Appendices

2021 Water Year Annual Report

2021 Water Year Annual Report

Appendix A

Characteristics and Hydrographs of Representative Monitoring Site (RMS) Wells

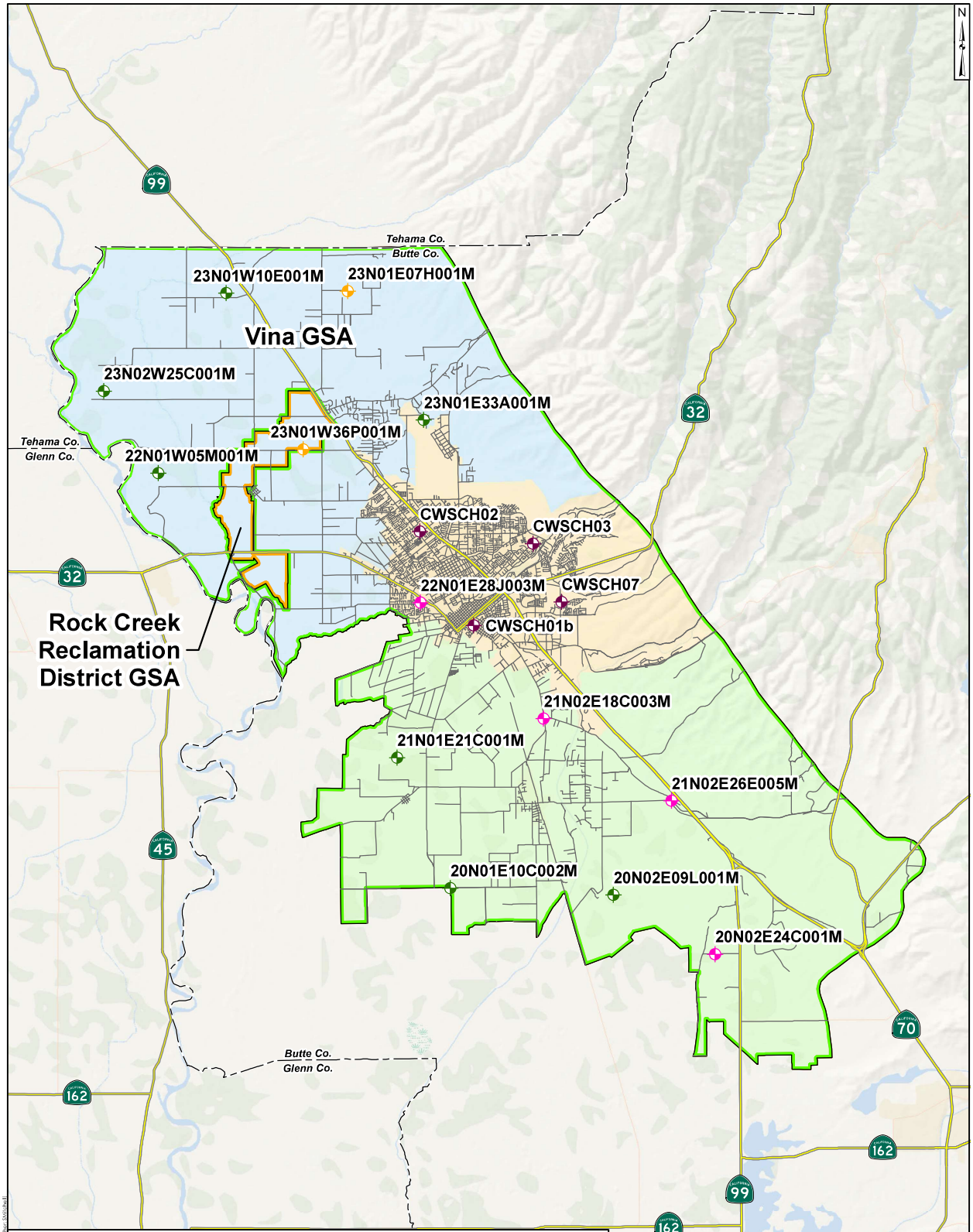

N
99
Tehama Co.
Butte Co.
23N01W10E001M
23N01E07H001M
Vina GSA
23N02W25C001M
23N01E33A001M
23N01W36P001M
Tehama Co.
Glenn Co.
22N01W05M001M
32
CWSCH02
CWSCH03
22N01E28J003M
CWSCH07
CWSCH01b
Rock Creek
Reclamation
District GSA
21N02E18C003M
21N01E21C001M
21N02E26E005M
45
20N01E10C002M
20N02E09L001M
20N02E24C001M
70
Butte Co.
Glenn Co.
162
99
162
Legend
Groundwater Sustainability Agencies (GSAs)[1]
Vina GSA
Rock Creek Reclamation District GSA
Well Type
Residential
Irrigation
Observation
Municipal and Industrial
Vina Groundwater Subbasin Management Areas
Vina North
Vina Chico
Vina South
Roads[2]
Highways
Other roads
Boundaries[2]
County boundaries
Notes:
1) California Department of Water Resources (CA DWR).
2) TIGER/Line, U.S. Census Bureau.
4 2 0 4 Miles
Groundwater Level RMS Wells
Vina Groundwater Subbasin GSP
Geosyntec consultants
Figure
ES-10
Project No.: SAC282
December 2021

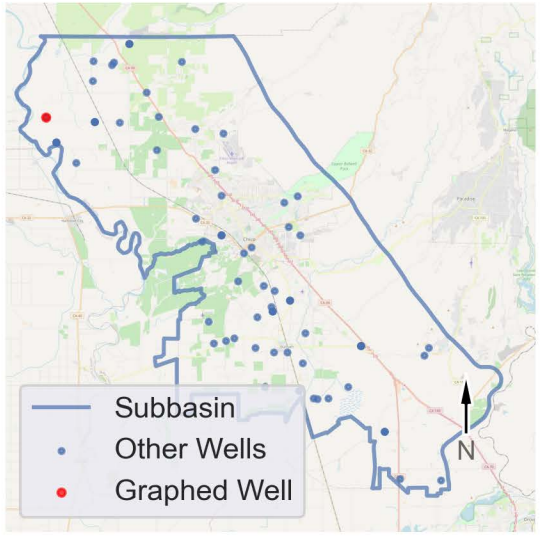
Table 4-5: Groundwater Levels Representative Monitoring Site Well Construction Details

RMS Well ID	State Well Number (Site Name)	Total Depth (feet bgs)	Screened Interval (feet bgs)	Reference Point Elevation[1] (feet)	Reference Point Description	Ground Surface Elevation[1] (feet)
Vina Subbasin – North Management Area						
25C001M	23N02W25C001M	243	N/A	161.2	Hole cut inside of casing	157.4
10E001M	23N01W10E001M	668	600-668	190.68	1-inch hole inside pump base	189.38
07H001M	23N01E07H001M	195	115-195	283	Top of casing, remove blue cap	282
05M001M	22N01W05M001M	200	N/A	153.28	Hole in pump south side	151.48
36P001M	23N01W36P001M	165	N/A	164.35	Top of casing crack in north side	162.75
33A001M	23N01E33A001M	506	53-506	252.34	1-inch hole in top of casing	252.34
Vina Subbasin – Chico Management Area						
CWSCH01b	CWSCH01b	>600	---	200	N/A	---
CWSCH02	CWSCH02	>600	---	183	N/A	---
CWSCH03	CWSCH03	>600	---	258	N/A	---
CWSCH07	CWSCH07	<600	---	270	N/A	---
28J003M	22N01E28J003M	279	200-279	179.79	Top of casing easterly 1-inch casing	178.89
Vina Subbasin – South Management Area						
21C001M	21N01E21C001M	565	240-300 448-508	133.64	Hole in pump base west side	133.34
18C003M	21N02E18C003M	240	130-140 160-170 190-200	191.15	Top of shortest PVC casing	189.07
10C002M	20N01E10C002M	210	20-120	128.35	Top of casing south side	127.35
24C001M	20N02E24C001M	155	124-134	159.65	Top of casing, northern-most piezo	157.75
09L001M	20N02E09L001M	710	460-710	143.83	Hole in pump base, southeast side	139.33
26E005M	21N02E26E005M	315	265-275 280-290	184.44	Top of next to shortest PVC casing	182.26

Note:
1 –NAVD88
N/A – Not available
PVC – polyvinyl chloride
--- Details of public supply wells not disclosed

VINA Subbasin - State Well Number (SWN): 23N02W25C001M

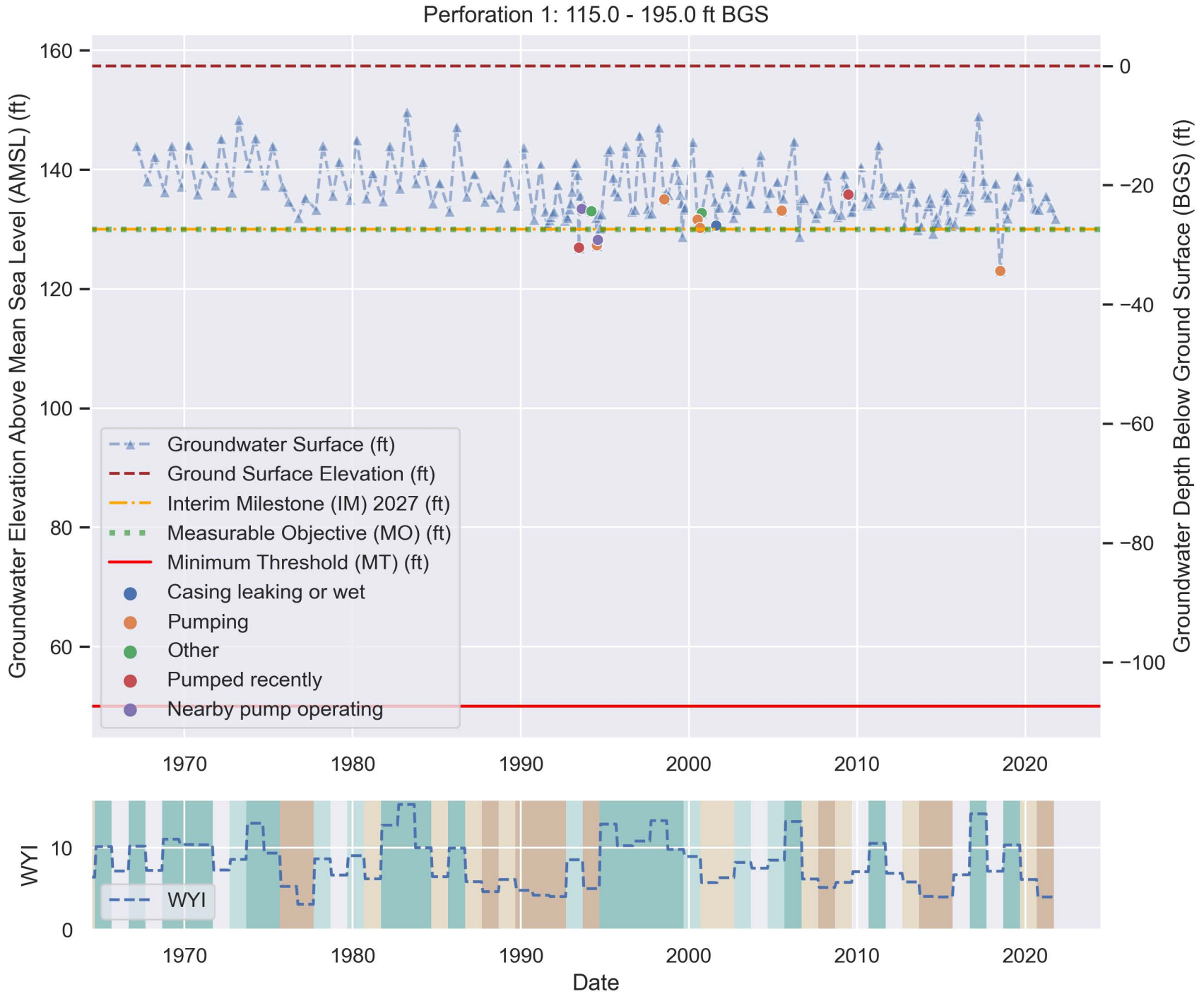
Well Location Map



Sustainable Management Criteria:

IM (2027) = 130.0 ft AMSL
MO = 130.0 ft AMSL
MT = 50.0 ft AMSL

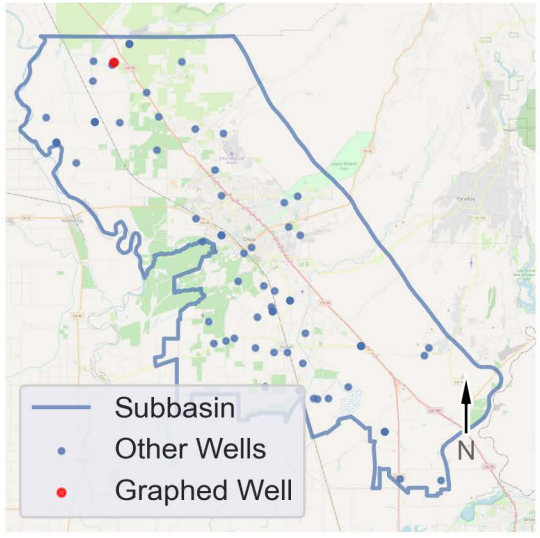
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 23N01W10E001M

Perforation 1: 600.0 - 668.0 ft BGS

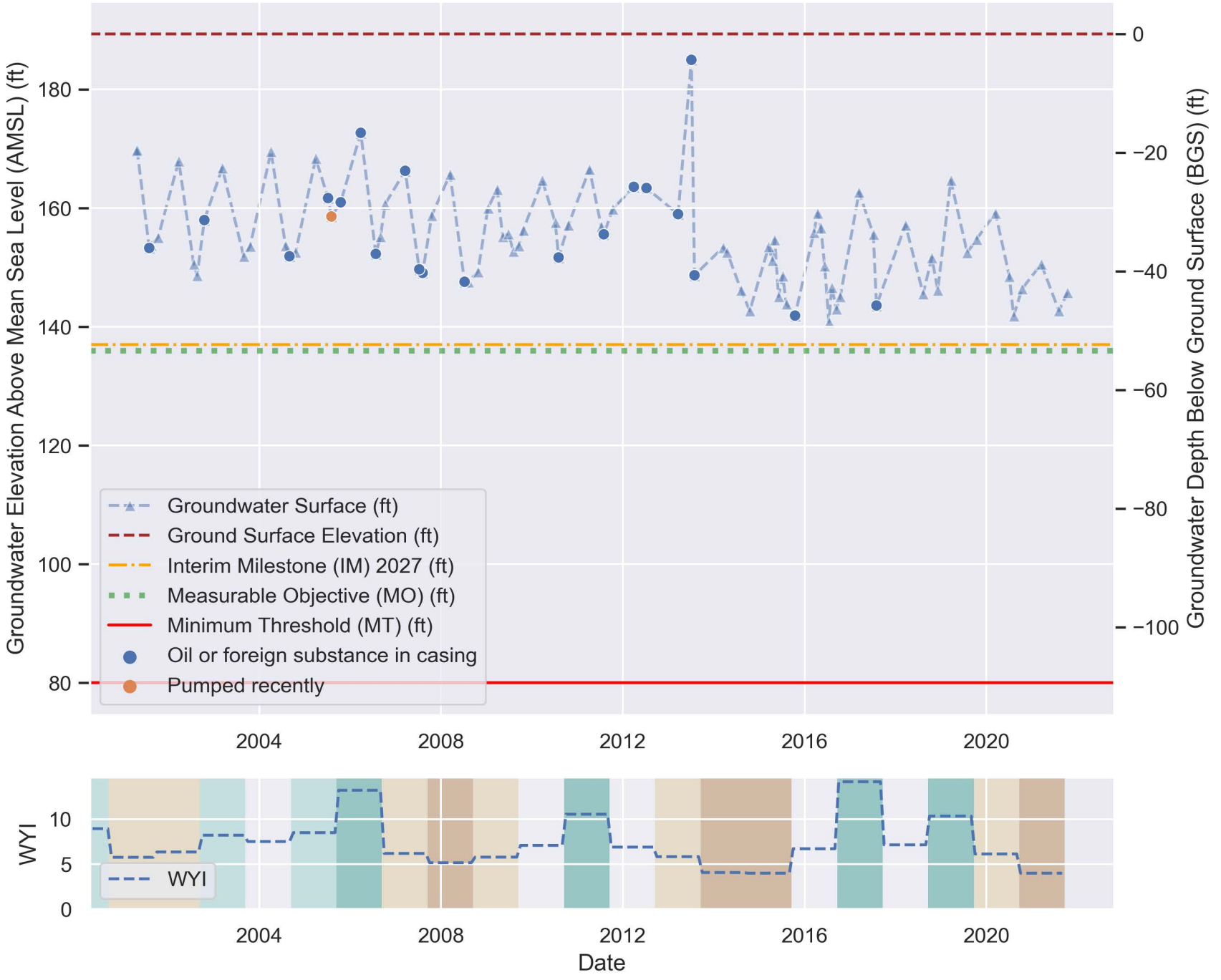
Well Location Map



Sustainable Management Criteria:

IM (2027) = 137.0 ft AMSL
MO = 136.0 ft AMSL
MT = 80.0 ft AMSL

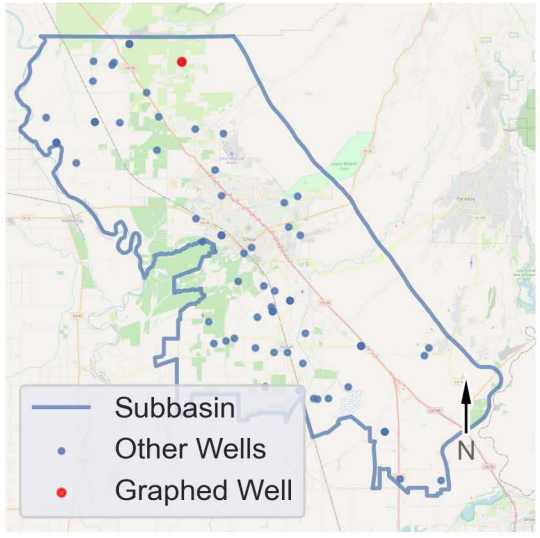
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 23N01E07H001M

Perforation 1: 115.0 - 195.0 ft BGS

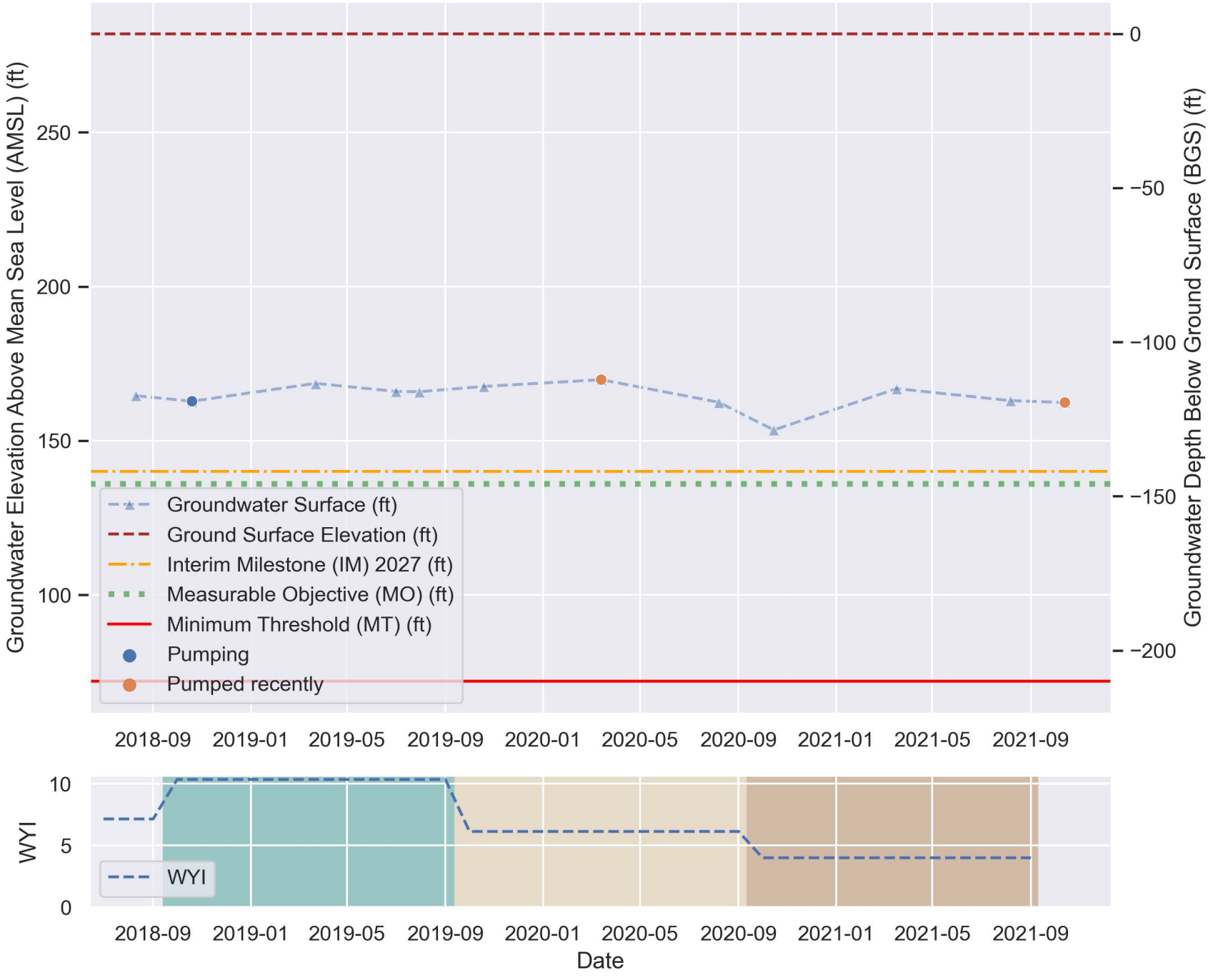
Well Location Map



Sustainable Management Criteria:

IM (2027) = 140.0 ft AMSL
MO = 136.0 ft AMSL
MT = 72.0 ft AMSL

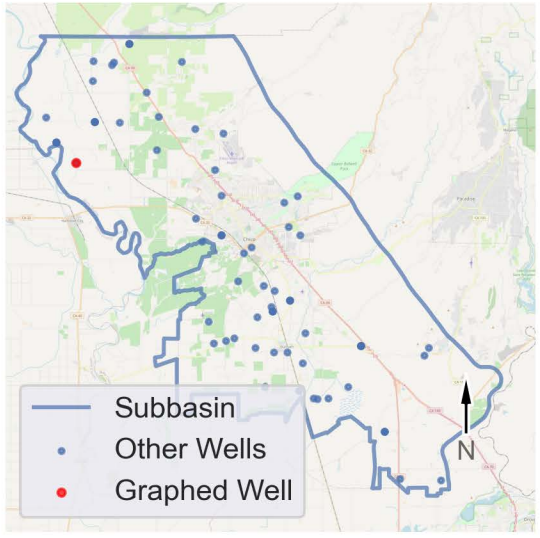
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 22N01W05M001M

Perforation 1: 240.0 - 300.0 ft BGS; Perforation 2: 448.0 - 508.0 ft BGS

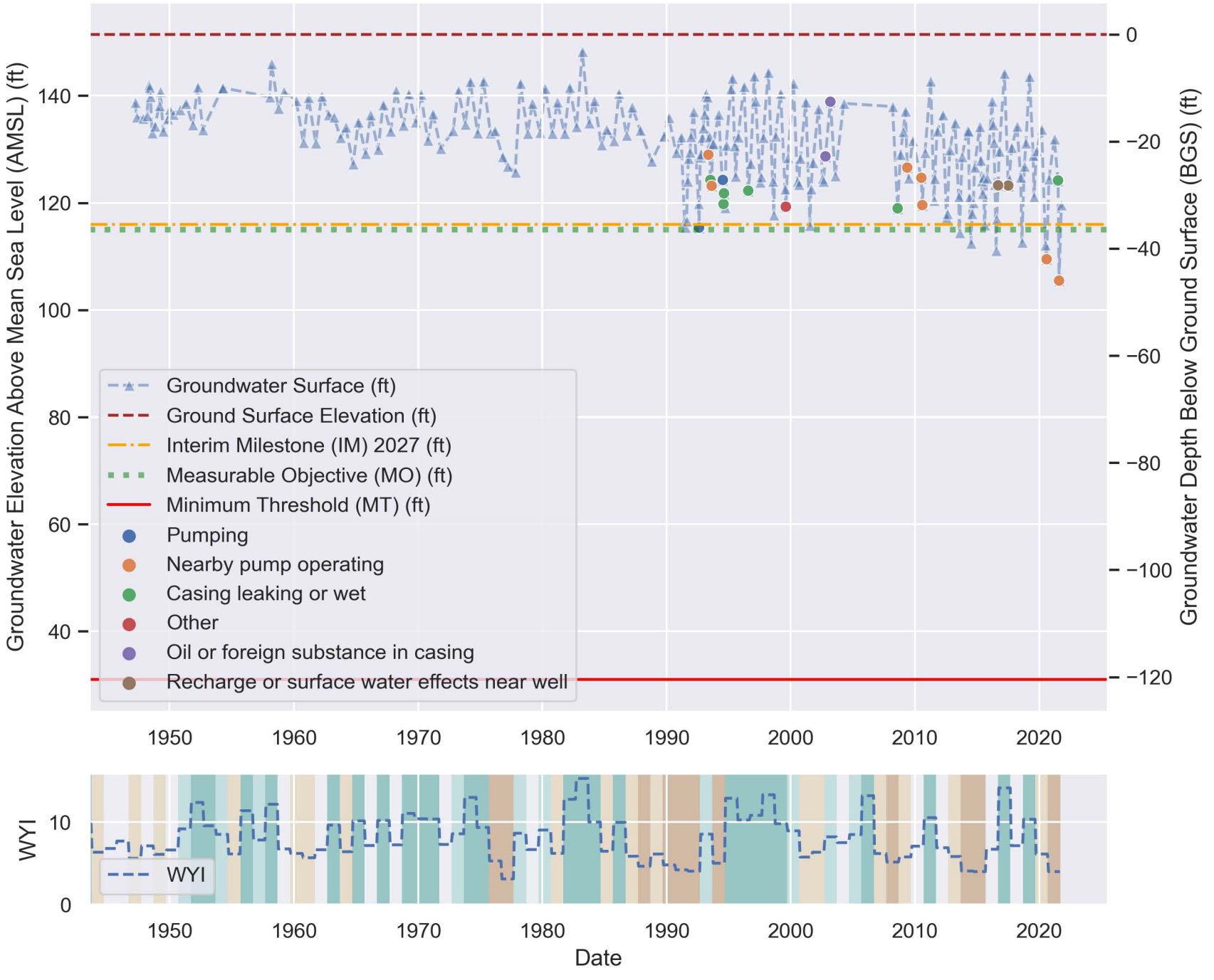
Well Location Map



Sustainable Management Criteria:

IM (2027) = 116.0 ft AMSL
MO = 115.0 ft AMSL
MT = 31.0 ft AMSL

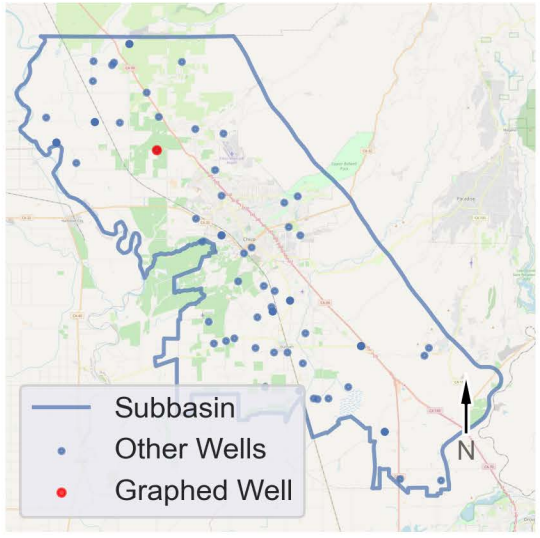
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 23N01W36P001M

Perforation 1: 240.0 - 300.0 ft BGS; Perforation 2: 448.0 - 508.0 ft BGS

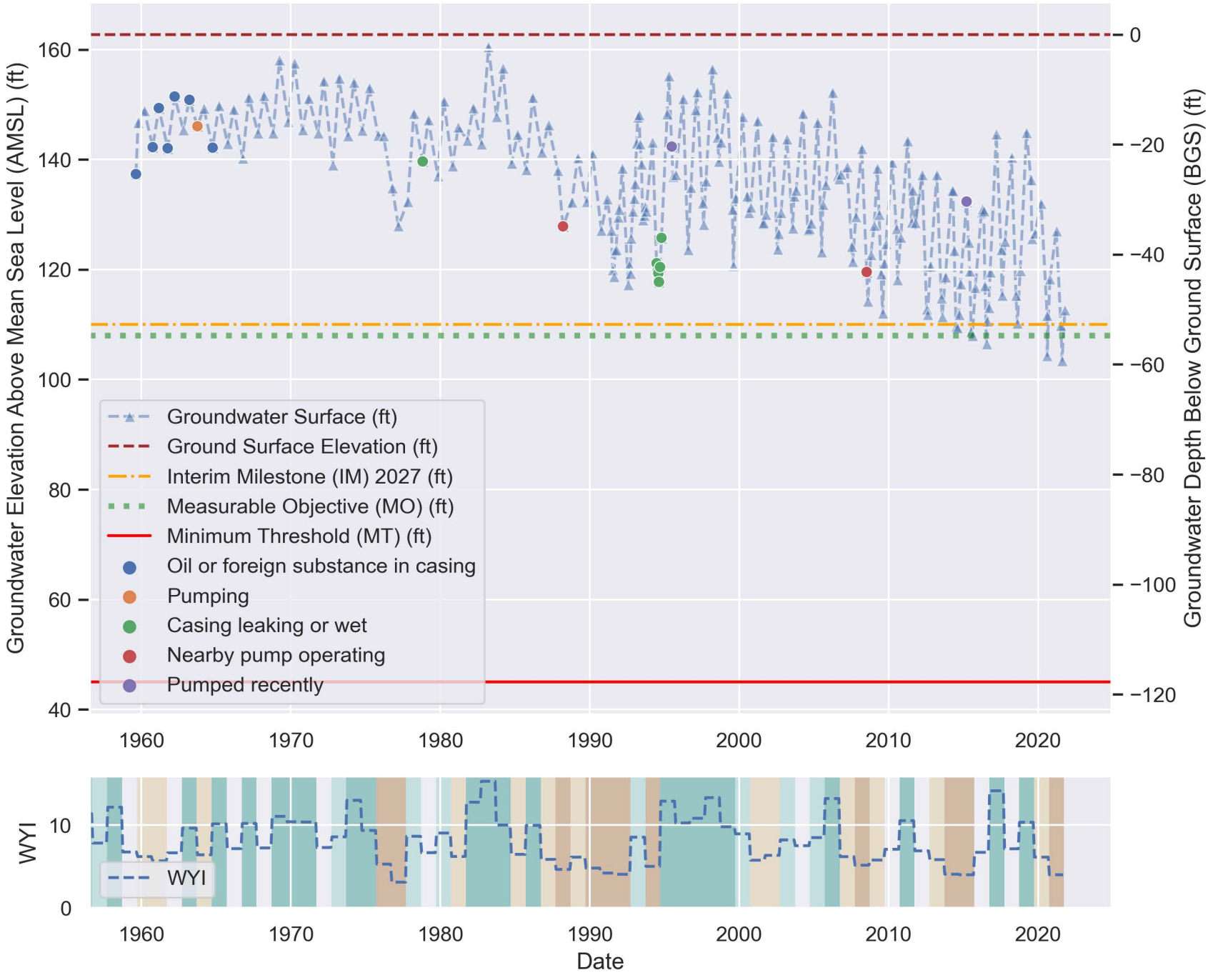
Well Location Map



Sustainable Management Criteria:

IM (2027) = 110.0 ft AMSL
MO = 108.0 ft AMSL
MT = 45.0 ft AMSL

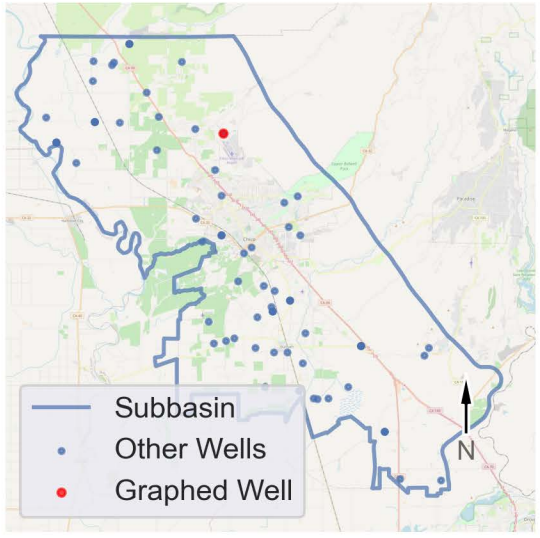
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 23N01E33A001M

Perforation 1: 53.0 - 506.0 ft BGS

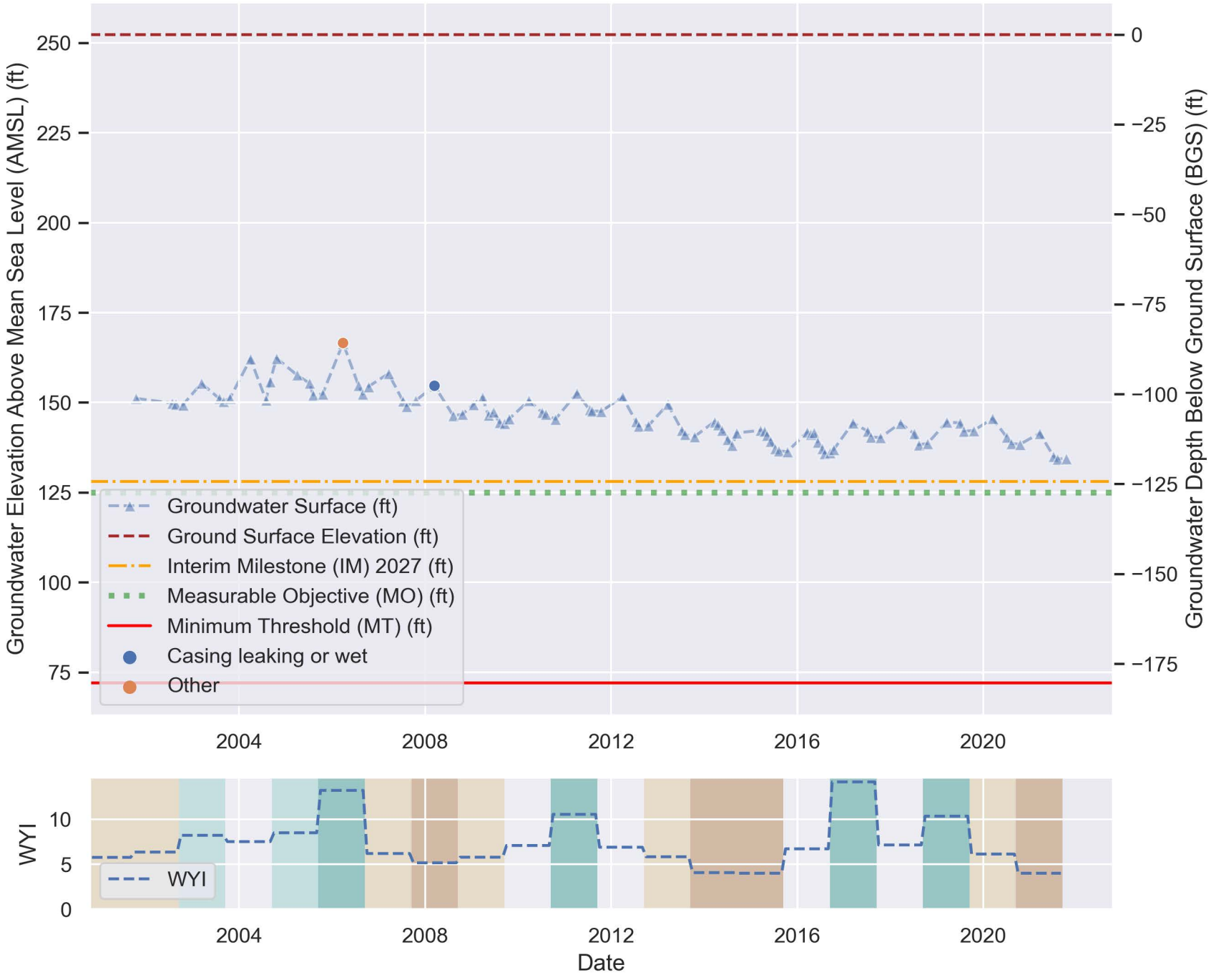
Well Location Map



Sustainable Management Criteria:

IM (2027) = 128.0 ft AMSL
MO = 125.0 ft AMSL
MT = 72.0 ft AMSL

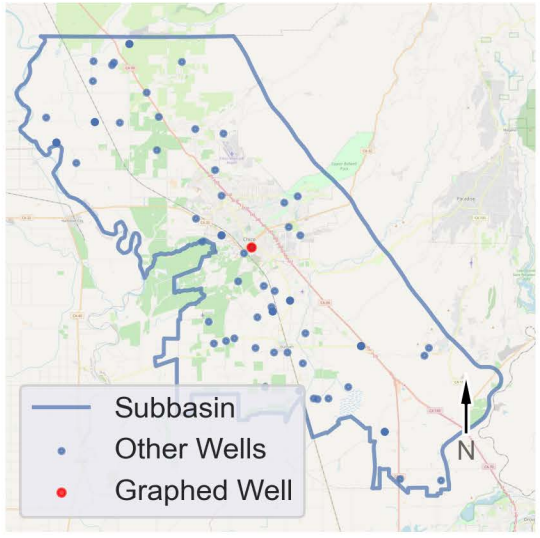
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): CWSCH01b

Perforation 1: Perforation data not available.

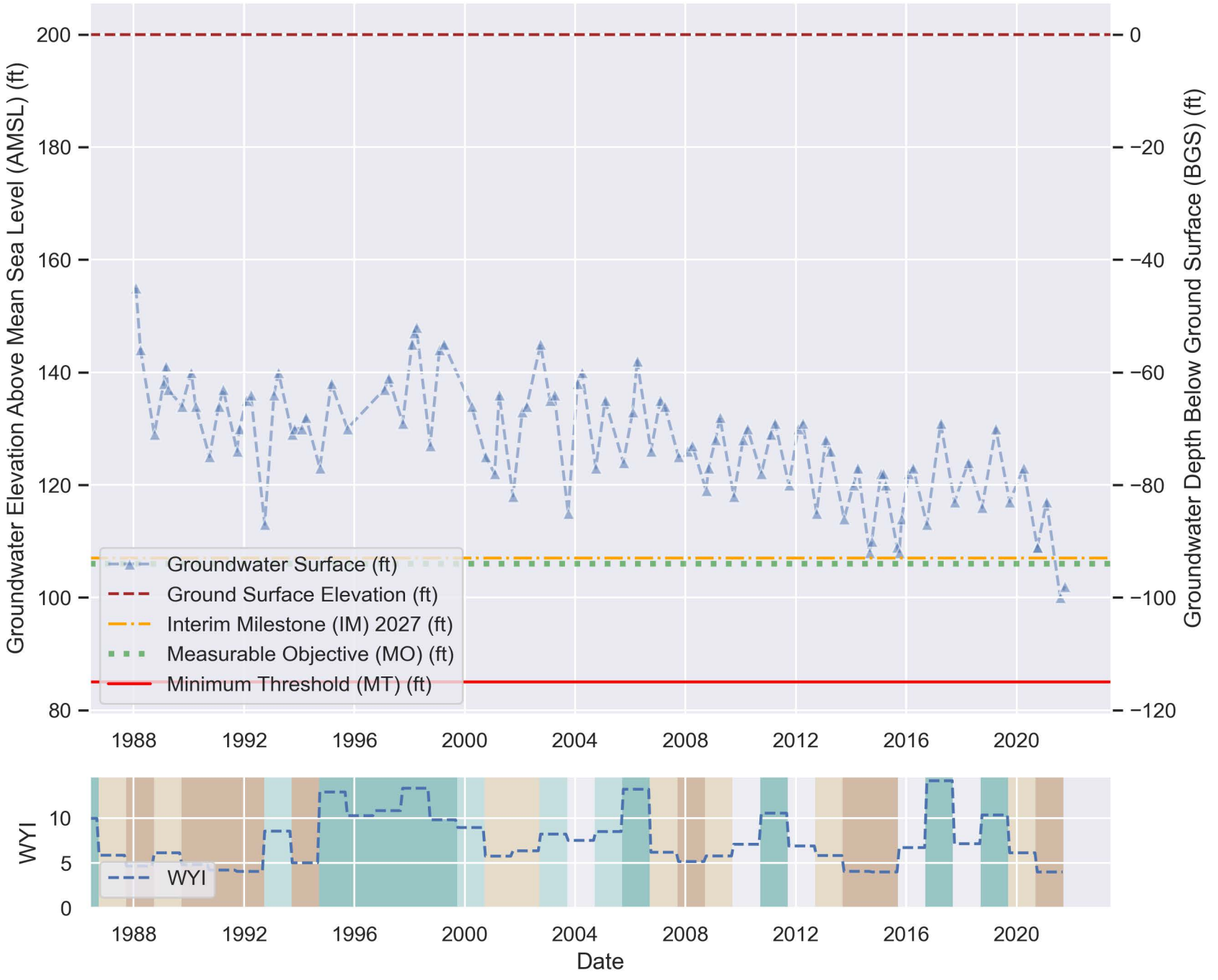
Well Location Map



Sustainable Management Criteria:

IM (2027) = 107.0 ft AMSL
MO = 106.0 ft AMSL
MT = 85.0 ft AMSL

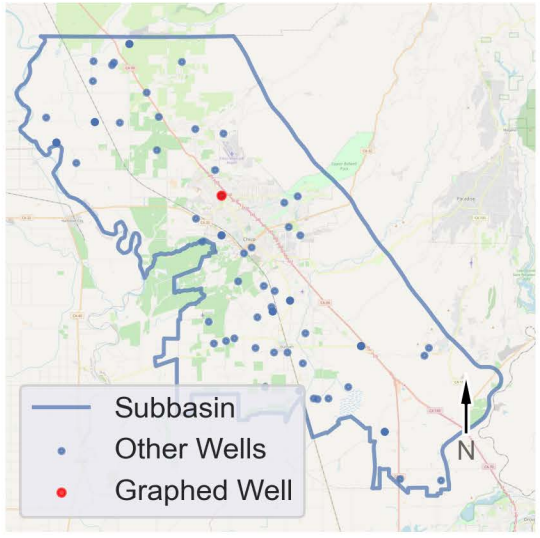
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): CWSCH02

Perforation 1: Perforation data not available.

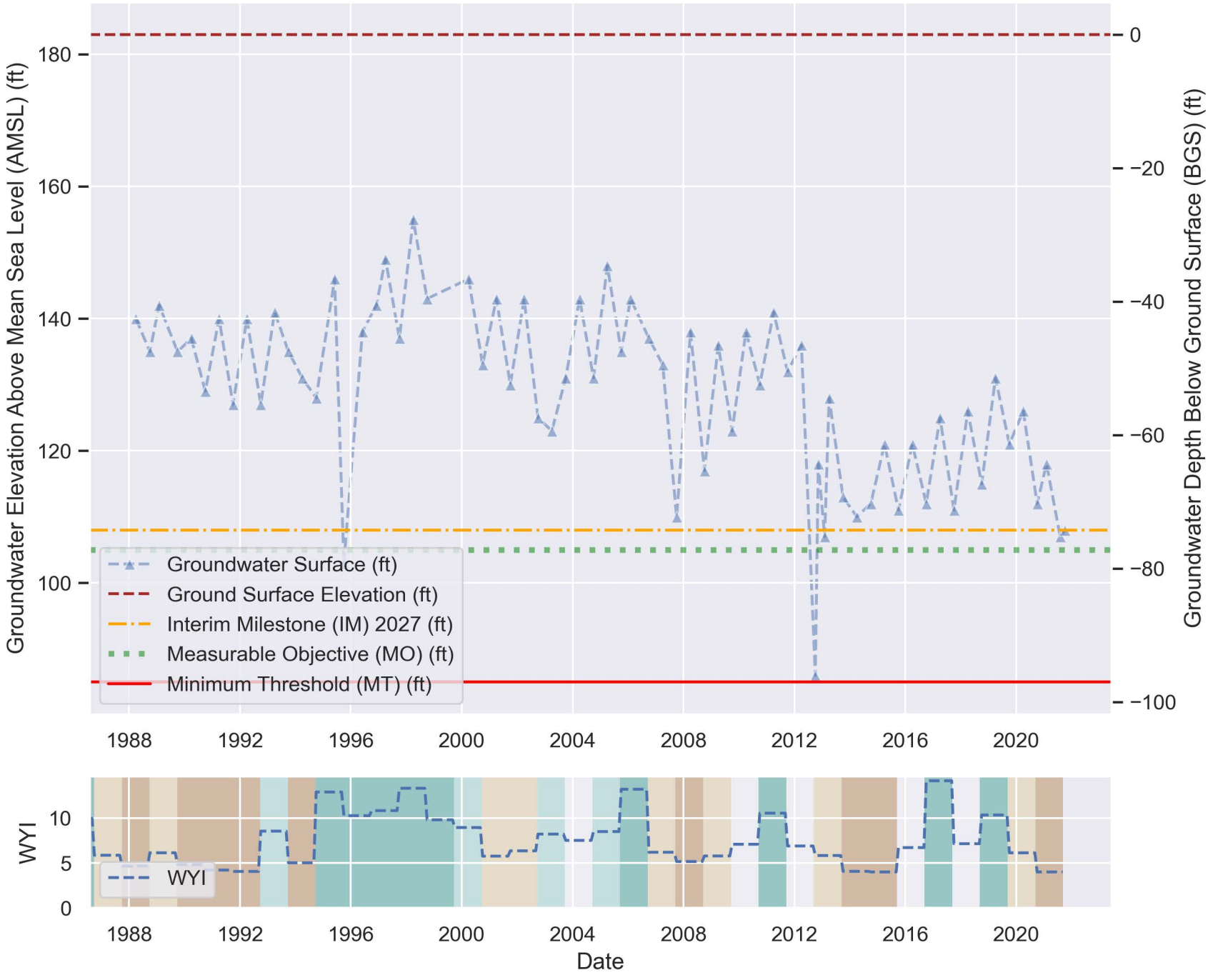
Well Location Map



Sustainable Management Criteria:

IM (2027) = 108.0 ft AMSL
MO = 105.0 ft AMSL
MT = 85.0 ft AMSL

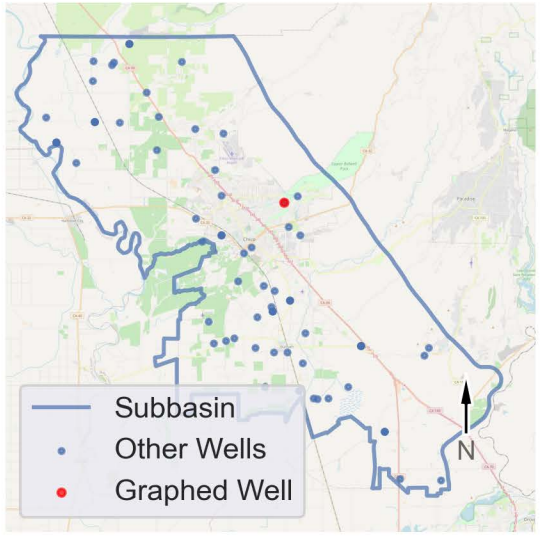
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): CWSCH03

Perforation 1: Perforation data not available.

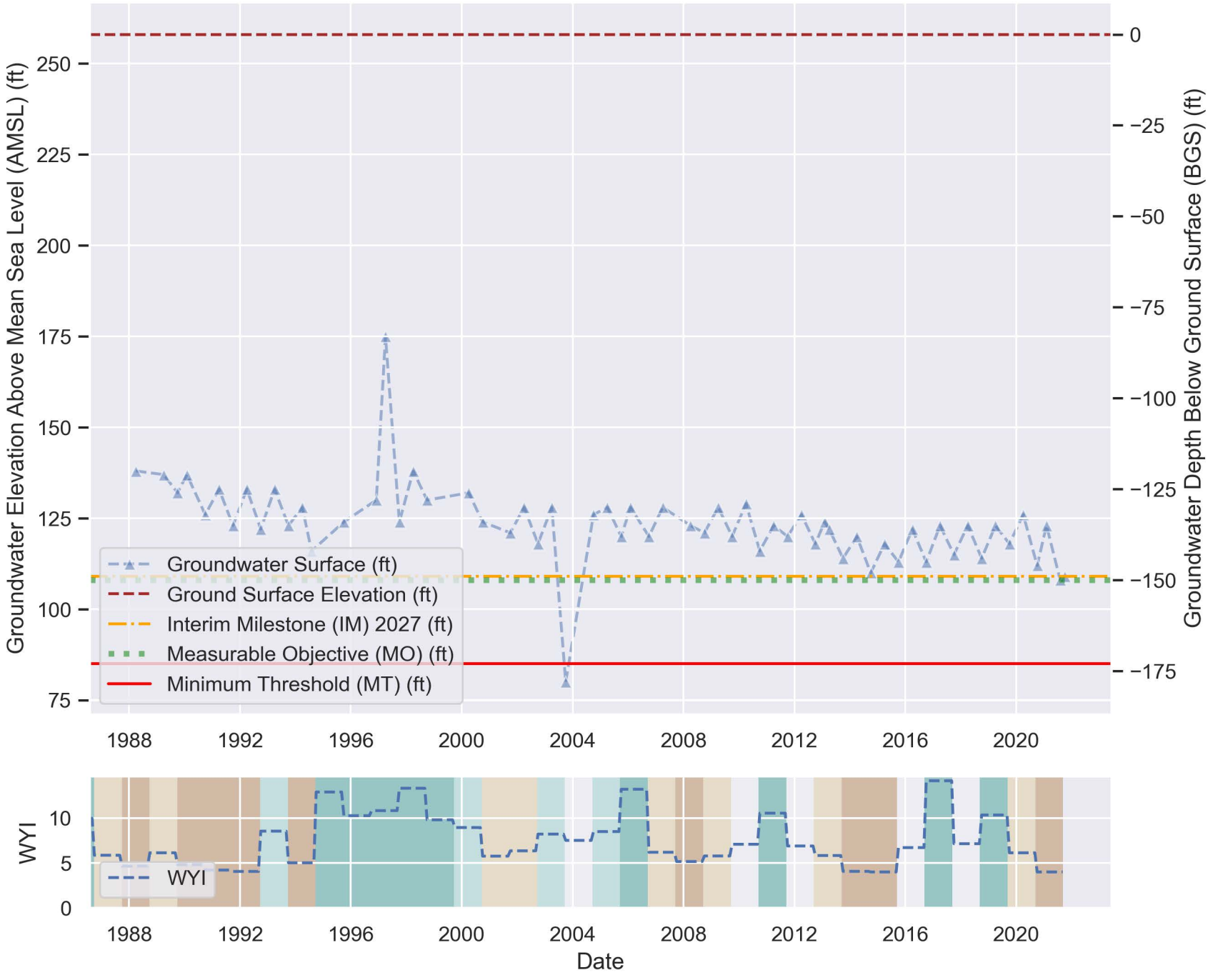
Well Location Map



Sustainable Management Criteria:

IM (2027) = 109.0 ft AMSL
MO = 108.0 ft AMSL
MT = 85.0 ft AMSL

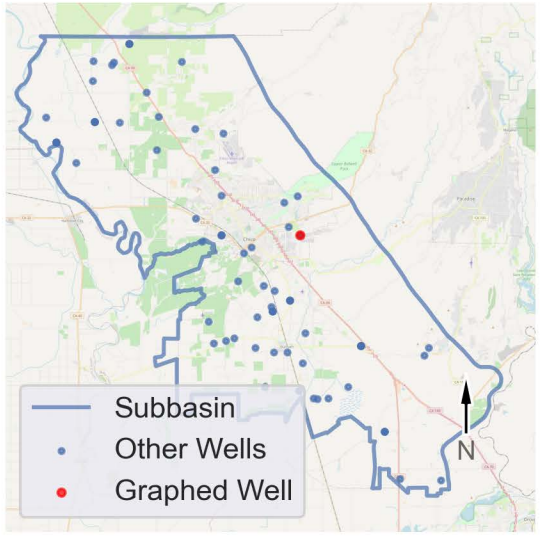
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): CWSCH07

Perforation 1: Perforation data not available.

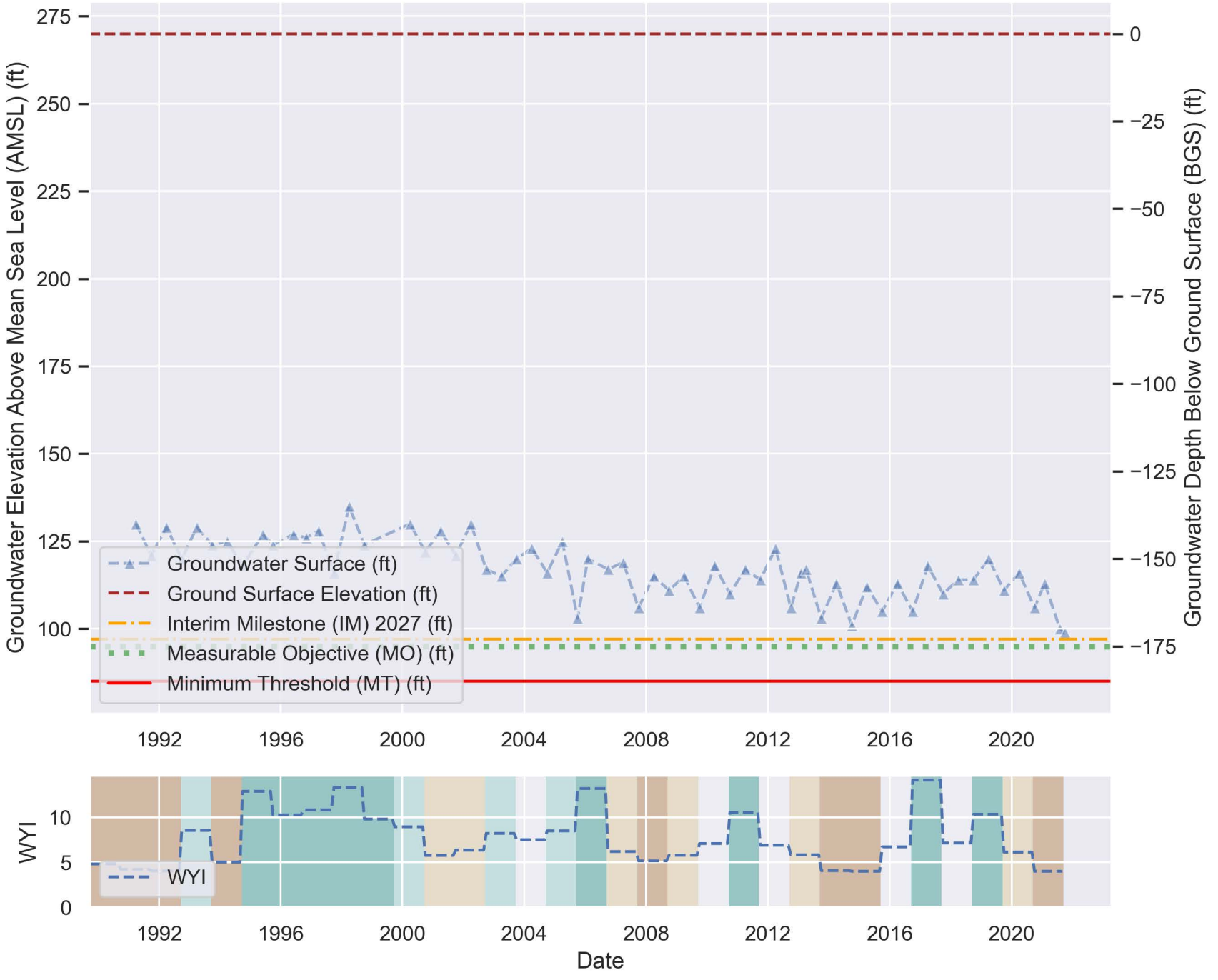
Well Location Map



Sustainable Management Criteria:

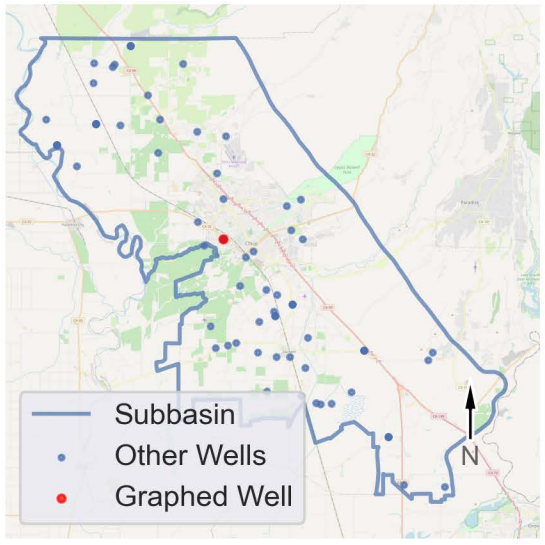
IM (2027) = 97.0 ft AMSL
MO = 95.0 ft AMSL
MT = 85.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 22N01E28J003M

Well Location Map



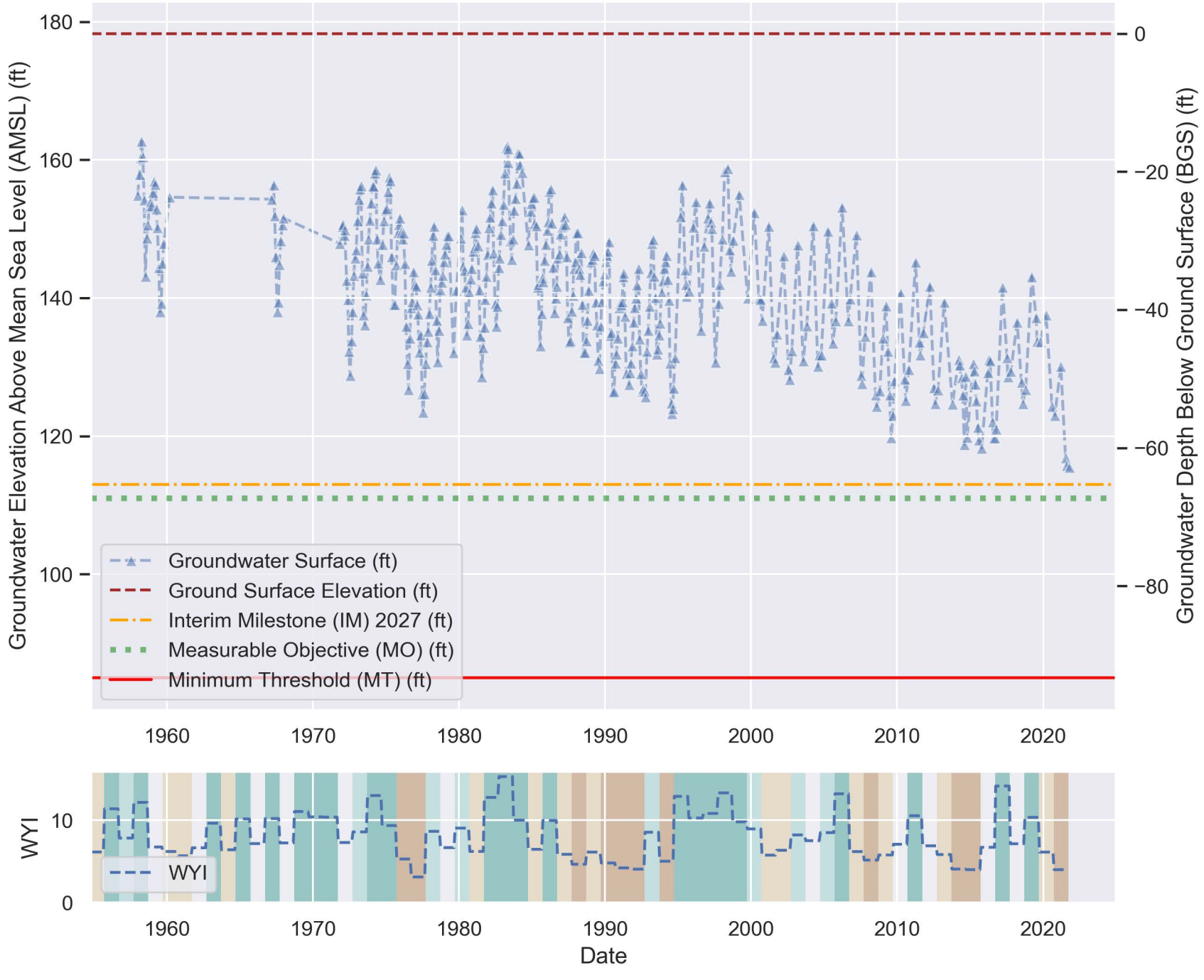
Sustainable Management Criteria:

IM (2027) = 113.0 ft AMSL
MO = 111.0 ft AMSL
MT = 85.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.

Wet (W)
Above Normal (AN)
Below Normal (BN)
Dry (D)
Critical (C)

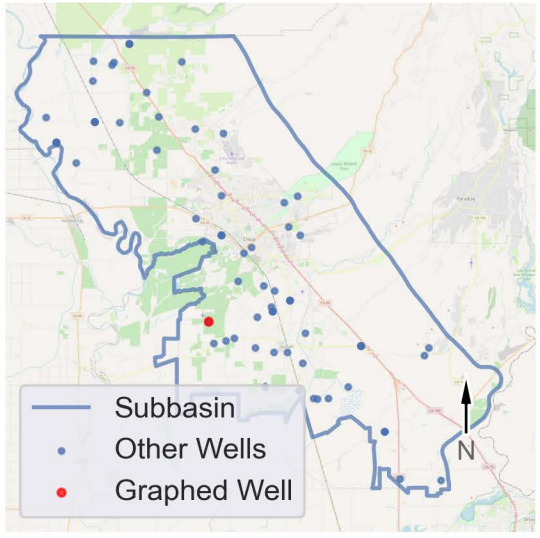
Perforation 1: 200.0 - 279.0 ft BGS



VINA Subbasin - State Well Number (SWN): 21N01E21C001M

Perforation 1: 240.0 - 300.0 ft BGS; Perforation 2: 448.0 - 508.0 ft BGS

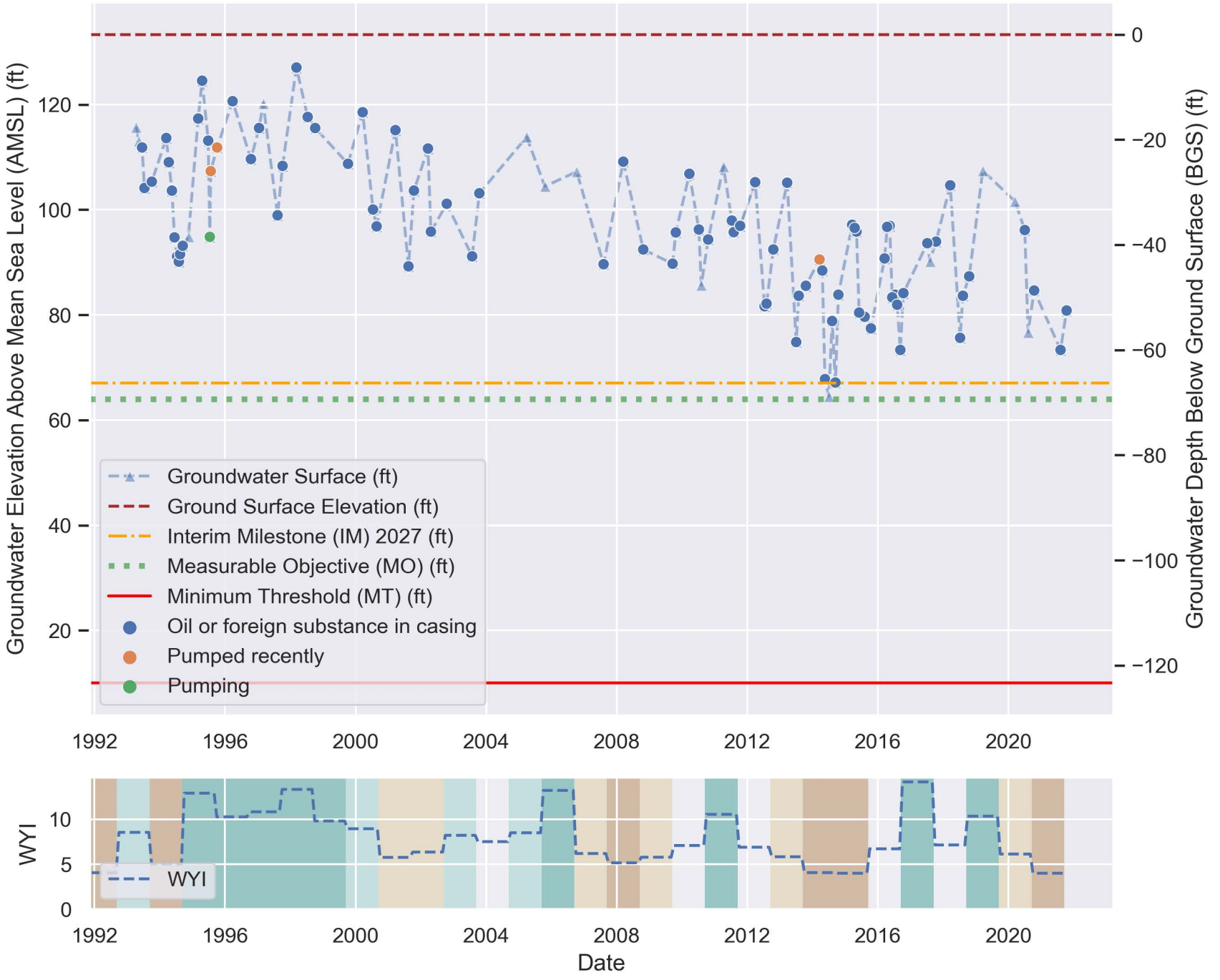
Well Location Map



Sustainable Management Criteria:

IM (2027) = 67.0 ft AMSL
MO = 64.0 ft AMSL
MT = 10.0 ft AMSL

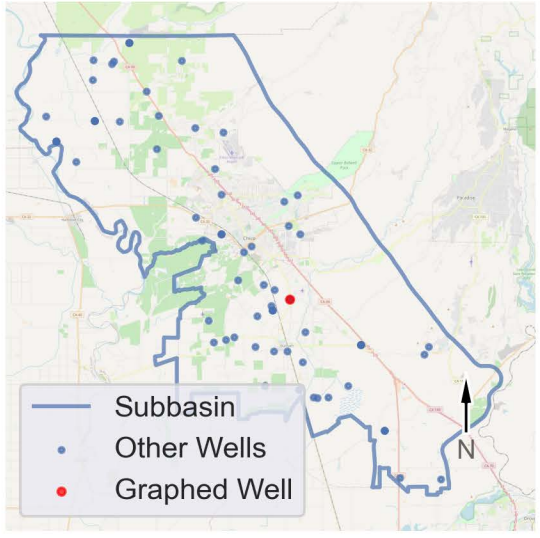
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 21N02E18C003M

Perforation 1: 130.0 - 140.0 ft BGS; Perforation 2: 160.0 - 170.0 ft BGS; Perforation 3: 190.0 - 200.0 ft BGS

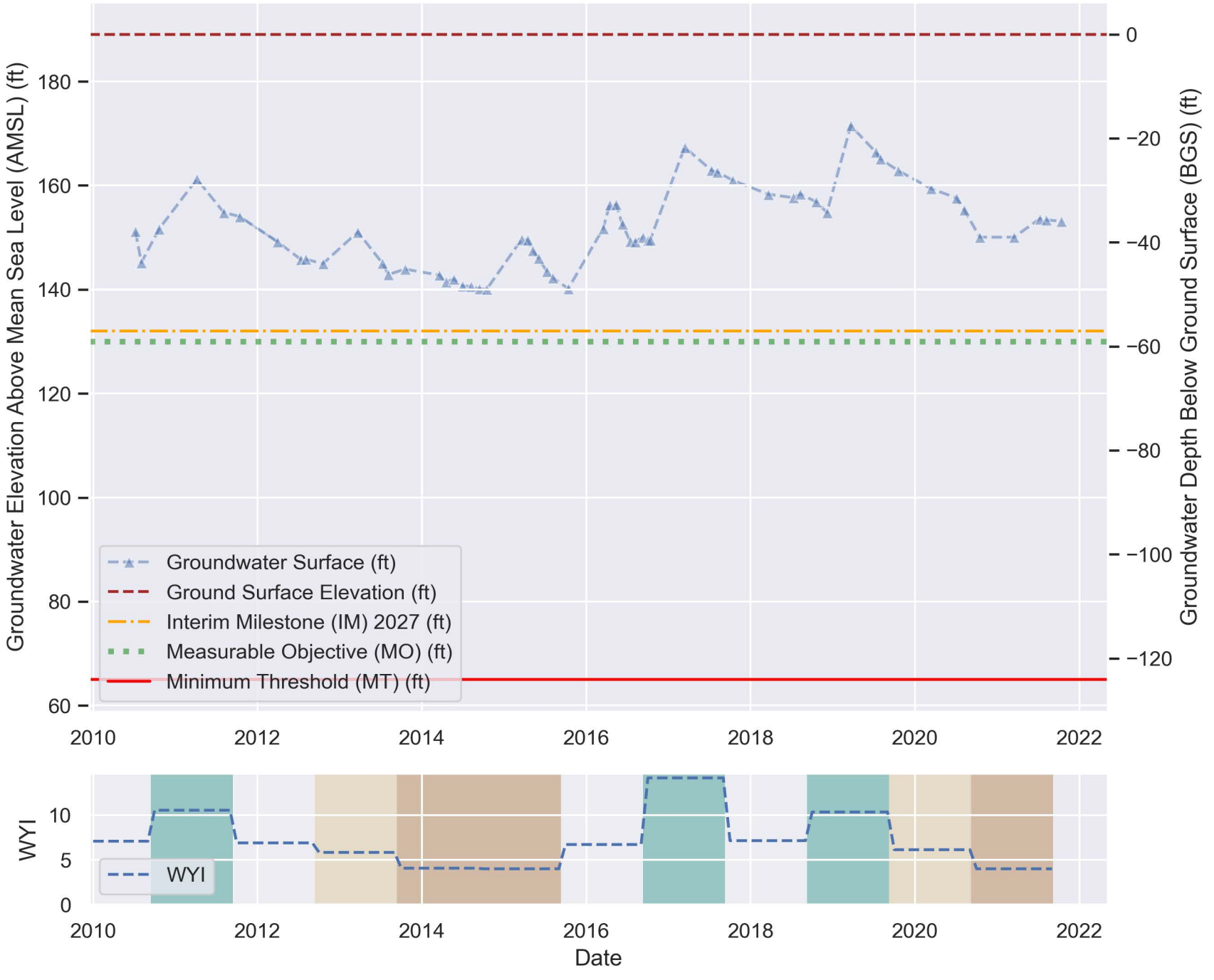
Well Location Map



Sustainable Management Criteria:

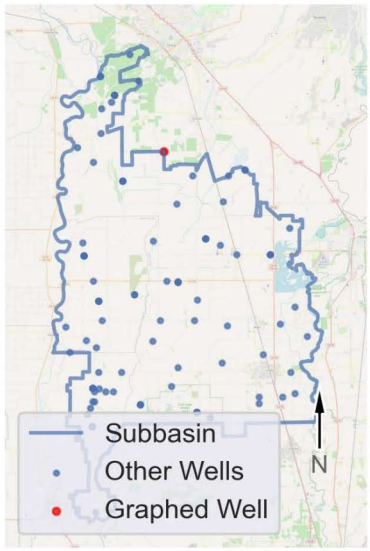
IM (2027) = 132.0 ft AMSL
MO = 130.0 ft AMSL
MT = 65.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



BUTTE Subbasin - State Well Number (SWN): 20N01E10C002M

Well Location Map

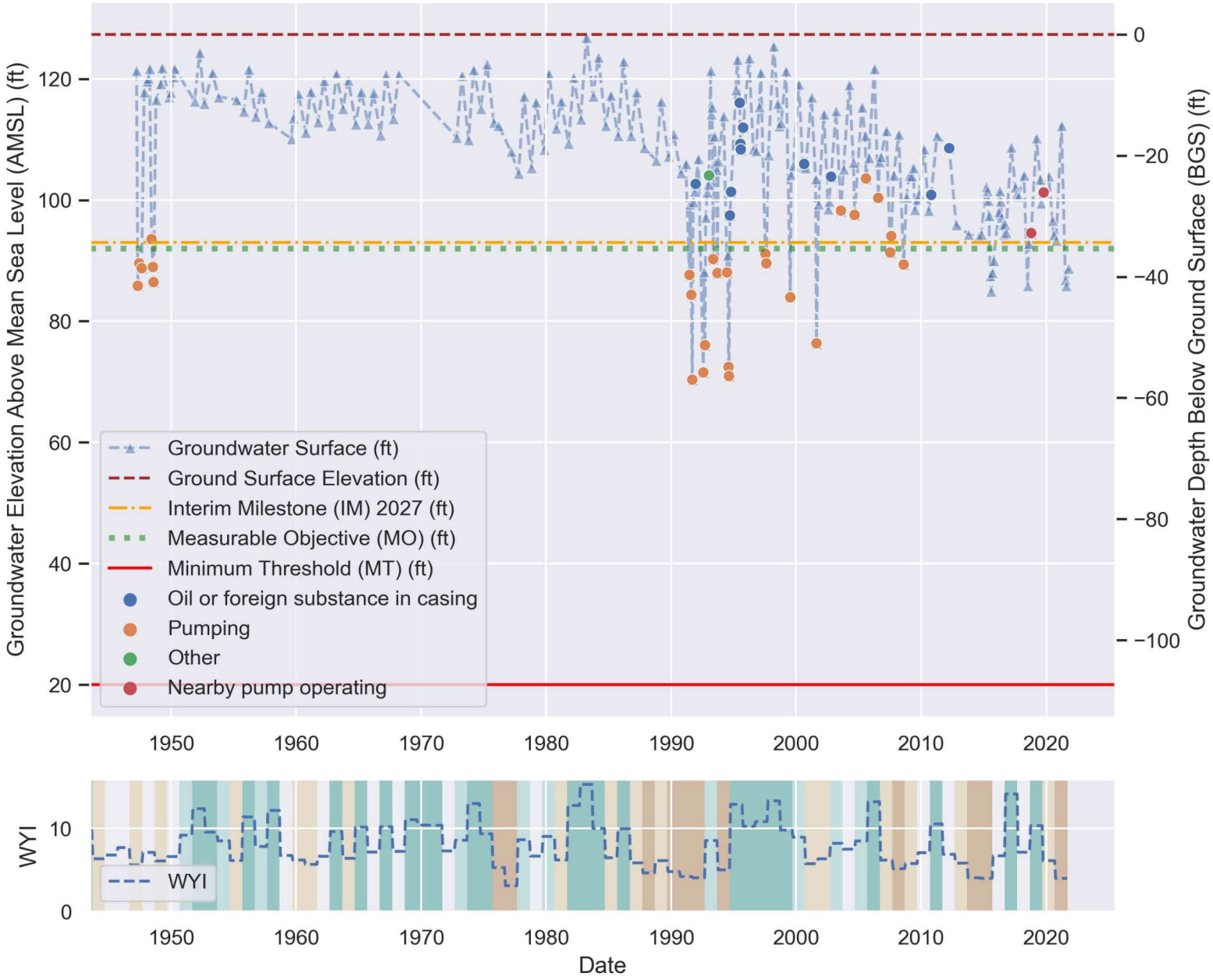


Sustainable Management Criteria:

IM (2027) = 93.0 ft AMSL
MO = 92.0 ft AMSL
MT = 20.0 ft AMSL

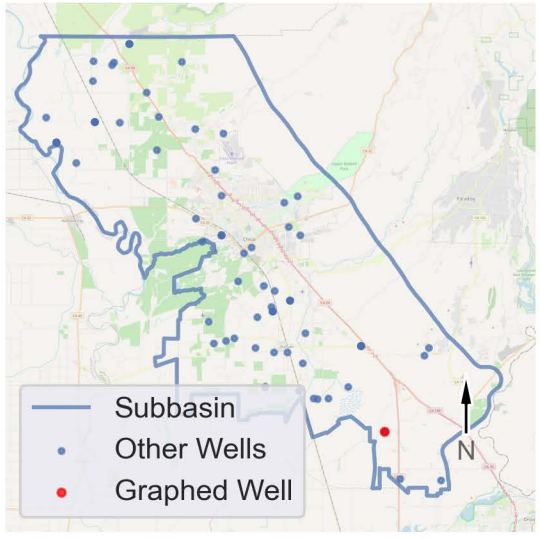
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.

Perforation 1: 20.0 - 120.0 ft BGS



VINA Subbasin - State Well Number (SWN): 20N02E24C001M

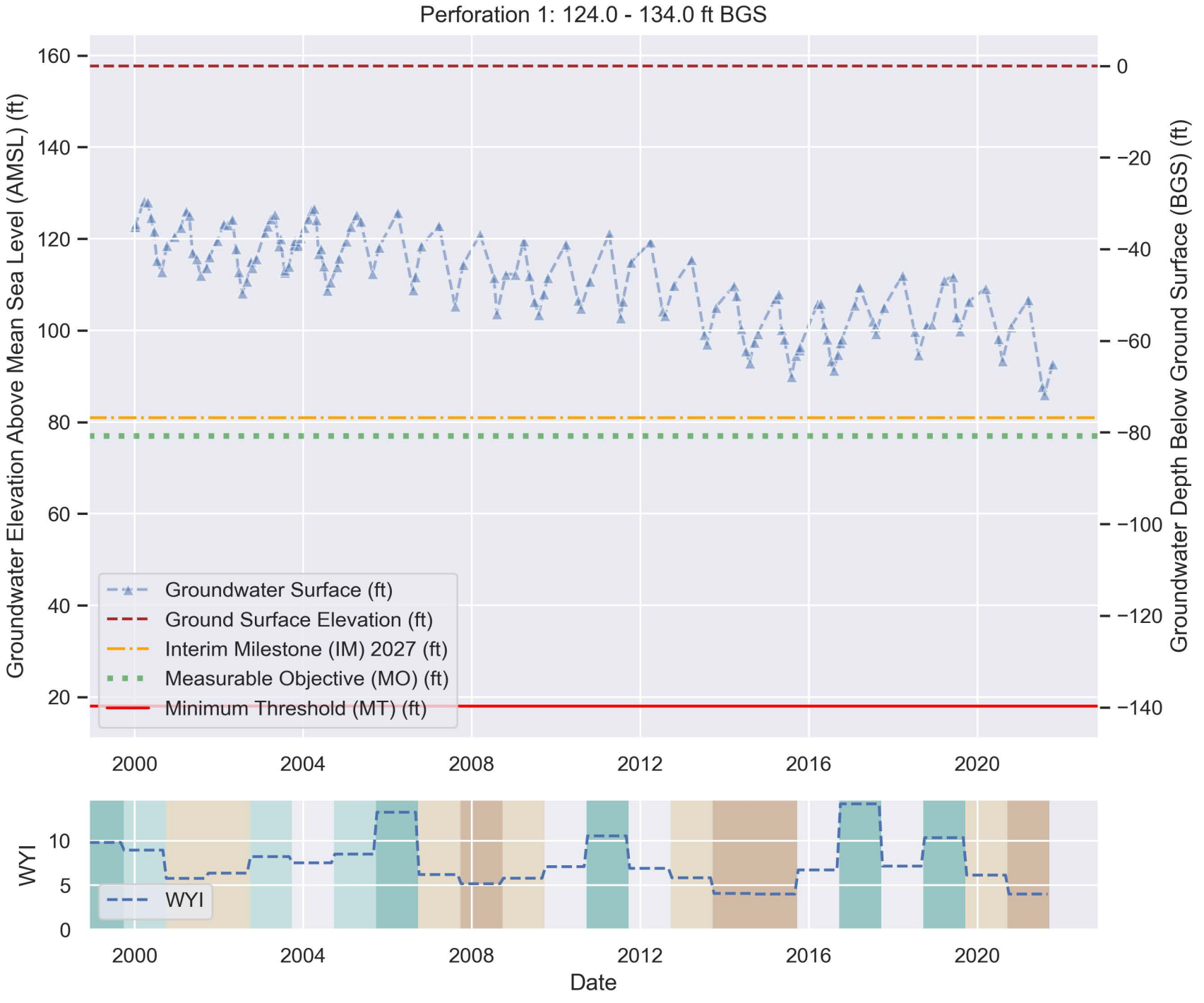
Well Location Map



Sustainable Management Criteria:

IM (2027) = 81.0 ft AMSL
MO = 77.0 ft AMSL
MT = 18.0 ft AMSL

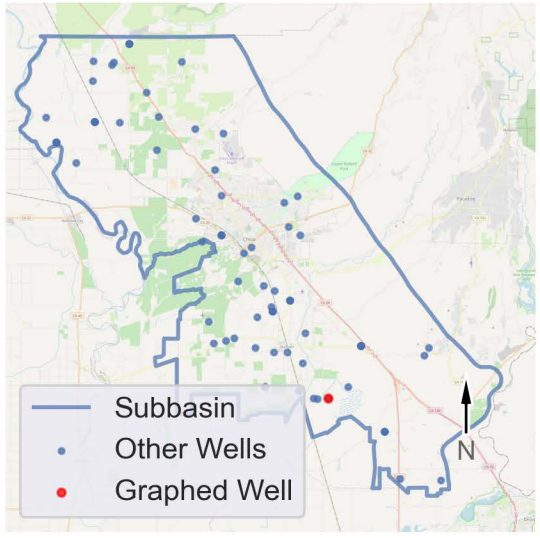
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 20N02E09L001M

Perforation 1: 460.0 - 710.0 ft BGS

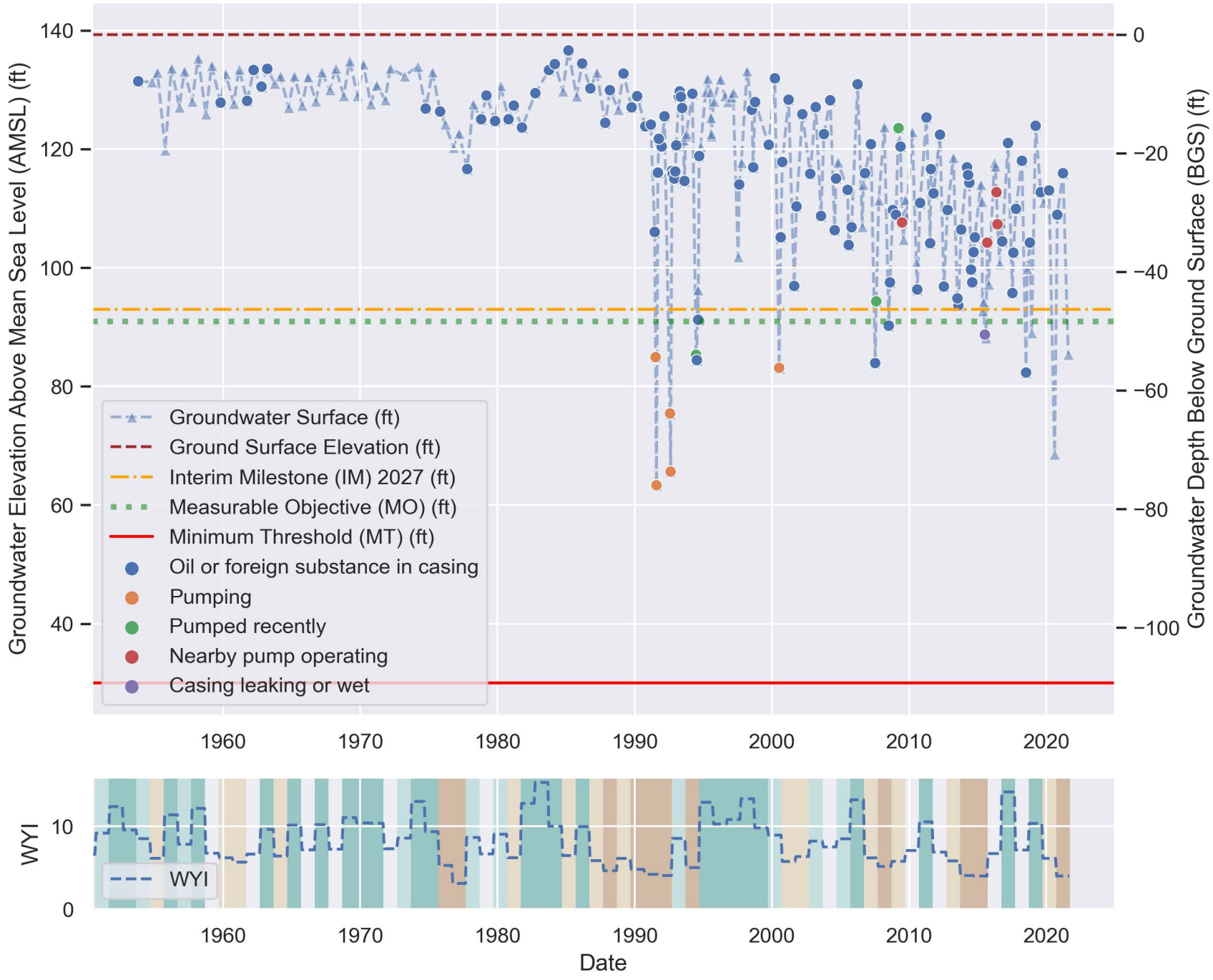
Well Location Map



Sustainable Management Criteria:

IM (2027) = 93.0 ft AMSL
MO = 91.0 ft AMSL
MT = 30.0 ft AMSL

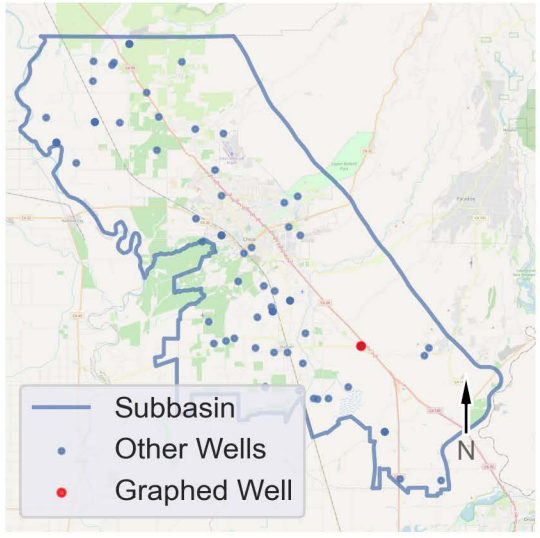
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



VINA Subbasin - State Well Number (SWN): 21N02E26E005M

Perforation 1: 265.0 - 275.0 ft BGS; Perforation 2: 280.0 - 290.0 ft BGS

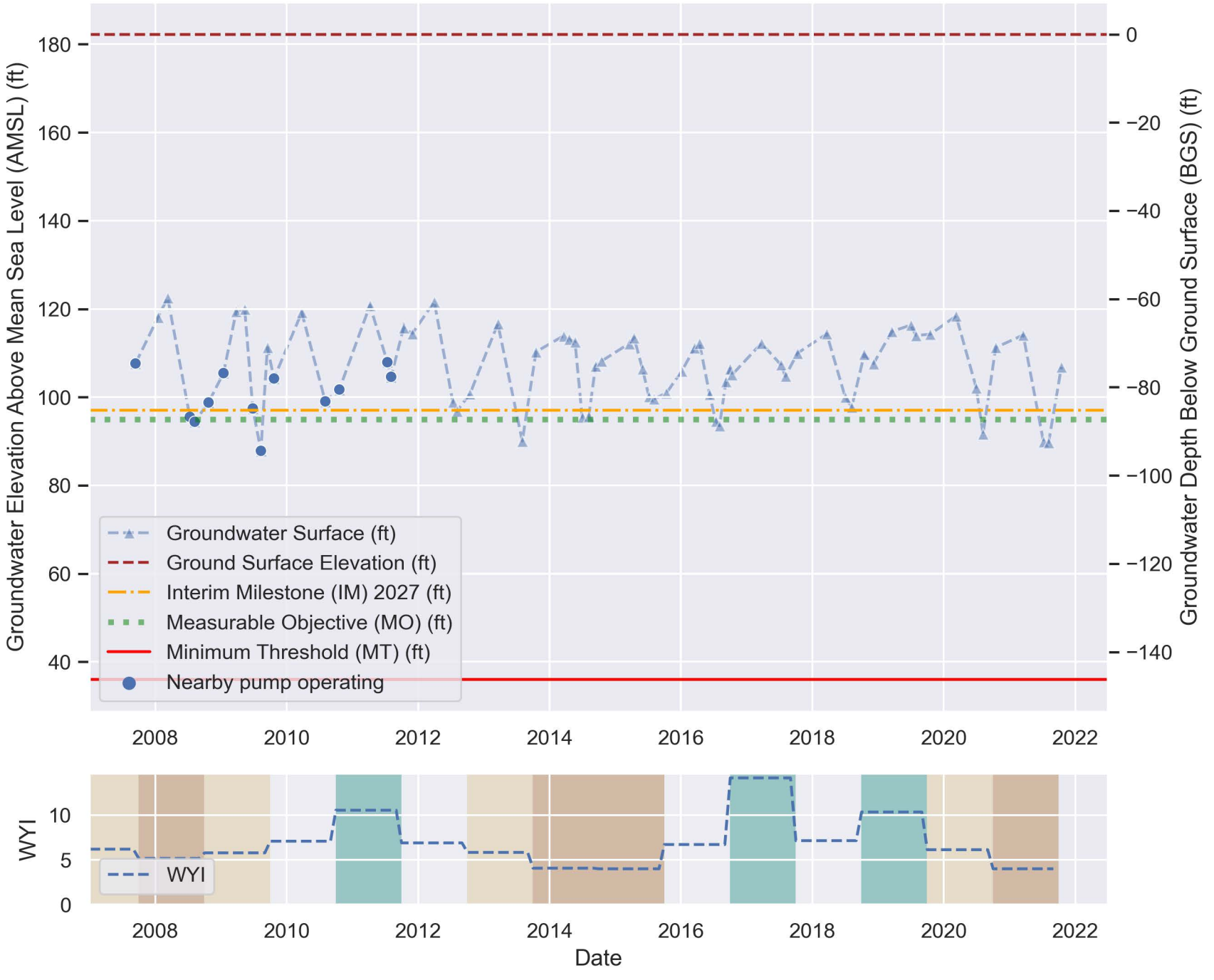
Well Location Map



Sustainable Management Criteria:

IM (2027) = 97.0 ft AMSL
MO = 95.0 ft AMSL
MT = 36.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



2021 Water Year Annual Report

Appendix B

Explanation of Sustainable Management Criteria

Appendix B: Explanation of Sustainable Management Criteria

The Sustainable Groundwater Management Act (SGMA) requires a Groundwater Sustainability Plan (GSP) to define Sustainable Management Criteria (SMC) for the groundwater subbasin. The SMC offer guideposts and guardrails for groundwater managers seeking to achieve sustainable groundwater management. SGMA defines sustainable groundwater management as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results," where the planning and implementation horizon is 50 years with the first 20 years spent working toward achieving sustainable groundwater management and the following 30 years (and beyond) spent maintaining it (California Water Code §10721).

"Undesirable Results" are associated with up to six Sustainability Indicators (SI), including groundwater levels, groundwater storage, water quality, seawater intrusion, land subsidence, and interconnected surface water. SGMA defines undesirable results as those having significant and unreasonable negative impacts. Failure to avoid undesirable results on the part of the GSAs may lead to intervention by the State. Once the sustainability goal and undesirable results have been locally identified, projects and management actions are formulated to achieve the sustainability goal and avoid undesirable results.

SI and associated undesirable results, if significant and unreasonable

The Vina Subbasin is divided into three management areas (MAs): North, Chico, and South. The associated undesirable results for each SI have been defined similarly across the three MAs within the Vina Subbasin. In turn, the rationale and approach for determining Minimum Thresholds and Measurable Objectives for each SI are the same across all MAs in the Vina Subbasin.

The terminology for describing SMC is defined as follows:

Undesirable Results – Significant and unreasonable negative impacts associated with each SI.

Minimum Threshold (MT) – Quantitative threshold for each SI used to define the point at which undesirable results may begin to occur.

Measurable Objective (MO) – Quantitative target that establishes a point above the MT that allows for a range of active management to prevent undesirable results.

Margin of Operational Flexibility – The range of active management between the MT and the MO.

Interim Milestones (IMs) – Targets set in increments of five years over the implementation period of the GSP offering a path to sustainability.

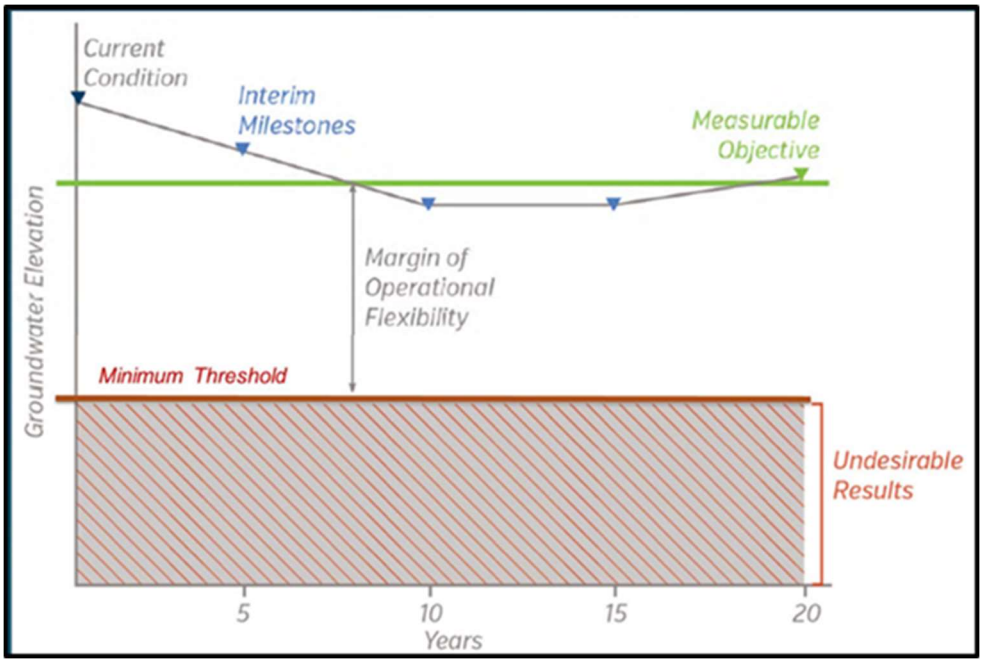


Illustration of Terms Used for Describing Sustainable Management Criteria Using the Groundwater Level SI

The Figure above illustrates these terms for the groundwater level SI.

SI are intended to be measured and compared against quantifiable SMC throughout a monitoring framework of Representative Monitoring Site (RMS) wells. Ongoing monitoring of SI can:

Determine compliance with the adopted GSP

Offer a means to evaluate the effectiveness of projects and management actions over time

Allow for course correction and adaptation in five-year updates

Facilitate understanding among diverse stakeholders

Support decision-making on the part of the GSAs into the future

The SMC for the Vina Subbasin is fully explained and defined in Section 3 of the GSP available here:

https://sgma.water.ca.gov/portal/gsp/preview/86

2021 Water Year Annual Report

Appendix C

GSP Annual Reporting Elements Guide

Groundwater Sustainability Plan Annual Report Elements Guide

Basin Name	Vina Subbasin		
GSP Local ID			
California Code of Regulations - GSP Regulation Sections	***Groundwater Sustainability Plan Elements***	**Document *page number(s) that address the applicable GSP element.***	***Notes: Briefly describe the GSP element does not apply.***
Article 5	**Plan Contents**		
Subarticle 4	***Monitoring Networks***		
§ 354.40	**Reporting Monitoring Data to the Department**		
	Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.	15	Monitoring data submitted to the Monitoring Network Module.
	Note: Authority cited: Section 10733.2, Water Code. Reference: Sections 10728, 10728.2, 10733.2 and 10733.8, Water Code.		
Article 7	**Annual Reports and Periodic Evaluations by the Agency**		
§ 356.2	**Annual Reports**		
	Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:		
	(a) General information, including an executive summary and a location map depicting the basin covered by the report.	4:12	
	(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:		
	(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:		
	(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.	14, 16:17	
	(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.	13:14, 30:49	
	(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.	18:20	
	(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.	20	
	(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.	20:21	
	(5) Change in groundwater in storage shall include the following:		
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.	21:22	
	(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.	23	
	(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.	23:28	