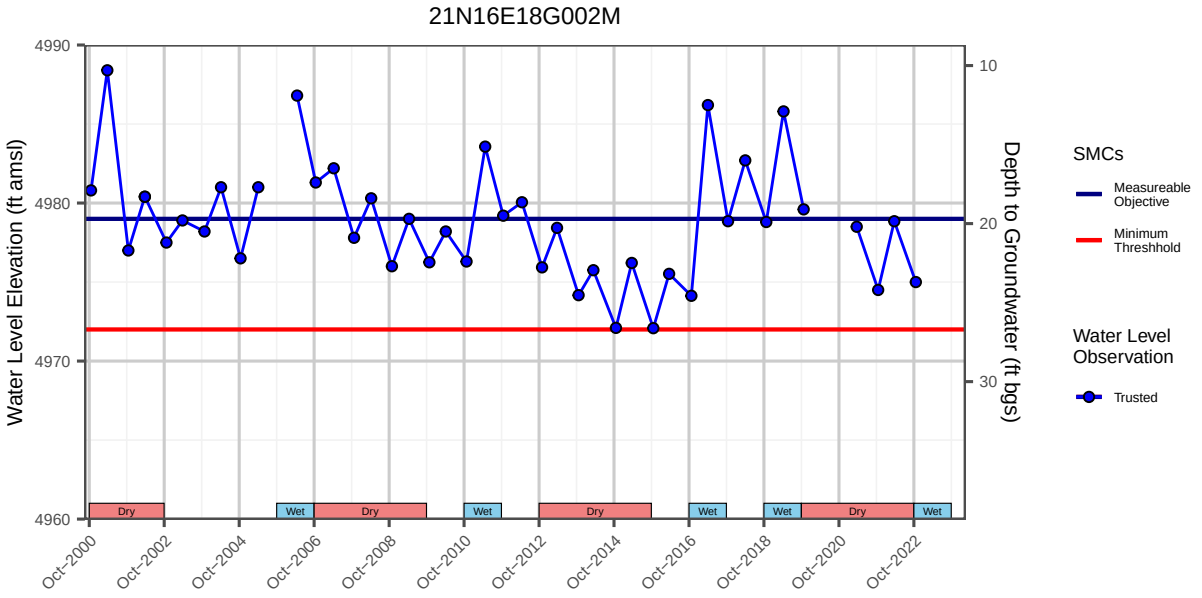


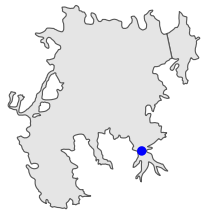


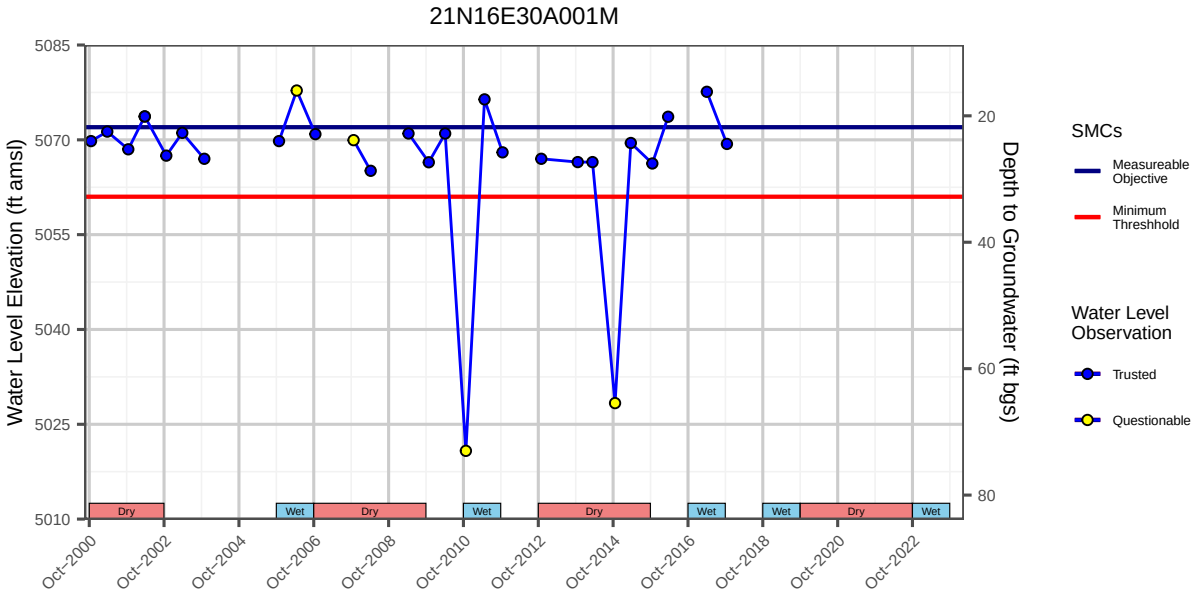
SMCs
- Measureable Objective
- Minimum Threshhold

Water Level Observation
- Trusted




21N16E18G002M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4990
4980
4970
4960
10
20
30
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

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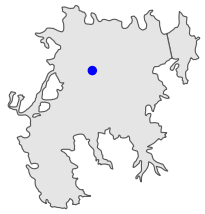
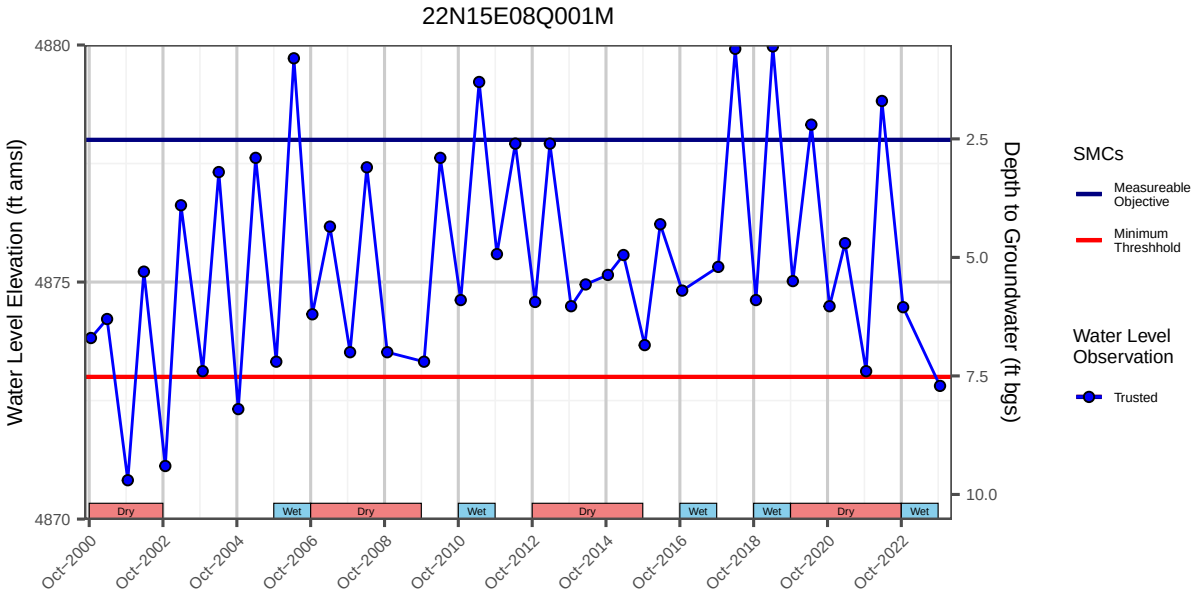
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
5085
5070
5055
5040
5025
5010
20
40
60
80
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted
Questionable




22N15E08Q001M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4880
4875
4870
2.5
5.0
7.5
10.0
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

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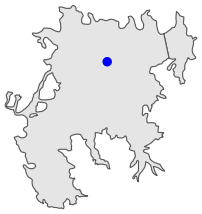

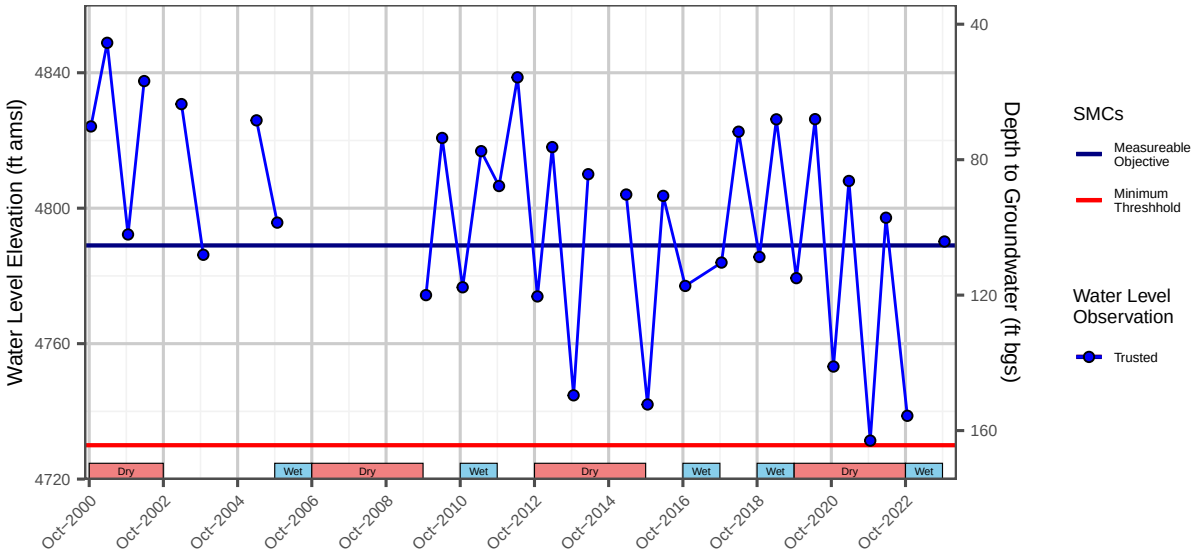

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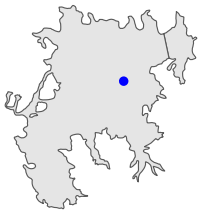

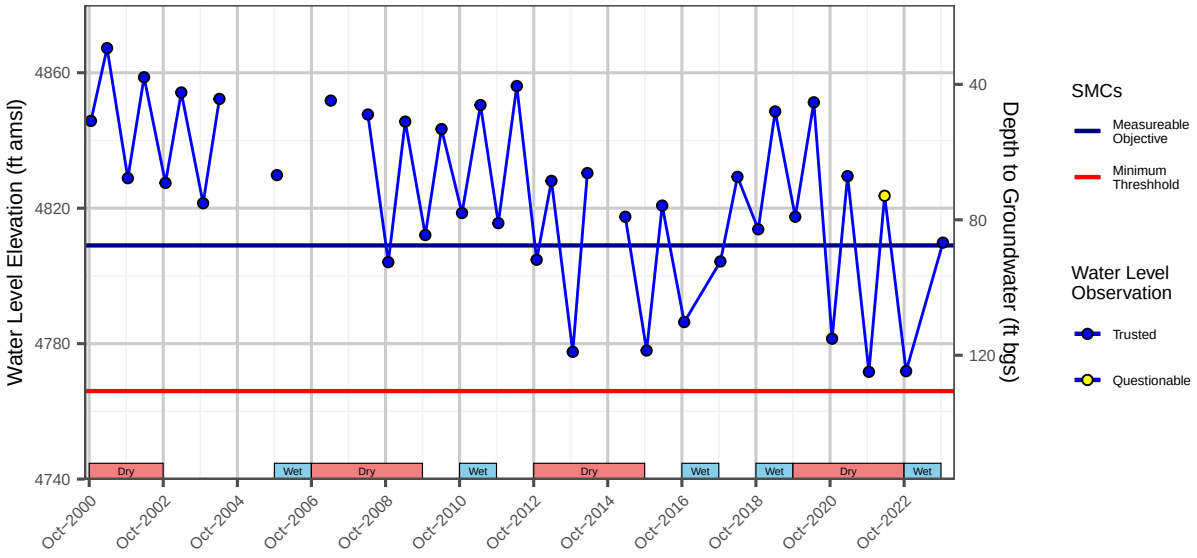

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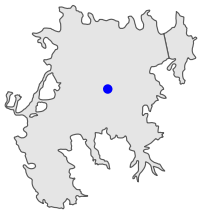

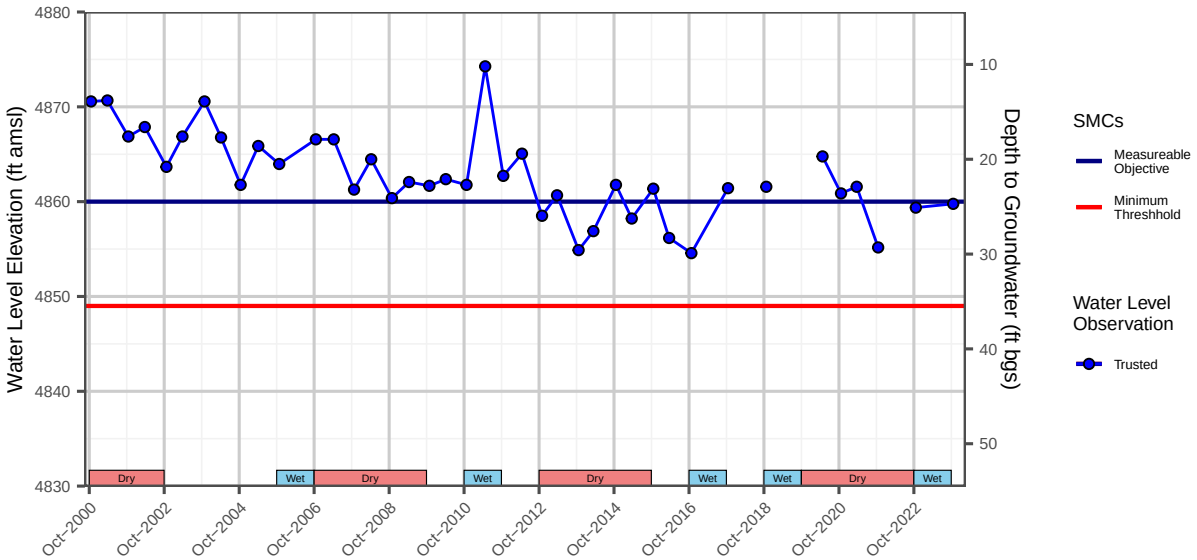

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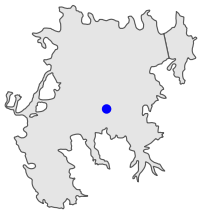
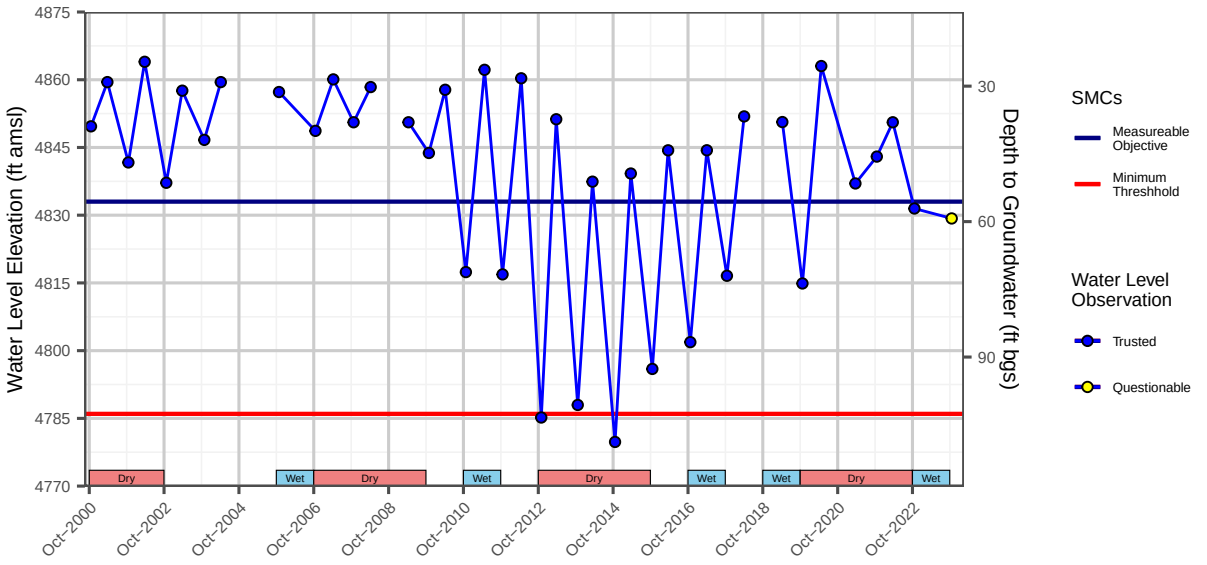
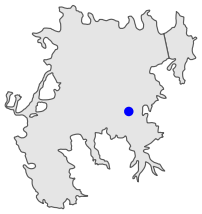
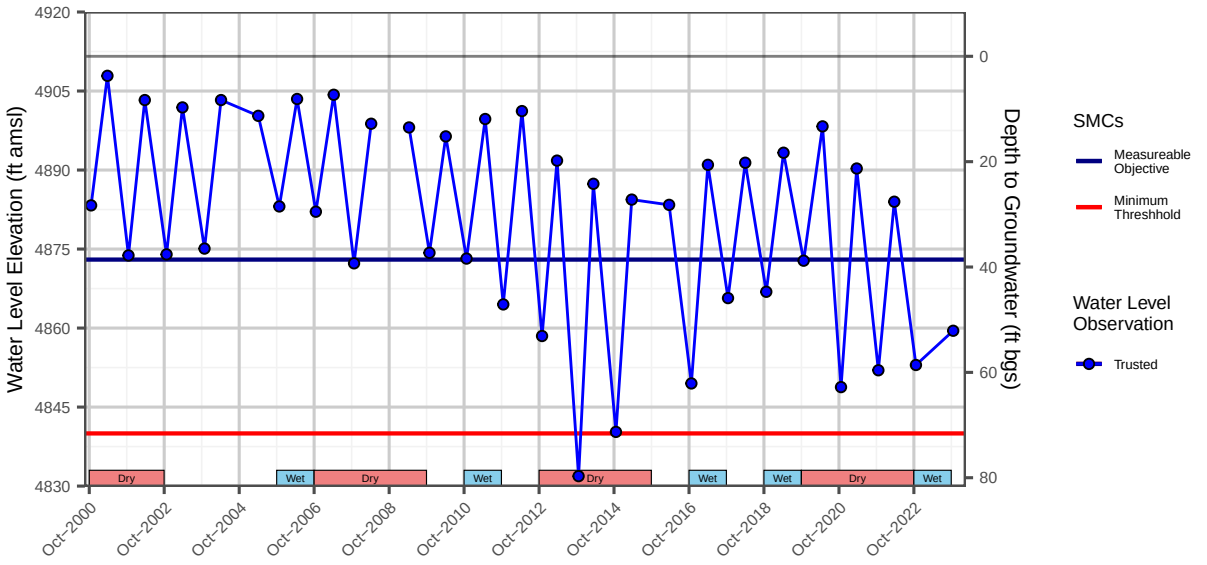




DMS 028





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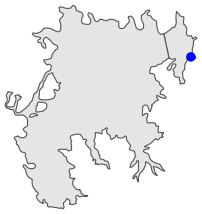

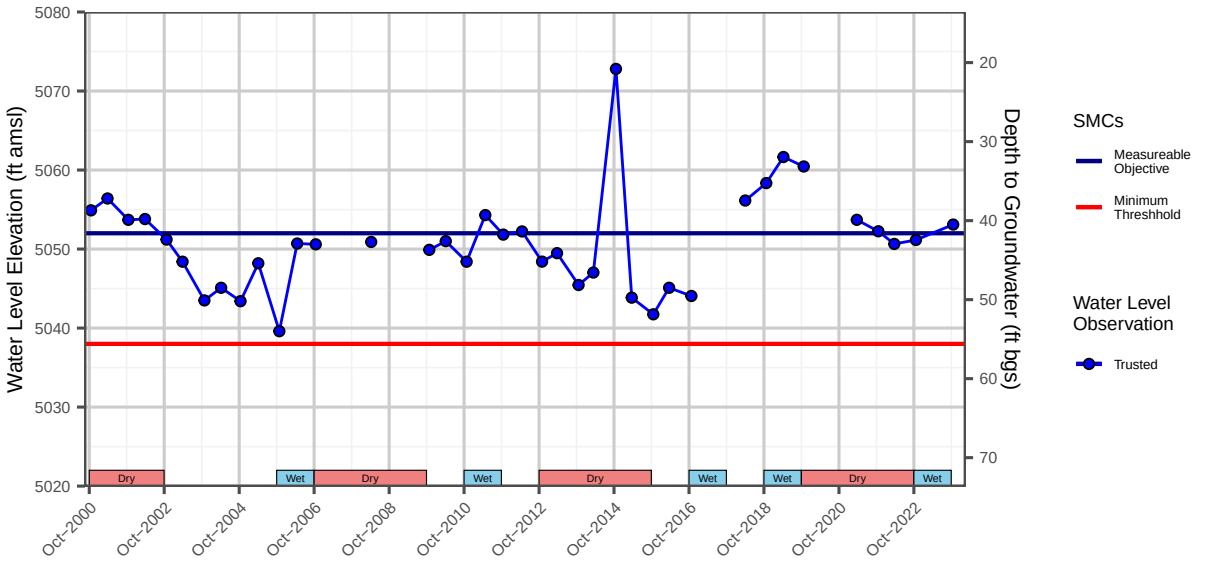

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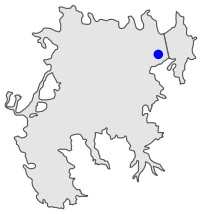
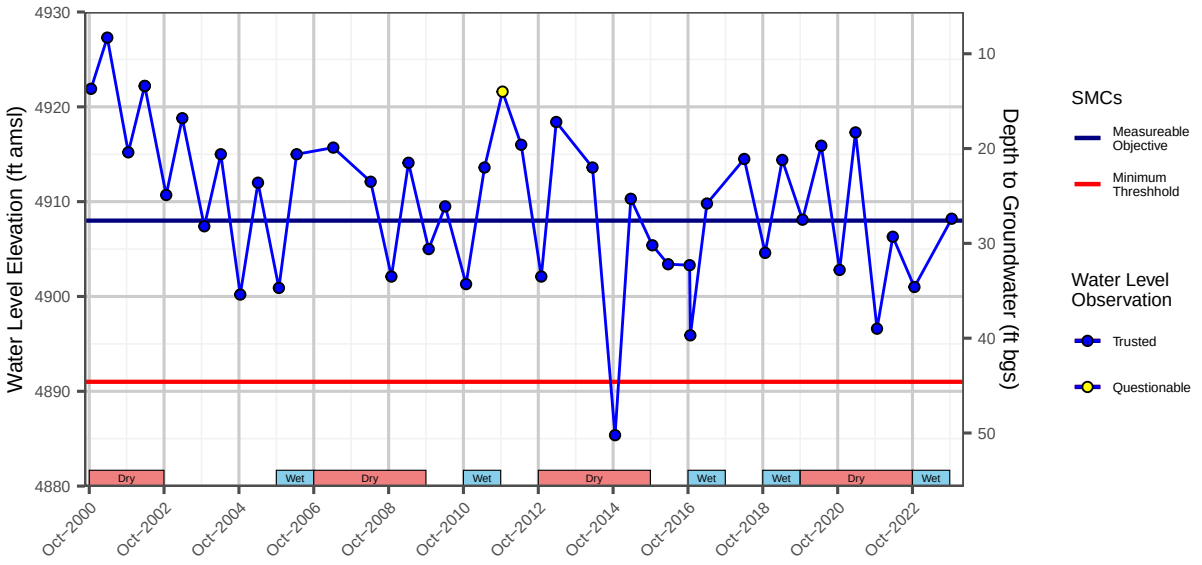
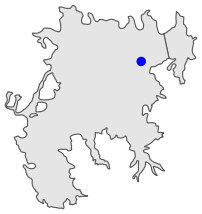
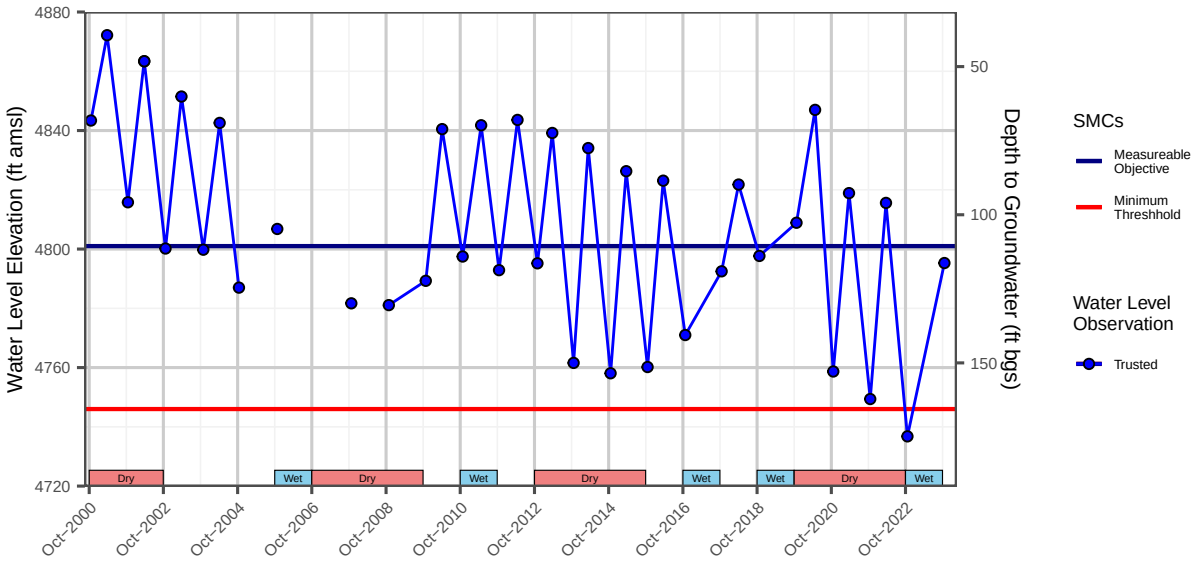




DMS 016





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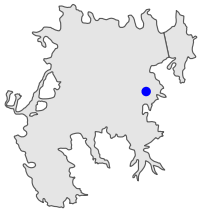
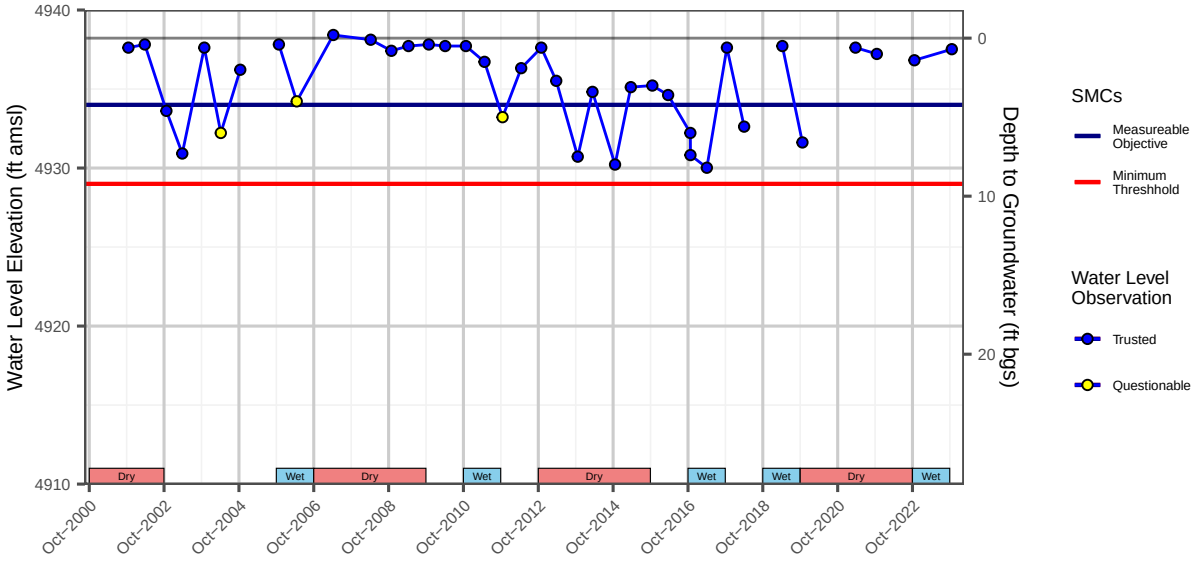
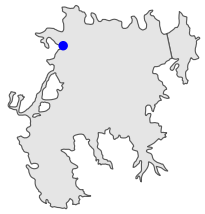
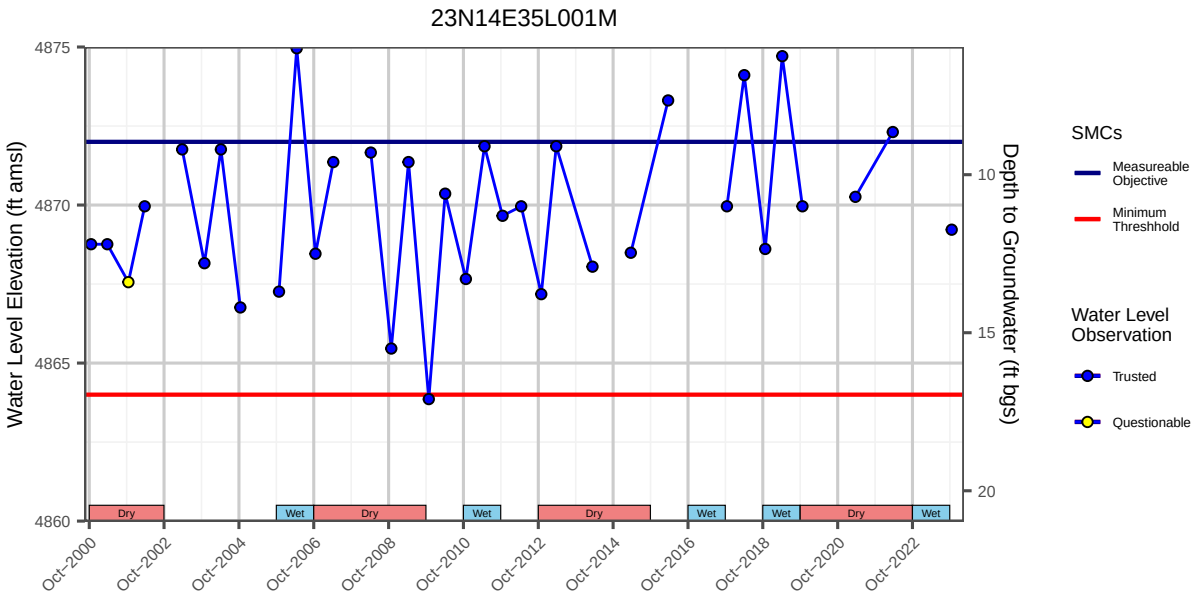
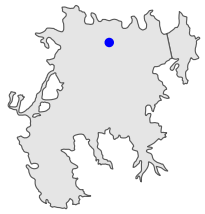
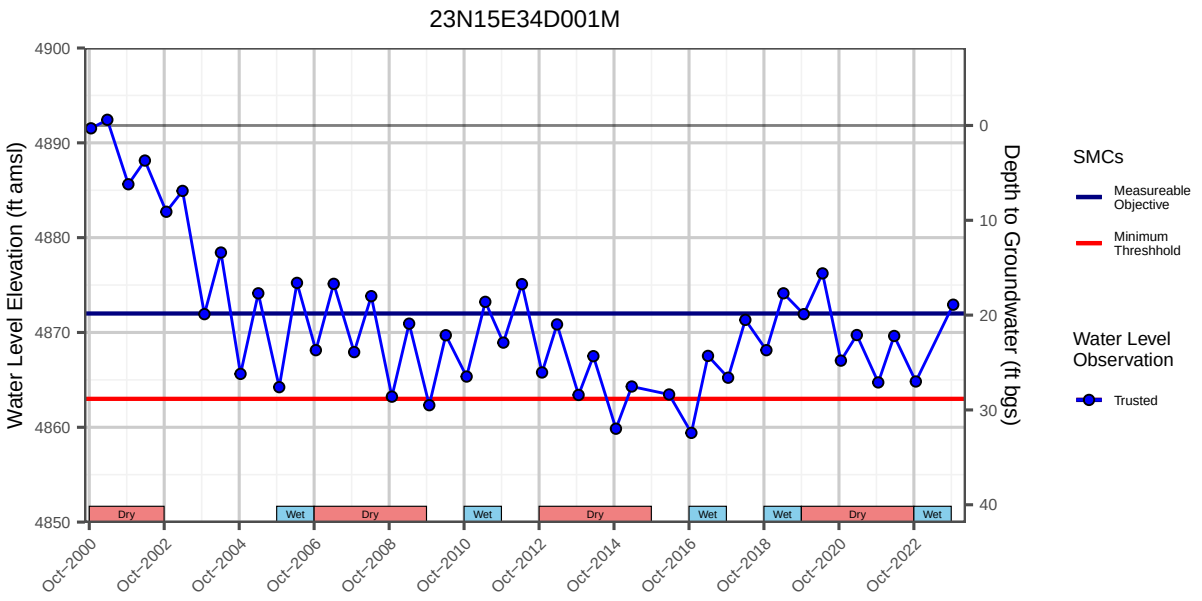


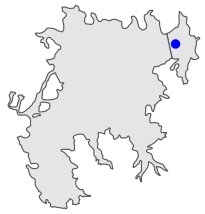


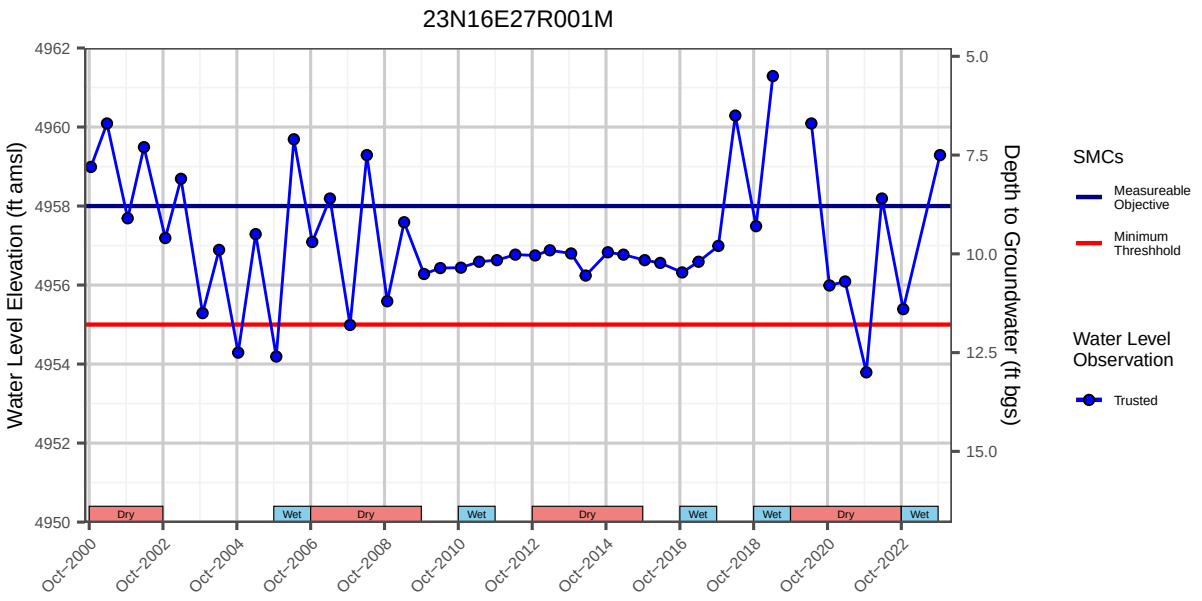


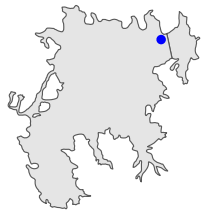

23N14E35L001M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4875
4870
4865
4860
10
15
20
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted
Questionable

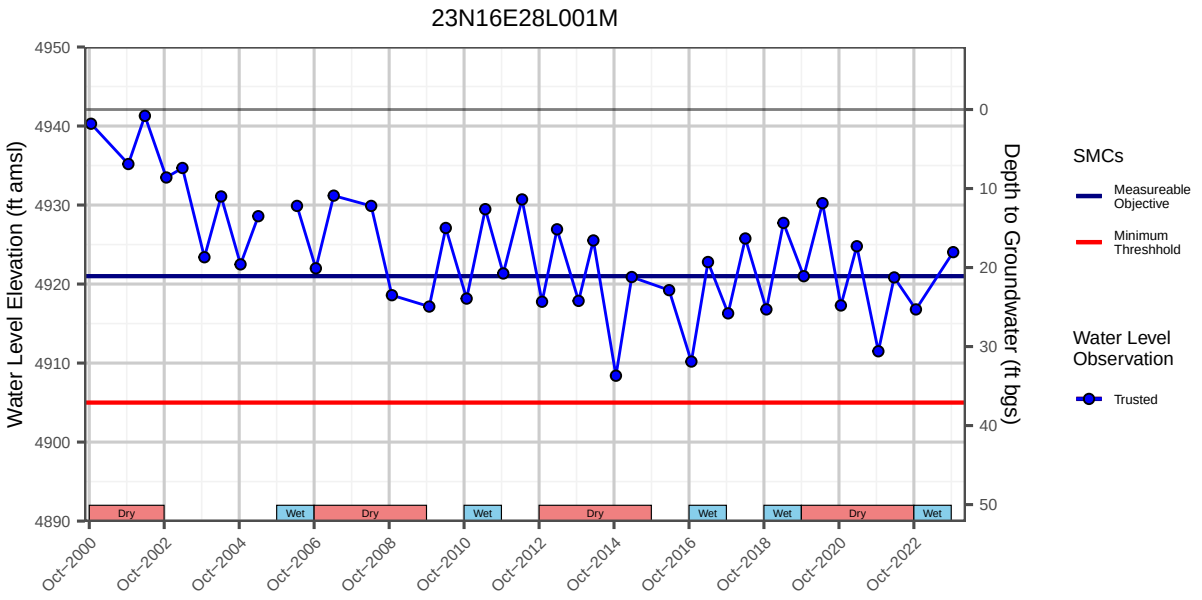


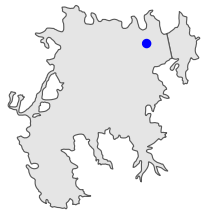

23N15E34D001M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4900
4890
4880
4870
4860
4850
0
10
20
30
40
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

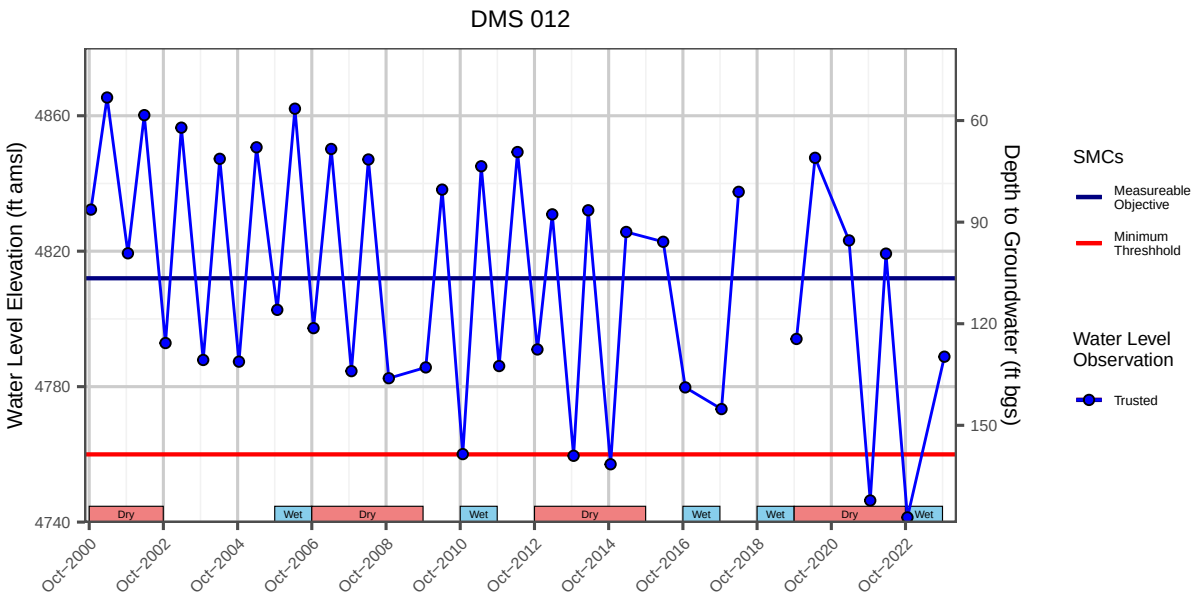


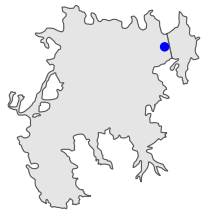

23N16E27R001M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4962
4960
4958
4956
4954
4952
4950
5.0
7.5
10.0
12.5
15.0
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

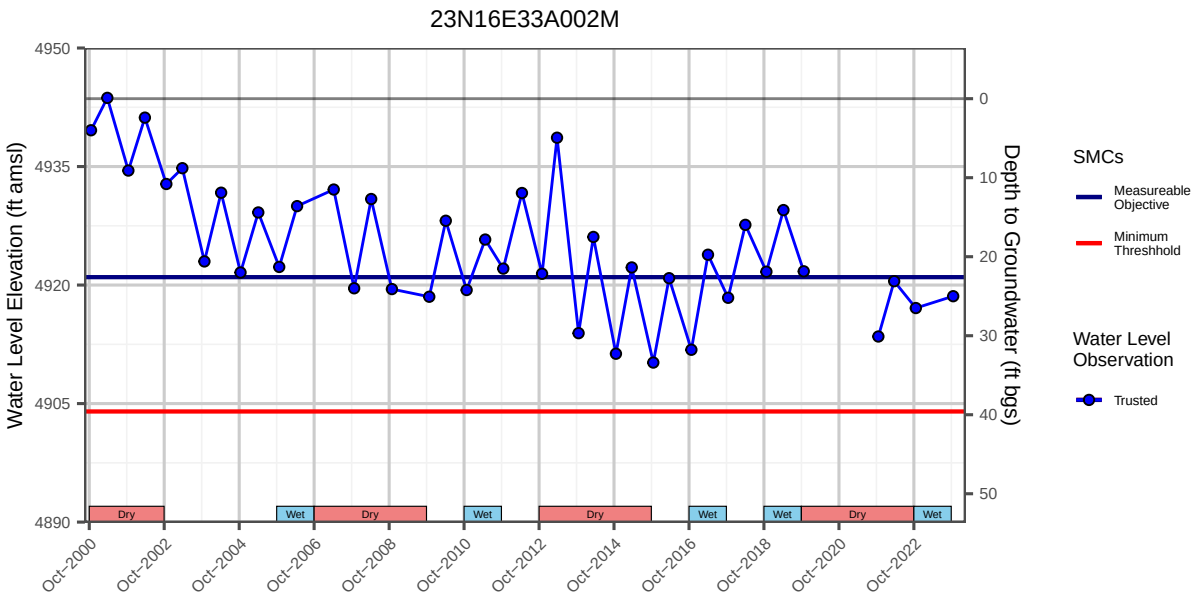


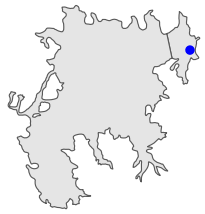

23N16E28L001M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4950
4940
4930
4920
4910
4900
4890
0
10
20
30
40
50
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct−2000
Oct−2002
Oct−2004
Oct−2006
Oct−2008
Oct−2010
Oct−2012
Oct−2014
Oct−2016
Oct−2018
Oct−2020
Oct−2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

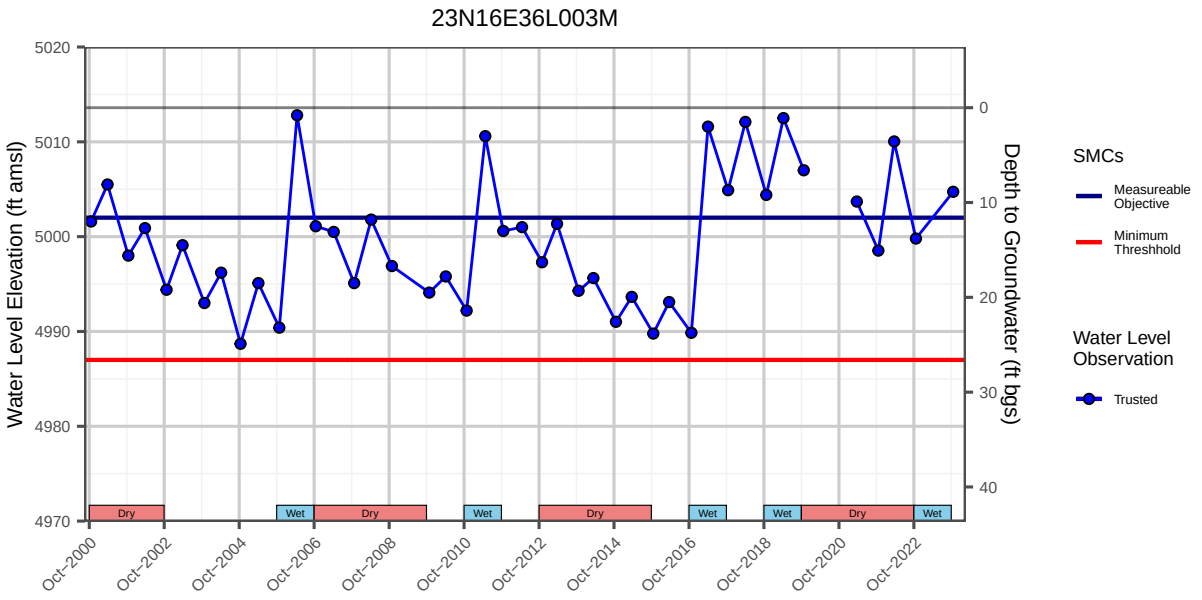


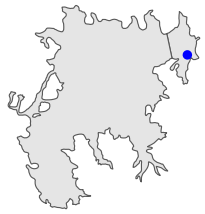

DMS 012
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4860
4820
4780
4740
60
90
120
150
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct−2000
Oct−2002
Oct−2004
Oct−2006
Oct−2008
Oct−2010
Oct−2012
Oct−2014
Oct−2016
Oct−2018
Oct−2020
Oct−2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

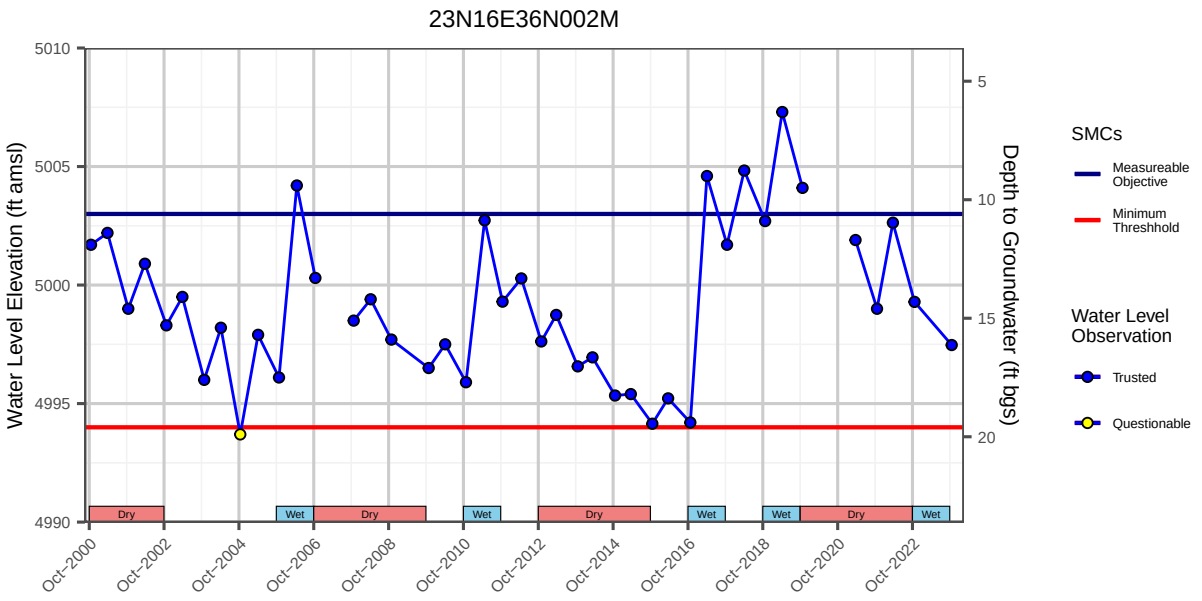


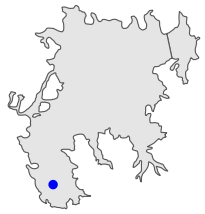

23N16E33A002M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4950
4935
4920
4905
4890
0
10
20
30
40
50
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct−2000
Oct−2002
Oct−2004
Oct−2006
Oct−2008
Oct−2010
Oct−2012
Oct−2014
Oct−2016
Oct−2018
Oct−2020
Oct−2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

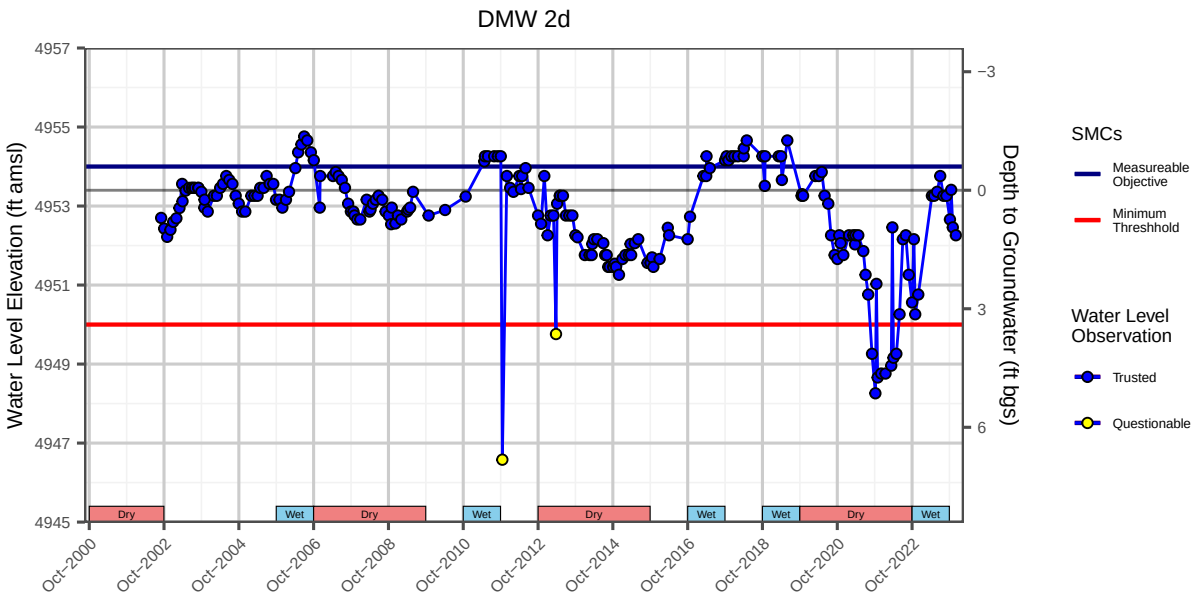


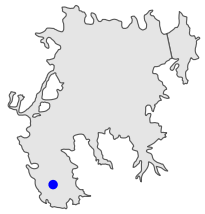

23N16E36L003M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
5020
5010
5000
4990
4980
4970
0
10
20
30
40
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted

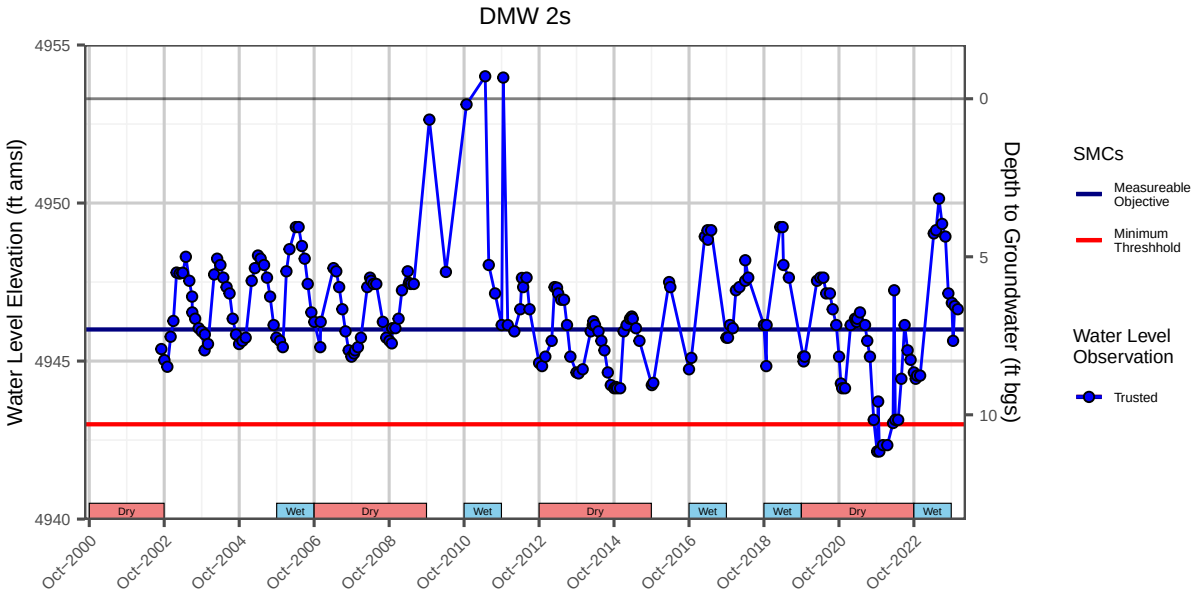


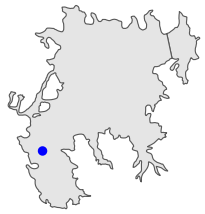

23N16E36N002M
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
5010
5005
5000
4995
4990
5
10
15
20
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted
Questionable

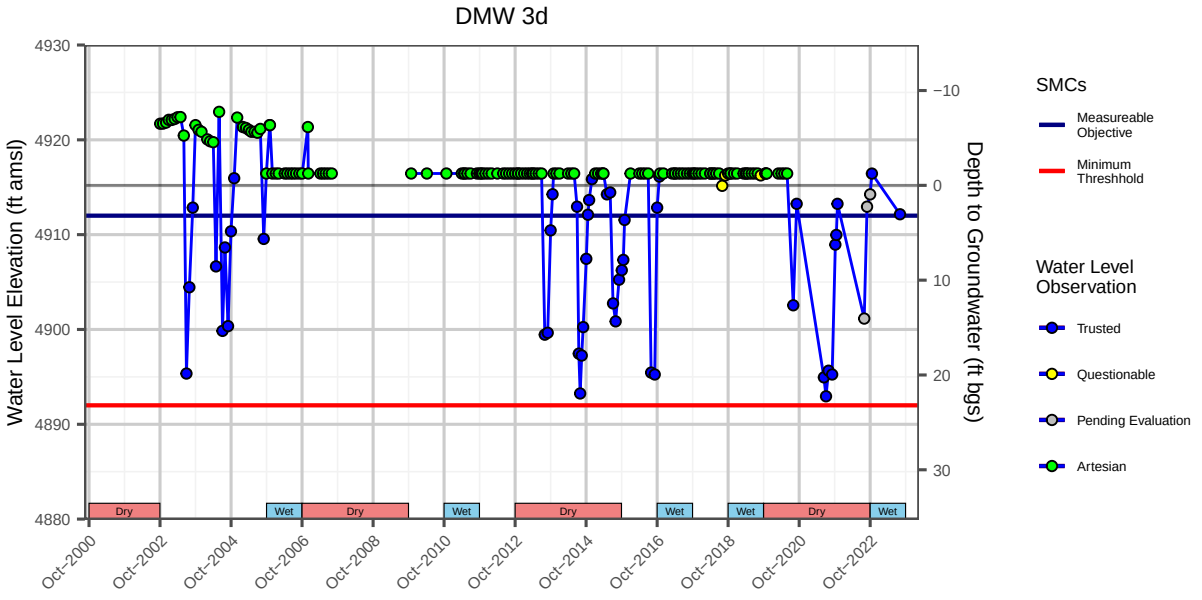


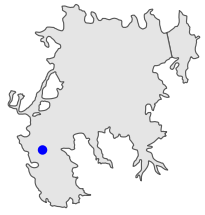

DMW 2d
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4957
4955
4953
4951
4949
4947
4945
−3
0
3
6
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted
Questionable

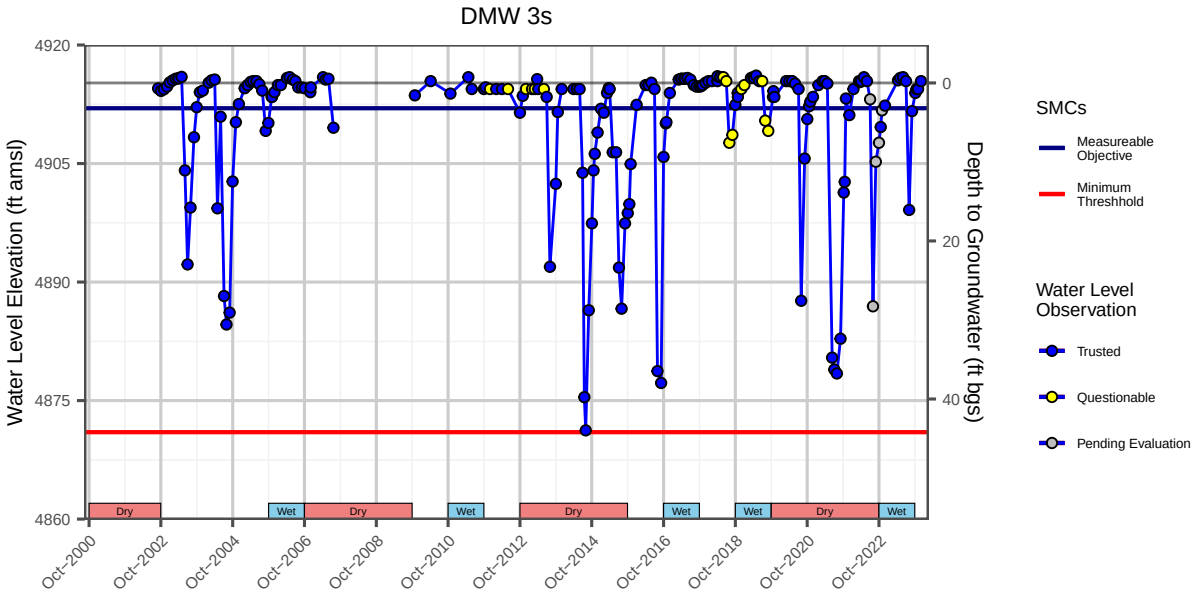


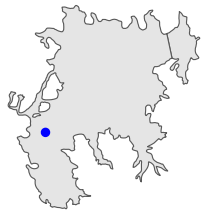

DMW 2s
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4955
4950
4945
4940
0
5
10
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted



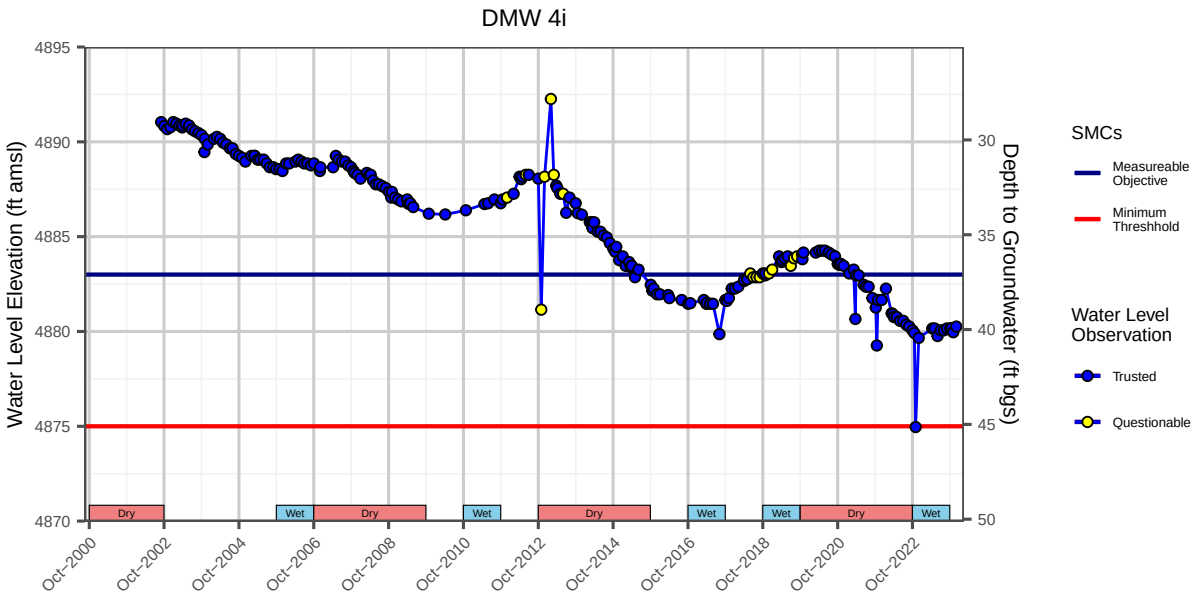

DMW 3d
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4930
4920
4910
4900
4890
4880
−10
0
10
20
30
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted
Questionable
Pending Evaluation
Artesian

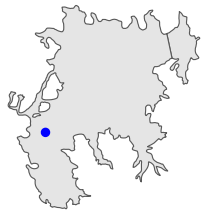



DMW 3s
Water Level Elevation (ft amsl)
Depth to Groundwater (ft bgs)
4920
4905
4890
4875
4860
0
20
40
Dry
Wet
Dry
Wet
Dry
Wet
Wet
Dry
Wet
Oct-2000
Oct-2002
Oct-2004
Oct-2006
Oct-2008
Oct-2010
Oct-2012
Oct-2014
Oct-2016
Oct-2018
Oct-2020
Oct-2022
SMCs
Measureable Objective
Minimum Threshhold
Water Level Observation
Trusted
Questionable
Pending Evaluation

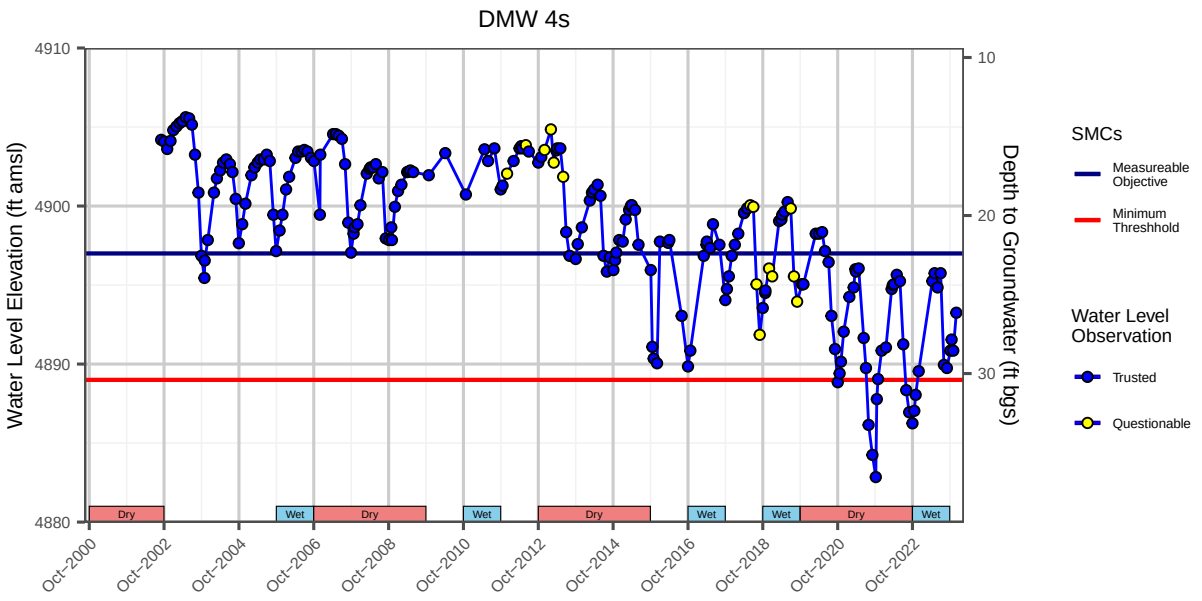


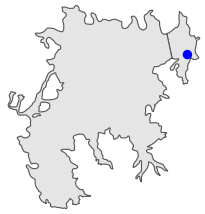
DMW 4i



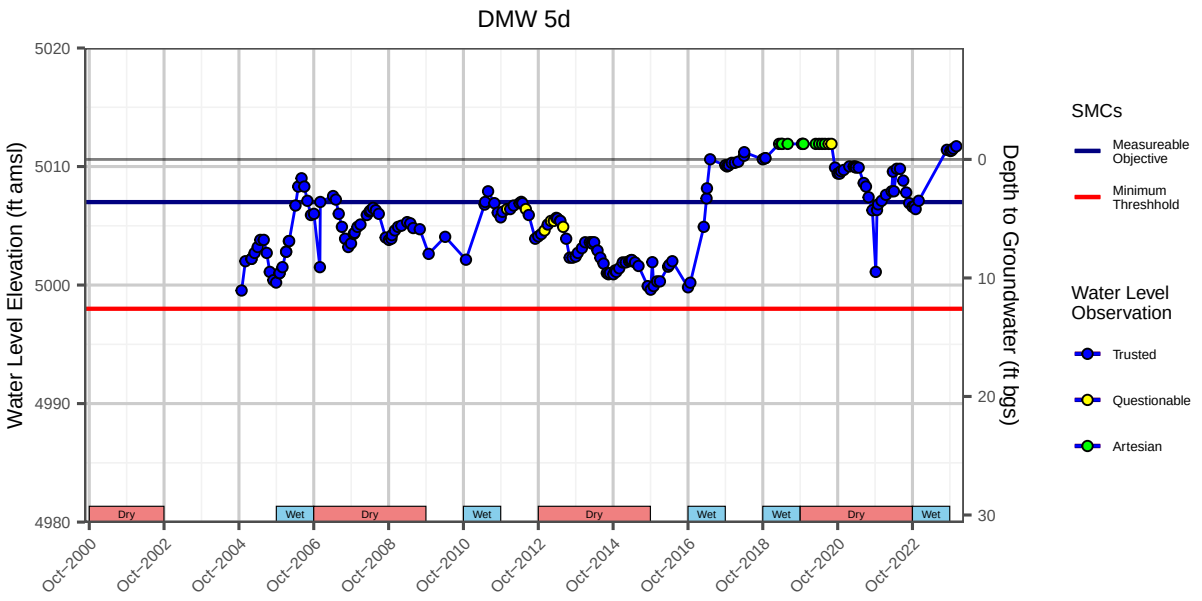


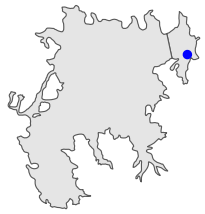
DMW 4s



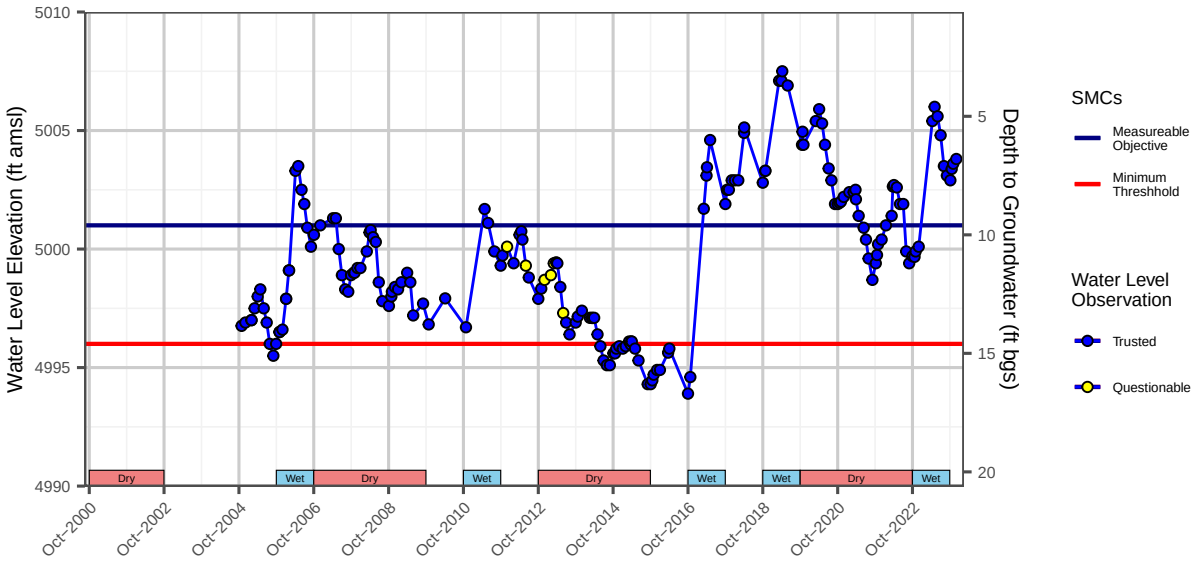


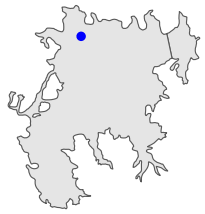
DMW 5d



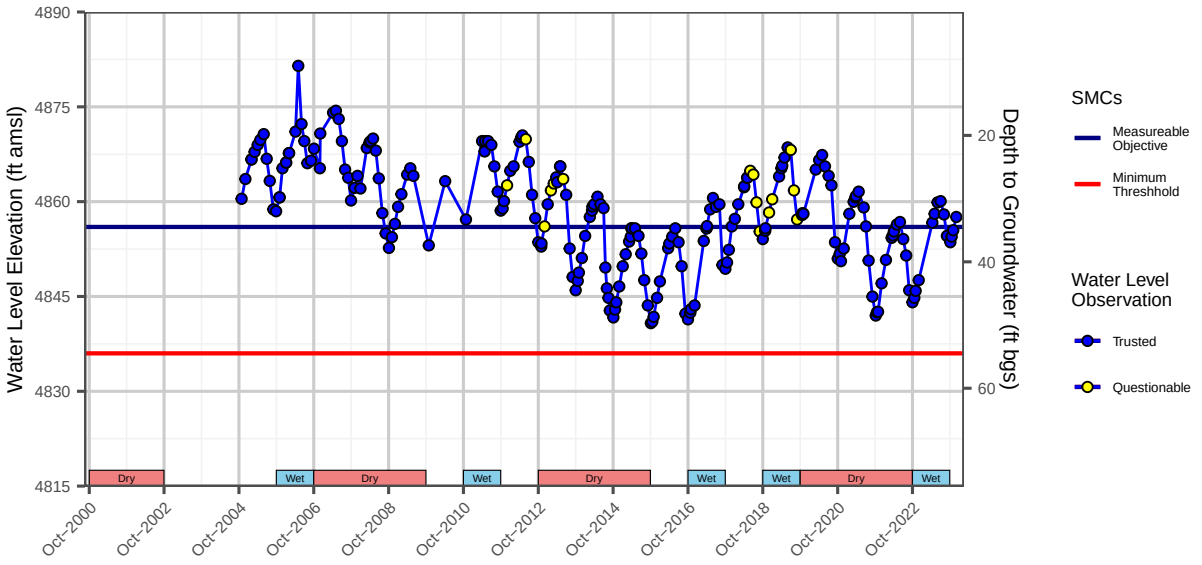


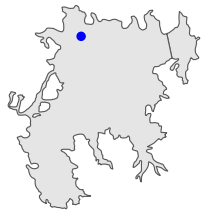
DMW 5s



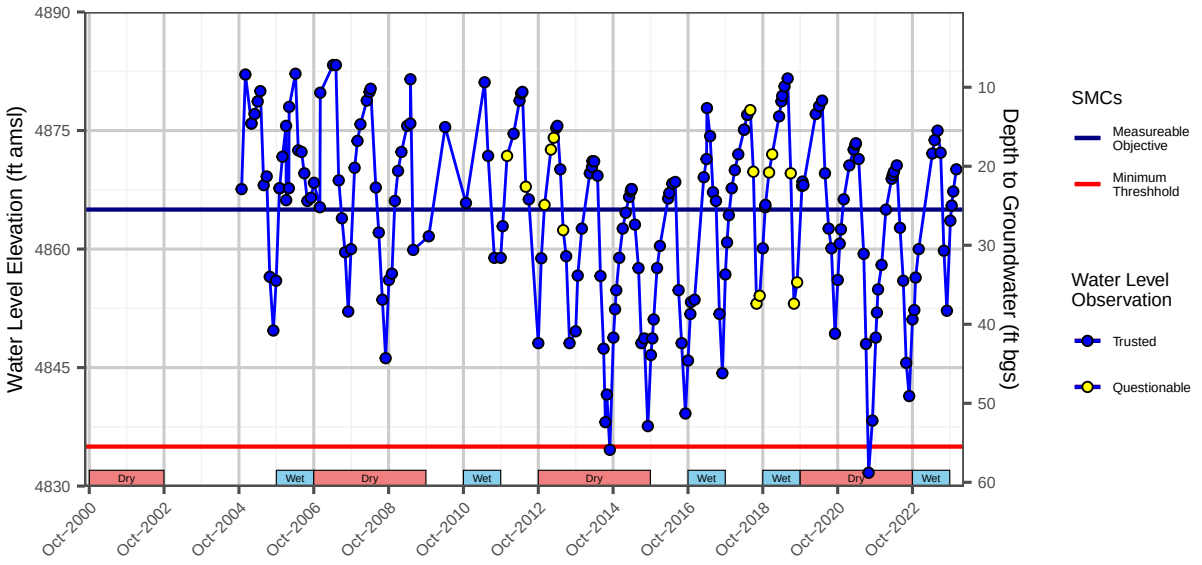


DMW 6d





DMW 6s



Appendix B

Subsidence Monitoring Network

Technical Memorandum

November 4, 2022

Dwight Smith
McGinley & Associates
6995 Sierra Center Parkway
Reno, Nevada 89511

RE: SVGMD Monument Installation & Surveying Methods

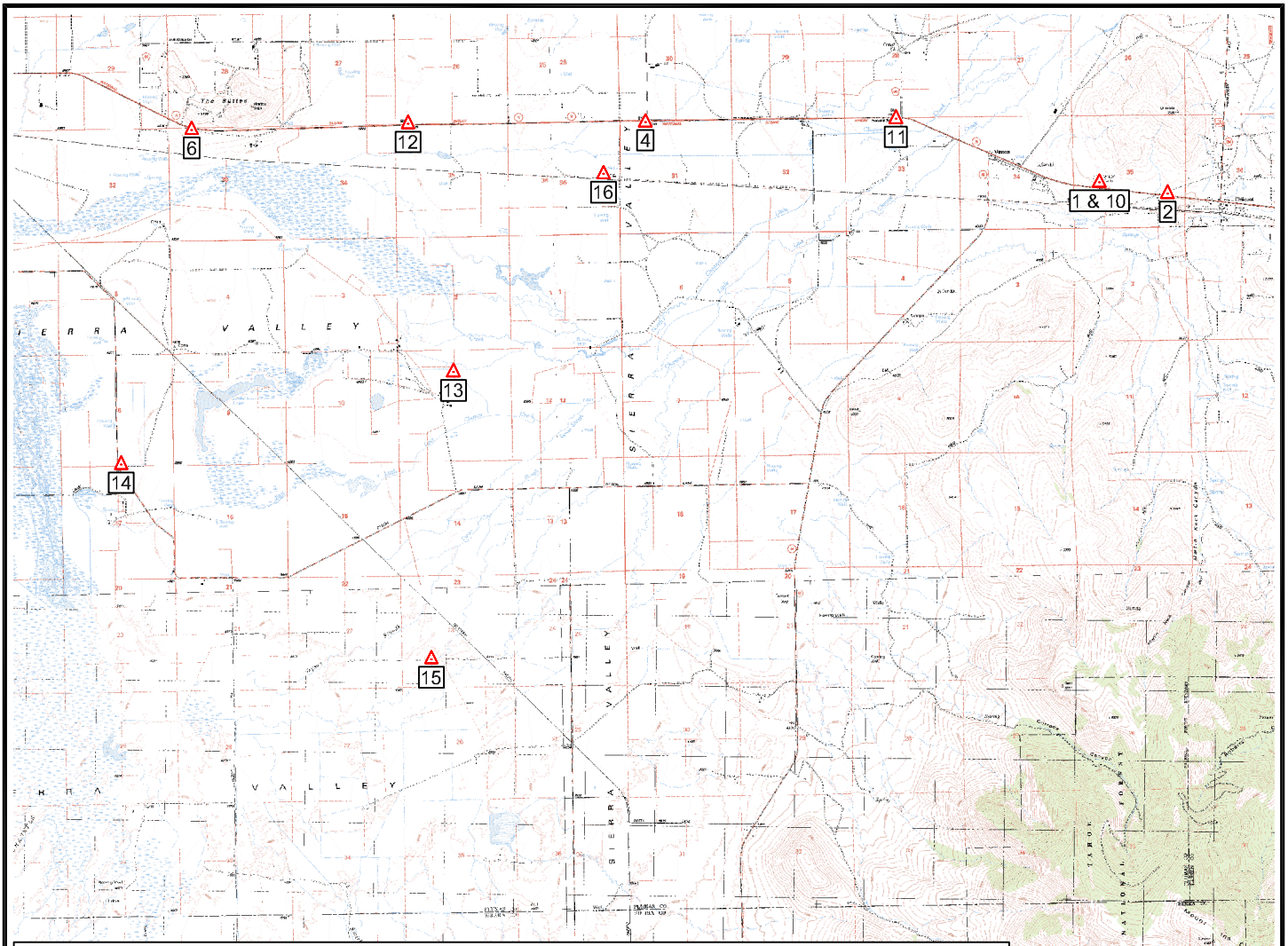
The new monuments that were set for the Sierra Valley Groundwater Management District project consisted of an aluminum cap affixed to an 18-inch long stainless steel pin (see Figure 1) embedded in a concrete monument. The concrete monument was constructed by digging a 2-foot deep hole, and then placing a 6-inch diameter sonotube in the hole. The hole was then backfilled and concrete mix was poured into the sonotube up to the ground level. A monument pin and cap was placed into the wet concrete and left to cure. A t-post was also placed next to each monument to make them more visible and easier to find (see Figure 2 and 3).

After curing for more than 28 days, Carlson BRx7 GPS equipment, consisting of base and rover units, were used to survey the new monuments. Each new monument was surveyed using real-time kinematic (RTK) methods, which collected a minimum of 120 measurements for each new monument.

Figure 1

Figure 2

Figure 3



POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
1	1,816,019.08	7,078,782.40	5015.06	SET 5/8" RB-CTRL CAP
2	1,815,495.20	7,081,979.47	5025.62	FND 3" AL CAP-CSRC CADOT VINTON 2004
4	1,818,841.49	7,057,472.17	4906.35	FND 3" BC-USCGS D143 1932
6	1,818,490.68	7,036,182.75	4938.72	FND 3" AL CAP-CSRC CADOT BUTTES 2004
10	1,816,012.36	7,078,801.87	5014.42	SET 5/8" RB-CTRL CAP
11	1,819,010.52	7,069,232.05	4937.81	FND 3" BC-USCGS C143 1932
12	1,818,777.34	7,046,338.34	4889.08	FND 3" BC-USCGS E143 1932
13	1,807,122.10	7,048,461.35	4895.43	SET AL CAP IN CONC-SVGMD CTRL W/ PUNCH
14	1,802,787.25	7,032,875.96	4876.95	SET AL CAP IN CONC-SVGMD CTRL W/ PUNCH
15	1,793,649.37	7,047,432.02	4886.23	SET AL CAP IN CONC-SVGMD CTRL W/ PUNCH
16	1,816,419.55	7,055,505.90	4900.31	SET AL CAP IN CONC-SVGMD CTRL W/ PUNCH

NOTES:

1) BASIS OF BEARING & ELEVATION:
NORTH WAS ESTABLISHED WITH GPS OBSERVATIONS USING THE CALIFORNIA STATE PLANE COORDINATE SYSTEM (ZONE 1, NAD83). THE COORDINATES AND ELEVATIONS SHOWN HEREON ARE BASED THE NATIONAL SPATIAL REFERENCE SYSTEM (NSRS) SOLUTION FOR CONTROL POINT NO. 10 AS CALCULATED BY THE NATIONAL GEODETIC SURVEY'S ONLINE POSITIONING USER SERVICE (OPUS).

2) ALL COORDINATES AND DISTANCES SHOWN HEREON HAVE GRID VALUES.

3) THE NEW MONUMENTS SHOWN HEREON (CONTROL POINTS 13-16) WERE SURVEYED ON OCTOBER 27, 2022, AFTER CURING FOR MORE THAN 28 DAYS.

0 8000

1" = 8000'

US GEOMATICS
P.O. Box 3299
Reno, NV 89505
P. 775.786.5111
www.usgeomatics.com
info@usgeomatics.com

McGINLEY & ASSOCIATES

SIERRA VALLEY GROUNDWATER MANAGEMENT DISTRICT

EXHIBIT SHOWING
MONITORING CONTROL POINTS

PLUMAS COUNTY CALIFORNIA

Project No:	260-01-22
Date:	11-04-2022
Drawn by:	RPT
Designed by:	
Checked by:	
Horiz. scale:	1" = 8000'
Vertical scale:	
Projection:	
Horiz. datum:	NAD83
Vertical datum:	NAVD88

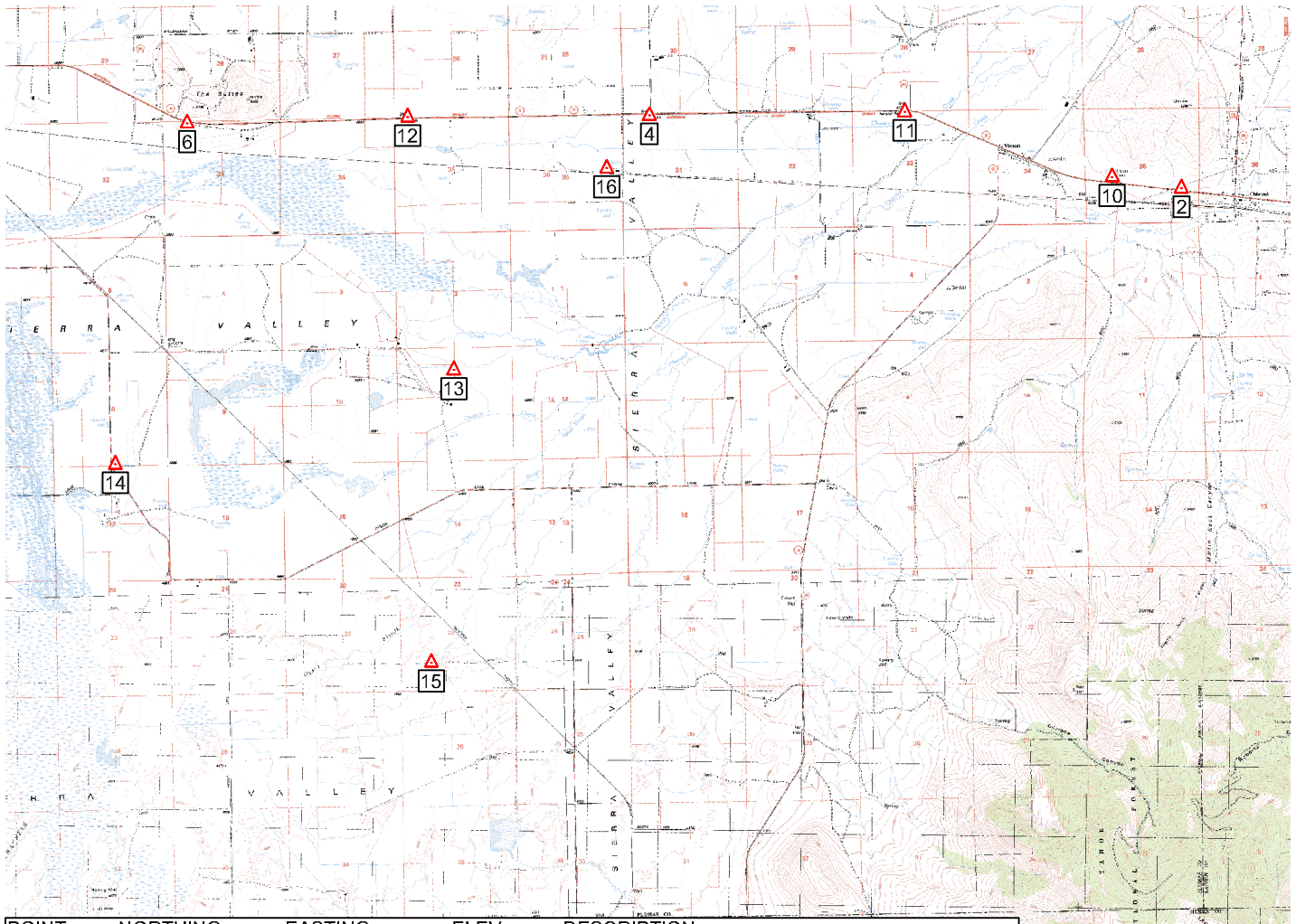
SHEET 1 OF 1

Sierra Valley Groundwater Management District - Monitoring Control Points
US Geomatics - October 24, 2023

Date	Control Point 1 Surveyed Elev. [feet]	Control Point 2 Surveyed Elev. [feet]	Control Point 4 Surveyed Elev. [feet]	Control Point 6 Surveyed Elev. [feet]	Control Point 10 Surveyed Elev. [feet]	Control Point 11 Surveyed Elev. [feet]
October 27, 2022	5015.06	5025.62	4906.35	4938.72	5014.42	4937.81
October 23, 2023	Point disturbed.	5025.60	4906.37	4938.67	5014.42	4937.91

Date	Control Point 12 Surveyed Elev. [feet]	Control Point 13 Surveyed Elev. [feet]	Control Point 14 Surveyed Elev. [feet]	Control Point 15 Surveyed Elev. [feet]	Control Point 16 Surveyed Elev. [feet]	
October 27, 2022	4889.08	4895.43	4876.95	4886.23	4900.31	
October 23, 2023	4889.08	4895.45	4876.96	4886.32	4900.29	

P.O. Box 3299, Reno, Nevada, 89505 Phone: (775) 786-5111 info@usgeomatics.com



POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
~~1~~	~~1,816,019.08~~	~~7,078,782.40~~	~~5015.06~~	~~SET 5/8" RB-CTRL CAP~~ (POINT DISTURBED)
2	1,815,495.20	7,081,979.47	5025.62	FND 3" AL CAP-CSRC CADOT VINTON 2004
4	1,818,841.49	7,057,472.17	4906.35	FND 3" BC-USCGS D143 1932
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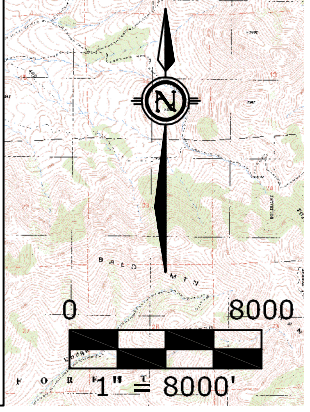
2) ALL COORDINATES AND DISTANCES SHOWN HEREON HAVE GRID VALUES.

3) THE NEW MONUMENTS SHOWN HEREON (CONTROL POINTS 13-16) WERE SURVEYED ON OCTOBER 27, 2022, AFTER CURING FOR MORE THAN 28 DAYS.

4) SEE SPREADSHEET FOR SUBSEQUENT ELEVATIONS OF THE MONITORING CONTROL POINTS.



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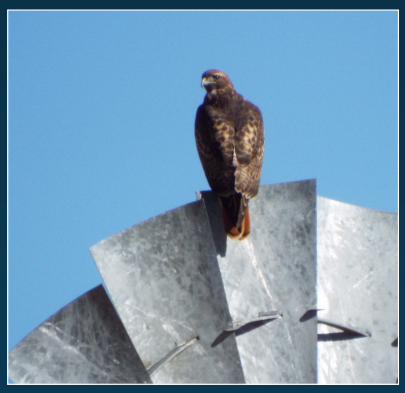
SIERRA VALLEY GROUNDWATER MANAGEMENT DISTRICT

EXHIBIT SHOWING
MONITORING CONTROL POINTS

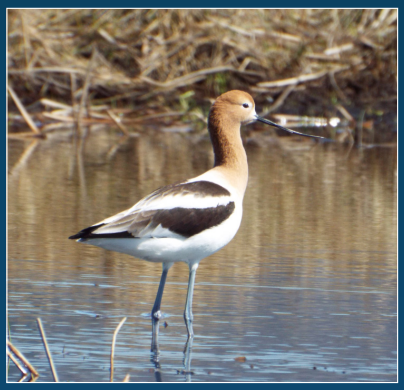
PLUMAS COUNTY CALIFORNIA

Project No:	313-01-23
Date:	10-24-2023
Drawn by:	RPT
Designed by:	
Checked by:	
Horiz. scale:	1" = 8000'
Vertical scale:	
Projection:	
Horiz. datum:	NAD83
Vertical datum:	NAVD88

SHEET 1 OF 1



Groundwater Sustainability Agencies Contact Information

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