FOURTH ANNUAL REPORT WATER YEAR 2024
FOR THE
SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN
BULLETIN 118 BASIN NO. 3-15
JOINT REPORT OF THE
GROUNDWATER SUSTAINABILTY AGENCIES

WMA
Western Management Area

CMA
Central Management Area

EMA
Eastern Management Area

DRAFT
MARCH 7, 2025

STETSON ENGINEERS INC.

GSI Water Solutions, Inc.

W A T E R   R E S O U R C E   P R O F E S S I O N A L S
S E R V I N G   C L I E N T S   S I N C E   1 9 5 7

COVER PHOTOGRAPHS

Front Cover: Three views of water from the Santa Ynez River Valley Groundwater Basin area. The left image is the beach at the Lompoc-Surf train station at the mouth of the Santa Ynez River in the Western Management Area, photographed by Stetson Engineers on February 28, 2024. The central image is the waterfall at Nojoqui Falls Park above the Central Management Area, photographed by Stetson Engineers on February 26, 2024. The right image is of Lake Cachuma showing the high-water levels at Bradbury Dam, near the Eastern Management Area, photographed by GSI Water Solutions, Inc.

Back Cover: National Agriculture Imagery Program (NAIP) natural color orthographic photo mosaic of Santa Ynez River Valley Groundwater Basin area photographed in 2024.

SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN

SGMA Joint Annual Report, Water Year 2024

March 7, 2025

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The Western Management Area, Central Management Area, and Eastern Management Area Groundwater Sustainability Agency Boards and the consultant team (Stetson Engineers Inc. and GSI Water Solutions, Inc.) would like to thank and acknowledge the many stakeholders, entities, and private citizens who have contributed their time and expertise to help develop this Fourth Annual Report.

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LIST OF ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
CCR	California Code of Regulations
Basin	Santa Ynez Valley Groundwater Basin
CCWA	Central Coast Water Authority
CEQA	California Environmental Quality Act
CGPS	Continuous Global Positioning System
CIMIS	California Irrigation Management Information System
CMA	Central Management Area
COC	constituent of concern
COGG	California Oil, Gas, and Groundwater
COMB	Cachuma Operation and Maintenance Board
CSD	Community Services District
CWC	California Water Code
DBID	Database Identification Number
DDW	Division of Drinking Water
DWR	California Department of Water Resources
EMA	Eastern Management Area
ET	Evapotranspiration
Ft/ft	feet per foot
FY	Fiscal Year (July 1 through June 30)
GDE	groundwater-dependent ecosystem
Gpm	gallons per minute
GSA	Groundwater Sustainability Agency
GSI	GSI Water Solutions, Inc.
GSP	Groundwater Sustainability Plan
HCM	hydrogeologic conceptual model
ID No. 1	Santa Ynes River Water Conservation District, Improvement District No. 1

ILRP	Irrigated Lands Regulatory Program
InSAR	Interferometric Synthetic Aperture Radar
LRWRP	Lompoc Regional Wastewater Reclamation Plant
MCL	maximum contaminant level
mg/L	milligrams per liter
MHCSD	Mission Hills Community Services District
NAIP	National Agriculture Imagery Program
Plan	Groundwater Sustainability Plan
PRISM	Parameter-elevation Regressions on Independent Slopes Model
RMS	representative monitoring site
RMW	Representative Monitoring Well
RWQCB	Regional Water Quality Control Board
San Antonio	San Antonio Creek Valley Groundwater Basin
SFB	Space Force Base
SGMA	Sustainable Groundwater Management Act
SMCL	secondary maximum contaminant level
SWP	State Water Project
SWRCB	State Water Resources Control Board
SYRA	Santa Ynez River Alluvium
SYRVGB	Santa Ynez River Valley Groundwater Basin
SYRWCD	Santa Ynez River Water Conservation District
UNAVCO	University NAVSTAR Consortium
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
VSFB	Vandenberg Space Force Base
VVCSD	Vandenberg Village Community Services District
WMA	Western Management Area
WR	Water Rights Order
WY	Water Year (October 1 through September 30)

EXECUTIVE SUMMARY

This is the fourth annual Sustainable Groundwater Management Act (SGMA) Annual Report for the three independent groundwater sustainability agencies (GSAs) of the Santa Ynez River Valley Groundwater Basin (SYRVGB or Basin): Western Management Area (WMA), Central Management Area (CMA), and Eastern Management Area (EMA). Each GSA corresponds to a management area, and all three GSAs coordinate to cover the entire Basin. This report describes changes within the Basin and management progress for Water Year (WY) 2024. WY 2024 started on October 1, 2023, and ended on September 30, 2024.

During WY2024, the California Department of Water Resources (DWR) approved each groundwater sustainability plan (GSP) for each of the three GSAs. Additionally, all three agencies completed their legal reorganization as independent agencies under three separate Joint Exercise of Powers Agreements (JPAs). This fourth annual report is the first joint report of the three GSAs. This report includes a joint section summarizing the overall information and detailed annual report information about each of the three management areas in separate sections.

All three GSAs found that WY2024 was a wet year. In general, groundwater storage increased, although not as much as the previous year, WY2023, which was the first wet year after eleven years of drought (2012-2022). All three GSAs report that conditions within their domains continue to meet sustainability goals with no undesirable results during WY 2024.

The total groundwater production in the WMA, CMA, and EMA during WY 2024 was about 21,830; 4,820; and 12,808 acre-feet (AF), respectively[1]. This totals to 39,460 AF of groundwater production for the Basin. The total estimated water use[2] in the WMA, CMA, and EMA is about 27,785; 9,240; and 18,826 AF, respectively. This totals to about 55,861 AF of water use for the Basin.

1 The estimated sustainable yields of the WMA, CMA, and EMA is estimated to be 26,500; 2,800; and 12,870 acre-feet per year (AFY), respectively per the respective 2022 GSPs.

2 Total use includes all water types including groundwater, surface water (surface and underflow), and imported water.

During WY 2024, the three independent GSAs in the Basin, began work on the DWR Proposition 68 grant implementation project for the Santa Ynez River Valley Groundwater Basin. The goal of the project is to improve the overall long-term sustainability in the Basin. The project components are being implemented in each management area, including expansion of the monitoring networks to address data gaps.

Western Management Area

The WMA is the most western management area in the Basin. One of the principal aquifers has a limited coastal interface to the Pacific Ocean. Much of the peripheral area outside of the principal aquifers are the federal lands of the Vandenberg Space Force Base. Analyses conducted for the WY 2024 annual report show that Basin conditions are sustainable with no current undesirable results during WY 2024.

	Groundwater Levels
	All measured spring groundwater levels in representative wells were above the minimum threshold in both the Upper Aquifer and the Lower Aquifer.
	Groundwater Storage
	The Upper Aquifer had an estimated increase in storage, while the Lower Aquifer had a decrease in storage, and overall, it was relatively unchanged over the water year 2024: a gain of 600 acre-feet (AF).
	Seawater intrusion
	Seawater intrusion indicators of Chloride showed a slight uptick but are well below the sustainability indicator.
	Degraded water quality
	No potential degradation of water quality caused by groundwater pumping or implementation of projects and management actions was found in the WMA. Water quality was assessed in the 2022 WMA GSP and WY 2023 WMA annual report and has not degraded compared to the minimum thresholds.
	Land subsidence
	InSAR satellite data and continuous global positioning system data show no measurable land subsidence has occurred within the WMA.

	Interconnected Surface Water
	The three monitoring wells used to assess interconnected river conditions were above the minimum thresholds.

Central Management Area

The CMA is the central management area in the Basin. The principal aquifer covers both a rural upland and is partly overlaid by the channel of Santa Ynez River alluvium near the City of Buellton. Analyses conducted for the WY 2024 annual report show that Basin conditions are sustainable with no current undesirable results during WY 2024. Storage was estimated to increase, likely due to wet conditions; however, pumping during WY 2024 exceeded the long-term sustainable yield estimated in the CMA GSP.

	Groundwater Levels
	All spring groundwater levels in representative wells were above the minimum threshold in the Buellton aquifer.
	Groundwater Storage
	The aquifer had an estimated increase in storage: a gain of 1,000 acre-feet (AF).
	Degraded water quality
	No potential degradation of water quality caused by groundwater pumping or implementation of projects and management actions was found in the CMA. Water quality was assessed in the 2022 CMA GSP and WY 2023 CMA annual report and has not degraded compared to the minimum thresholds.
	Land subsidence
	InSAR satellite data and continuous global positioning system data show no significant land subsidence has occurred within the CMA.

	Interconnected Surface Water
	The three monitoring wells used to assess interconnected river conditions were above the minimum thresholds.

Eastern Management Area

The EMA is the easternmost management area in the Basin. Analyses conducted for the WY 2024 annual report show an overall increase in groundwater in storage, likely due to wet conditions. However, pumping also increased, but to a level significantly lower than the historical 2019-2022 averages.

	Groundwater Levels
	Spring groundwater levels generally rose in 2024 compared to the previous year. However, 31% of representative wells in Paso Robles were below minimum threshold values, and 11% of the representative Careaga Sands wells were below minimum thresholds.
	Groundwater Storage
	Groundwater storage increased in 2024 by a gain of 6,114 AF; however, this has not fully offset a long-term decline since 2015.
	Degraded water quality
	No potential degradation of water quality caused by groundwater pumping or implementation of projects and management actions was found in the EMA. Water quality was assessed in the 2022 EMA GSP and has not degraded compared to the minimum thresholds.
	Land subsidence
	InSAR satellite data comparing June 2015 and October 2024 shows no measurable land subsidence has occurred within the EMA.
	Interconnected Surface Water
	Indicator monitoring is still being developed for the EMA areas.

JOINT REPORT SECTION

WMA

Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

CMA

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

EMA

Santa Ynez River Valley Groundwater Basin
Eastern Management Area
Groundwater Sustainability Agency

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JOINT CHAPTER 1: INTRODUCTION

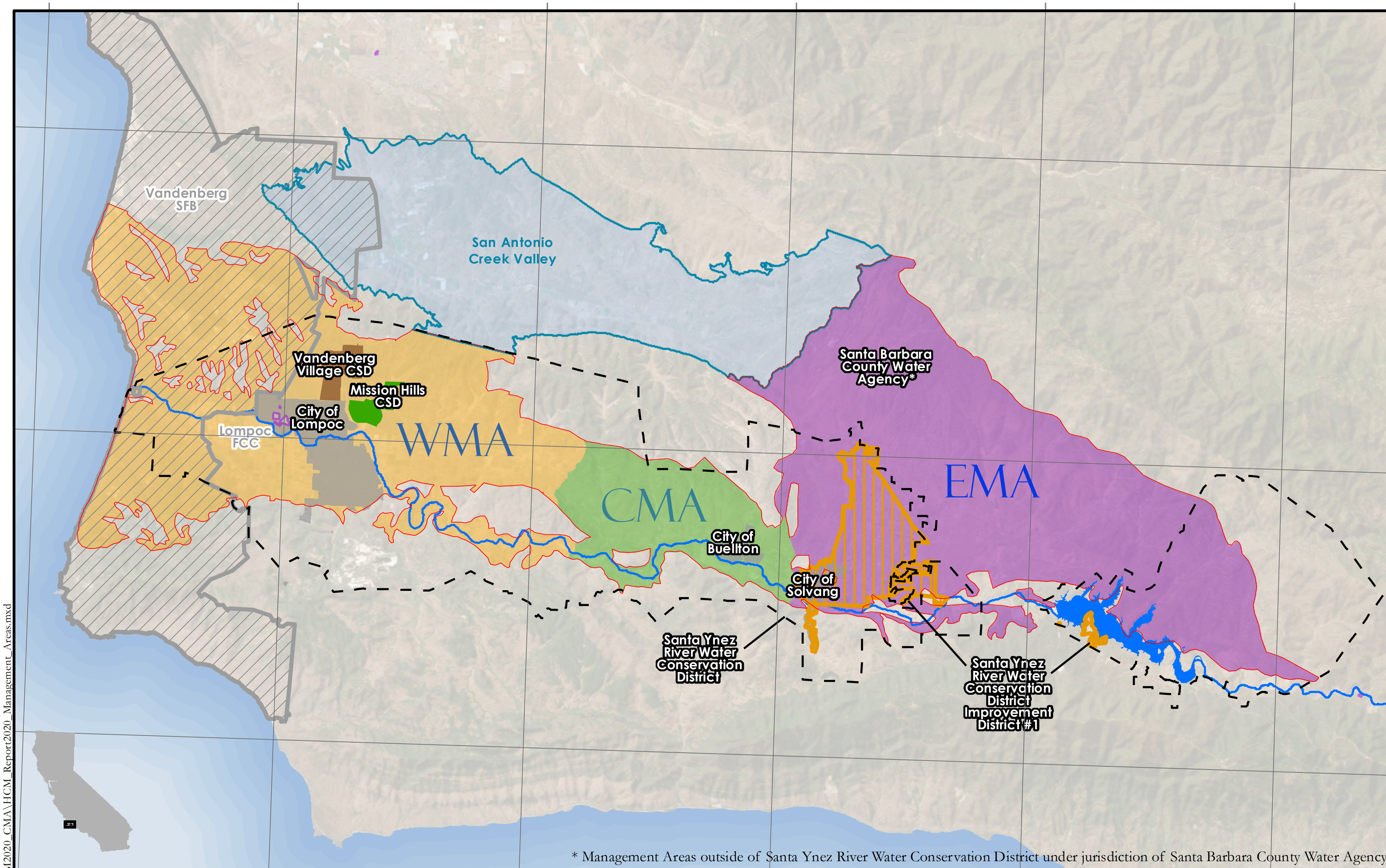
The Santa Ynez River Valley Groundwater Basin (SYRVGB or Basin) is a groundwater basin located in central Santa Barbara County in the central coast region of California (**Joint Figure 1-1**). The Basin (No. 3-15) encompasses approximately 317.4 square miles (203,100 acres), located within the larger Santa Ynez watershed. **Joint Figure 1-1** shows the location of all three management areas of the Basin.[1]

This fourth annual report is a joint report of the three GSAs. Each GSA is independent regarding management decisions and responsibility for collecting groundwater and related data within their respective domains. **Joint Table 1-1** summarizes the physical description and member agencies of all three Basin GSAs.

Joint Table 1-1
Santa Ynez River Valley Groundwater Basin Groundwater Sustainability Agencies

GSA	Management Area Description	Board Member Agencies
WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency	133.7 square miles • Santa Ynez River alluvium west of Santa Rosa Park to the Lompoc Narrows • Lompoc Plain • Lompoc Terrace • Burton Mesa • Lompoc Upland • Santa Rita Upland.	• City of Lompoc • Vandenberg Village Community Services District • Mission Hills Community Services District • Santa Ynez River Water Conservation District • Santa Barbara County Water Agency (non-voting member)
CMA Santa Ynez River Valley Groundwater Basin Central Management Area Groundwater Sustainability Agency	32.8 square miles • Santa Ynez River alluvium east of Santa Rosa Park to just west of the City of Solvang • Buellton Upland	• City of Buellton • Santa Ynez River Water Conservation District • Santa Barbara County Water Agency (non-voting member)
EMA Santa Ynez River Valley Groundwater Basin Eastern Management Area Groundwater Sustainability Agency	150.9 square miles • Santa Ynez River alluvium from City of Solvang east • Santa Ynez Upland	• City of Solvang • Santa Ynez River Water Conservation District, Improvement District No.1 • Santa Ynez River Water Conservation District • Santa Barbara County Water Agency

1 23 CCR § 356.2(a) "[…] location map depicting the basin covered by the report."



Western Management Area (WMA)

Central Management Area (CMA)

Eastern Management Area (EMA)

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SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN
(DWR BULLETIN 118 BASIN NO. 3-105)
AND MANAGEMENT AREA BOUNDARIES

0 2 4 Miles

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Sources:
NAIP (2018)
USGS National Elevation Dataset, 2002
Groundwater basin boundary from DWR Bulletin 118, 2018

JOINT FIGURE 1-3

Document Path: I:\jn2710\HCM2020_CMA\HCM_Report2020_Management_Areas.mxd

Joint Table 1-2 lists the principal aquifers by GSA. These principal aquifers have limited connections between the management areas. In addition to the principal aquifers, the Santa Ynez River has an underflow component located upstream of the Lompoc Narrows, where it flows in a "known and definite channel"[2] of high permeability river sediments under and adjacent to the Santa Ynez River. The State Water Resources Control Board (SWRCB) administers Santa Ynez River water, including both surface water and underflow of the Santa Ynez River and surface water rights.

Joint Table 1-2
Principal Groundwater Aquifers, by GSA

GSA	Principal Aquifer Name	Acres [A]	Square Miles	Summary Description
WMA	Upper Aquifer	14,500	22.7	Santa Ynez River gravels, younger and older alluvial deposits in Lompoc Plain (below Lompoc Narrows)
	Lower Aquifer	37,700	58.9	Paso Robles and Careaga Formations in Santa Rita Syncline
CMA	Buellton Aquifer	18,800	29.4	Paso Robles and Careaga Formations in Santa Rita Syncline, buried under Santa Ynez River alluvium near the City of Buellton.
EMA	Paso Robles Formation	In Review [B]	In Review [B]	Older Alluvium and Paso Robles Formation from terraces near the river up to 1 to 2 miles upslope from the river
	Careaga Sand	In Review [B]	In Review [B]	Careaga Sand is found in the Santa Ynez Uplands, outcropping near the City of Solvang.

[A] Rounded to the nearest ten acres.
[B] EMA is revising the principal aquifer extents using the results of recent geophysical investigations.
Note: In addition to the SGMA groundwater aquifers noted above, there is an area where the Santa Ynez River, in part, flows underground as underflow in a known and definite channel defined by relatively impermeable banks. The SGMA statute, CWC Section 10721 (g), excludes this from the definition of groundwater.

This report includes each GSA's separate annual reporting of conditions and an overall basin summary. This report covers the water year 2024 (October 1, 2023– September 30, 2024).

2 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water but does not include water that flows in known and definite channels.

1.1 PURPOSE OF ANNUAL REPORT

The California legislature identified the following items to include in the SGMA annual reports (California Water Code [CWC] Section 10728):

> *On the April 1 following the adoption of a groundwater sustainability plan and annually thereafter, a groundwater sustainability agency shall submit a report to the department containing the following information about the basin managed in the groundwater sustainability plan:*
>
> *(a) Groundwater elevation data.*
>
> *(b) Annual aggregated data identifying groundwater extraction for the preceding water year.*
>
> *(c) Surface water supply used for or available for use for groundwater recharge or in-lieu use.*
>
> *(d) Total water use.*
>
> *(e) Change in groundwater storage.*
>
> *(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)*

Joint Appendix 1-A includes the SGMA statute and regulations related to the required elements of this annual report. In general, the annual report is required to describe progress toward implementing the GSP and groundwater conditions over the year.

This Fourth Annual Report covers conditions for WY 2024 (October 1, 2023 - September 30, 2024). This is the first joint report of the three GSAs in the Basin. Previous Annual Reports and the three approved GSPs provide historical groundwater conditions in the Basin prior to WY 2024.

1.2 SUSTAINABILITY GOAL AND UNDESIRABLE RESULTS

The three GSPs identified the following coordinated sustainability goal for the Basin:

> "to manage groundwater resources in the WMA, CMA and EMA for the purpose of facilitating long-term beneficial uses of groundwater within the Basin. Beneficial uses of groundwater in the Basin include municipal, domestic, and agricultural and environmental supply. The sustainability goal is in part defined by the locally defined minimum thresholds and undesirable results."[3]

Under SGMA,[4] six indicators of sustainability were considered as part of each GSAs' GSP.[5] The six sustainability indicators are listed as follows.

1. Chronic lowering of groundwater levels
2. Reduction of groundwater storage
3. Seawater intrusion[6]
4. Degraded water quality
5. Land subsidence
6. Depletion of interconnected surface water

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3 Same phrasing in 2022 WMA GSP, Section 3B.1 Sustainability Goal and 2022 CMA GSP, Section 3B.1 Sustainability Goal. 2022 EMA GSP, Section 5-4 phrased it as "*to sustainably manage the groundwater resources in the Western, Central, and Eastern Management Areas to ensure that the Basin is operated within its sustainable yield for the protection of reasonable and beneficial uses and users of groundwater. The absence of undesirable results, as defined by SGMA and the Groundwater Sustainability Plans (GSPs), will indicate that the sustainability goal has been achieved.*"

4 CWC Section 10721 (x), 23 CCR § 354.28(c), 23 CCR § 354.34(c),

5 23 CCR § 354.30(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

6 The seawater intrusion indicator is only applicable to the WMA, which is the sole coastal GSA for the Basin.

1.3 Organization of this Report

As requested by the Department of Water Resources (DWR) in 2024, the three GSAs in the Basin collaborated to provide a joint report for WY 2024. The required contents of an Annual Report are provided in the SGMA statutes and regulations (Joint Appendix 1-A). Each GSA evaluated groundwater conditions within their respective management areas and prepared their own respective content for this joint report. This document is organized into the following sections:

- **Joint:** General basin-wide conditions of the Santa Ynez River Valley Groundwater Basin.
- **Western Management Area:** reported groundwater conditions for the Western Management Area GSA and summary of progress toward the WMA GSP implementation.
- **Central Management Area:** reported groundwater conditions for the Central Management Area GSA and summary of progress toward the CMA GSP implementation.
- **Eastern Management Area:** reported groundwater conditions for the Eastern Management Area GSA and summary of progress toward the EMA GSP implementation.
- **Appendices:** Supplementary information.

To aid in the review of the document, the Joint Report section follows the organization of the SGMA statute, which addresses required reporting on overall basin conditions, where possible. The GSP-specific sections about the Western, Central, and Eastern Management Areas follow the SGMA regulations, which address required reporting on the specific GSP areas. These are organized as follows:

- Chapter 1: Introduction: Management Area-specific information.
- Chapter 2: Hydrologic conditions
- Chapter 3: Groundwater elevation data (including contours, with hydrographs as an appendix)
- Chapter 4: Water supply data (including groundwater extraction data)
- Chapter 5: Groundwater storage data
- Chapter 6: Progress towards GSP implementation and sustainability
- Chapter 7: References: citations for this section of the report.

JOINT CHAPTER 2: BASIN CONDITIONS

Since SGMA's inception in 2015, the overall assessment of local groundwater availability and groundwater conditions is determined by each GSA.[7] The water year types are calculated differently by the GSAs within the Basin following the best available information.[8] Each independent GSA in the Basin selected the appropriate method based on the local management needs and coordinated with the other GSAs. All three GSAs found the water year 2024 was a "wet" water year. Water year 2024 is the 2nd wet year in a row which follows an eleven-year drought (2012-2022).

The CMA and WMA receive more runoff and surface flow compared to the EMA, which is at a higher elevation and receives more precipitation. The WMA and CMA use ranking within the period of record of surface flows of Salsipuedes Creek. This follows the method used in managing the Cachuma Project under the 2019 SWRCB Water Rights Order 2019-0148, which also uses surface runoff to determine the water year type. The EMA uses precipitation data with a local EMA precipitation station, and a water year type index calculated following the DWR's (2021) SGMA Water Year Type Dataset method.[9] In their sections, the GSAs report details on how they made their determinations and findings of the water year type.

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7 Sustainable Groundwater Management Act, Uncodified Findings (a)(6) "*Groundwater resources are most effectively managed at the local or regional level.*"

8 DWR (2021) Sustainable Groundwater Management Act Water Year Type Dataset Development Report "*GSAs may choose to use the SGMA WYT dataset as a resource in the development of their water budget but are not required to. GSAs have the option to develop their own water year types based on best available information (23 CCR Section 354.18d).*"

9 Index = (0.40 * Current Year's precipitation) + (0.60 * Previous Year's Precipitation), based on a rolling 30-year period of precipitation.

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JOINT CHAPTER 3: GROUNDWATER HYDROGRAPHS AND CONTOURS

Groundwater levels are a key indicator of sustainability in the basin. The three GSAs have prepared detailed information on the WY2024 groundwater elevations.[10] The overall groundwater elevation conditions are summarized in the following table, **Joint Table 3-1**:

Joint Table 3-1
WY 2024 Seasonal High (Spring) Groundwater Elevation Data,
for Groundwater Level Monitoring,
by GSA

GSA	WMA		CMA	EMA		Basin-Wide (Total)
Principal Aquifer	Upper Aquifer	Lower Aquifer	Buellton Aquifer	Paso Robles Formation	Careaga Sand	
No.of Monitoring Network Wells (MNW)	13	13	4	15	9	54
No.of Wells monitored in Spring 2024	11	13	4	13	9	50
No. of MNW Below Minimum Threshold	0	0	0	4	1	5

In individual sections, the GSAs include groundwater level contours for each principal aquifer. The GSAs have produced hydrographs, presented in the appendices, specifically **WMA Appendix A and B**, **CMA Appendix A and B**, and **EMA Appendix B**.

10 CWC Section 10728 (a) "*Groundwater elevation data.*"

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JOINT CHAPTER 4: WATER USE AND AVAILABLE SURFACE WATER

4.1 GROUNDWATER USE

Groundwater production within the Basin is used for agricultural, domestic, and municipal purposes. Most of the Basin is a mixture of rural areas with agriculture and some rural-suburban development. Most of the area of Basin is within the boundaries of the Santa Ynez River Water Conservation District (SYRWCD), where water use is reported semi-annually. The following table, **Joint Table 4-1**, summarizes groundwater extraction by management area.[11]

Joint Table 4-1
WY 2024 Groundwater Extraction Data, by GSA, in Acre-Feet

GSA	WMA		CMA	EMA	Basin-Wide (Total AF)
Principal Aquifer	Upper Aquifer (AF)	Lower Aquifer (AF)	Buellton Aquifer (AF)	Total (AF)	
Domestic Water Use	70	210	260	1,296	1,836
Agricultural Water Use	13,450	2,420	3,950	9,436	29,256
Municipal Water Use	3,880	1,800	610	2,076	8,366
Total Groundwater Water Use	17,400	4,430	4,820	12,808	39,458

[11] CWC Section 10728 (b) "*Annual aggregated data identifying groundwater extraction for the preceding water year.*"

4.2 SURFACE WATER USE

Lake Cachuma (Cachuma) is a reservoir behind Bradbury Dam, which is operated by the United States Bureau of Reclamation (USBR). At Cachuma, surface water from the Santa Ynez River watershed is captured, retained, and partially exported for the benefit of uses outside of the Basin. Surface water releases from Cachuma for the benefit of local downstream users of Santa Ynez River water are made under State Water Resources Control Board (SWRCB) Order WR 2019-0148.

In addition to water sources within the Basin, the Central Coastal Water Authority (CCWA) has delivered imported water from the State Water Project (SWP) to the SYRVGB since 1997. **Joint Figure 4-1** is a summary of the CCWA deliveries to the Basin. The amount of precipitation, volume of water flowing in the Santa Ynez River, wastewater volumes, and quantity of imported water delivered by CCWA is summarized and presented in each management area section of this report.

During WY 2024, there were no surface water projects for direct groundwater recharge or in-lieu use.[12]

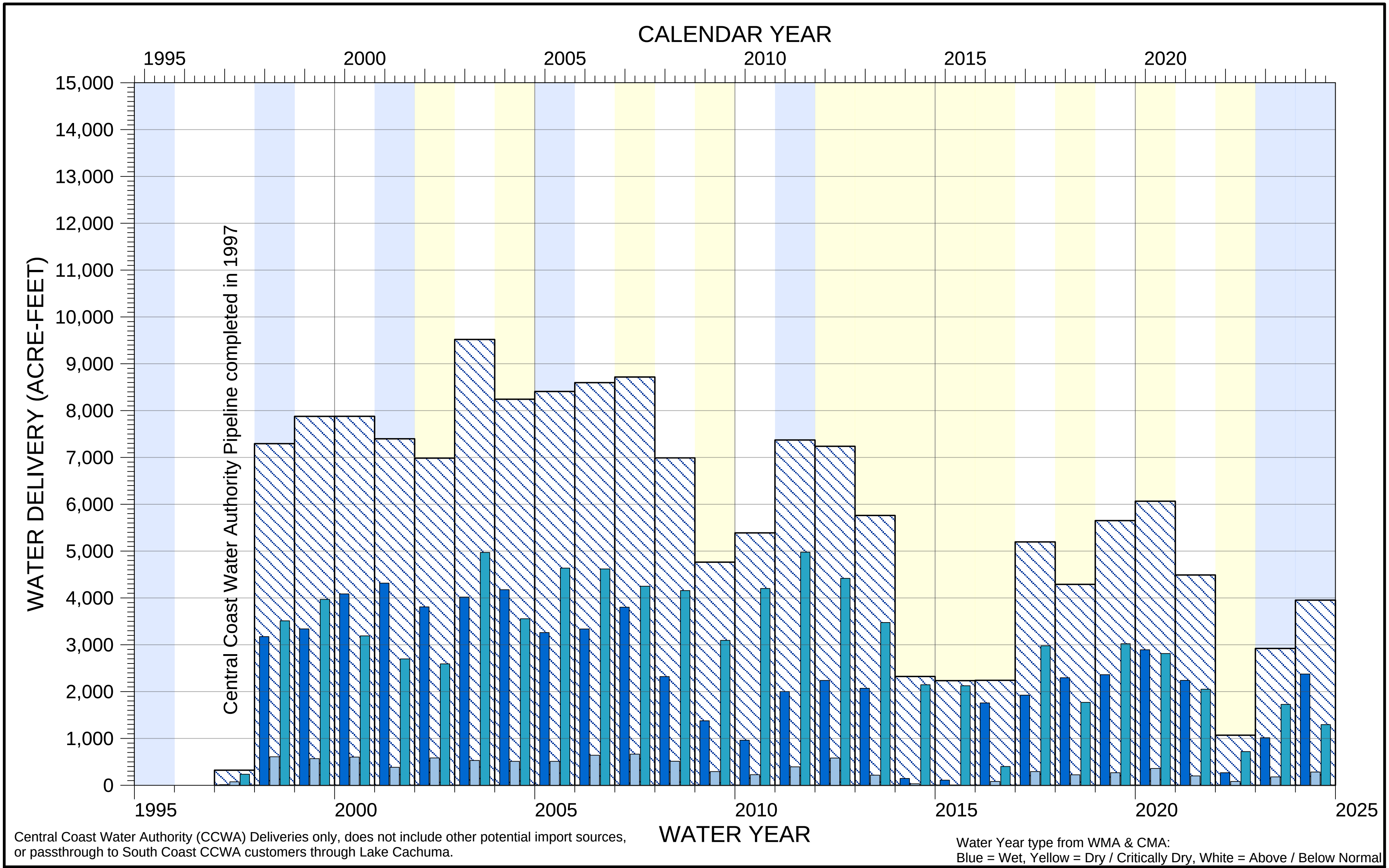
4.3 TOTAL WATER USE

The following table, **Joint Table 4-2**, summarizes total water use by GSA.[13]

Joint Table 4-2
WY 2024 Total Water Use,
by GSA, in Acre-Feet

GSA	WMA	CMA	EMA	Basin-Wide (Total)
Domestic Water Use	290	930	1,570	2,790
Agricultural Water Use	19,440	7,190	11,896	38,526
Municipal Water Use	8,055	1,130	5,360	14,545
Total Water Use	27,785	9,250	18,826	55,861

12 CWC Section 10728 (c) "*Surface water supply used for or available for use for groundwater recharge or in-lieu use.*""
13 CWC Section 10728 (d) "*Total water use.*"



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ANNUAL WATER IMPORTS

CENTRAL COAST WATER AUTHORITY

Source: Central Coast Water Authority (2025)

JOINT FIGURE 4-1

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JOINT CHAPTER 5: GROUNDWATER STORAGE

Groundwater in storage is one of the six SGMA sustainability indicators. The three GSAs, in their individual sections, have prepared detailed information on how they have estimated groundwater in storage and changes of groundwater in storage. This detailed information includes maps for each principal aquifer and a graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage. The following table, **Joint Table 5-1**, summarizes the change in groundwater storage by GSA.[14]

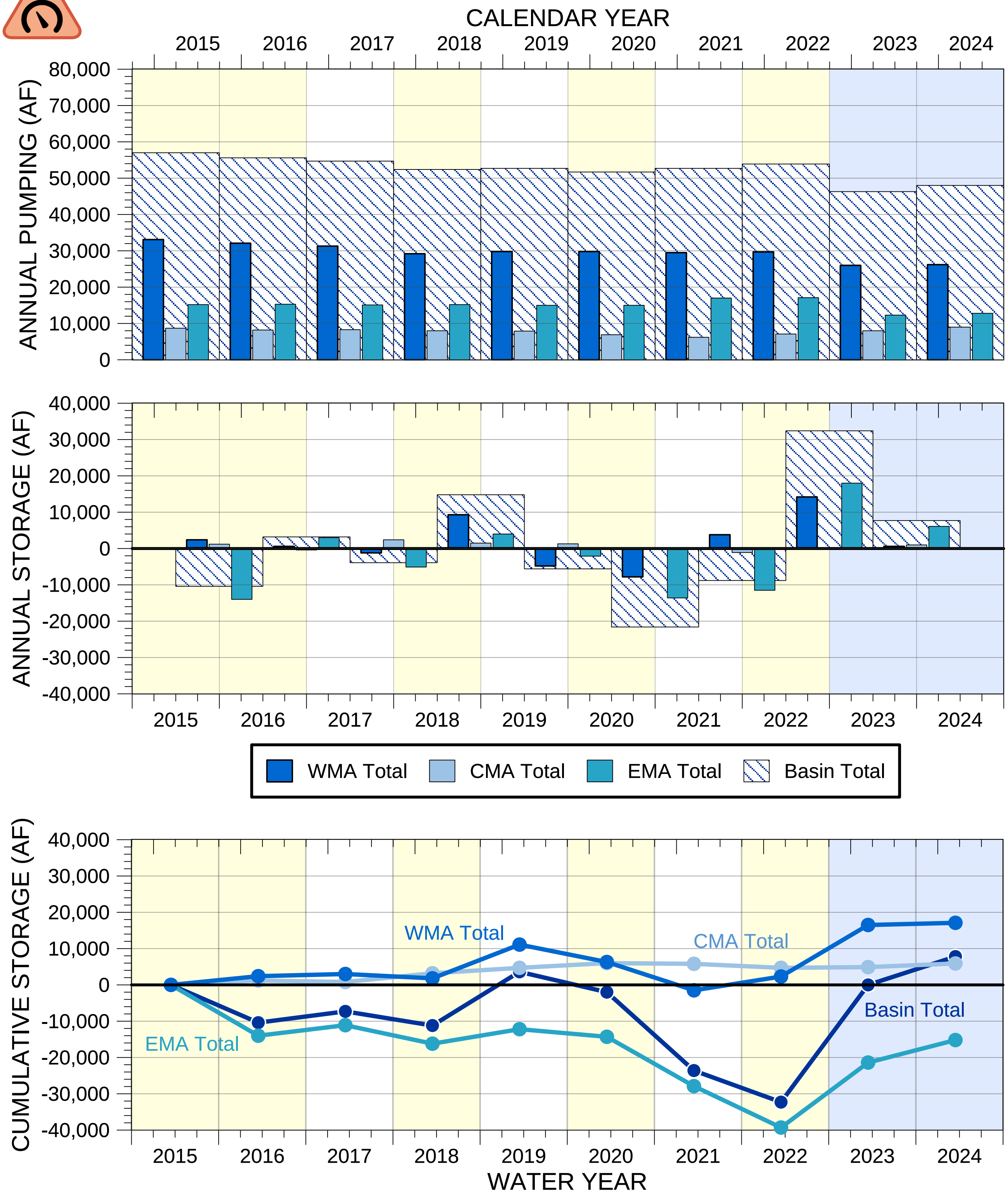
Joint Table 5-1
WY 2024 Change in Groundwater Storage,
by GSA, in Acre-Feet

GSA	WMA (AF)		CMA (AF)	EMA (AF)		Basin-Wide
Principal Aquifer	Upper Aquifer	Lower Aquifer	Buellton Aquifer	Paso Robles Formation	Careaga Sand	(Total AF)
WY2024 Change	800	-200	1,000	6,700	-600	7,700
Total Change Since 2015	14,000	3,100	5,900	-14,100	-1,100	7,800

Numbers are rounded to the nearest 100 AF.

The following figure, **Joint Figure 5-1**, summarizes the annual change of groundwater in storage by GSA since 2015.

14 CWC Section 10728 (e) "*Change in groundwater storage.*"



EMA Storage Calculations from GSI Water Solutions, Inc.
Water Year type from WMA & CMA: Blue = Wet, Yellow = Dry / Critically Dry, White = Above / Below Normal

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2025-02 WY24 JOINT Storage\JOINT Fig 5-01 Storage_Comparison.2015.gpj 2/21/2025 M. McCammon

STETSON ENGINEERS INC.

BASINWIDE COMPARISON OF WATER YEAR TYPE, GROUNDWATER USE, ANNUAL STORAGE, AND CUMULATIVE STORAGE RELATIVE TO MARCH 2015

JOINT CHAPTER 6: PROGRESS TOWARD GSP IMPLEMENTATION AND SUSTAINABILITY

All three GSAs are working to implement their respective GSPs. A summary of progress is presented in each GSA section.

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WESTERN MANAGEMENT AREA

Santa Ynez River Valley Groundwater Basin

Western Management Area

Groundwater Sustainability Agency

Water Year 2024 (October 2023-September 2024)

Board of Directors:

City of Lompoc

Jeremy Ball, Director
Kristin Worthley, Alternate Director

Santa Ynez River Water Conservation District

Steve Jordan, Director
Robert Dunlap, Alternate Director

Vandenberg Village Community Services District

Chris Brooks, Director
Ron Stassi, Alternate Director

Mission Hills Community Services District

Myron Heavin, Director
Mike Garner, Alternate Director

Santa Barbara County Water Agency (non-voting)

Joan Hartmann, Director
Meighan Dietenhofer, Alternate Director

Officers:

Jeremy Ball, Chair

Chris Brooks, Vice Chair

Amber Thompson, Secretary

William J. Buelow, Treasurer

William J. Buelow, Interim Plan Manager

Isaac St. Lawrence, Legal Counsel

GSA Member Agency Staff Representatives:

Matthew Young
Santa Barbara County Water Agency
William J. Buelow, PG
Santa Ynez River Water Conservation District
Joe Barget (Vandenberg Village CSD)
Brad Hagemann (Mission Hills CSD)

Kristin Worthley
City of Lompoc
Mike Garner
Mission Hills Community Services District
Cynthia Allen
Vandenberg Village Community Services District

As of September 30, 2024

Italicized and gray indicates former committee members or staff representatives.

WMA CHAPTER 1: INTRODUCTION

The Western Management Area (WMA) Groundwater Sustainability Agency (GSA) is the exclusive agency responsible for complying with Sustainable Groundwater Management Act (SGMA)[1] requirements in the western portion of the Santa Ynez River Valley Groundwater Basin (SYRVGB).

The WMA covers the area known as the Lompoc Valley, and the immediate vicinity. The WMA is bordered on the west by the Pacific Ocean, on the north by the Purisima Hills, on the east by the Central Management Area (CMA), and on the south by the White Hills. **WMA Figure 1-1** shows the extents of the WMA[2] and areas managed by the constituent public member agencies of the WMA: Santa Ynez River Water Conservation District (SYRWCD), City of Lompoc, County of Santa Barbara, Mission Hills Community Services District (MHCSD), and Vandenberg Village Community Services District (VVCSD). Although partially within the WMA, as a federal facility, Vandenberg Space Force Base (VSFB) is not subject to SGMA.

The WMA is a diverse area divided into six subareas[3] based on more homogeneous hydrogeologic and topographic characteristics. The six subareas are the Lompoc Plain, Lompoc Terrace, Lompoc Upland, Santa Rita Upland, Santa Ynez River Alluvium, and Burton Mesa. **WMA Figure 1-2** shows the locations and extents of the subareas, and **WMA Table 1-1** summarizes the sizes of each subarea.

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1 CWC Section 10720 et seq. and 23 CCR § 350 et seq.

2 23 CCR § 356.2(a) "[…] location map depicting the basin covered by the report."

3 Subareas are like and based on the Santa Ynez River Water Conservation District Annual Report subareas, also used for managing pumping in much of the WMA. Extents were adjusted to cover the entire Bulletin 118 Interim Update 2016 (DWR 2016a) basin boundary.

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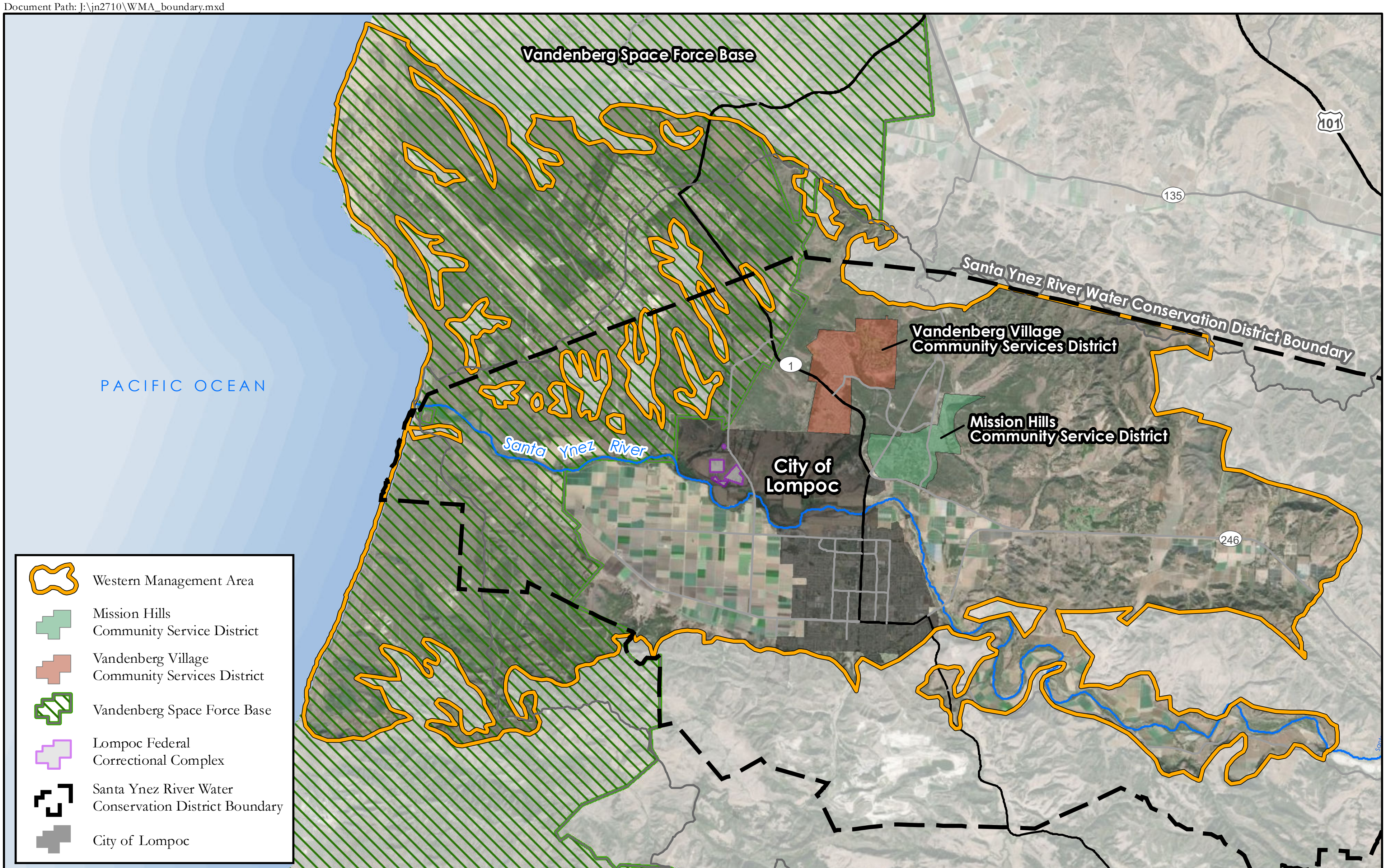

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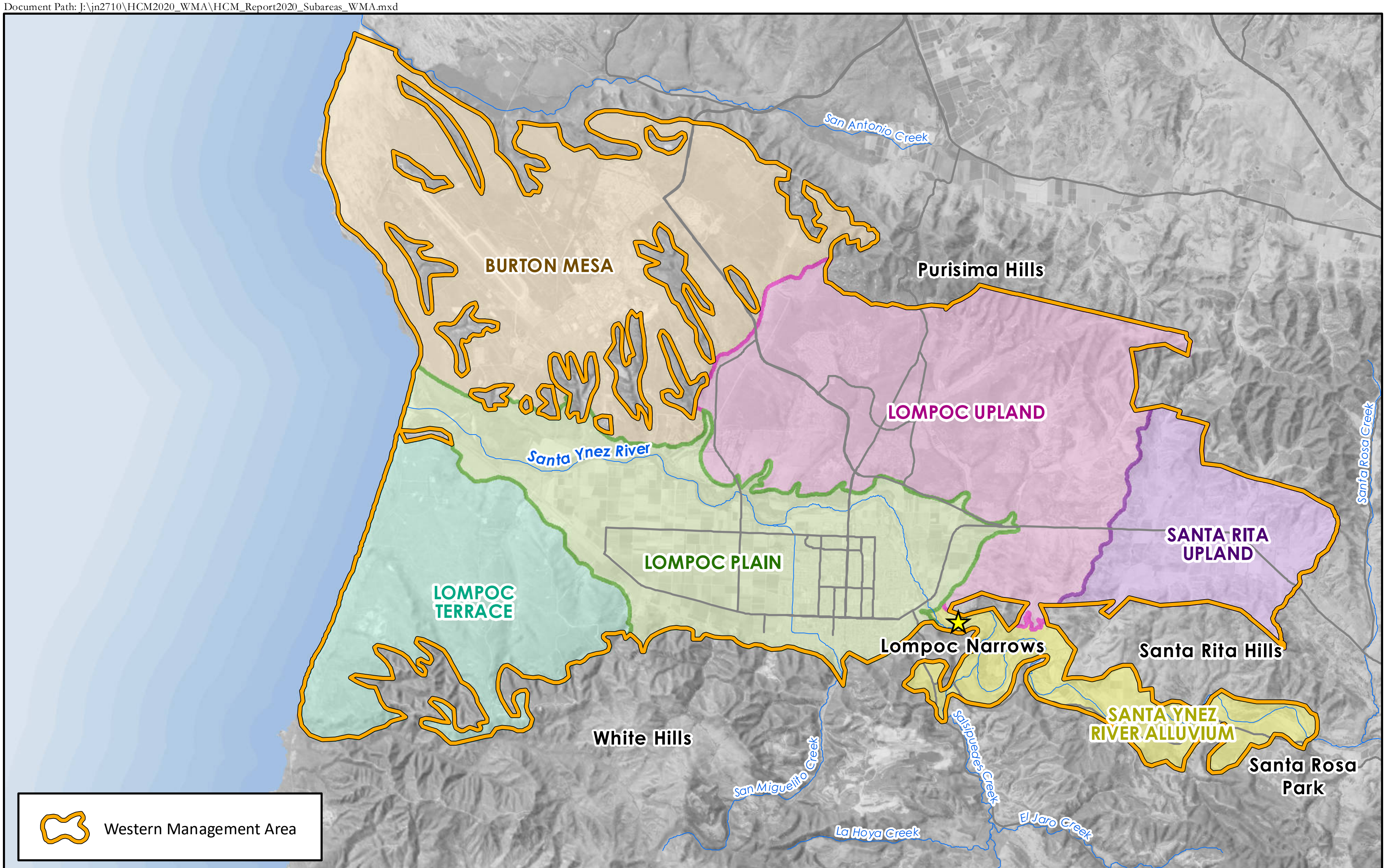
Groundwater Sustainability Agency

WESTERN MANAGEMENT AREA BOUNDARY
SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN
GROUNDWATER SUSTAINABILITY AGENCY

WMA FIGURE 1-1

Document Path: J:\jn2710\HCM2020_WMA\HCM_Report2020_Subareas_WMA.mxd



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SUBAREAS
WESTERN MANAGEMENT AREA

0 1 2 Miles

Sources:
USGS Nationa l Elevation Dataset, 2002
NAIP (2018)

N

WMA FIGURE 1-2

WMA Table 1-1
Summary of WMA Subareas by Area

WMA Subarea	Acres [A]	Square Miles
Lompoc Plain	18,780	29.3
Lompoc Terrace	10,560	16.5
Lompoc Upland	21,170	33.1
Santa Rita Upland	7,090	11.1
Santa Ynez River Alluvium	4,940	7.7
Burton Mesa	23,060	36.0
Total	**85,600**	**133.7**

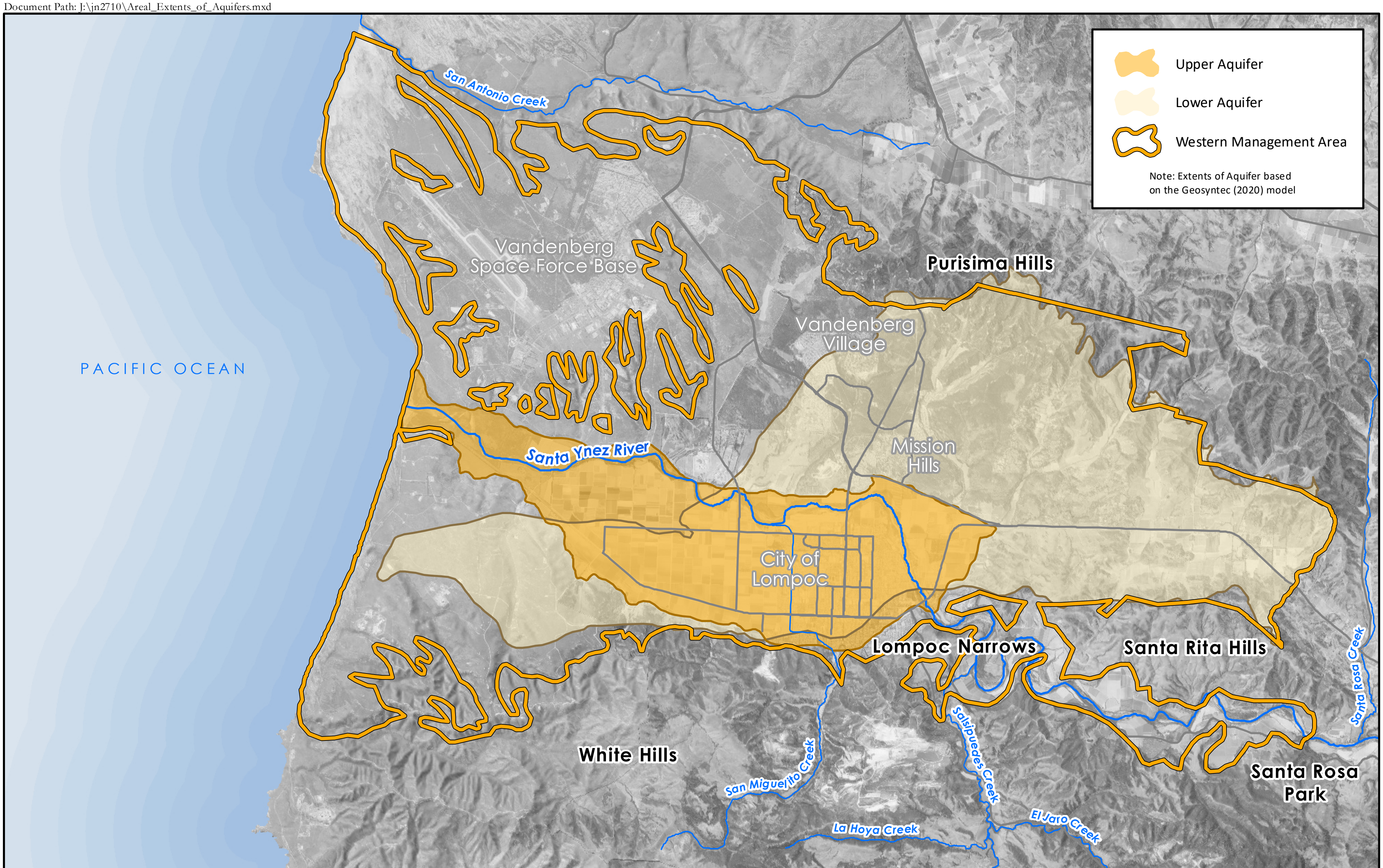
[A] Rounded to the nearest ten acres.

Surface water drains to the Pacific Ocean through the Santa Ynez River and its tributaries. The State Water Resources Control Board (SWRCB) administers Santa Ynez River water, including both surface water and underflow of the Santa Ynez River and surface water rights. The upstream Cachuma Reservoirs are operated by the United States Bureau of Reclamation (USBR) which physically controls the flows of the Santa Ynez River. USBR conducts releases to meet downstream surface water rights and for the benefit of fish. The SGMA statute excludes the WMA from altering the surface water rights of the Santa Ynez River.[4] The SWRCB Orders for the Cachuma Project include coordination of releases from the Cachuma Reservoir for underflow alluvial storage and replenishment, which includes portions of the Santa Ynez Alluvium upstream of the Lompoc Narrows.

The WMA has two aquifers, an "Upper Aquifer" and a "Lower Aquifer." The Upper Aquifer consists of the current and historical deposits of the Santa Ynez River downstream of the Lompoc Narrows. The Lower Aquifer consists of older Paso Robles and Careaga Sand Formations. The Lower Aquifer is within a wide geologic syncline fold. **WMA Figure** 1-3 shows where these two aquifers are located within the extent of the WMA.

4 CWC Section 10720.5 (b) "Nothing in this part, or in any groundwater management plan adopted pursuant to this part, determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights."

Document Path: J:\jn2710\Areal_Extents_of_Aquifers.mxd



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AREAL EXTENTS OF THE PRINCIPAL AQUIFERS WESTERN MANAGEMENT AREA

0 1 2 Miles

Sources:
NAIP (2012/2022)

N

WMA FIGURE 1-3

In addition to the aquifers, the Santa Ynez River in part flows through a "known and definite channel"[5] of high permeability river sediments under and adjacent to the Santa Ynez River. These sediments fill a river channel historically cut into the relatively impermeable silts and clays of the Monterey Formation by past flows of the river. In the WMA Santa Ynez Alluvium, upstream of the Lompoc Narrows, these underflow deposits are physically disconnected from the groundwater aquifers by over two miles of bedrock in places (Stetson 2022). Conditions within the WMA Santa Ynez Alluvium upstream of the Lompoc Narrows are consistent with the SWRCB's tests for a subterranean stream and underflow (Stetson 2023).[6] Releases of surface water for the Lompoc Plain and downstream users under SWRCB Order WR 2019-0148 are conveyed through the surface flow and underflow of the Santa Ynez River.

5 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

6 See the 1999 State Water Board's Decision 1639 (In the Matter of Application 29664 of Garrapata Water Company) and subsequent rulings such as North Gualala Water Company v. State Water Resources Control Board (2006).

WMA CHAPTER 2: BASIN CONDITIONS

The water year type is a classification of how wet or dry basin conditions are due to weather during the water year. This is a potential cause of changes to groundwater conditions, as measured through groundwater levels, storage, and water quality. This chapter updates the "Hydrologic Characteristics" subsection of the Hydrogeologic Conceptual Model section of the GSP through the end of WY 2023.

WMA Table 2-1 summarizes the precipitation and the water year type for the recent years of WY 2015 through WY 2024.

WMA Table 2-1
Annual Precipitation and Water Year Classification for WMA for Recent Years

Water Year	Lompoc City Hall		Hydrologic Year Type Classification USGS Gage 11132500 (Salsipuedes Creek)	
	Precipitation (in/year)	% Of Average [A]	Percentile Rank	Water Year Type Classification
2015	8.03	54%	0%	Critically Dry
2016	11.68	79%	2%	Critically Dry
2017	22.49	151%	71%	Above Normal
2018	8.29	56%	5%	Critically Dry
2019	20.44	138%	77%	Above Normal
2020	12.97	87%	33%	Dry
2021	10.79	73%	48%	Below Normal
2022	12.46	84%	22%	Dry
2023	32.02	216%	94%	Wet
2024	23.53	158%	90%	Wet

Years are color-coded as follows: yellow indicates dry and critically dry years (below 40 percentile); blue indicates wet years (above 80 percentile); unshaded indicates years that were either in the below normal or above normal years (40 to 80 percentile). Percentages and percentiles are calculated from the respective periods of record.
[A] The average is calculated as the mean of the period of record (WY1955-WY 2024).
Notes: WMA = Western Management Area; USGS = U.S. Geological Survey; SWRCB = State Water Resources Control Board; in/year = inches per year.
Source: Precipitation from Santa Barbara County - Flood Control District station #439 - Lompoc City Hall

2.1 PRECIPITATION

Within the WMA, direct annual average precipitation ranges from 12.7 inches per year at the Santa Ynez River estuary to 20.5 inches per year at a corner of the Lompoc Terrace. **WMA Figure 2-1** shows the average precipitation within the WMA and adjacent watershed.[1] Orthographic lift effects are the primary driver of precipitation within the WMA, and portions of the WMA at lower elevations generally receive less direct precipitation. **WMA Table 2-2** summarizes the annual average direct precipitation for the subareas of the WMA.

WMA Table 2-2
Average Annual (1991-2020) Precipitation by WMA Subarea

WMA Subarea	Size (Acres) [A]	Average Annual Precipitation Per Subarea (Average 1991-2020) inches per year		
		Average	Average Annual Minimum	Average Annual Maximum
Lompoc Plain	18,780	14.8	12.7	17.6
Santa Rita Upland	7,090	17.0	16.3	17.7
SYR Alluvium	4,940	17.0	15.6	18.4
Lompoc Upland	21,170	15.8	14.6	17.8
Burton Mesa	23,060	14.4	13.3	16.5
Lompoc Terrace	10,560	15.7	12.9	20.5

[A] Rounded to the nearest 10 acres.
Source: Derived from PRISM Climate Group (2021), Average Annual Precipitation 1991-2020.

The precipitation station at Lompoc City Hall is the primary gauge for precipitation within the WMA. Total precipitation during WY 2024 was 28.53 inches. **WMA Figure 2-2** presents annual precipitation data from this station for WY 1955 to the present (WY 2024) and the cumulative departure from the mean (CDM). The CDM trends provide a representation of wet and dry periods within the overall period of record. On a CDM graph, a wet period is indicated with an upward trend over the years. Conversely, a downward trend on the graph indicates a dry period.

1 Average conditions here are updated to include newly released data for the period 1991-2020, compared to the GSP (including GSP Figure 2a.3-2) which used available data for the period 1981-2010.

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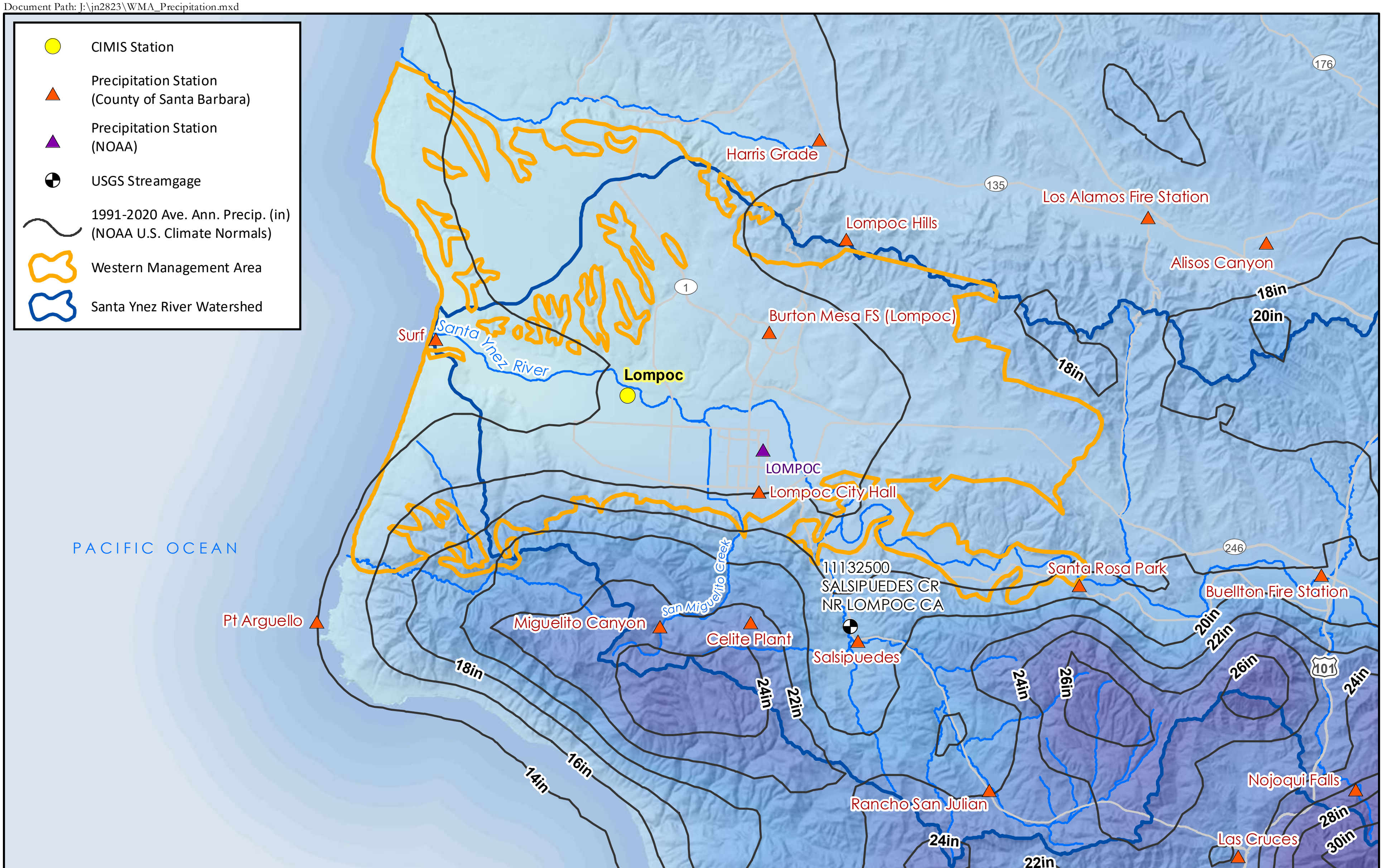

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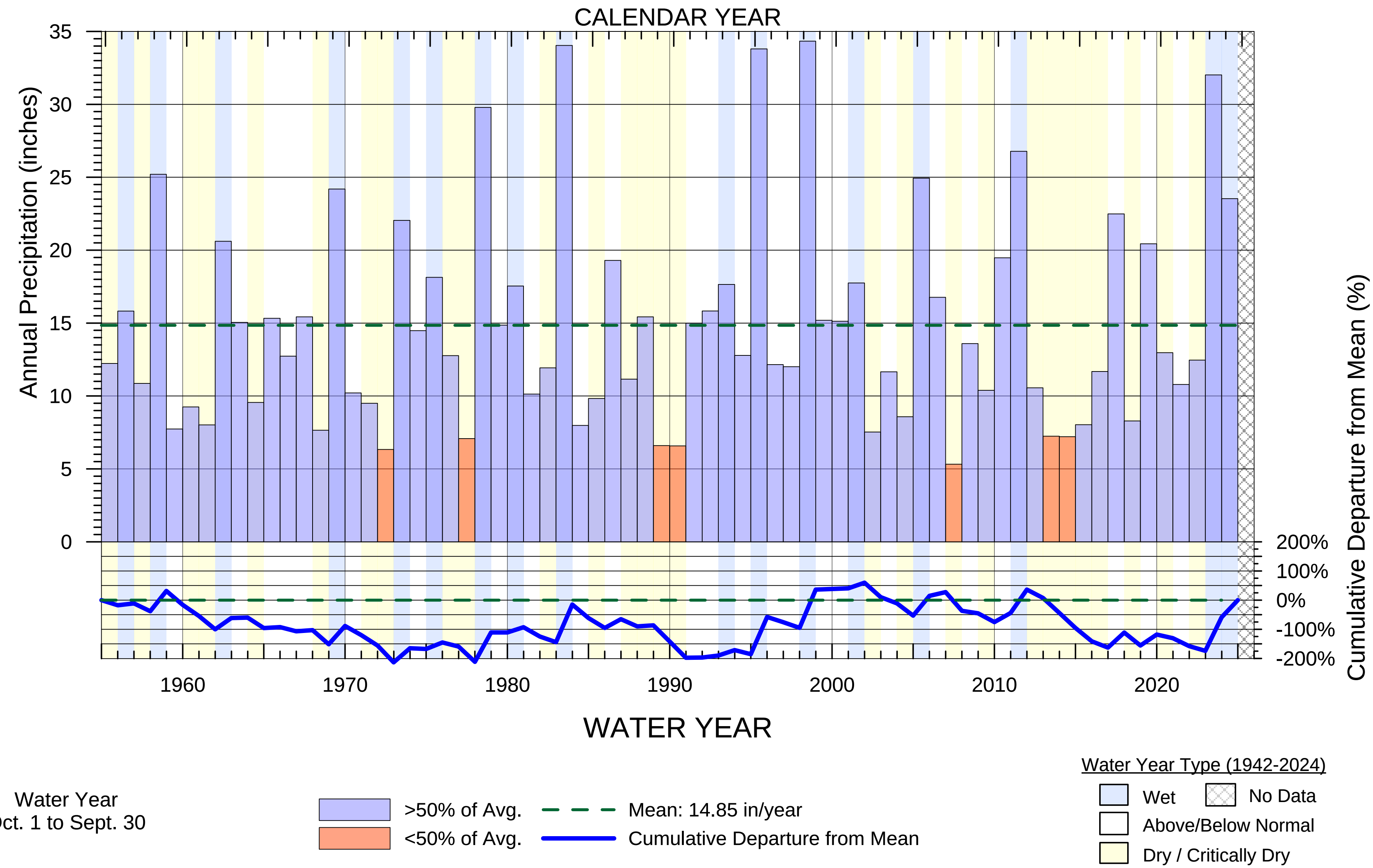
PRECIPITATION STATIONS AND ISOHYETALS
1991-2020 CLIMATE NORMALS
WESTERN MANAGEMENT AREA

0 2 4 Miles

N

Source:
ESRI World Imagery (2018 Maxar)
NOAA (2020), WRCC (2020)

WMA FIGURE 2-1



LOMPOC CITY HALL
PRECIPITATION AND
CUMULATIVE DEPARTURE FROM MEAN
WY 1955 - 2024

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Source: Santa Barbara County (2024)
Precipitation Gage #439

WMA FIGURE 2-2

2.2 CLASSIFICATION OF WATER YEAR 2024

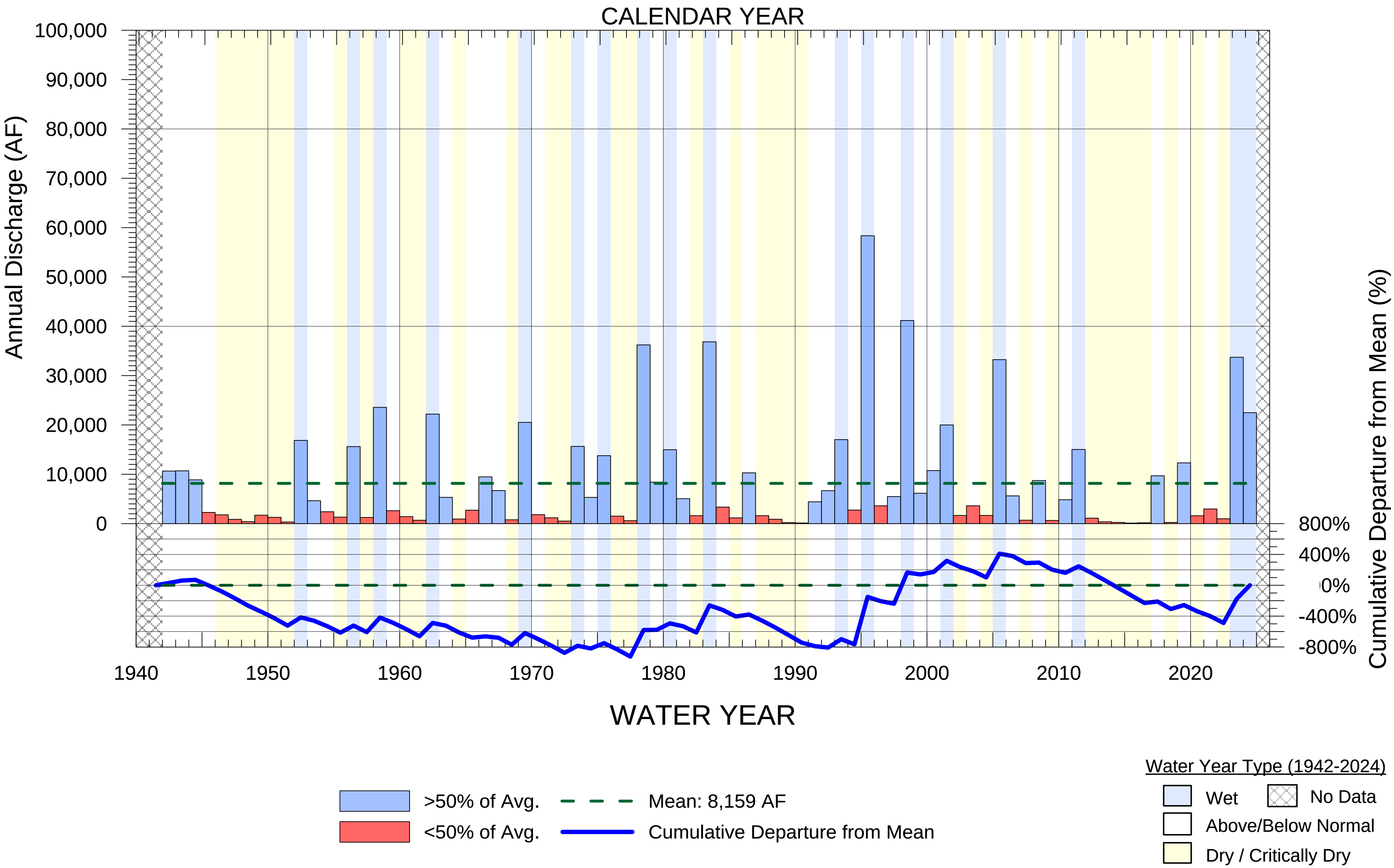
The WMA classified WY 2024 as a wet year based on the Water Year Type. [2] Conditions for recent years, WY 2015 through WY 2024, are summarized in **WMA Table 2-1**. The basin was experiencing a historic drought before WY 2023. For the recent 10-year period WY 2014-2023, there were only three years, WYs 2017, 2019, and 2023 which were "Above Normal" or "Wet", and, before February 2023, Lake Cachuma had not spilled since WY 2011.

Water Year Type is a generalized characterization of the amount of water that is available in a year. It is a summary of general precipitation and streamflow conditions during the year. Salsipuedes Creek flows measured at the USGS stream gage (U.S. Geological Survey [USGS] gage 11132500) are used as the monitoring location for calculating water year types. The relative ranking in the period of record is used to classify the hydrologic year types into one of five categories: critically dry (bottom 20th percentile), dry (20th to 40th percentile), below normal (40th to 60th percentile), above normal (60th to 80th percentile), and wet (80th to 100th percentile).

The Salsipuedes Creek USGS streamflow gage is located on Salsipuedes Creek just below the confluence with El Jaro Creek and has a drainage area of 47.1 square miles (shown in **WMA Figure 2-1**). The 83-year dataset for the Salsipuedes Creek stream gage spans 1942 through 2024 (in **WMA Figure 2-3**) and represents unimpeded runoff due to the absence of upstream water diversions and storage reservoirs. The gage type, proximity, long history, and development of the Salsipuedes Creek are all contributing factors for selecting this as the indicator of WMA water year type.

Annual Salispuedes Creek flow data ordered by the amount of flow in each year is shown in **WMA Figure 2-4**. WY 2024 is indicated in WMA Figure 2-4, which shows that WY 2024 was a wet year compared to the period of record. The background colors on most time series figures in this report are derived from WMA Figure 2-4 and likewise indicate the relative year type.

[2] All three Santa Ynez management areas classified WY 2024 as a wet year. WMA and CMA use the same method based on measured streamflow, described here. EMA uses a different method based on precipitation, described by DWR (2021).



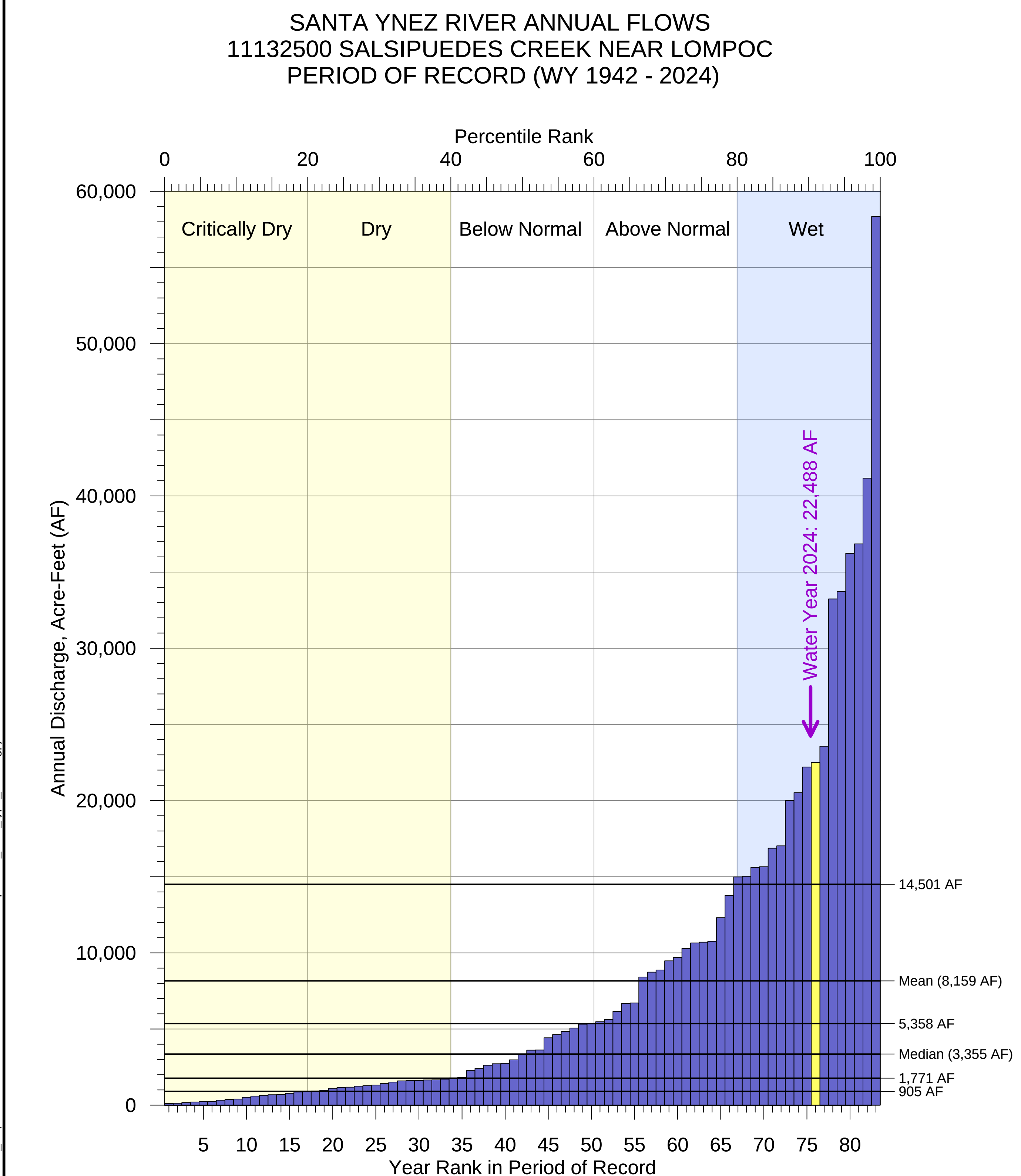
11132500 SALSIPUEDES CREEK NEAR LOMPOC
CUMULATIVE DEPARTURE FROM MEAN AND
PERIOD OF RECORD (WY 1942 - 2024)

STETSON ENGINEERS INC.

Sources: USGS (2024) streamflow data

WMA FIGURE 2-3

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 SW Flow Statistics\Salispuedes_CDM_WY24.gpj 1/22/2025 M. McCammon



Data Source: USGS (2024) streamflow data

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 SW Flow Statistics\Salsipuedes_Year_type_WY24.gpj 1/22/2025 M. McCammon

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WATER YEAR TYPE
SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN

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WMA CHAPTER 3: GROUNDWATER HYDROGRAPHS AND CONTOURS

Groundwater levels are a key indicator of sustainability in the basin. Groundwater levels directly impact the beneficial use of the Basin and correlate with or impact most of the groundwater sustainability indicators. The SGMA regulations require that GSP Annual Reports contain "...*groundwater elevation data from monitoring wells identified in the monitoring network [which] shall be analyzed and displayed*."[1]

The WMA assesses the following three SGMA sustainability indicators using groundwater level data:

- Chronic lowering of groundwater levels
- Reduction of groundwater storage (see Chapter 5)
- Depletion of interconnected surface water

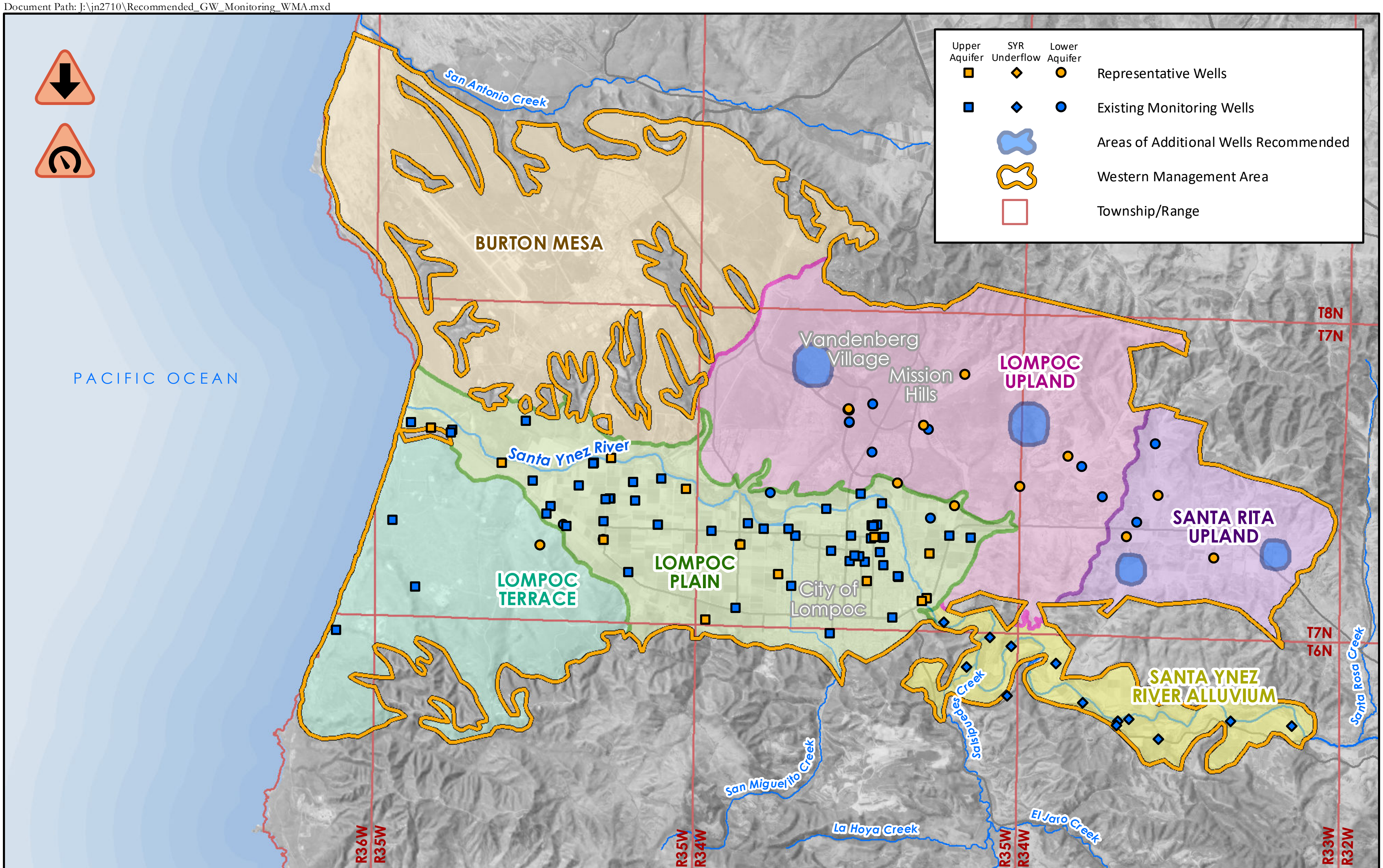
3.1 GROUNDWATER ELEVATION DATA AND HYDROGRAPHS

WMA Figure 3-1 is a map of the locations of groundwater monitoring network wells. Two appendices contain groundwater level hydrographs[2]: **WMA Appendix 3-A** which is entitled groundwater level hydrographs for assessing chronic decline in groundwater levels, and **WMA Appendix 3-B** which is entitled groundwater level hydrographs for assessing surface water depletion. Several public entities collect groundwater level data in the WMA. In the WMA these public entities include Santa Barbara County Water Agency, the City of Lompoc, USBR, Vandenberg Village, and Mission Hills.

1 23 CCR § 356.2(b)(1)

2 23 CCR § 356.2(b)(1)(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.

Document Path: J:\jn2710\Recommended_GW_Monitoring_WMA.mxd



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Groundwater Sustainability Agency

WMA MONITORING NETWORK AND REPRESENTATIVE MONITORING WELLS FOR GROUNDWATER LEVELS AND GROUNDWATER STORAGE

WMA FIGURE 3-1

The SGMA water year runs from October 1st through September 30th. Seasonal high data is the data from March and April 2024. Seasonal low data is the data from October 2024. While this fall collection of data is technically collected in WY 2025, it is less than a month after the end of the water year. The WMA GSA considers this fall data as representative of the seasonal low conditions for WY 2024.

3.2 GROUNDWATER ELEVATION CONTOUR MAPS

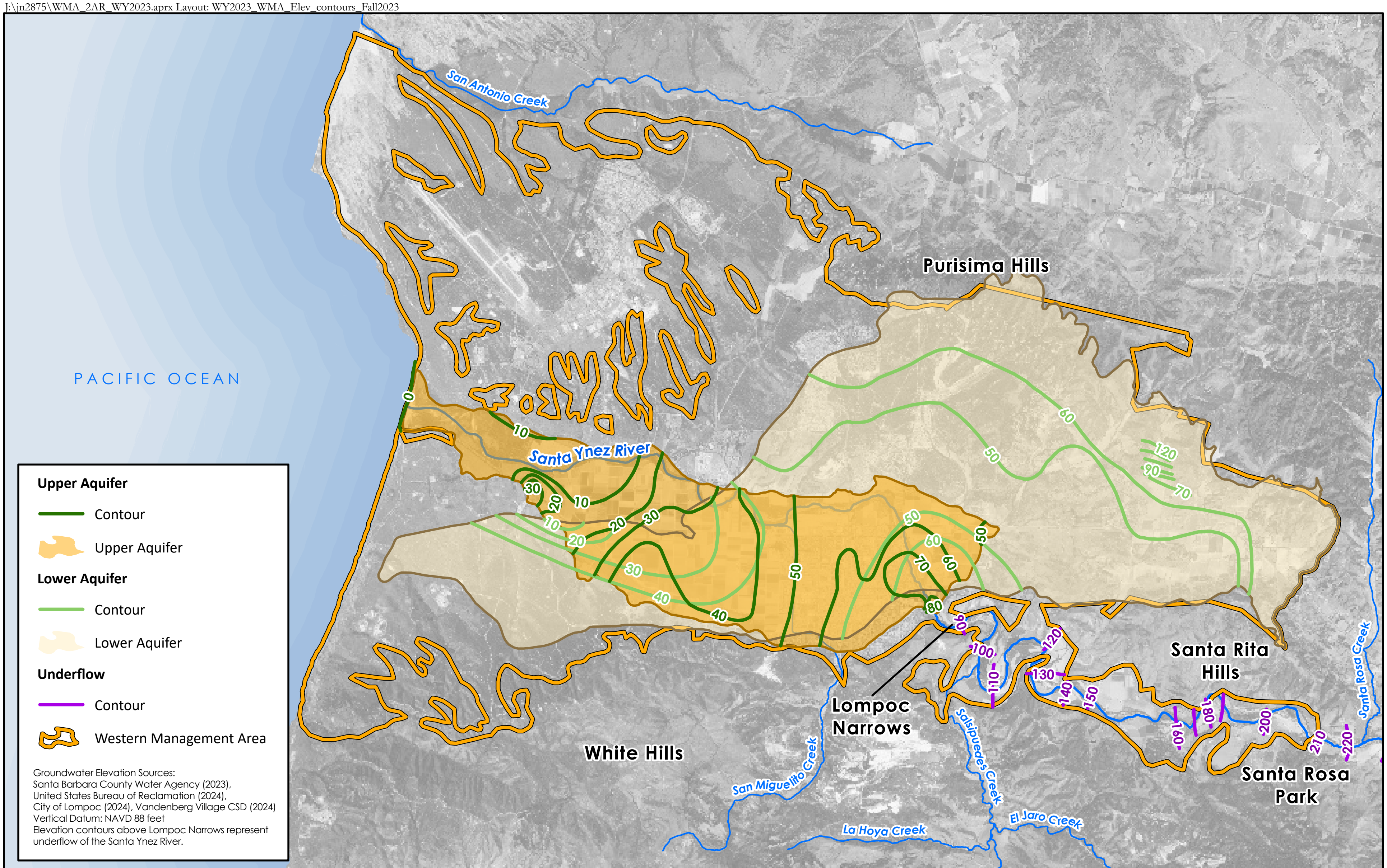
This GSP Annual Report must contain "*...elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.*"[3] according to the SGMA regulations. This Fourth Annual Report includes Fall 2023 (**WMA Figure 3-2**), Spring 2024 (**WMA Figure 3-3**), and Fall 2024 (**WMA Figure 3-4**) contour maps. These correspond to the seasonal high and seasonal low groundwater conditions.

The WMA developed six sets of groundwater elevation contours for WY 2024, including Fall 2023, Spring 2024, and Fall 2024 for the two principal aquifers and the river underflow. The Upper Aquifer consists of the Santa Ynez River deposits within the Lompoc Plain. The Lower Aquifer consists of the water-bearing Careaga Sand and Paso Robles Formations. River underflow occurs upstream of the Lompoc Narrows. SWRCB administers Santa Ynez River underflow as part of the river, so it is not a principal aquifer of the WMA.

3.2.1 Fall 2023 –Start of Year Seasonal Low Contours

WMA Figure 3-2 reproduces the groundwater elevation contour map for Fall 2023 included in the Second Annual Report. The map for Fall 2023 represents conditions at both the end of WY 2023 and at the start of WY 2024. Please see the Third Annual Report for additional discussion of the Fall 2023 map.

3 23 CCR § 356.2(b)(1)(A)



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GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL LOW
FALL 2023
WESTERN MANAGEMENT AREA

WY2023 Annual Report

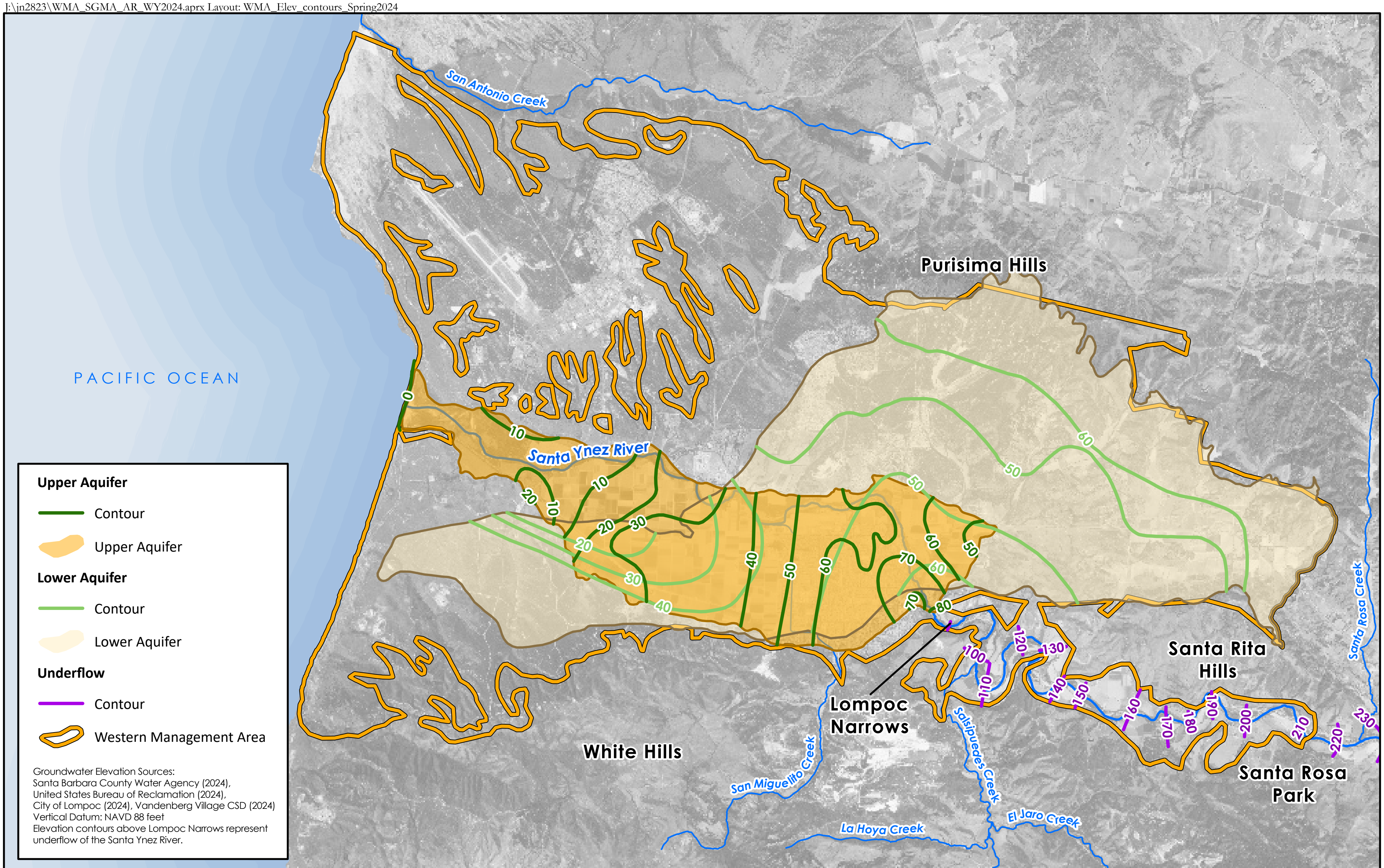
0 1 2 Miles

Sources:
USGS National Elevation Dataset, 2002
Lompoc (2024) and VVCSD (2024)

N

WMA FIGURE 3-2

J:\jn2823\WMA_SGMA_AR_WY2024.aprx Layout: WMA_Elev_contours_Spring2024



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GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL HIGH
SPRING 2024
WESTERN MANAGEMENT AREA

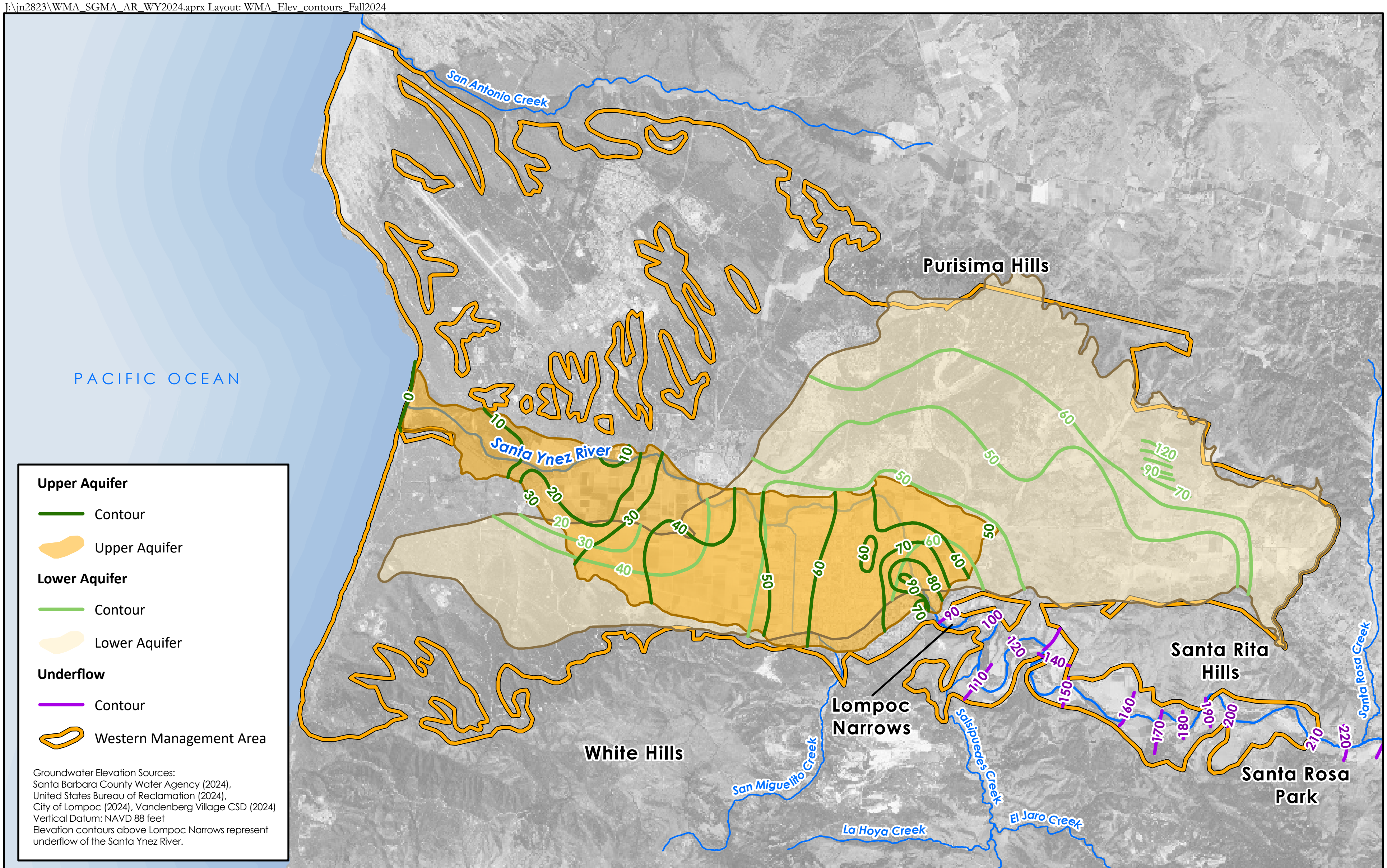
0 1 2 Miles

Sources:
USGS National Elevation Dataset, 2002
Lompoc (2024) and VVCSD (2024)

N

WMA FIGURE 3-3

J:\jn2823\WMA_SGMA_AR_WY2024.aprx Layout: WMA_Elev_contours_Fall2024



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GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL LOW
FALL 2024
WESTERN MANAGEMENT AREA

WY2024 Annual Report

0 1 2 Miles

N

Sources:
USGS National Elevation Dataset, 2002
Lompoc (2024) and VVCSD (2024)

WMA FIGURE 3-4

3.2.2 Spring 2024– Seasonal High Contours

WMA Figure 3-3 is a groundwater level contour map developed for Spring 2024, which is the seasonal high for WY 2024. Relative to Spring 2023, the measured groundwater levels collected in the Spring 2024 from the Upper Aquifer were higher at some monitoring locations and lower in others. This mixed change in water levels is likely due to continuation of the wet period that started in WY 2023 for a second year. The highest increase in Upper Aquifer groundwater levels is in the eastern Lompoc Plain. Measured groundwater elevations from the western Lompoc Plain are lower than elevations collected in the Spring of 2023.

Groundwater elevations from the Lower Aquifer were both higher and lower in the Spring of 2024 compared to the Spring of 2023. The greatest increase in groundwater levels was observed in the Lompoc Plain. Decreases were observed in the Lompoc Upland and Santa Rita Upland subareas.

3.2.3 Fall 2024 – End of Year Seasonal Low Contours

The Fall 2024 groundwater elevations represent the seasonal low groundwater levels for WY 2024. **WMA Figure 3-4** is a groundwater level contour map developed for this seasonal low. Relative to the start of WY 2024, in Fall 2023, the groundwater elevations measured in the Upper Aquifer were higher and lower than previous groundwater elevations measured. Measured groundwater elevations are generally higher in the eastern Lompoc Plain, and lower in portions of the central Lompoc Plain.

Groundwater elevation data from the Lower Aquifer in the Fall of 2024 were higher compared to the Fall of 2023. The map shows the greatest increase in water levels around the Lompoc Plain.

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WMA CHAPTER 4: WATER USE AND AVAILABLE SURFACE WATER

Water use is a major component of the water budget. The SGMA regulations require that "*...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.*"[1] This chapter of the Fourth Annual Report provides an update on water use in the Basin.

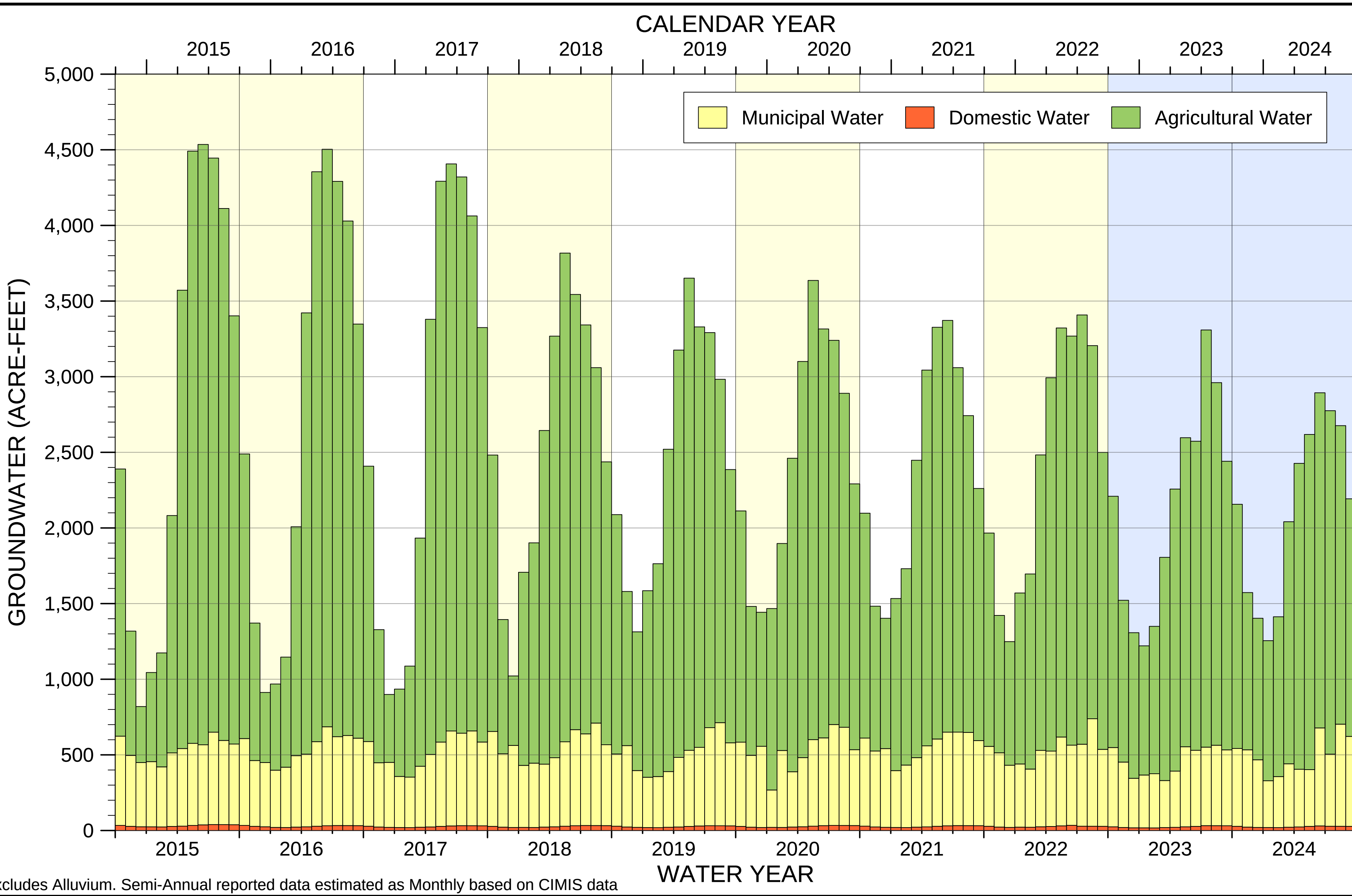
4.1 GROUNDWATER USE

Groundwater production within the WMA for both the Upper and Lower Aquifers is used for agricultural, domestic, municipal, and industrial purposes. Outside of the municipal users, most of the WMA is a mixture of rural areas with agriculture and some rural-suburban development. Groundwater production is reported semi-annually to the SYRWCD.

SYRWCD's semi-annual groundwater production data was converted to monthly values using monthly evapotranspiration (ET) data from the California Irrigation Management Information System (CIMIS) sites (see WMA Figure 2-1 for CIMIS site locations). Municipal data provided by the City of Lompoc, Vandenberg Village CSD, and Mission Hills CSD was compiled into monthly data. **WMA Figure 4-1** shows the monthly groundwater use in the WMA, and **WMA Figure 4-2** shows the annual groundwater use for each water year.[2] **WMA Figure 4-3** is a map showing the spatial distribution of WMA groundwater pumping during WY 2024. The Upper Aquifer annual groundwater use is shown in **WMA Figure 4-4**, and the Lower Aquifer annual groundwater use is shown in **WMA Figure 4-5**. **WMA Table 4-1** summarizes the groundwater production for WY 2024.

1 23 CCR § 356.2(a) 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.

2 Figures in the GSP showed groundwater production based on the SYRWCD's Fiscal Year (July-June), production data presented here is recalculated to the Water Year (October-September) basis.



Excludes Alluvium. Semi-Annual reported data estimated as Monthly based on CIMIS data

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WMA

Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

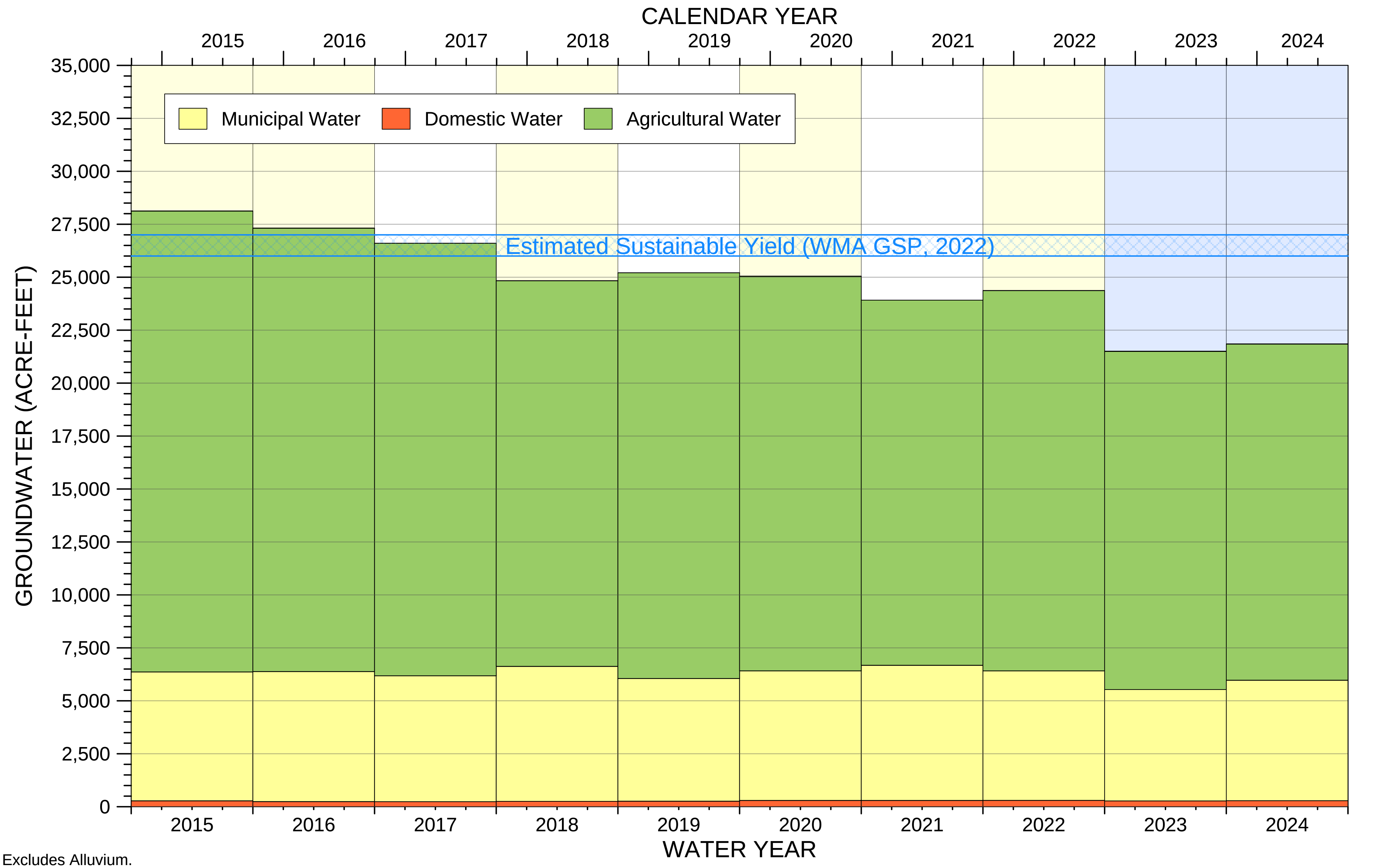
MONTHLY GROUNDWATER USE
TOTAL WESTERN MANAGMENT AREA

Water Year Type (1942-2024)
- Wet
- Above/Below Normal
- Dry / Critically Dry

Source: Santa Ynez River Water Conservation District (2025), City of Lompoc (2024), Mission Hills CSD (2024), Vandenberg Village CSD (2024)

WMA FIGURE 4-1

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2025-01 WY24 GW Pumping\Figures\Fig 4-01 Monthly_Water_Use_WMA.gpj 1/22/2025 M. McCammon



Excludes Alluvium.

ANNUAL GROUNDWATER USE
TOTAL WESTERN MANAGMENT AREA

Water Year Type (1942-2024)
- Wet
- Above/Below Normal
- Dry / Critically Dry

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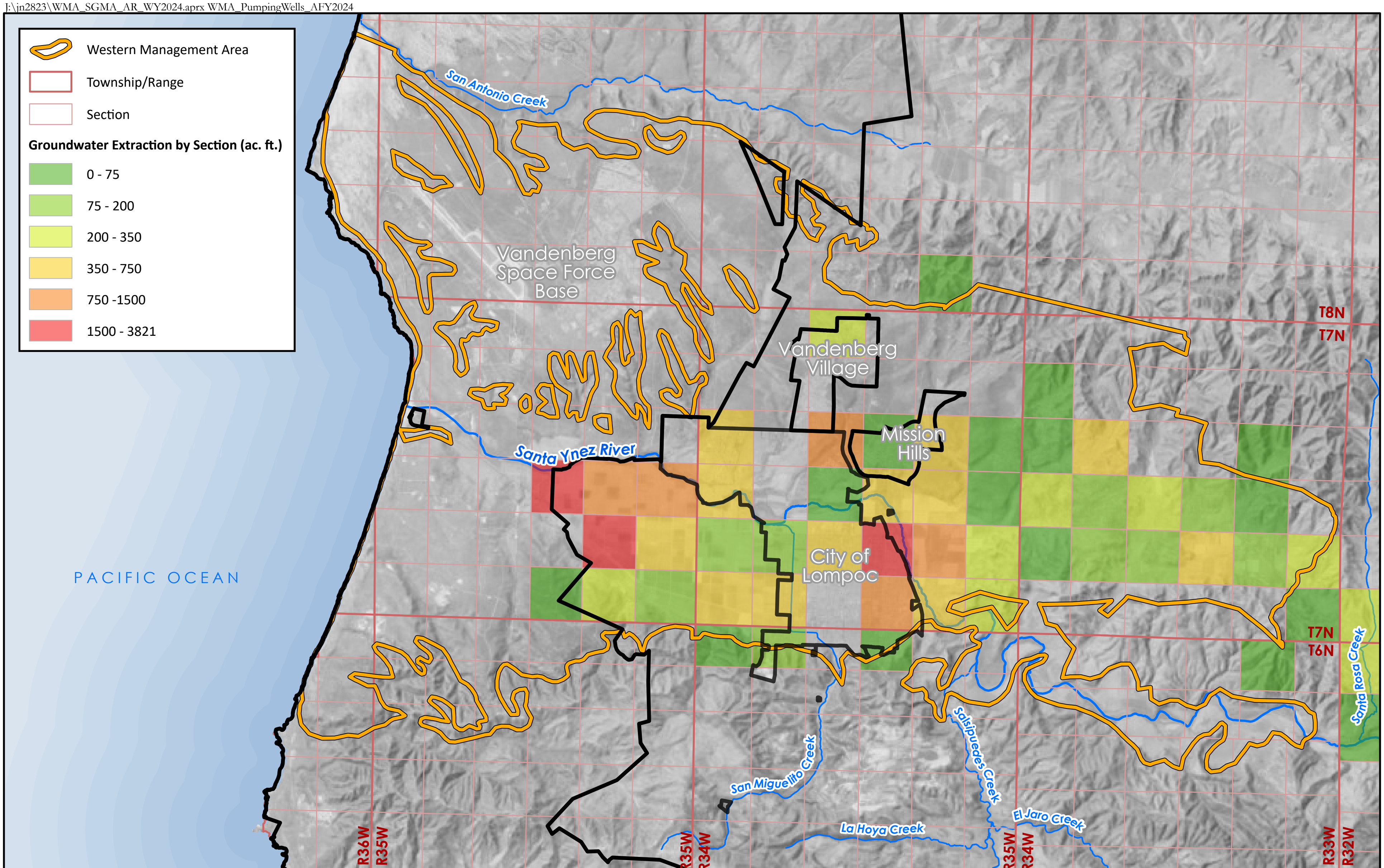
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

Source: Santa Ynez River Water Conservation District (2025), City of Lompoc (2024), Mission Hills CSD (2024), Vandenberg Village CSD (2024)

WMA FIGURE 4-2

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2025-01 WY24 GW Pumping\Figures\Fig 4-02 Annual_Water_Use_WMA.grf 1/22/2025 M. McCammon

J:\jn2823\WMA_SGMA_AR_WY2024.aprx WMA_PumpingWells_AFY2024



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Groundwater Sustainability Agency

LOCATION AND VOLUME OF GROUNDWATER EXTRACTION 2024

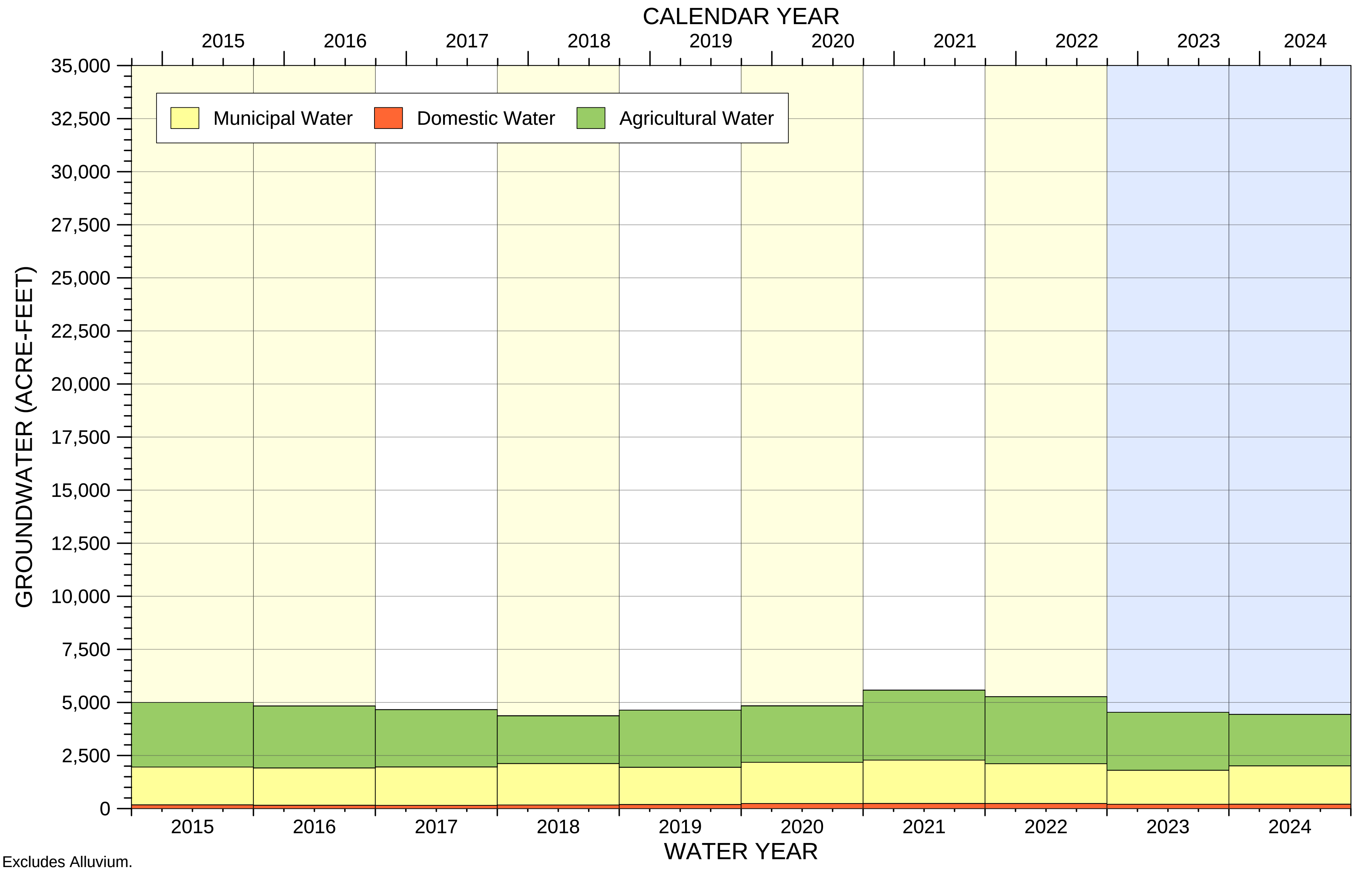
Source: Santa Ynez River Water Conservation District (2024)

DRAFT

0 1 2 Miles

N

WMA FIGURE 4-3



Excludes Alluvium.

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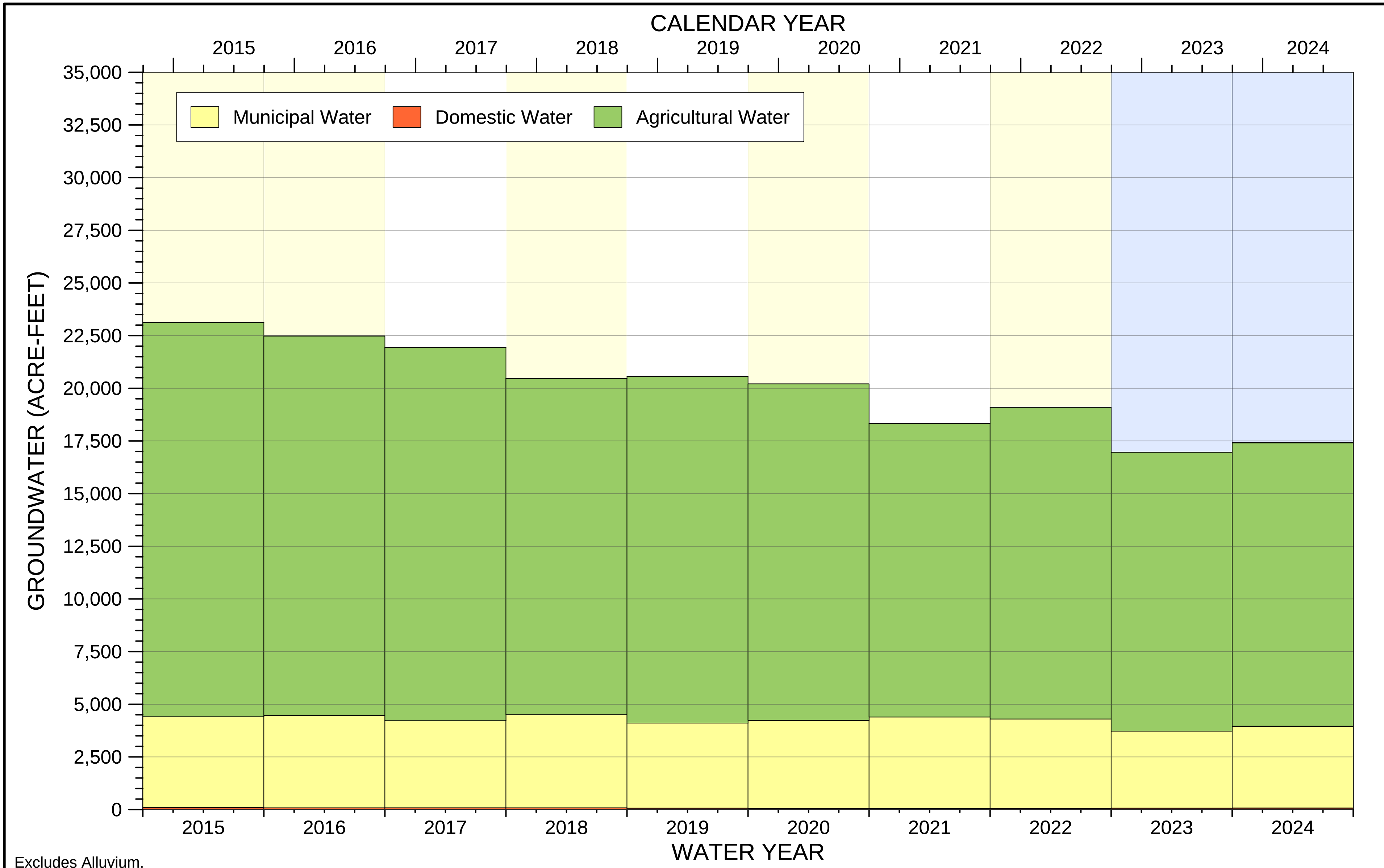
ANNUAL GROUNDWATER USE
LOWER AQUIFER
WESTERN MANAGMENT AREA

Water Year Type (1942-2024)
- Wet
- Above/Below Normal
- Dry / Critically Dry

Source: Santa Ynez River Water Conservation District (2025), City of Lompoc (2024), Mission Hills CSD (2024), Vandenberg Village CSD (2024)

WMA FIGURE 4-4



ANNUAL GROUNDWATER USE
UPPER AQUIFER
WESTERN MANAGMENT AREA

Water Year Type (1942-2024)
- Wet
- Above/Below Normal
- Dry / Critically Dry

Source: Santa Ynez River Water Conservation District (2025), City of Lompoc (2024), Mission Hills CSD (2024), Vandenberg Village CSD (2024)

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\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2025-01 WY24 GW Pumping\Figures\Fig 4-04 Annual_Water_Use_WMA.UA.gpj 1/22/2025 M. McCammon

WMA Table 4-1
Summary WMA Groundwater Extraction for Water Year 2024

Water Use Sector	Upper Aquifer	Lower Aquifer	Total	Method of Measurement	Estimated Accuracy
	Acre-Feet	Acre-Feet	Acre-Feet		Acre-Feet
Domestic	70	210	280	Self-reported to SYRWCD	± 30 (~10%)
Agricultural	13,450	2,420	15,870	Self-reported to SYRWCD may include estimates using crop usage	± 1,590 (~10%)
Municipal	3.880	1,800	5,680	Daily totalizer values	± 60 (~1%)
Total	**17,400**	**4,430**	**21,830**		**± 1,680**

SYRA pumping (SYRWCD Zone A) is managed as surface water and excluded from WMA Table 4-1 (see WMA Table 4-2).
All numbers rounded to the nearest 10 acre-feet.
Source: SYRWCD (2025), City of Lompoc (2024), MHCSD (2024), VVCSD (2024)

4.2 SURFACE WATER USE

The WMA relies on two surface water source types: local water and imported water. Local water includes both local tributary flows and the flows of the Santa Ynez River which are partially retained in Lake Cachuma. Imported water is from the State Water Project (SWP) or the adjacent San Antonio Basin. Vandenberg Space Force Base (VSFB) is the sole water-importing entity in the WMA.

4.2.1 Surface Water Diversions Upstream of the Lompoc Narrows

Upstream of the Lompoc Narrows, a portion of the Santa Ynez River flows as underflow through a known and definite channel of alluvium. Water flowing in known and definite channels is not groundwater under SGMA,[3] however, this underflow is managed by other agencies. For example, subsurface water above the Lompoc Narrows that is underflow is partially stored in Lake Cachuma per SWRCB Order 2019-148 for later water rights releases. Pumpers from the underflow are legally required to report the amount

3 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

pumped to both the SYRWCD[4] and the SWRCB. Unlike SGMA, SYRWCD's statute includes all subsurface water as groundwater. The SWRCB water rights Order of 1973 (WR 73-37) was amended in 1989 (WR 89-18) and most recently amended in 2019 (WR 2019-0148). Under appropriated rights in the Santa Ynez River alluvium to-date, SWRCB considers water extracted from wells upstream of the Lompoc Narrows as Santa Ynez River diversions. **WMA Table 4-2** of river wells upstream of the Lompoc Narrows in the WMA for WY 2024.[5]

WMA Table 4-2
Summary WMA Surface Water Diversions for Water Year 2024

Water Use Sector	Total	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	10	Self-reported to SYRWCD	± 1 (~10%)
Agricultural	3,570	Self-reported to SYRWCD may include estimates using crop usage	± 360 (~10%)
Municipal	0	NA	NA
Total	**3,580**		**± 361**

4.2.2 Water Imports

The Central Coastal Water Authority (CCWA) has delivered imported water from the SWP to the SYRVGB since 1997. CCWA makes water deliveries at turnouts to water distribution systems. CCWA delivers to Lake Cachuma for the South Coast customers outside of the SYRVGB. The Cachuma Project Settlement Agreement allows for the comingling of CCWA water with local water for water rights releases. Within the SYRVGB, four agencies contract with CCWA to provide for SWP deliveries: VSFB, the City of Buellton, the City of Solvang, and the Santa Ynez River Water Conservation District Improvement District Number 1. Of these, only the VSFB is located within the WMA.

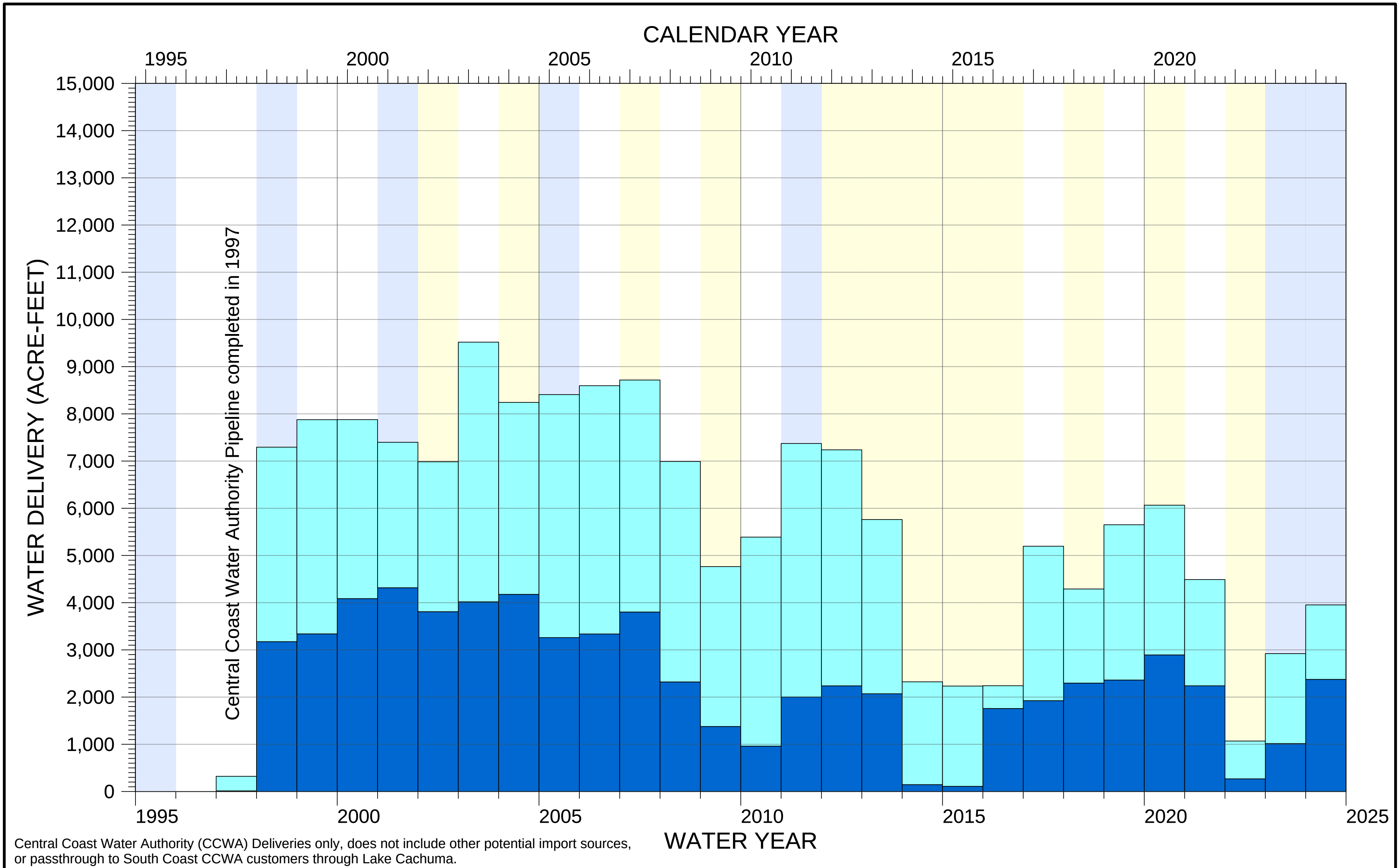
4 CWC Section 75640 "Any person who fails to register a water-producing facility, as required by Chapter 2 (commencing with Section 75540) of this part, is guilty of a misdemeanor."
5 The SYRWCD records pumping in the Santa Ynez River Alluvium as Zone A.

During WY 2024 VSFB imported 2,375 acre-feet of water, all sourced from the SWP through the CCWA pipeline. This VSFB water makes it into WMA as wastewater through the Lompoc Regional Wastewater Reclamation Plant. **WMA Table 4-3** and **WMA Figure 4-6** show the annual imports through the CCWA pipeline to the WMA and the entire SYRVGB, updated through the end of WY 2024.

WMA Table 4-3
Santa Ynez River Valley Groundwater Basin Water Imports in Acre-Feet for Recent Years

Water Year	WMA	CMA	EMA	Total Basin
2015	109	0	2,125	2,234
2016	1,758	82	401	2,241
2017	1,924	293	2,979	5,196
2018	2,296	224	1,770	4,290
2019	2,361	268	3,022	5,651
2020	2,893	359	2,813	6,065
2021	2,239	200	2,051	4,490
2022	268	82	719	1,069
2023	1,015	179	1,727	2,921
2024	2,375	283	873	3,531

Source: CCWA (2024)



ANNUAL WATER IMPORTS
CENTRAL COAST WATER AUTHORITY

WMA FIGURE 4-6

4.3 SURFACE WATER AVAILABLE FOR GROUNDWATER RECHARGE OR REUSE

During WY 2024, there were no projects within the WMA for direct groundwater recharge or in-lieu use.[6]

The Santa Ynez River and its underflow are within the jurisdiction of and regulated by the SWRCB. SWRCB regulates river flows for beneficial purposes including supporting the steelhead trout (*Oncorhynchus mykiss, O. mykiss*) population.[7] Following the SWRCB, USBR releases water stored in Lake Cachuma to meet downstream water rights and support fish habitat.

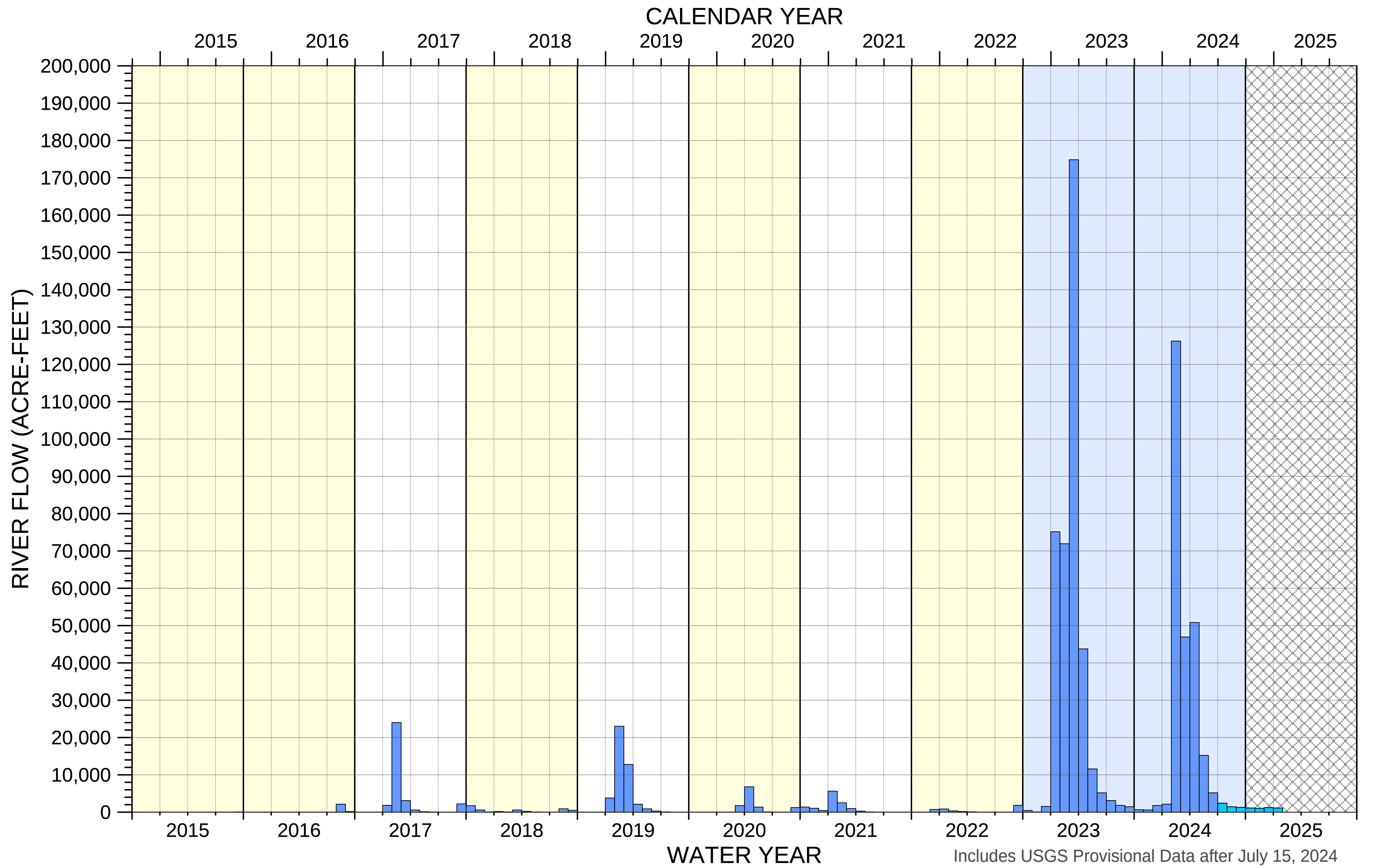
The method for the volume and timing of water rights releases comes from the SWRCB Orders of 1973 (WR 73-37), 1989 (WR 89-18), and 2019 (WR 2019-0148). The SWRCB orders account for the volume of water that would have been available if Lake Cachuma and its dam, Bradbury Dam, were not present. These orders identify two areas that Bradbury Dam prevents water from reaching. The Above Narrows Account (ANA) accounts for the area from Bradbury Dam to the Lompoc Narrows. The ANA is a relatively narrow channel of alluvium along the river (underflow), parts of which are within all three SGMA management areas. The Below Narrows Account (BNA) accounts for a relatively wider area below the Lompoc Narrows, the Lompoc Plain subarea of the WMA.

During all of WY 2024, the volume of dewatered storage in the ANA area was relatively low, meaning the elevation of water in the subsurface was high. This was due to the preceding year (WY2023) being wet and a wet winter in 2023-2024. As a result of there being low dewatered storage, at the direction of the SYRWCD, the USBR did not make water rights releases from Lake Cachuma during 2024.

Measurements at the Lompoc Narrows stream gauge represent more than 85% of all local surface water flows entering the WMA (Stetson, 2022). **WMA Figure 4-7** shows flows of the Santa Ynez River at the USGS Streamflow gage 11133000 at Lompoc Narrows, downstream of the WMA-CMA boundary for WY 2015 through October 2024. The location of the Lompoc Narrows gage is shown in WMA Figure 1-2.

6 23 CCR § 356.2(b)(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.

7 The Cachuma Operation and Maintenance Board (COMB) Fisheries Division conducts the monitoring of steelhead (*Oncorhynchus mykiss*) population in the Santa Ynez River and its tributaries. However, the COMB report comes out in the second quarter of the following water year, which is expected to be published concurrent or after this annual report.



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MONTHLY SURFACE FLOW
SANTA YNEZ RIVER AT LOMPOC NARROWS
USGS STREAMGAGE 11133000

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

Source: USGS NWIS (2025)

WMA FIGURE 4-7

4.3.1 Treated Wastewater Sources

Wastewater in the WMA is managed by the City of Lompoc, the Federal Bureau of Prisons, Mission Hills CSD, Vandenberg Village CSD, and VSFB. Annual volumes of wastewater collected by the Lompoc Regional Wastewater Reclamation Plant (LRWRP) and the Mission Hills CSD systems since 2015 are summarized in **WMA Table 4-4**.

WMA Table 4-4
Wastewater Influent Volumes for Recent Years

Water Year	Lompoc Regional Wastewater Reclamation Plant	Mission Hills Community Services District Sewer Flows
	Influent, Acre-Feet per Year	Acre-Feet per Year
2015	3,334	212
2016	3,324	247
2017	3,439	265
2018	3,338	240
2019	3,392	300
2020	3,404	224
2021	3,329	196
2022	3,318	180
2023	3,530	204
2024	3,451	206

Source: City of Lompoc (2021, 2022, 2023, 2024), MHCSD (2021, 2022, 2023, 2024; meter malfunction in months May and June 2024, so data estimated using April and July flow values)

Most of the water from the LRWRP is tertiary treated and discharged to San Miguelito Creek near the confluence with the Santa Ynez River.

4.3.2 Reuse of Treated Wastewater Sources

The LRWRP has programs to enable the use of recycled water which can offset the use of groundwater. SWRCB Order WW0101, dated May 30, 2018, authorized up to 69 AFY of water used for local construction purposes.[8] In 2019, the Division of Drinking Water approved a Site Use Report approving irrigation use of LRWRP recycled water (WCI, 2021). Due to high costs, the City of Lompoc suspended the recycled water program during WY 2022.

4.4 TOTAL WATER USE

Total water use in the WMA during WY 2024 is comprised of groundwater supplies, surface water diversions upstream of the Lompoc Narrows, and imported SWP water. See WMA Sections 4.1 and 4.2 above for additional details on these supplies. **WMA Table 4-5** shows the summary of total water use by sector for the water year 2024. **WMA Table 4-6** shows the summary of total water use by source for WY 2015-WY 2024. Total water use in the WMA was 28,995 AF in WY 2024.

WMA Table 4-5
Summary WMA Total Water Use by Sector for Water Year 2024

Water Use Sector	Total	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	290	Self-Reported to SYRWCD	± 30
Agricultural	19,440	Self-reported to SYRWCD	± 1,940
Municipal	8,055	Daily totalizer values; Includes CCWA imports to VSFB	± 80
Total	**27,785**		**± 2,050**

8 "The authorized place of use for up to 62,000 gallons per day of treated wastewater for industrial uses is 7,488 acres within the City of Lompoc city limits and within 30 miles radius of Lompoc Regional Wastewater Reclamation Plant."

WMA Table 4-6
Summary WMA Total Water Use by Source for Recent Years

Water Year	Total Groundwater (Upper and Lower Aquifer)	Total Surface Water (River Well Pumping)	Total Imports (CCWA)	TOTAL WATER USE
	Acre-Feet per Year	Acre-Feet per Year	Acre-Feet per Year	Acre-Feet per Year
2015	28,120	5,260	110	33,490
2016	27,320	5,530	1,760	34,610
2017	26,600	5,770	1,920	34,290
2018	24,830	5,790	2,300	32,920
2019	25,210	4,460	2,360	32,030
2020	25,050	4,290	2,890	32,230
2021	23,920	4,580	2,240	30,740
2022	24,370	4,710	270	29,350
2023	21,500	4,050	1,015	25,565
2024	21,830	3,580	2,375	27,785

Note: Total water use has been updated to include all pumping data reported to the SYRWCD. Prior annual reports estimated use data for July through September and may not have included all late filers.

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WMA CHAPTER 5: GROUNDWATER STORAGE

Groundwater storage is one of the SGMA sustainability indicators. This chapter presents the changes in groundwater in storage components required by the SGMA regulations:

> *"(5) Change in groundwater in storage shall include the following:*
>
> *(A) Change in groundwater in storage maps for each principal aquifer in the basin.*
>
> *(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 CCR § 356.2(b))

Changes in groundwater in storage are calculated and mapped for the seasonal high (spring-to-spring) using a Thiessen polygon[1] method. This method uses water level observations at representative monitoring wells. In the WMA there is a longer period of record for seasonal high spring water levels than there is for seasonal low fall water levels. Agencies collected water levels from fewer wells during the fall. The WMA uses the seasonal high (spring-to-spring) storage changes for trends due to this historical data collection.

1 This method for tessellation goes by several names. Voronoi diagrams or Dirichlet tessellation are both names use in mathematics. The name Thiessen polygons comes from the application to hydrology.

5.1 CHANGE IN GROUNDWATER IN STORAGE MAPS

The SGMA regulations[2] require every Annual Report to contain *"change in groundwater in storage maps for each principal aquifer in the basin."* On the following maps, the polygon color indicates the change in groundwater in storage. Blue indicates increased groundwater in storage. Orange indicates decreased groundwater in storage. Color intensity is relative to the area of the polygon. Darker colors indicate a greater change in storage per acre. Numbers shown in each polygon are the estimated volume change in acre-feet. **WMA Figure** 5-1 and **WMA Figure** 5-2 show spring change in groundwater in storage.

The node of each polygon comes from existing representative monitoring wells (WMA Figure 3-1). The area of each polygon is the area that is closest to the node point, compared to the other node points. The external boundary is the aquifer extent. The WMA uses the following equation to calculate the change in groundwater in storage for each polygon:

Change of Groundwater in Storage (acre-feet) = [area (acres)] x [Sy (unitless)] x [change in groundwater elevation (ft)]

Total Change of Groundwater in Storage (acre-feet) = Σ (Change in Storage for each Polygon)

WMA Table 5-1 summarizes the total change in groundwater in storage calculated for each aquifer for WY 2024.

WMA Table 5-1
Estimated Change in Groundwater in Storage
By Aquifer in Acre-Feet

Period		Lower Aquifer	Upper Aquifer	Total
Seasonal High	Spring 2023 to Spring 2024	-200	800	600

Numbers rounded to the nearest 100 AF.

2 23 CCR § 356.2(b)(1)

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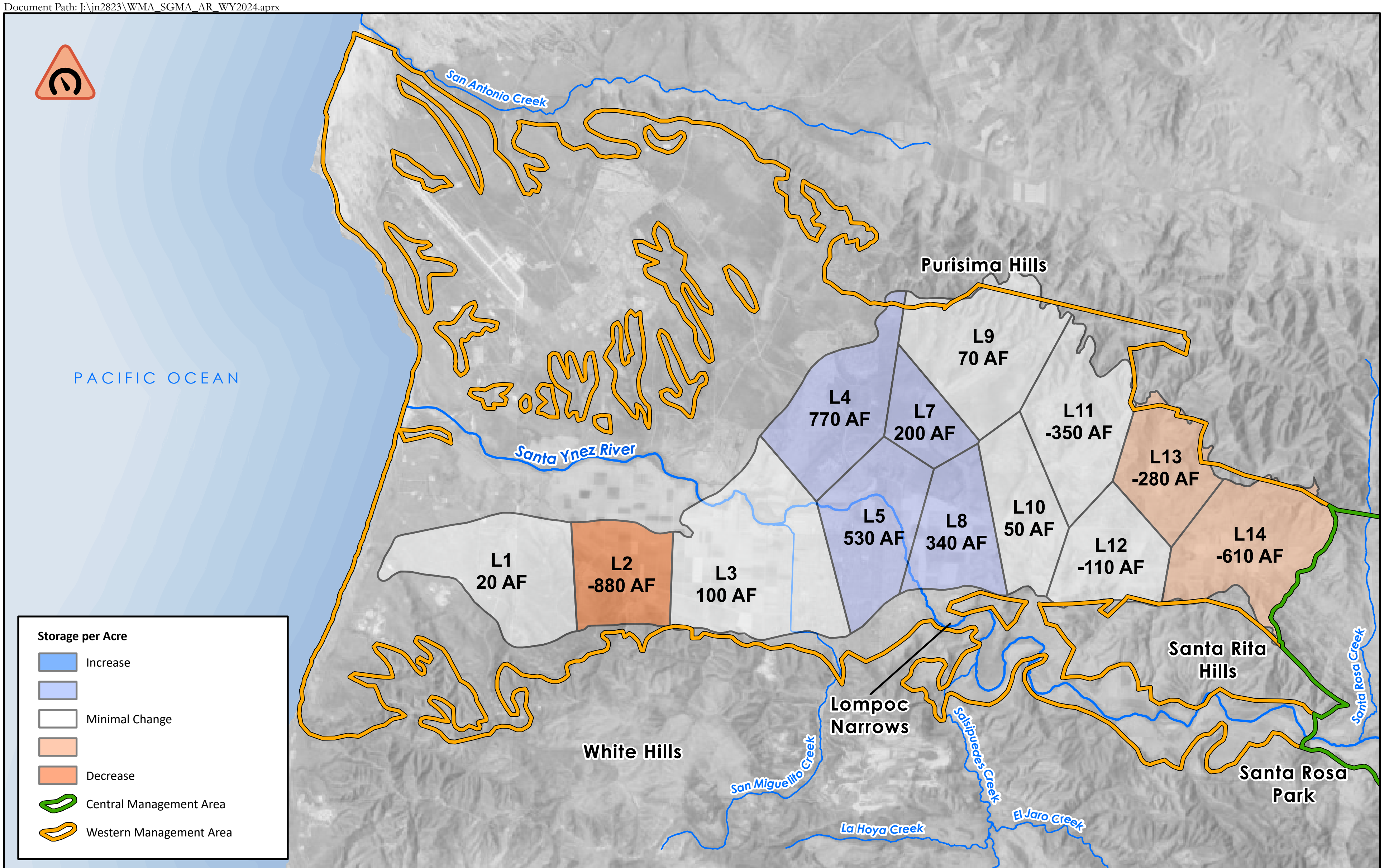

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CHANGE IN GROUNDWATER IN STORAGE
SPRING 2023-SPRING 2024
LOWER AQUIFER
WESTERN MANAGEMENT AREA

DRAFT

0 1 2 Miles

Sources:
USGS National Elevation Dataset, 2002

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WMA FIGURE 5-1

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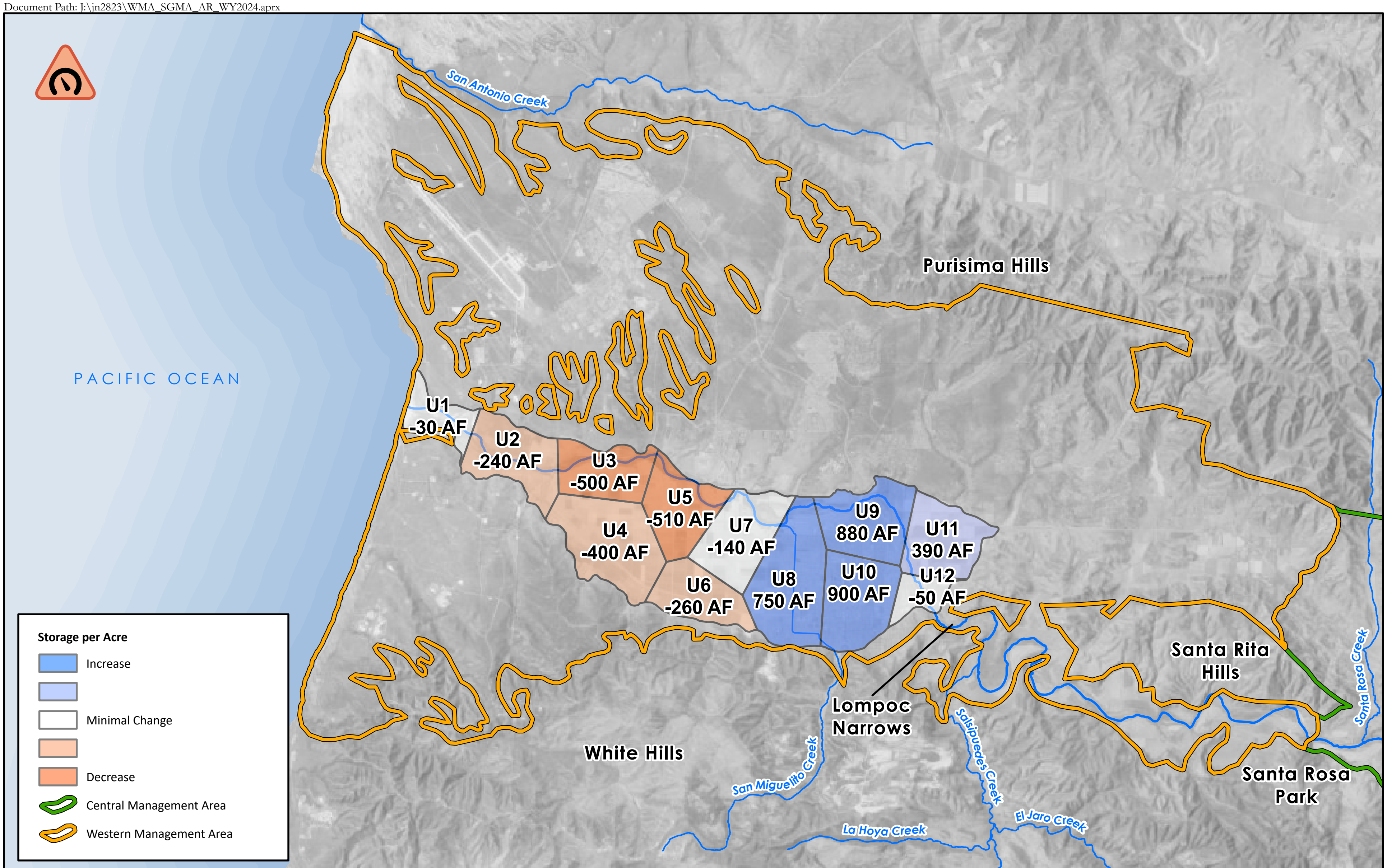

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CHANGE IN GROUNDWATER IN STORAGE
SPRING 2023-SPRING 2024
UPPER AQUIFER

WESTERN MANAGEMENT AREA

DRAFT

0 1 2 Miles

N

Sources:
USGS National Elevation Dataset, 2002

WMA FIGURE 5-2

The Spring 2023 to Spring 2024 change in groundwater in storage is shown for the Lower Aquifer in WMA Figure 5-1 and the Upper Aquifer in WMA Figure 5-2. The total groundwater in storage change for the WMA was a gain of 600 AF. WMA Figure 5-1 shows groundwater in storage in the Lower Aquifer increased in the middle of the aquifer and decreased in the Santa Rita Upland. WMA Figure 5-2. shows that the volume of groundwater in storage increased in the eastern area of the Upper Aquifer but declined in the center and western area of the aquifer. The Lower Aquifer has an overall loss in storage of 200 AF. The Upper Aquifer has an overall gain of 800 AF.

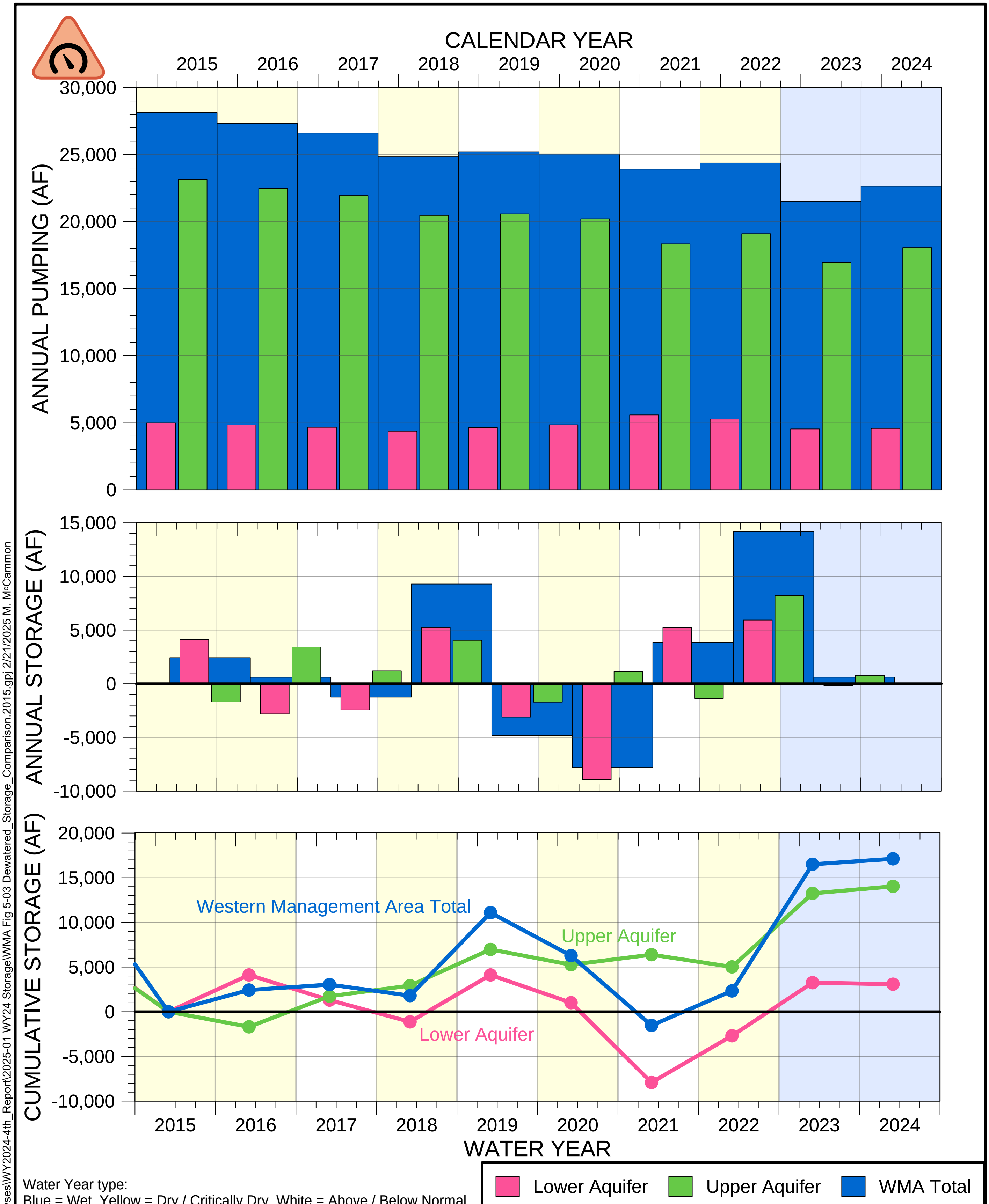
5.2 GROUNDWATER USE AND EFFECTS ON STORAGE

The SGMA regulations require that GSP Annual Reports contain "*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*."[3]

The Water Year Type is classified in Chapter 2 of this report using the same method described in the WMA GSP. Updated groundwater use for WY 2023 is described in Chapter 4. The method for calculating the annual change in groundwater in storage is described earlier in this chapter. Annual storage change was calculated for historical years, including from WY 2015 through the present.

The annual reported groundwater use for the WMA Upper Aquifer is compared to the annual change in Upper Aquifer groundwater storage in **WMA Figure 5-3**. The Water Year classifications shown in this figure are consistent with the classification of water years shown in WMA Figure 2-4. The top of WMA Figure 5-3 shows the annual reported groundwater use for the WMA Upper Aquifer, Lower Aquifer, and combined. The middle of WMA Figure 5-3 shows the annual change in storage for the Upper Aquifer, Lower Aquifer, and combined total, and the bottom of WMA Figure 5-3 set shows the cumulative change for the Upper Aquifer, Lower Aquifer, and combined total starting in March 2015.

3 23 CCR § 356.2(b)(5)(B)



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COMPARISON OF WATER YEAR TYPE, GROUNDWATER USE, ANNUAL STORAGE, AND CUMULATIVE STORAGE RELATIVE TO MARCH 2015

WMA CHAPTER 6: PROGRESS TOWARD GSP IMPLEMENTATION AND SUSTAINABILITY

The SGMA regulations (Appendix 1-A) require that the SGMA Annual Reports contain "*A description of progress towards implementing the [GSP], including achieving interim milestones, and implementation of projects or management actions since the previous annual report*."[1] A major milestone in WY 2024 was DWR approval of the GSP on January 18, 2024. As indicated by the previous chapters discussing groundwater levels, water use, and storage, groundwater conditions within the WMA remain sustainable with no undesirable results for the SGMA sustainability criteria. The conditions within the WMA for the additional SGMA indicators are summarized below.

The WMA GSP Implementation of general projects and management actions identified in the WMA GSP has begun. The WMA is taking steps to ensure funding to complete the actions planned in the GSP.

6.1 SUSTAINABILITY INDICATORS

Analyses conducted for the WMA GSP indicate that Basin conditions are sustainable with no current undesirable results during WY 2024. This chapter discusses GSP-identified minimum thresholds, measurable objectives, and interim milestones[2] for both the previously discussed sustainability indicators (groundwater levels [Chapter 3], interconnected surface water [Chapter 3], and storage [Chapter 5]), as well as the remaining sustainability indicators (seawater intrusion, water quality, and land subsidence).

1 23 CCR § 356.2(a) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

2 23 CCR § 356.2(a) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

Groundwater Levels

Groundwater Storage

Seawater intrusion

Degraded water quality

Land subsidence

Interconnected surface water

6.1.1 Chronic Lowering of Groundwater Levels

Chapter 3 provided data and maps for the chronic lowering of groundwater levels sustainability indicator. The WMA GSP states the following regarding monitoring groundwater levels for undesirable results:

> "Spring groundwater elevations that drop below the established groundwater elevation minimum thresholds in more than 50% of the representative monitoring wells in the Upper Aquifer or 50% of the representative monitoring wells in the Lower Aquifer for two consecutive, non-drought years[3] would correspond to an undesirable result associated with chronic lowering of groundwater elevations."

Similarly, for measurable objectives and interim milestones, the WMA GSP states:

3 Two or more consecutive years that are classified as Dry or Critically Dry (Chapter 2, GC) will be defined as drought years. All other year types and combination of year types will be defined as non-drought years for the purpose of defining undesirable results under a groundwater sustainability plan.

"Measurable objectives are achieved when the 2011 groundwater elevation is reached in half of the representative monitoring wells (RMWs)."

The interim milestones were set to measurable objectives due to GSP's finding that the WMA conditions were sustainable with no current undesirable results.

The WMA currently has twenty-six representative groundwater level monitoring wells, thirteen each in the Lower Aquifer (**WMA Table 6-1**) and Upper Aquifer (**WMA Table 6-2**). These tables compare the groundwater level elevations to the sustainable management criteria for each well. The sustainable management criteria include Measurable Objectives, Early Warning, and Minimum Thresholds. These tables show all wells were above their Minimum Threshold levels for WY 2024. No undesirable results related to water levels occurred in WY 2024.

WMA Table 6-1
Groundwater Elevations for
Lower Aquifer Groundwater Levels (feet in NAVD88)

Name	ID	Measuring Point	Reference Values			Water Year 2023		Water Year 2024	
			Measurable Objective	Early Warning	Minimum Threshold	Spring	Fall	Spring	Fall
7N/35W-26L04	17	36.10	28	11	6	33	19	28	18
7N/34W-29N7	28	68.16	43	21	15	44	35	44	35
7N/34W-22J6	22	97.81	55	33	28	48	48	50	50
7N/34W-24N1	23	131.77	56	34	29	48	48	50	49
7N/35W-27P01	44	262.55	43	25	20	40	37	40	38
7N/34W-15D3	602	193.12	58	36	31	50	51	53	50
7N/34W-14F4	52	276.04	50	28	23	44	53	45	45
7N/34W-12E1	51	388.21	62	40	35	54	54	54	53
7N/33W-19D1	49	255.05	56	33	28	47	47	48	n/a
7N/33W-17M1	47	329.33	62	36	31	47	44	45	41
7N/33W-28D3	81	354.04	42	30	25	44	42	43	41
7N/33W-21G2	78	421.76	85	51	46	63	60	61	58
7N/33W-27G1	80	437.03	56	36	31	51	42	49	46

n/a = No available data
NAVD88 = North American Vertical Datum of 1988

WMA Table 6-2
Groundwater Elevations for
Upper Aquifer Groundwater Levels (feet in NAVD88)

Name	ID	Measuring Point	Reference Values			Water Year 2023		Water Year 2024	
			Measurable Objective	Early Warning	Minimum Threshold	Spring	Fall	Spring	Fall
7N/35W-17M1	2	11.92	5	5	0	8	7	5	8
7N/35W-21G2	39	22.57	8	5	0	11	7	8	6
7N/35W-23B2	40	32.50	8	5	0	12	3	6	2
7N/35W-26L1	15	36.01	30	25	20	33	29	30	28
7N/35W-26L2	16	35.72	32	23	18	34	26	31	26
7N/35W-24J4	33	59.94	30	25	20	40	28	34	26
7N/34W-29N6	27	67.59	41	31	26	45	38	43	38
6N/34W-6C4	20	104.04	42	27	22	n/a	n/a	n/a	n/a
7N/34W-32H2	31	77.85	45	33	28	n/a	n/a	n/a	n/a
7N/34W-27F9	1162	99.40	56	42	37	54	55	62	61
7N/34W-34F6	501	101.40	57	39	34	55	59	72	73
7N/34W-26Q5	60	114.00	68	49	44	67	65	71	62
7N/34W-35K9	32	106.92	80	73	68	88	84	82	80

n/a = No available data
NAVD88 = North American Vertical Datum of 1988
The Minimum Threshold for 7N/34W-35K9 was corrected based on 2020 water levels and corrected datum.

6.1.2 Reduction of Groundwater in Storage

Chapter 5 of this report addresses the reduction of groundwater in storage. In addition, progress towards sustainability for groundwater storage is tracked along with groundwater levels, as discussed in WMA Section 6.1.1.

6.1.3 Water Quality

The WMA GSP found that "Groundwater quality in the WMA is currently suitable for agricultural, domestic, and municipal supply purposes." The SGMA statute and SGMA regulations on Annual Reports do not include a discussion of general water quality. To support the Central Coast Water Board's water quality mission,[4] the WMA included a periodic water quality evaluation in the WMA WY 2023 annual report.

6.1.4 Seawater Intrusion

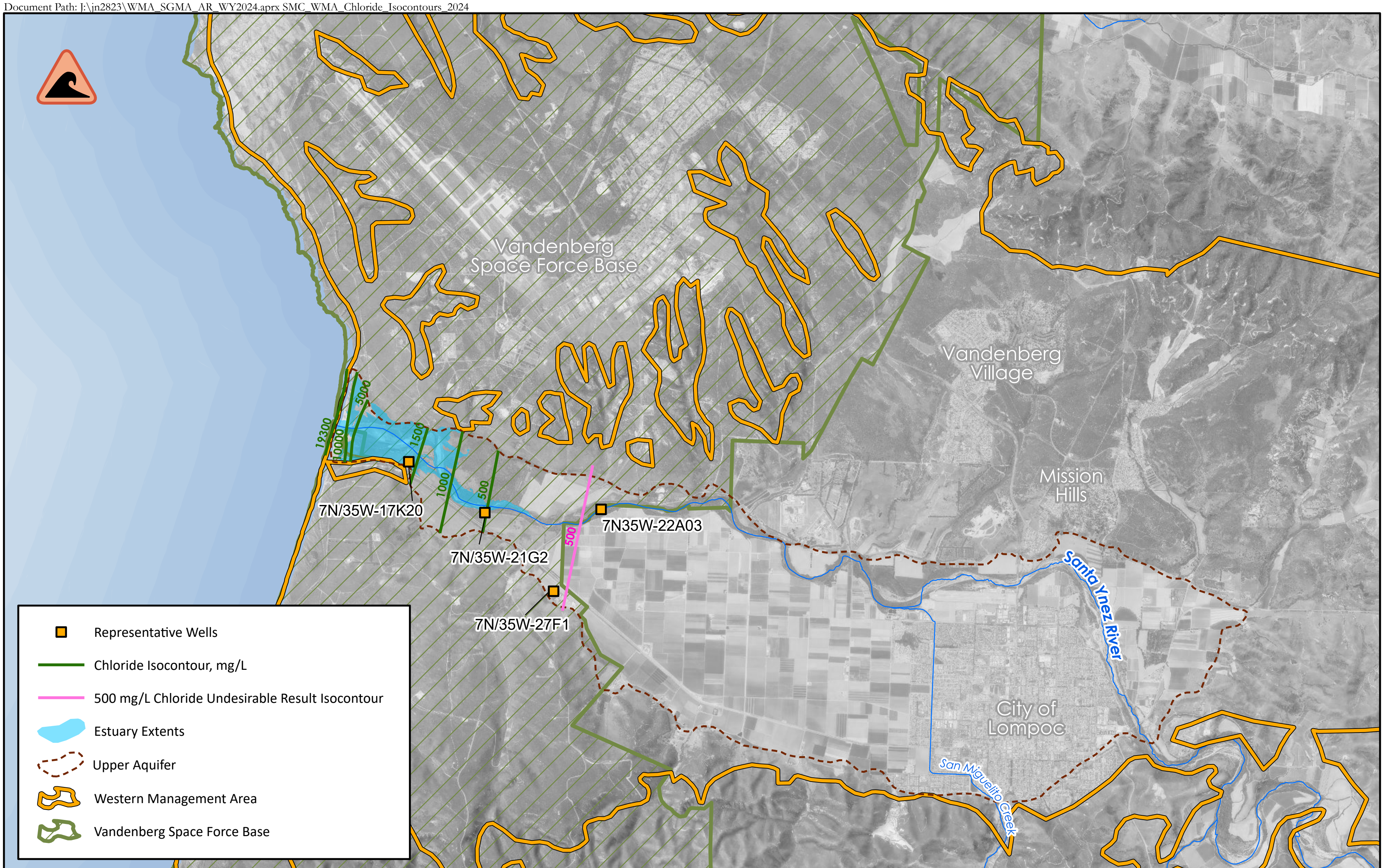
Seawater intrusion is the inflow of seawater into the aquifer and adversely affects groundwater quality and, therefore, suitability for beneficial uses. Per SGMA regulations,[5] this is characterized by relatively high concentrations of chloride. The GSP identified the 500 mg/L chloride isocontour as the key indicator for assessing seawater intrusion.

WMA Figure 6-1 shows the location of the estimated groundwater chloride isocontour for 2024 based on collected water samples. These were primarily based on chloride concentration in samples collected at the wells 7N/35W-17K20, 7N/35W-21G2, 7N/35W-27F1, and 7N35W-22A3. **WMA Figure 6-2** plots recent salinity, chloride, and sodium trends for the two western wells (7N/35W-17K2 and 7N/35W-21G2), and **WMA Figure 6-3** plots recent salinity, chloride, and sodium for two of the more inland wells (7N/35W-27F1 and 7N35W-22A3). These two sets of graphs show a slight increase in all three chemical indicators since 2015.

4 Central Coast Regional Water Quality Control Board. Bishop, James. June 22, 2023. Public Comment Letter for The Santa Ynez River Valley Groundwater Basin – Annual Report Water Year 2022. 3 pg. https://sgma.water.ca.gov/portal/gspar/comments/214. Access date 2023-12-05.

5 23 CCR § 356.28(c)(3) Seawater Intrusion. The minimum threshold for seawater intrusion shall be defined by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results. Minimum thresholds for seawater intrusion shall be supported by the following: […]

Document Path: J:\jn2823\WMA_SGMA_AR_WY2024.aprx SMC_WMA_Chloride_Isocontours_2024



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WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

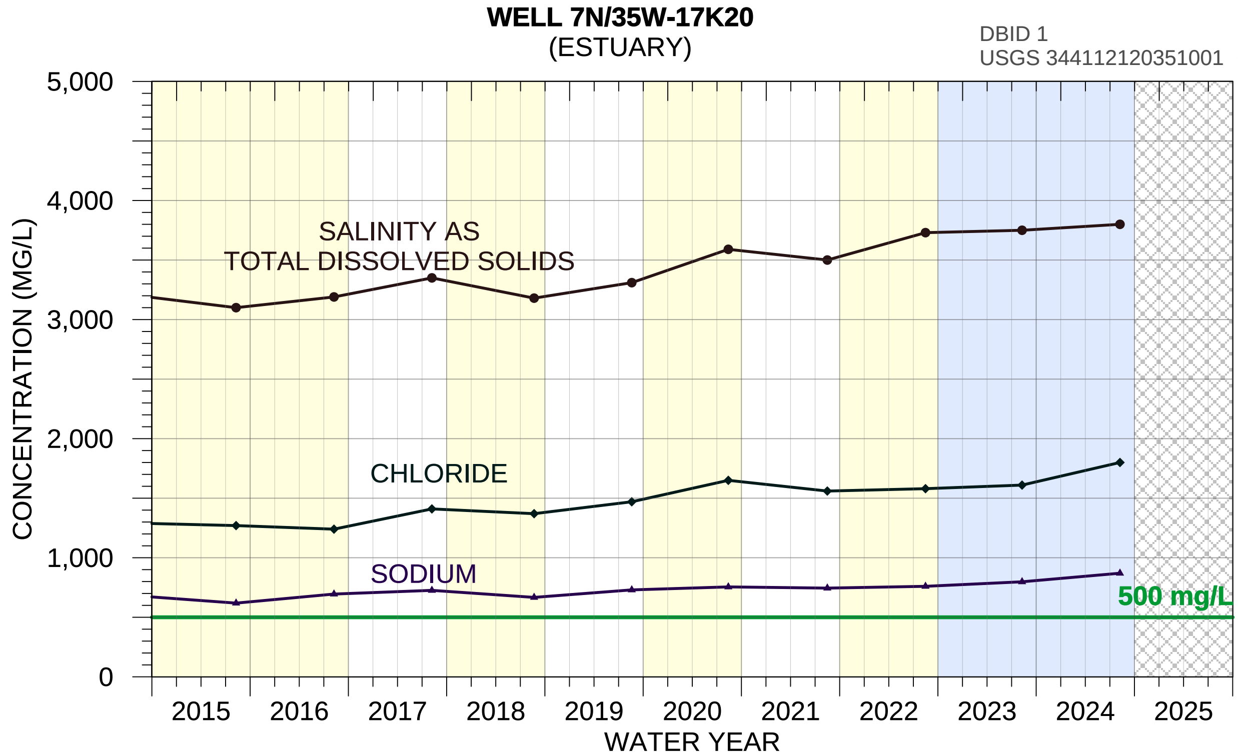
500 MG/L CHLORIDE ISOCONTOUR IN 2024
WESTERN MANAGEMENT AREA

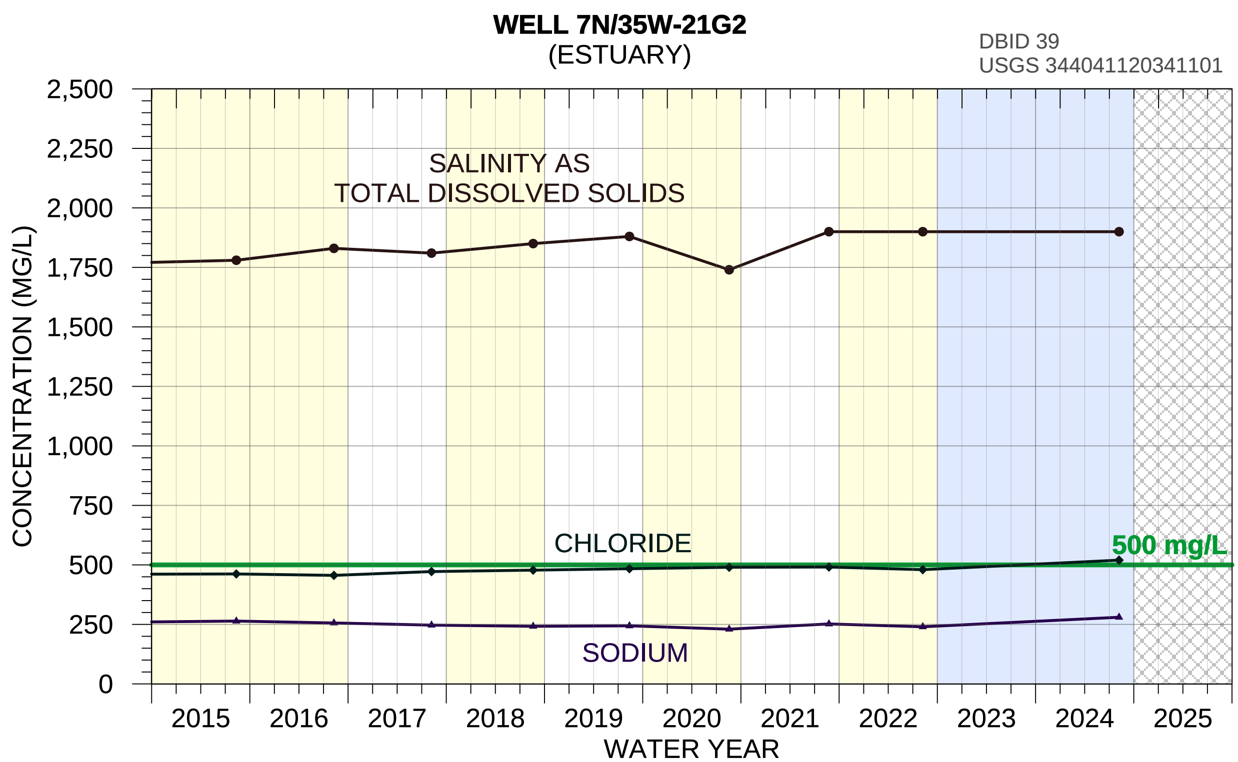
0 0.7 1.4 Miles

Sources:
Pacific States Marine Fisheries Commission (2018)
NAIP (2018)

N

WMA FIGURE 6-1





Water Year type:
Blue = Wet, Yellow = Dry / Critically Dry, White = Above / Below Normal
Data Source: COSB (2024) and USGS (2023) water quality data.

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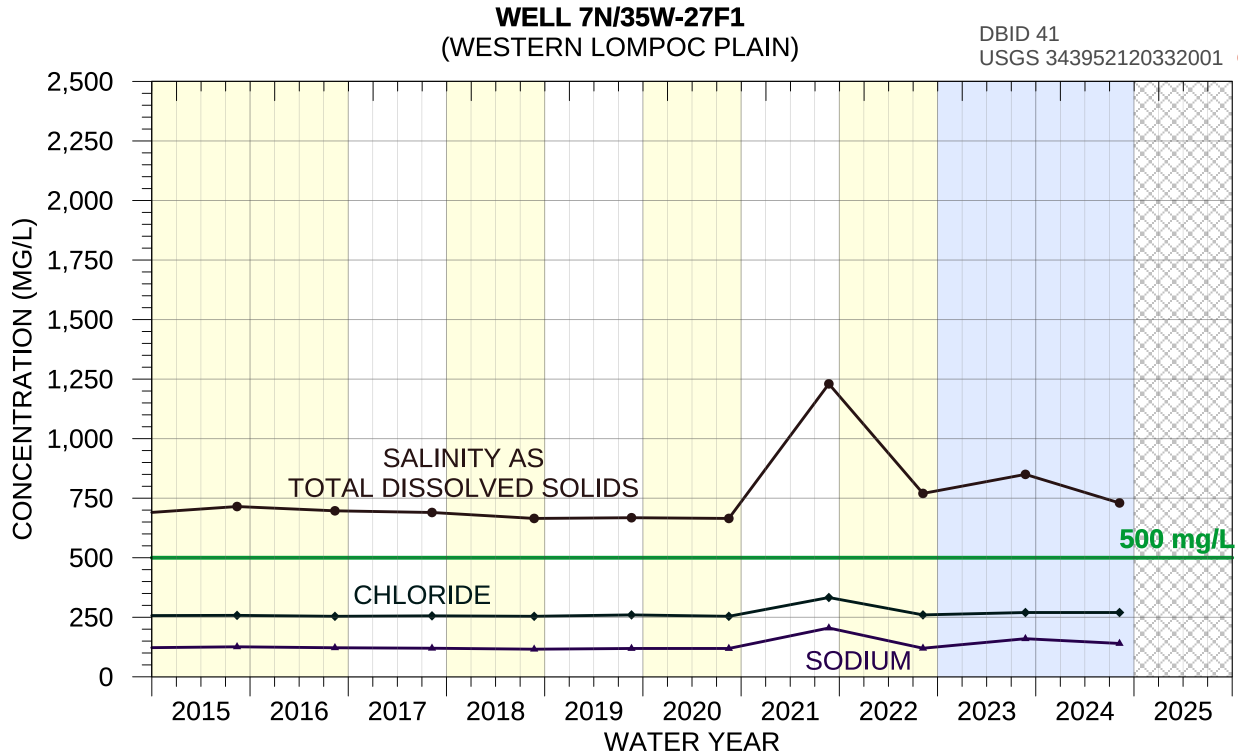
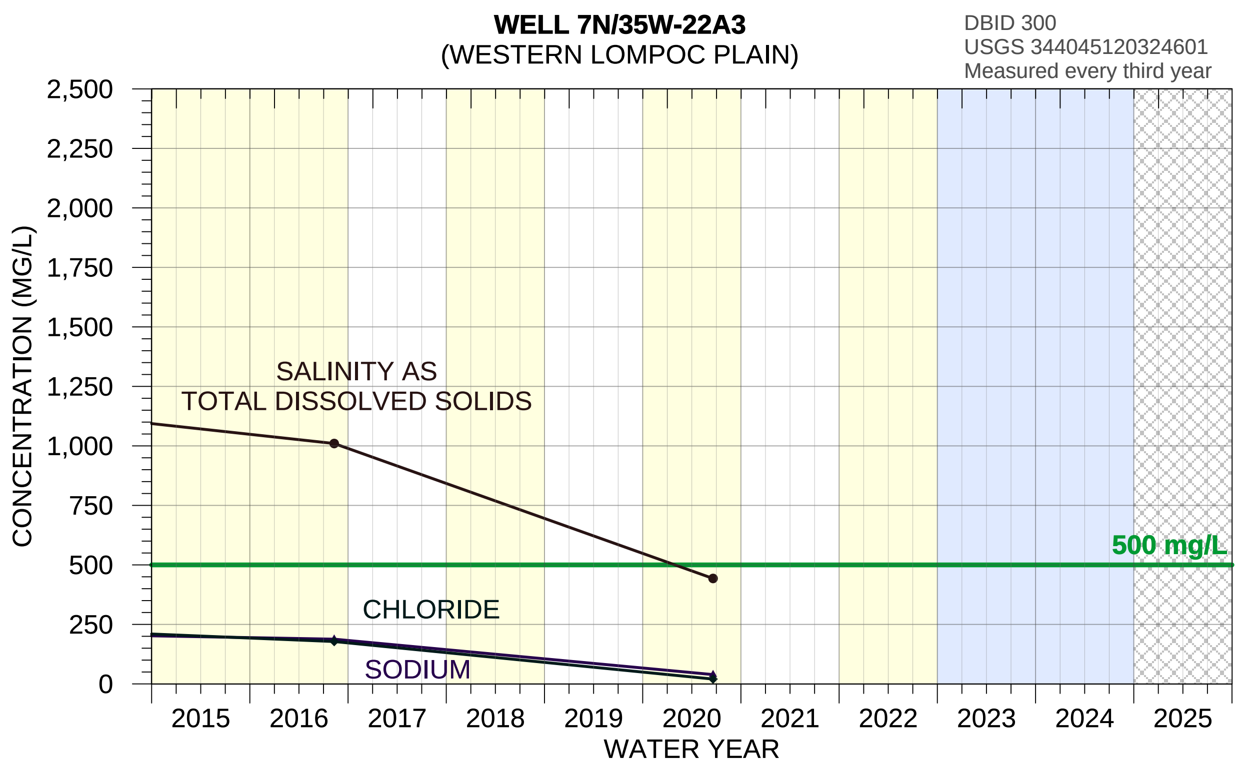
SANTA YNEZ RIVER ESTUARY
MAJOR WATER QUALITY TRENDS
SELECTED WELLS
LOMPOC PLAIN SUBAREA

TDS
Chloride
Sodium





Water Year type:
Blue = Wet, Yellow = Dry / Critically Dry, White = Above / Below Normal
Data Source: COSB (2024) and USGS (2023) water quality data.

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2025-01 WY24 Seawater\Fig 6-03 Seawater_Trends_Plain.gpj 1/23/2025 M. McCammon

STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

WESTERN LOMPOC PLAIN
MAJOR WATER QUALITY TRENDS
SELECTED WELLS
LOMPOC PLAIN SUBAREA

TDS
Chloride
Sodium

6.1.5 Land Subsidence

Significant land subsidence due to groundwater withdrawal is not occurring in the WMA. Conditions in the WMA are considered to have dropped below the land subsidence minimum threshold when both (1) a decline of six inches (a half foot) from the 2015 land surface elevation because of groundwater extractions, and (2) that decline interferes with either land use or infrastructure.

Two primary sources of data are used to characterize the movement of the land surface: remote sensing area data from Interferometric Synthetic Aperture Radar (InSAR) and point data from continuous global positioning system (CGPS). Both InSAR and CGPS methods provide absolute changes in elevation and do not differentiate between land subsidence resulting from excessive groundwater extraction and other sources of vertical movement such as tectonic movement. Any significant lowering of ground levels indicated by these methods would need to be followed up to identify the cause.

The InSAR maps show the elevation change of the ground over a wide area between two points in time. **WMA Figure 6-4** is a map comparison of October 2023 and October 2024 data, showing change in vertical displacement during WY 2024. **WMA Figure 6-5** is a map comparison of January 2015 and October 2024 data showing cumulative change since 2015. These two figures indicate that the vertical change is less than the InSAR method accuracy for most of the WMA.[6]

CGPS collects very high-resolution three-dimensional movement of a sensor over time. The LOMP station, located near Mission Hills (see **WMA Figure 6-5**), is a CGPS station that has been in operation since May 15, 2015. **WMA Figure 6-6** is a graph of the horizontal movement (north-south, east-west) and vertical movement (up-down). Since 2015 the graph shows movement to the north of 14 inches and movement west of 12 inches. Vertical movement is down by less than an inch, with a datum entry change in 2017. This lateral movement is aseismic tectonic movement, and not due to groundwater conditions.

Both InSAR and CGPS methods show there were no undesirable results related to land subsidence during WY 2024.

6 Reported as 18 mm (0.71 inches) vertical accuracy at 95% confidence level in Towill (2023).

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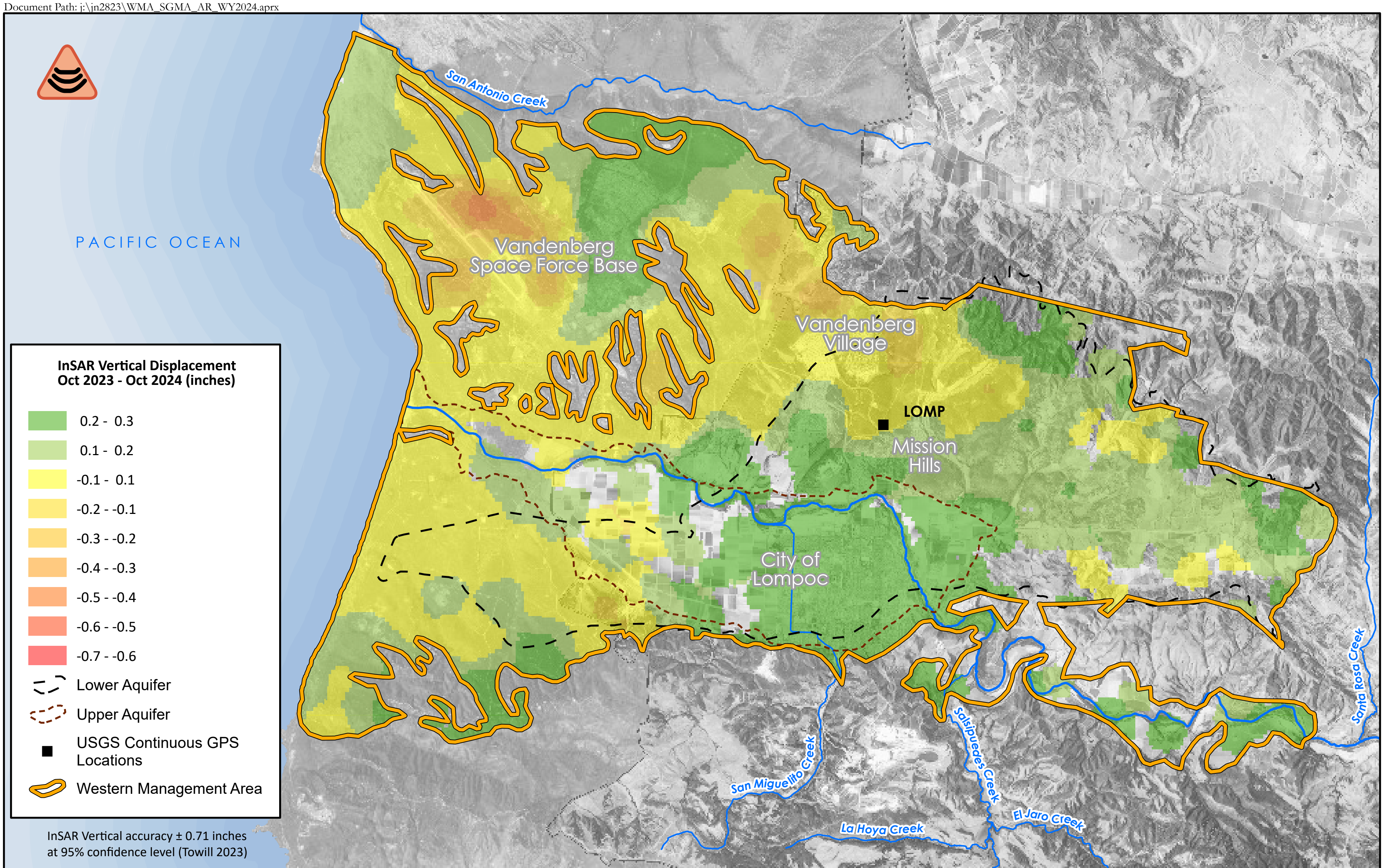

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Western Management Area
Groundwater Sustainability Agency

LAND SUBSIDENCE
OCTOBER 2023 TO OCTOBER 2024
INSAR DATA
WITHIN WESTERN MANAGEMENT AREA

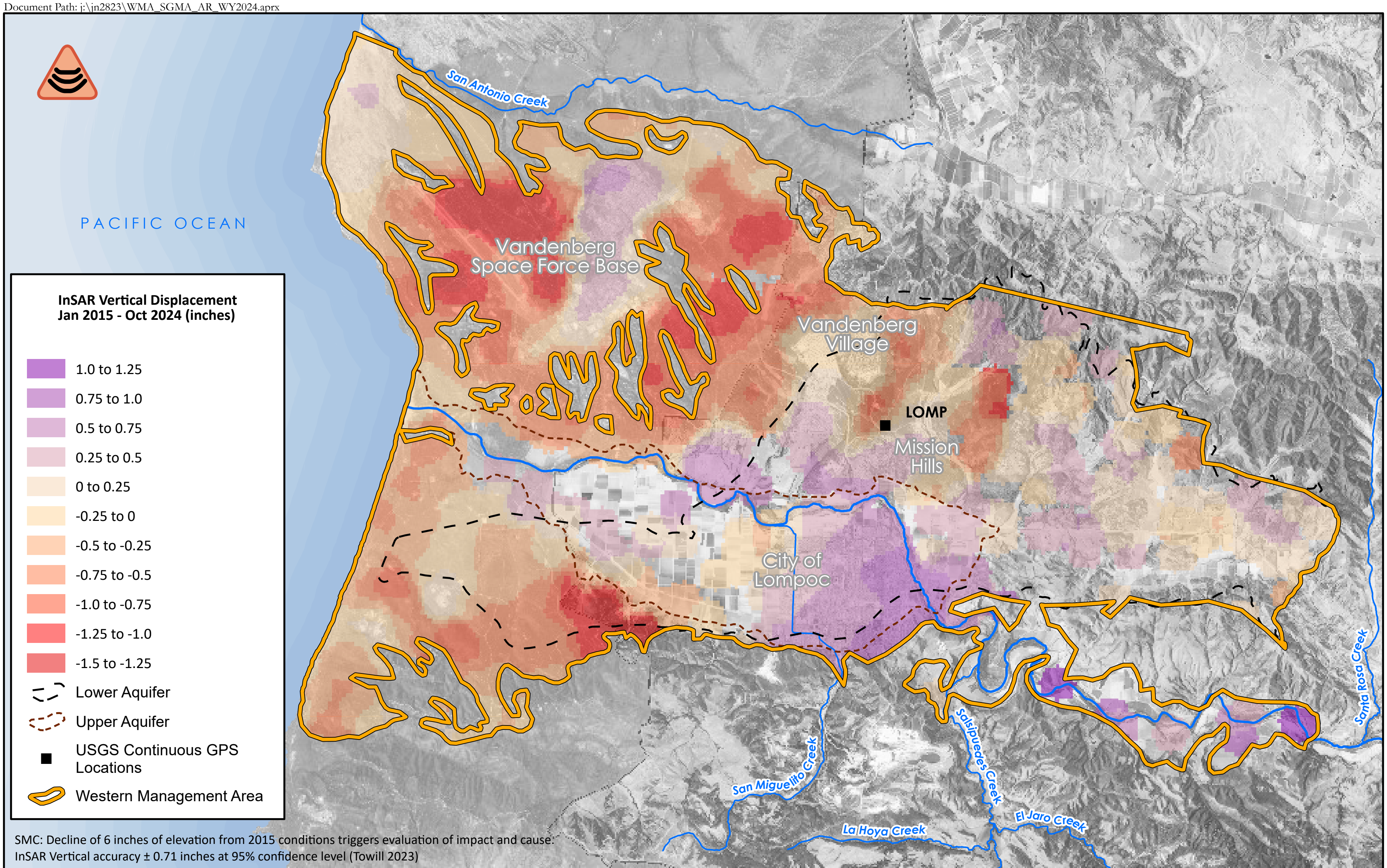
0 1 2 Miles

Sources:
USGS National Elevation Dataset, 2002
NAIP (2022/2012), DWR (2024)

N

WMA FIGURE 6-4

Document Path: j:\jn2823\WMA_SGMA_AR_WY2024.aprx



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WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

LAND SUBSIDENCE JANUARY 2015 TO OCTOBER 2024 INSAR DATA

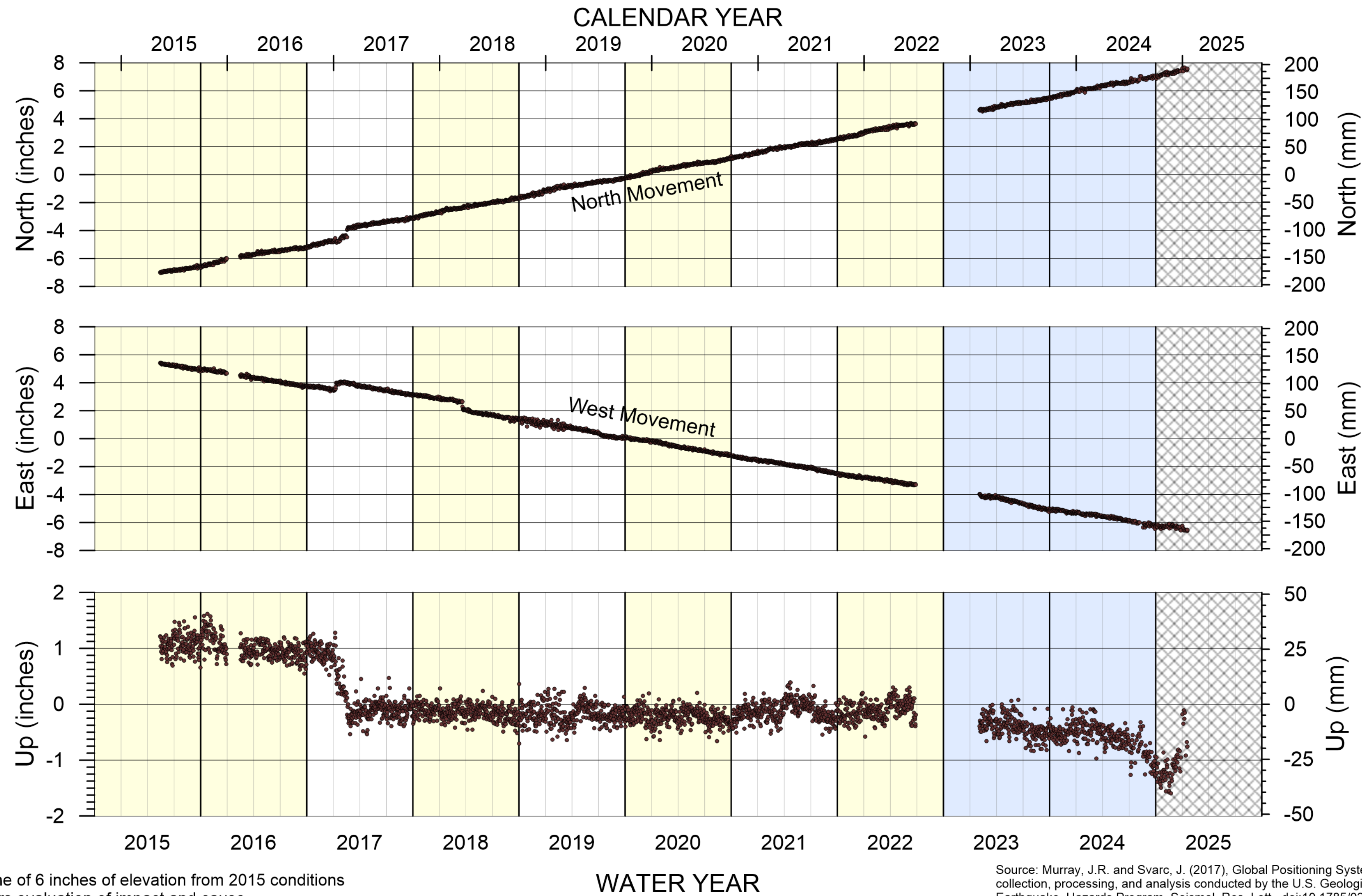
WITHIN WESTERN MANAGEMENT AREA

0 1 2 Miles

Sources:
USGS National Elevation Dataset, 2002
NAIP (2022/2012), DWR (2024)

N

WMA FIGURE 6-5



Decline of 6 inches of elevation from 2015 conditions triggers evaluation of impact and cause.

Source: Murray, J.R. and Svarc, J. (2017), Global Positioning System data collection, processing, and analysis conducted by the U.S. Geological Survey Earthquake Hazards Program, Seismol. Res. Lett., doi:10.1785/022016020 .

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WMA

Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

CONTINUOUS GLOBAL POSITIONING SYSTEM
LOMP STATION TRENDS
LAND SUBSIDENCE

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

WMA FIGURE 6-6

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 CGPS Land Subsidence\Fig 6-06 WMA_CGPS WY2024_shift_scale.gpj 1/22/2025 M. McCammon

6.1.6 Interconnected Surface Water and Groundwater Dependent Ecosystems

The SGMA sustainability indicator "depletion of interconnected surface water," is related to the effects of groundwater pumping on surface water flows. Under the SGMA statute, groundwater is water in the identified groundwater aquifers, "but does not include water that flows in known and definite channels"[7] such as the underflows of the Santa Ynez River through its alluvial sediments. The SWRCB, under Order WR 2019-0148 and earlier orders and decisions, regulates all flows of the Santa Ynez River. This regulation by the SWRCB extends to and includes the subsurface flows through the alluvial channel.

The groundwater level hydrographs presented in WMA Appendixes 3-A and 3-B further address the potential depletion of interconnected surface water. As stated in the 2022 WMA GSP (Section 3b.2-6), groundwater elevations that would drop to below ten feet below 2020 groundwater elevations in two out of the three representative monitoring wells in the Upper Aquifer for two consecutive non-drought[8] years would indicate significant and undesirable results for interconnected surface water and groundwater-dependent ecosystems. Similarly, the measurable objective and interim milestone (2022 GSP, Sections 3b.4-6 and 3b.5-6) established for the depletion of interconnected surface water are groundwater elevations equal to five feet below the channel thalweg of the Santa Ynez River. **WMA Table 6-3** summarizes the groundwater elevations at the three wells used to measure potential impacts on surface water. This table shows that all wells had water levels above the minimum threshold during WY 2024.

In WY 2024, all three representative monitoring wells were above their respective Measurable Objectives. The WMA met the groundwater elevation targets for interconnected surface water and groundwater-dependent ecosystems.

7 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

8 For this purpose, a year is a drought if it is two or more consecutive years that are classified as Dry or Critically Dry (see Chapter 2 for year classifications). All other year types and combination of year types will be defined as non-drought years for the purpose of defining undesirable results under a groundwater sustainability plan.

WMA Table 6-3
Groundwater Elevations for Interconnected Surface Water (feet in NAVD88)

Name	ID	Measuring Point	Reference Values		Water Year 2023		Water Year 2024	
			Measurable Objective	Minimum Threshold	Spring	Fall	Spring	Fall
7N/35W-21G2	39	23	4	0	11	7	7	8
7N/34W-29F2	167	65.39	41	31	51	44	45	51
7N/34W-35K9	32	106.9	77	68	82	84	80	82

NAVD88 = North American Vertical Datum of 1988.
The Measurable Objective is 5 feet below the channel thalweg.
The Minimum Threshold is 10 feet below the 2020 groundwater level or Mean Sea Level.
The Minimum Threshold for 7N/34W-35K9 was corrected based on 2020 water levels and corrected datum.

On behalf of the US Bureau of Reclamation, the Cachuma Operation and Maintenance Board (COMB) Fisheries Division monitors the migration of the Southern California Steelhead/rainbow trout (*O. mykiss*) in the Santa Ynez River from Lake Cachuma to the Pacific Ocean. The COMB publishes the report concurrently or after this annual report,[9] and therefore conclusions from that report about WY 2024[10] are unavailable before the SGMA annual reporting deadline.

The most recently published COMB report was about WY 2023 (COMB, 2024). Due to "high flows throughout the migration season" during WY 2023, no trapping was conducted at any traps along the Lower Santa Ynez River (LSYR) Mainstem Trap. The WY 2023 report identified that since 2011, only five migrant captures of *O. mykiss* have been made in the mainstem Lower Santa Ynez River (LSYR), and no *O. mykiss* migrants have been observed for 11 of the last 12 years. The "Cadwell" and "Cargasacchi" properties are within the WMA boundaries, and COMB 2023 snorkel surveys found no *O. mykiss* in either survey area. However, the COMB report indicated active beaver dams throughout the alluvial area upstream of the Lompoc Narrows, with 63 beaver dams between the Lompoc Narrows and Alisal Bridge (this area also includes part of the CMA and EMA).

9 The COMB Fisheries Division report on WY 2023 was published on July 2, 2024.
10 The COMB Water Year is the same as SGMA, running October 1st to September 30th.

6.2 IMPLEMENTATION OF PROJECT AND MANAGEMENT ACTIONS SINCE PREVIOUS ANNUAL REPORT

The WMA GSA continues to work on SGMA compliance and progress on projects and management actions identified in the GSP to improve sustainability (**WMA Table** 6-4). During WY 2024, the WMA made progress on nine (9) tasks in WMA Table 6-4.

WMA Table 6-4
Summary of WMA GSP Implementation Projects

Project Category	Task	Occurrence	Water Year 2024 Status
Completing Ongoing Field Investigations	Surveying Representative Wells	One Time	
	SkyTEM Airborne Geophysics	One Time	Completed
Monitoring Network Gaps	Video Logging and Sounding Wells	One Time	
	Groundwater Level Monitoring Wells (Outreach)	One Time	In Progress
	WQ Seawater Monitoring	Annual	In Progress
	SW Gage Installation	One Time	In Progress
Projects and Management Actions	Water Conservation	Annual	In Progress
	Groundwater Extraction Fee Study	5 Year	In Progress
	Feasibility Study for Recycled Water Project	One Time	In Progress
	Feasibility Study for Bioswale Stormwater Retention[A]	One Time	In Progress
	Ban on Water Softeners	One Time	On Hold
Improved Data Collection for Management	Update Well Registration Program	One Time	In Progress
	Well Metering Requirement	One Time	In Progress
Data Management	Data Updates	Annual	In Progress
Reporting and Plan Updates	SMGA WY Annual Reports	Annual	In Progress
	SGMA Five-Year Plan Assessment	5 Year	In Progress

[A] Bioswale Stormwater Retention has been integrated into a broader Stormwater Runoff Capture and Recharge project.

6.2.1 Governance Update

The member agencies ratified the GSA Joint Exercise of Powers Agreement (JPA) at the beginning of WY 2024. An addendum to the WMA JPA adding a non-voting Agricultural Director to the WMA GSA Board, was endorsed by the GSA and is currently being considered by the JPA member agencies. The change in governance structure from a Memorandum of Agreement to a JPA was communicated to DWR in January 2024. The WMA committee met nine times in WY 2024, including two joint meetings with the other management areas in the SYRVGB. In WY 2024, the committee received updates on various staffing and administrative matters, including the selection of an interim Plan Manager, attorney, CPA, and bookkeeping firm. The Committee discussed and approved a new GSA Conflict of Interest Code for the JPA.

6.2.2 Grants Received

In WY2024, the WMA received a portion of a $5.5M grant from the California Department of Water Resources ("DWR") to benefit the Santa Ynez River Valley Basin GSAs and specific GSP Implementation projects. The grant agreement is between DWR and the SYRWCD on behalf of the management areas in the Basin. A Subgrant Agreement between the SYRWCD and the GSAs was executed to facilitate grant implementation and allow reimbursement to the WMA GSA. There are eight components of the grant work that began in WY2024, including:

1. Grant administration
2. Well Extraction Measurement and Reporting
3. Rate Study
4. Annual Report and Periodic GSP Evaluation
5. Monitoring Improvements
6. Storm Water Capture
7. Water Use Efficiency
8. Recycled Water Feasibility Study

The grant components are the Group 1 Projects and Management Actions identified in the WMA 2022 GSP. In WY 2024, the WMA chose a consultant, EKI Environment & Water, Inc. (EKI), to implement the grant components 2 and 5-8 above. The progress on these activities is described below.

6.2.3 Groundwater Extraction Fee Study

The WMA chose a consultant, Raftelis, to conduct a rate study for groundwater extractors and find mechanisms to fund the implementation of the GSP. The work for this study is partially funded by Component 3 of the Prop 68 grant. The rate study results are scheduled to be completed in WY 2025. The requested services will find the required revenue to support implementation for the next five years, evaluate the need for a pump charge rate and/or a parcel fee, prepare rate schedules, and offer two recommended rate/fee alternatives. The recommended rate/fee structures will be consistent with industry practice for established rates in California and follow Prop 26 and 218 and the Revenue Program Guidelines by the State of California Water Resources Control Board.

6.2.4 Update Well Registration and Extraction Measurement Program

The WMA Board established an Ad-Hoc Committee to develop a policy for administering well verifications for new well requests in the WMA. The committee discussed a potential new policy to require all new wells to have meters installed; staff and legal counsel were directed to develop a policy for well verification approvals.

As part of implementing Component 2 of the Prop 68 Grant, Well Extraction Measurement and Reporting, work was completed in WY2024 on the pilot test to compare well extraction measurement methods (mechanical totalizer meter, electric power consumption, and evapotranspiration estimates). Landowner outreach was conducted to identify three WMA sites that meet the study's criteria. Draft land access agreements and Notices of Exemptions (NOEs) have been drafted to expedite the study once all of the landowners for the study have been identified and provided access. EKI worked with the company

AgMonitor to implement projects that measure or estimate extraction through power consumption, and LandIQ to install stations to measure plant water consumption.

In WY2025, the different methods to measure well extraction (meter, power consumption, and crop consumptive use) will be studied. EKI will work with the GSAs to compile groundwater-extraction measurement program rules and regulations.

6.2.5 Stormwater Runoff Capture and Recharge

The WMA GSA and member agencies (City of Lompoc) continued efforts to increase stormwater recharge including the award of grant funding for the City of Lompoc from the Regional Climate Collaboratives Program and Proposition 68 funding to the WMA. The funding supports a desktop study to identify potential rainfall runoff capture and infiltration sites. Geotechnical data collection, engineering design plans, and community outreach and engagement efforts are included in the work plans. The study approach can be used as an example for all GSAs in the Basin.

6.2.6 Water Softener Ban

As reported in the WY2023 Annual Report, the WMA is currently waiting for the U.S. Environmental Protection Agency (EPA) to complete its review and make its decision on the City of Lompoc’s sewer use ordinance (SUO). After this review, the WMA is prepared to draft an ordinance for use by the three water providers in the WMA GSA (City of Lompoc, Vandenburg Village CSD, Mission Hills CSD) related to banning the installation of new water softeners to reduce the salt loads in the Basin.

6.2.7 Monitoring Improvements

In WY2024, improvements were implemented to improve water level monitoring in the data gap areas identified in the GSP. In the Santa Rita sub-area, a well on Tularosa Road was added to the water level monitoring program, and baseline water level data was collected. Changes in water levels will be assessed in the new well starting in WY2025 and onward. Additional landowners with wells in the data gap areas were identified, and additional wells are planned to expand the monitoring program in WY2025.

In WY2024, seawater intrusion monitoring was continued by the WMA GSA after the USGS suspended their water quality monitoring of key representative monitoring wells for seawater intrusion identified in the 2022 GSP.

Monitoring improvements were also made with streamflow gages at the downstream end of the management area, as identified in the 2022 GSP. In November and December 2024 (WY2025), site visits to potential stream gage locations were conducted. Access points were identified, discharge measurements were collected, and temporary reference points were installed. This streamflow data collection and program will continue and be discussed more fully in the WY2025 monitoring efforts. The WMA also applied to the California Stream Gage Installation Program (CalSIP) for additional funding to support the new stream gages and renewal of previously discontinued existing gages.

6.2.8 Data Updates and Annual Reporting

The required water level, water quality, and water use data collection, processing, and Data Management System (DMS) maintenance was completed to support the preparation of the WY 2023 Annual Report and this WY 2024 Annual Report. The WMA allows public access to portions of the DMS at the following web address: https://sywater.info/. During WY 2024, the WMA published its third annual report for the Water Year 2023 (October 2022-September 2023). The WMA committee submitted it to DWR on March 13, 2024, before the April 1 deadline.[11] A letter from DWR requested one coordinated and combined annual report for the basin instead of three individual GSA Annual Reports starting in WY2025. The unanimous consensus by Directors of all three GSAs in the SYRVGB was to accommodate DWR's request in WY2025, to have each GSA hire its own consultant to prepare a separate annual report for its respective Management Areas plus one overarching report to tie the three individual reports together.

6.2.9 5-Year Periodic Evaluation

In January 2024, DWR announced that all three GSPs for the Santa Ynez River Valley Basin submitted in January 2022 had been approved by DWR. Under SGMA and GSP Regulations, a Periodic Evaluation of a Basin's GSP is due to the California Department of Water Resources (DWR) at least every five years after

[11] CWC Section 10728 "On the April 1 following the adoption of a groundwater sustainability plan and annually thereafter, a groundwater sustainability agency shall submit a report to the department [..]"

initial GSP submission for each basin with an approved GSP or any time the GSP is amended. The WMA GSA's initial GSP was adopted by the WMA GSA Board and submitted in January 2022. A periodic evaluation is due to DWR on or before January 18, 2027. The WMA GSA is expected to begin work on the 5-year Periodic Evaluation in WY2025.

During Joint meetings of all three management areas in the SYRGB in WY2024, the Boards of the three SGMA agencies discussed outreach to and education of pumpers of river alluvium including reporting requirements. The outreach and education are part of the Action Plan approved by all three GSAs and submitted to DWR in January 2024 in connection with the 2022 GSPs. This public outreach on the river alluvium will address the first recommended and corrective action by DWR during the preparation of the 5-Year periodic evaluation starting in WY2025.

WMA CHAPTER 7: REFERENCES

CCRWQCB (Central Coast Regional Water Quality Control Board). 2023. GSP Annual Report Submittal Comments, Western Management Area, 2022 (OCT. 2021 - SEP. 2022). Bishop, James. June 22, 2023. Public Comment Letter for The Santa Ynez River Valley Groundwater Basin – Annual Report Water Year 2022. 3 pg. https://sgma.water.ca.gov/portal/gspar/comments/213. Access date 2025-01-26.

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Stetson. 2023. Santa Ynez River Alluvium Underflow and Subterranean Stream Report Prepared in Response to the April 14, 2023, Comments by State Water Resources Control Board Staff regarding Groundwater Sustainability Plans for the Santa Ynez River Valley Groundwater Basin. 75 pg. SYWATER 521.

Towill (2023) InSAR Data Accuracy for California Groundwater basins CGPS Data Comparative Analysis January 2015 to October 2022. Final Report. Towill, Inc. California Department of Water Resources. Contract 4600013876 TO#1. 131 pg. SYWATER 528.

Water Systems Consulting Inc. (WCI). 2021. 2020 Urban Water Management Plan. Final. City of Lompoc. 181 pg. SYWATER 308.

CENTRAL MANAGEMENT AREA

Santa Ynez River Valley Groundwater Basin

Central Management Area

Groundwater Sustainability Agency

Water Year 2024 (October 2023-September 2024)

Board of Directors:

City of Buellton

John Sanchez, Director
David Silva, Alternate Director

Santa Ynez River Water Conservation District

Larry Lahr, Director
Robert Dunlap, Alternate Director

Santa Barbara County Water Agency (non-voting)

Joan Hartmann, Director
Meighan Dietenhofer, Alternate Director

Officers:

Larry Lahr, Chair

John Sanchez, Vice Chair

Amber Thompson, Secretary

William J. Buelow, Treasurer

William Buelow, Plan Manager

Steve Torigiani, Legal Counsel

GSA Member Agency Staff Representatives:

Matthew Young
Santa Barbara County Water Agency

Rose Hess, PE
City of Buellton

William J. Buelow, PG
Santa Ynez River Water Conservation District

As of September 30, 2024

Italicized and gray indicates former committee members or staff representatives.

CMA CHAPTER 1: INTRODUCTION

The Central Management Area (CMA) Groundwater Sustainability Agency (GSA) is the exclusive agency responsible for complying with Sustainable Groundwater Management Act (SGMA)[1] requirements in the central portion of the Santa Ynez River Valley Groundwater Basin (SYRVGB).

The CMA covers the area known as the Buellton Uplands, and the immediate vicinity. The CMA is bordered on the west by the Western Management Area (WMA), on the north by the Purisima Hills, on the east by the Eastern Management Area (EMA), and the south by hills along the Santa Ynez River floodplain. **CMA Figure 1-1** shows the extents of the CMA[2] and the areas managed by the constituent public member agencies of the CMA: the City of Buellton, the Santa Ynez River Water Conservation District, and the Santa Barbara County Water Agency.

The CMA is a diverse area divided into two subareas[3] based on more homogeneous hydrogeologic and topographic characteristics. The two subareas are the Buellton Upland and the Santa Ynez River Alluvium. **CMA Figure 1-2** shows the locations and extents of the subareas and **CMA Table 1-1** summarizes the sizes of each subarea.

CMA Table 1-1
Summary of CMA Subareas by Area

CMA Subarea	Acres [A]	Square Miles
Buellton Upland	14,220	22.2
Santa Ynez River Alluvium	6,800	10.6
Total	**21,020**	**32.8**

[A] Rounded to the nearest ten acres.

Note: The Buellton Aquifer includes all the Buellton Upland and extends underneath a part of the Santa Ynez River Alluvium.

1 CWC Section 10720 et seq. and 23 CCR § 350 et seq.
2 23 CCR § 356.2(a) "[…] location map depicting the basin covered by the report."
3 Subareas are like and based on the Santa Ynez River Water Conservation District Annual Report subareas, also used for managing pumping in much of the WMA and a portion of the EMA. Extents were adjusted to cover the entire Bulletin 118 Interim Update 2016 (DWR 2016a) basin boundary.

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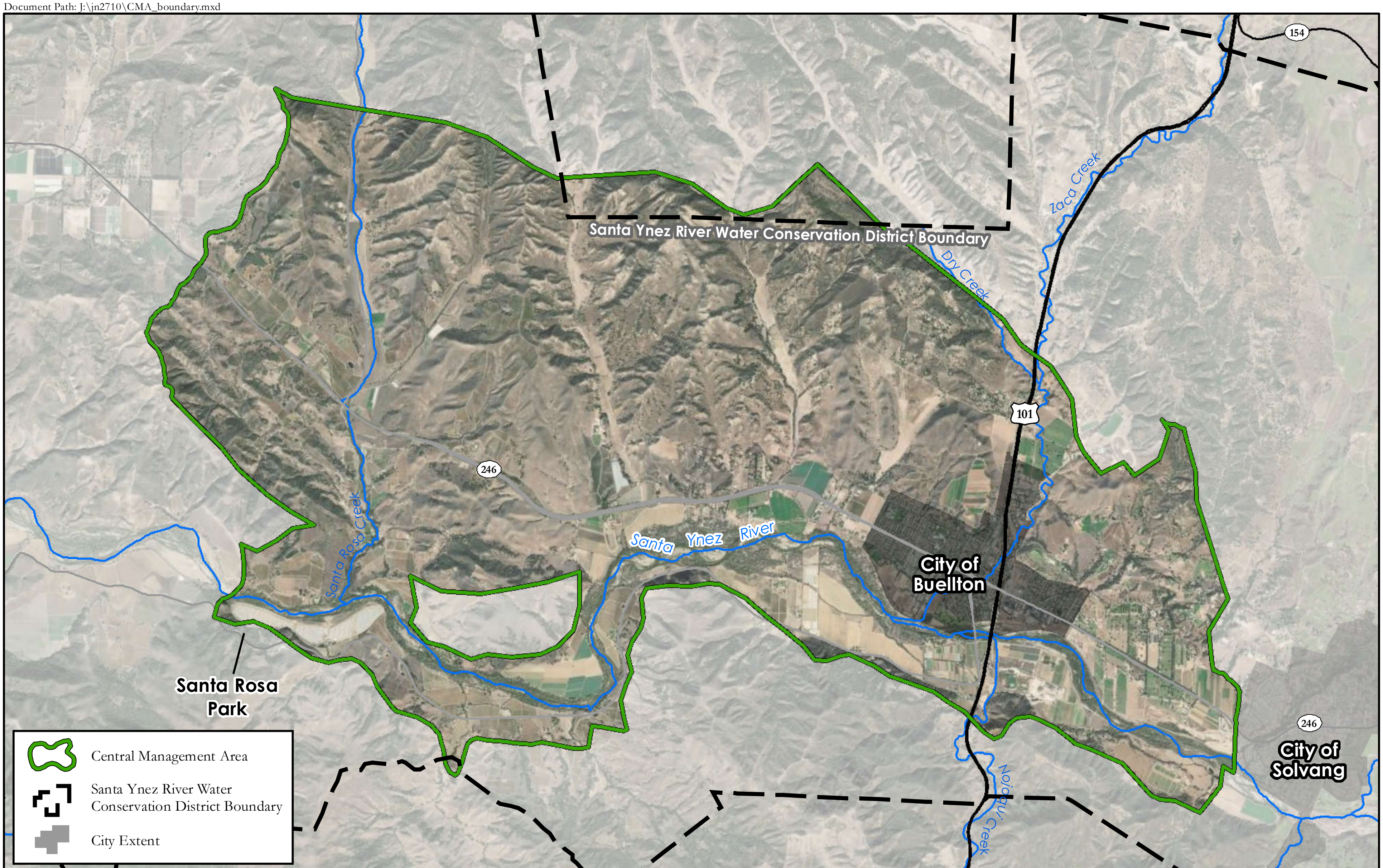

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CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

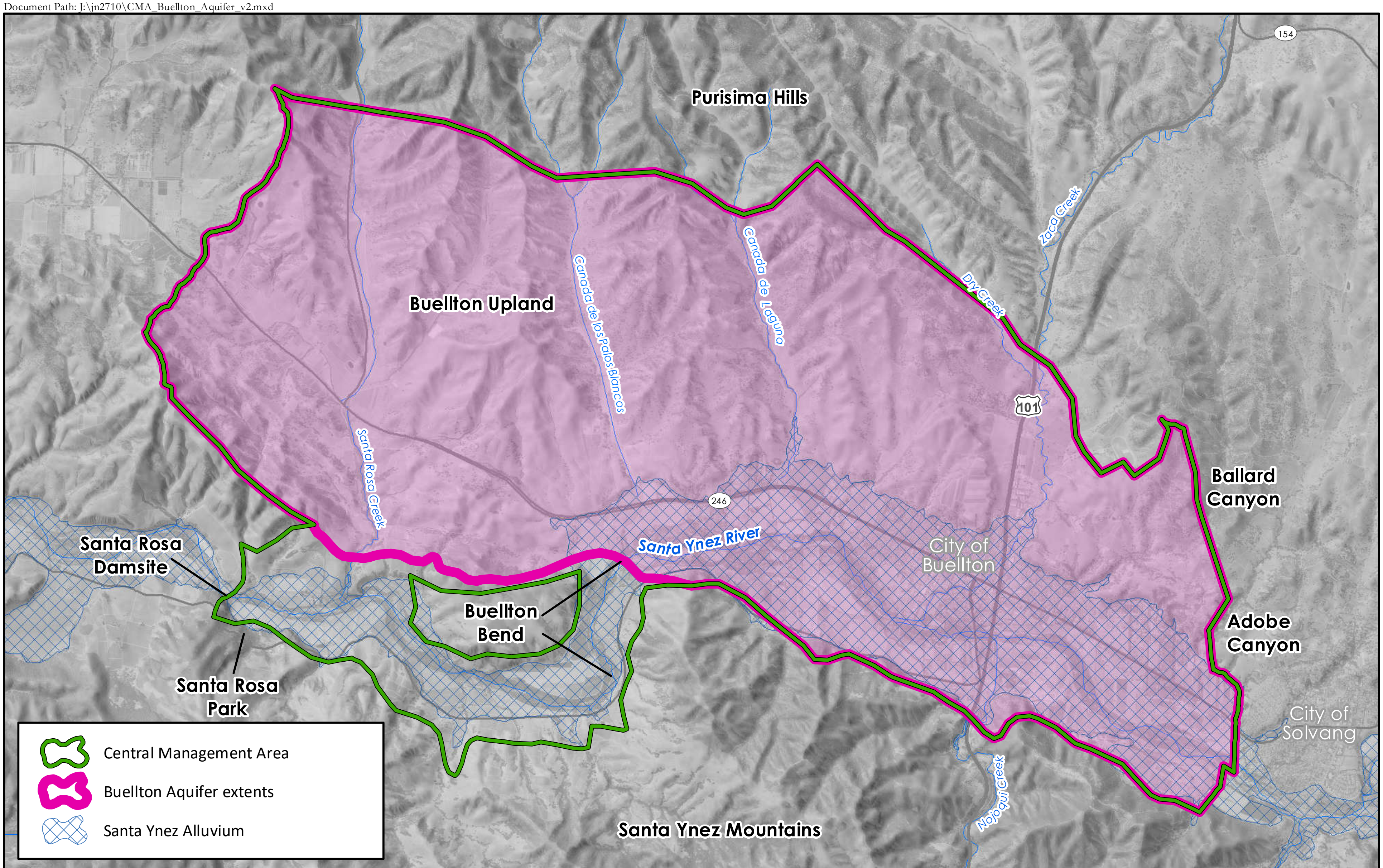
CENTRAL MANAGEMENT AREA BOUNDARY
SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN
GROUNDWATER SUSTAINABILITY AGENCY

0 0.5 1 Miles

N

CMA FIGURE 1-1

Document Path: J:\jn2710\CMA_Buellton_Aquifer_v2.mxd



STETSON ENGINEERS INC.

CMA

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

EXTENTS OF THE BUELLTON AQUIFER
CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

N

CMA FIGURE 1-2

Surface water drains to the Pacific Ocean through the Santa Ynez River and its tributaries. The State Water Resources Control Board (SWRCB) administers Santa Ynez River water, including both surface water and underflow of the Santa Ynez River and the fully allocated surface water rights. Upstream reservoirs are operated by the United States Bureau of Reclamation (USBR) which physically controls the flows of the Santa Ynez River. USBR conducts releases to meet downstream surface water rights and for the benefit of fish. The SGMA statute excludes the CMA from altering the surface water rights of the Santa Ynez River.[4] The SWRCB Orders for the Cachuma Project include coordination of releases from the Cachuma Reservoir for underflow alluvial storage and replenishment, which includes portions of the Santa Ynez Alluvium upstream of the Lompoc Narrows.

The CMA has one aquifer, the "Buellton Aquifer." The Buellton Aquifer consists of the Paso Robles and Careaga Sand Formations. These two formations are located in a wide geologic syncline fold that in places extends below the underflow of the Santa Ynez River and the Santa Ynez River Alluvium. **CMA Figure 1-3** shows where this aquifer is located within the extent of the CMA.

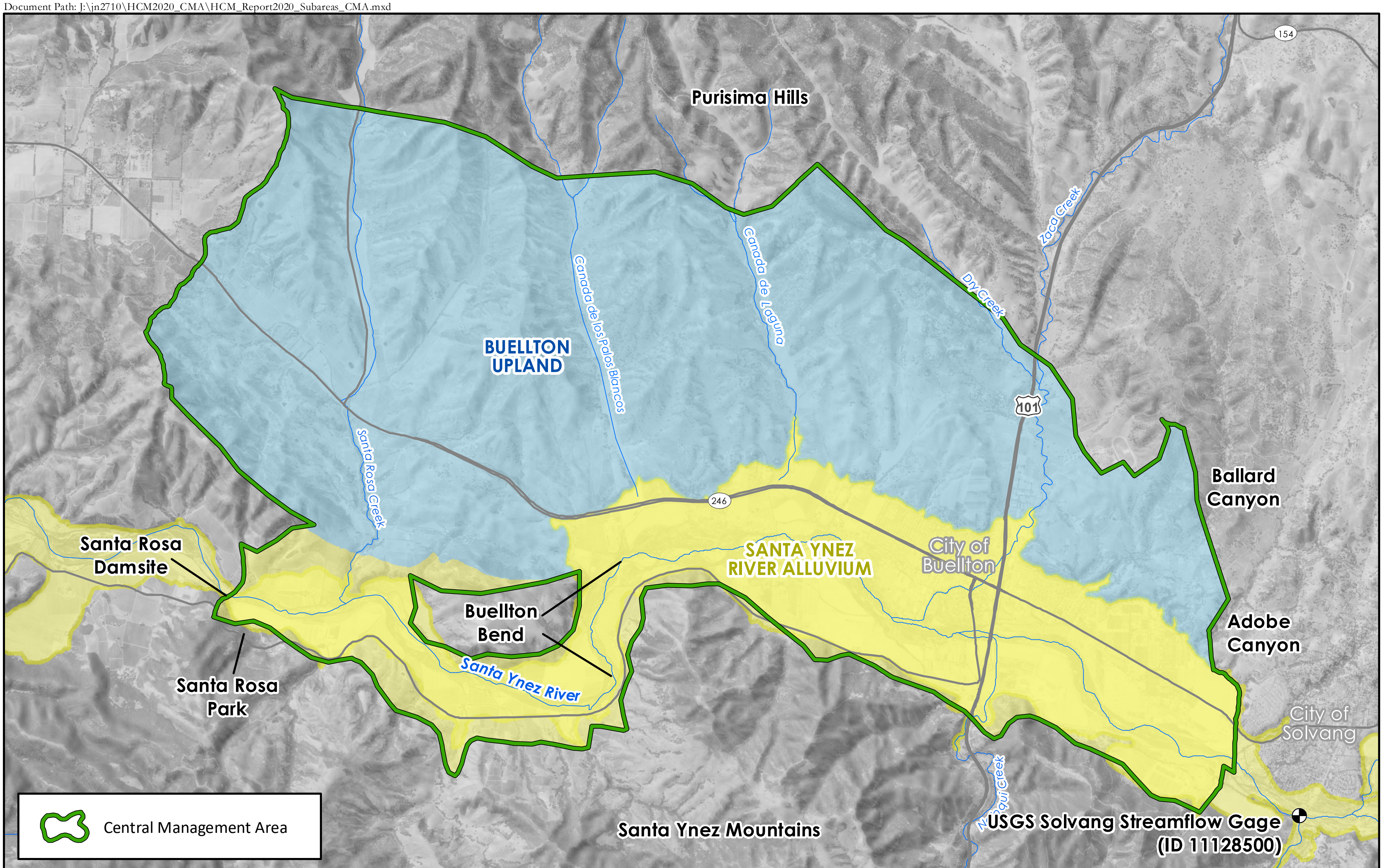
In addition to the aquifer, the Santa Ynez River in part flows through a "known and definite channel"[5] of high permeability river sediments under and adjacent to the Santa Ynez River. These sediments fill a river channel historically cut into relatively impermeable older geological units. In most places in the CMA, this older geology consists of the silts and clays of the Monterey Formation. In the western portions of the CMA this channel over the silts and clays is physically disconnected from the groundwater aquifers by over two miles of bedrock (Stetson 2022). In the eastern part of the CMA, the high permeability alluvium in the channel partially overlies the groundwater aquifer, however, the groundwater aquifer is relatively impermeable compared to the alluvium. Conditions throughout are consistent with the SWRCB's tests for a subterranean stream and underflow (Stetson 2023).[6] Rapid response of water levels in the shallow alluvium to Santa Ynez surface water releases is characteristic of wells located within the underflow of

4 CWC Section 10720.5 (b) "Nothing in this part, or in any groundwater management plan adopted pursuant to this part, determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights."

5 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

6 See the 1999 State Water Board's Decision 1639 (In the Matter of Application 29664 of Garrapata Water Company) and subsequent rulings such as North Gualala Water Company v. State Water Resources Control Board (2006).

Document Path: J:\jn2710\HCM2020_CMA\HCM_Report2020_Subareas_CMA.mxd



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CMA
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Central Management Area
Groundwater Sustainability Agency

SUBAREAS
CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

Sources:
USGS Nationa l Elevation Dataset, 2002
NAIP (2018)

N

CMA FIGURE 1-3

the Santa Ynez River (Stetson 2023). Releases of surface water for the downstream users under SWRCB Order WR 2019-0148 are conveyed through the surface flow and underflow of the Santa Ynez River.

CMA CHAPTER 2: BASIN CONDITIONS

The water year type is a classification of how wet or dry basin conditions are due to weather during the water year. This is a potential cause of changes to groundwater conditions, as measured through groundwater levels, storage, and water quality. This chapter updates the "Hydrologic Characteristics" subsection of the Hydrogeologic Conceptual Model section of the GSP through the end of WY 2024.

CMA Table 2-1 summarizes the precipitation and the water year type for the recent years of WY 2015 through WY 2024.

CMA Table 2-1
Annual Precipitation and Water Year Classification for CMA for Recent Years

Water Year	Buellton Fire Station		Hydrologic Year Type Classification USGS Gage 11132500 (Salsipuedes Creek)	
	Precipitation (in/year)	% of Average [A]	Percentile Rank	Water Year Type Classification
2015	7.01	42%	0%	Critically Dry
2016	10.68	64%	2%	Critically Dry
2017	20.36	122%	71%	Above Normal
2018	19.22	47%	5%	Critically Dry
2019	15.44	115%	77%	Above Normal
2020	8.56	93%	33%	Dry
2021	9.51	51%	48%	Below Normal
2022	29.15	57%	22%	Dry
2023	21.80	175%	94%	Wet
2024	19.22	131%	90%	Wet

Years are color-coded as follows: yellow indicates dry and critically dry years (below 40 percentile); blue indicates wet years (above 80 percentile); unshaded indicates years that were either in the below normal or above normal years (40 to 80 percentile). Percentages and percentiles are calculated from the respective periods of record.
[A] The average is calculated as the mean of the period of record (WY1955-WY 2024).
Notes: CMA = Central Management Area; USGS = U.S. Geological Survey; SWRCB = State Water Resources Control Board; in/year = inches per year.
Source: Precipitation from Santa Barbara County - Flood Control District station #233 - Buellton Fire Station

2.1 PRECIPITATION

Within the CMA, direct annual average precipitation ranges from 16.6 inches per year in portions of Santa Rosa Creek up to 20.4 inches per year along the north side of the Santa Ynez River. **CMA Figure 2-1** shows the average precipitation within the CMA and adjacent watershed.[1] Orthographic lift effects are the primary driver of precipitation within the CMA, and portions of the CMA at lower elevations generally receive less direct precipitation. **CMA Table 2-2**, below, summarizes the annual average direct precipitation for the subareas of the CMA.

CMA Table 2-2
Average Annual (1991-2020) Precipitation by CMA Subarea

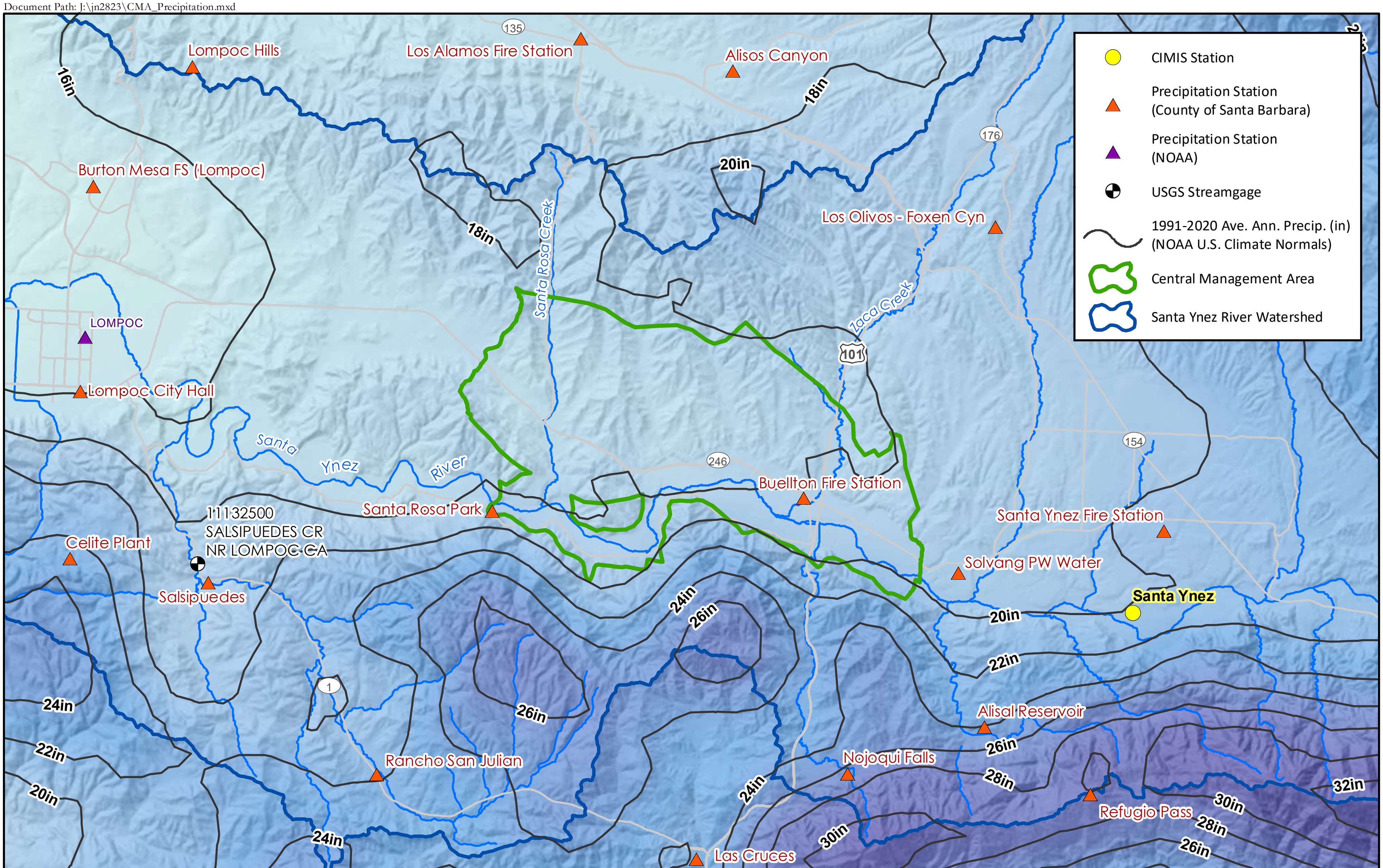
CMA Subarea	Size (Acres) [A]	Average Annual Precipitation Per Subarea (Average 1991-2020) inches per year		
		Average	Average Annual Minimum	Average Annual Maximum
Buellton Upland	14,220	17.5	16.6	18.5
Santa Ynez River Alluvium	6,800	18.5	17.3	20.4

[A] Rounded to the nearest ten acres.
Source: Derived from PRISM Climate Group (2021), Average Annual Precipitation 1991-2020.

The precipitation station at Buellton Fire Station is the primary gauge for precipitation within the CMA. Total precipitation during WY 2024 was 21.80 inches. **CMA Figure 2-2** presents annual precipitation data from this station for WY 1955 to the present (WY 2024) and the cumulative departure from the mean (CDM). The CDM trends provide a representation of wet and dry periods within the overall period of record. On a CDM graph, a wet period is indicated with an upward trend over the years. Conversely, a downward trend on the graph indicates a dry period.

1 Average conditions here are updated to include newly released data for the period 1991-2020, compared to the GSP (including GSP Figure 2a.3-2) which used available data for the period 1981-2010.

Document Path: J:\jn2823\CMA_Precipitation.mxd



PRECIPITATION STATIONS AND ISOHYETALS
1991-2020 CLIMATE NORMALS
CENTRAL MANAGEMENT AREA

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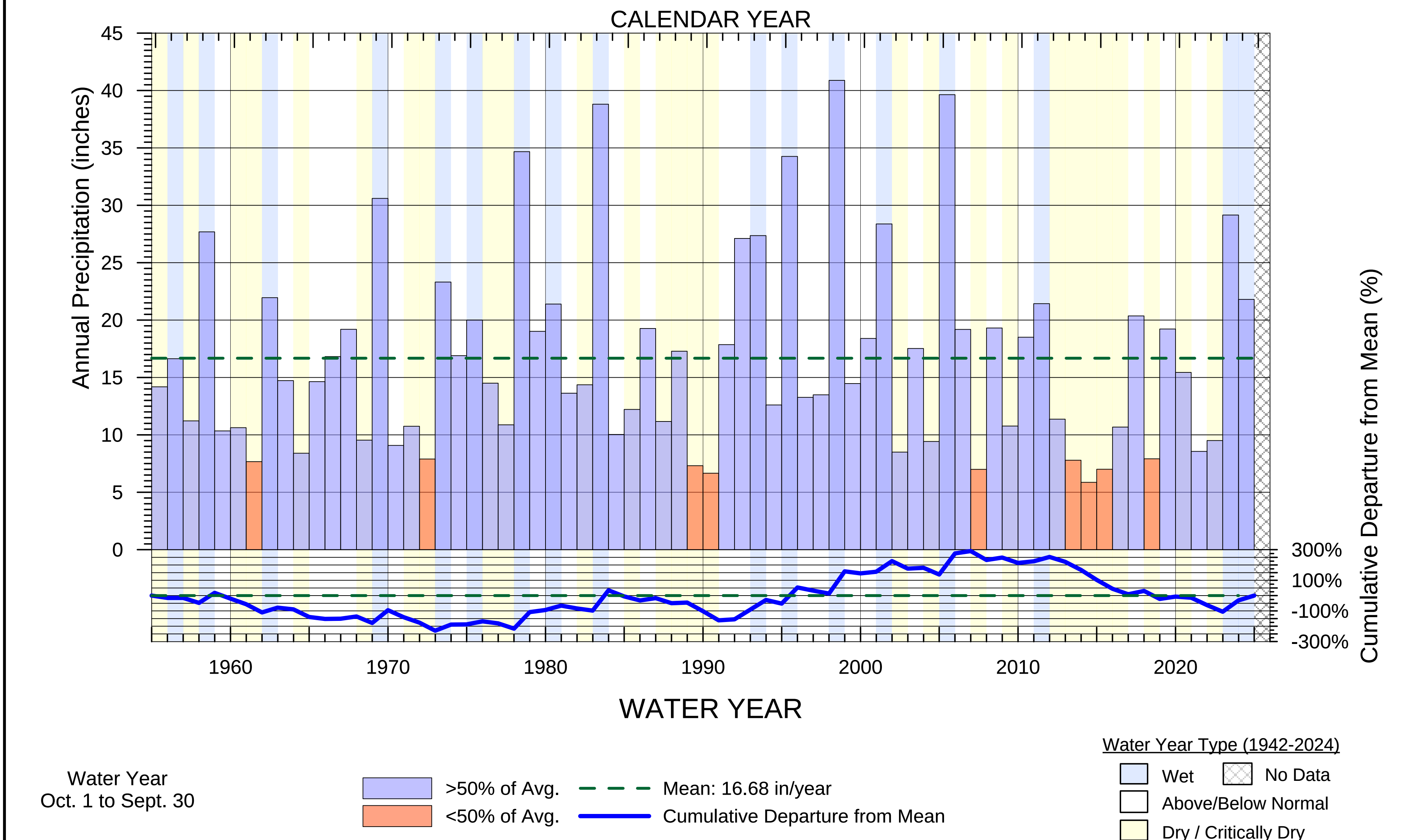
CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

0 1.5 3 Miles

N

Source Imagery:
ESRI World Imagery (2018 Maxar)
NOAA (2020), WRCC (2020)

CMA FIGURE 2-1



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Central Management Area
Groundwater Sustainability Agency

BUELLTON FIRE STATION
PRECIPITATION AND
CUMULATIVE DEPARTURE FROM MEAN
WY 1955 - 2024

Source: Santa Barbara County (2024)
Preciptiation Gage #233

CMA FIGURE 2-2

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 Precipitation CDM Graphs\Fig 2-02 CMA_Buellton_Fire_Station_Precip_CDM WY2024.grf 11/7/2024 M. McCammon

2.2 CLASSIFICATION OF WATER YEAR 2024

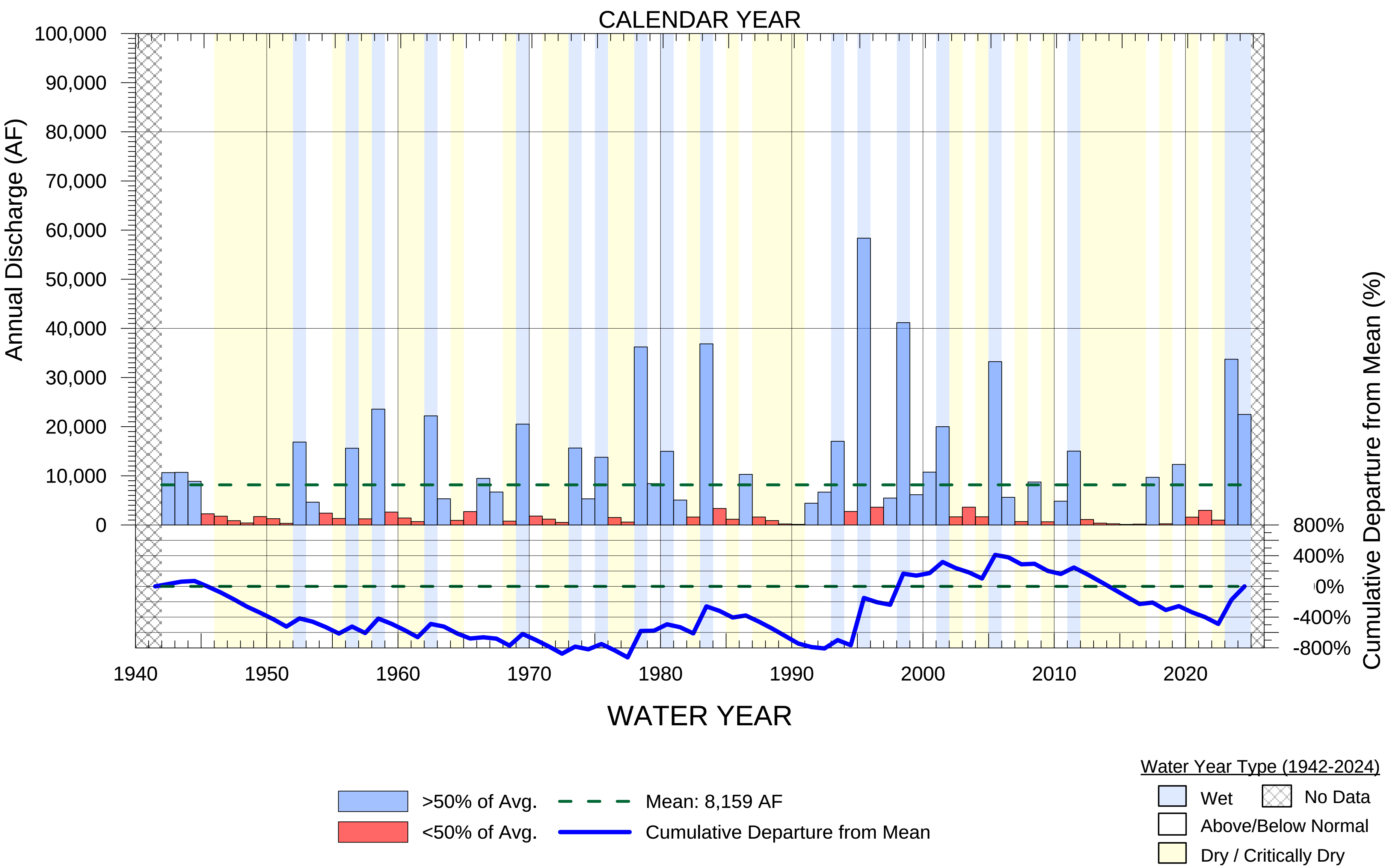
The CMA classified WY 2024 as a wet year based on the Water Year Type.[2] Conditions for recent years, WY 2015 through WY 2024, are summarized in CMA Table 2-1. The basin was experiencing a historic drought before WY 2023. For the recent 10-year period WY 2014-2023, there were only three years, WYs 2017, 2019, and 2023 which were "Above Normal" or "Wet", and, before February 2023, Lake Cachuma had not spilled since WY 2011.

Water Year Type is a generalized characterization of the amount of water that is available in a year. It is a summary of general precipitation and streamflow conditions during the year. Salsipuedes Creek flows measured at the USGS stream gage (U.S. Geological Survey [USGS] gage 11132500) are used as the monitoring location for calculating water year types. The relative ranking in the period of record is used to classify the hydrologic year types into one of five categories: critically dry (bottom 20th percentile), dry (20th to 40th percentile), below normal (40th to 60th percentile), above normal (60th to 80th percentile), and wet (80th to 100th percentile).

The Salsipuedes Creek USGS streamflow gage is located on Salsipuedes Creek just below the confluence with El Jaro Creek and has a drainage area of 47.1 square miles (shown in **CMA Figure 2-1**). The 83-year dataset for the Salsipuedes Creek stream gage spans 1942 through 2024 (in **CMA Figure 2-3**) and represents unimpeded runoff due to the absence of upstream water diversions and storage reservoirs. The gage type, proximity, long history, and development of the Salsipuedes Creek are all contributing factors for selecting this as the indicator of CMA water year type.

Annual Salispuedes Creek flow data ordered by the amount of flow in each year is shown in **CMA Figure 2-4**. WY 2024 is indicated in CMA Figure 2-4 which shows that WY 2024 was a wet year compared to the period of record. The background colors on most time series figures in this report are derived from CMA Figure 2-4 and likewise indicate the relative year type.

2 All three Santa Ynez management areas classified WY 2024 as a wet year. WMA and CMA use the same method based on measured streamflow, described here. EMA uses a different method based on precipitation, described by DWR (2021).



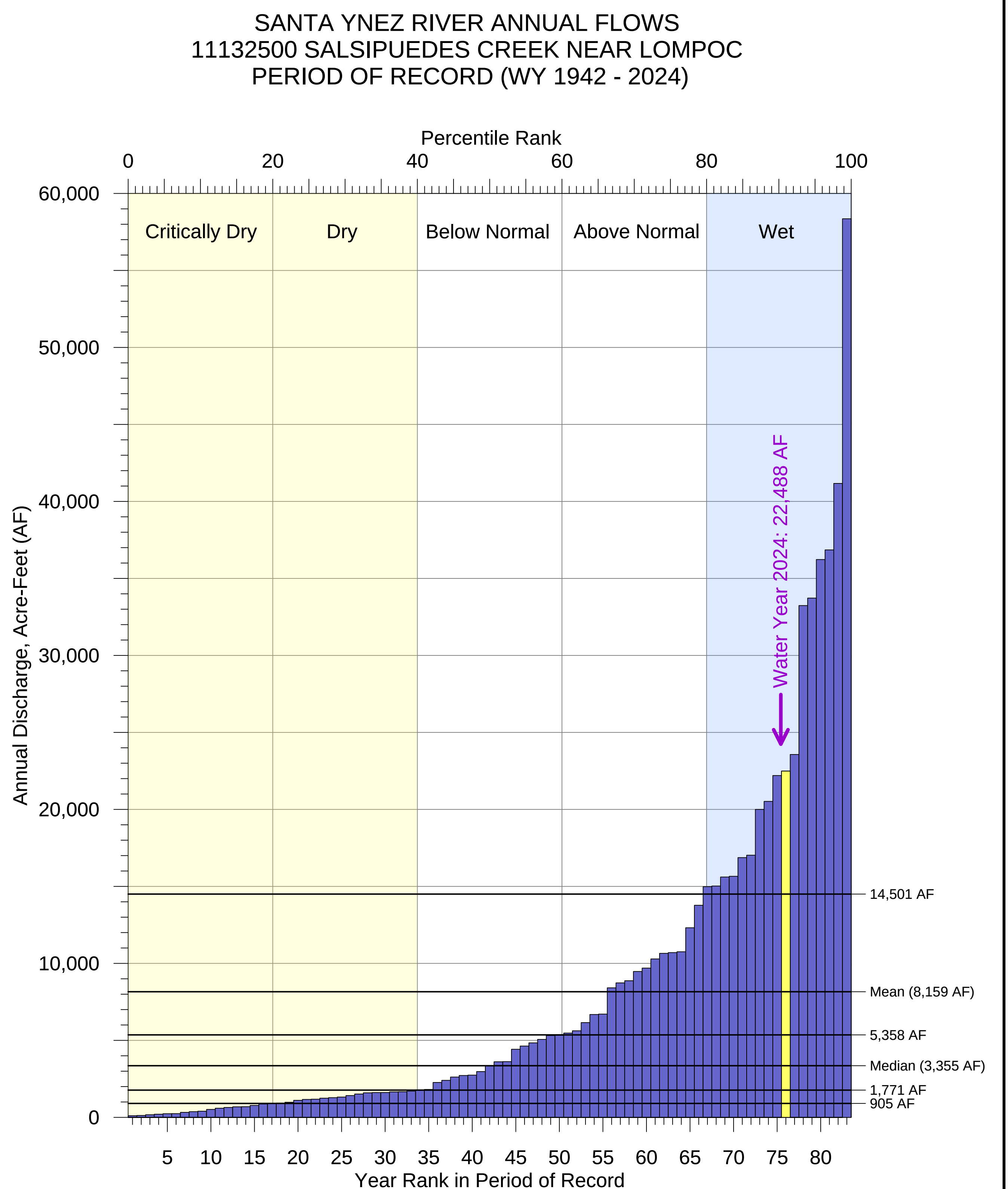
11132500 SALSIPUEDES CREEK NEAR LOMPOC
CUMULATIVE DEPARTURE FROM MEAN AND
PERIOD OF RECORD (WY 1942 - 2024)

Sources: USGS (2024) streamflow data

STETSON ENGINEERS INC.

CMA FIGURE 2-3

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 SW Flow Statistics\Salsipuedes_CDM_WY24.gpj 1/22/2025 M. McCammon



Data Source: USGS (2024) streamflow data

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 SW Flow Statistics\Salispuedes_Year_type_WY24.gpj 1/22/2025 M. McCammon

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WATER YEAR TYPE
SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN

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CMA CHAPTER 3: GROUNDWATER HYDROGRAPHS AND CONTOURS

Groundwater levels are a key indicator of sustainability in the basin. Groundwater levels directly impact the beneficial use of the Basin and correlate with or impact most of the groundwater sustainability indicators. The SGMA regulations require that GSP Annual Reports contain "...*groundwater elevation data from monitoring wells identified in the monitoring network [which] shall be analyzed and displayed*."[1]

The CMA assesses the following three SGMA sustainability indicators using groundwater level data:

- Chronic lowering of groundwater levels
- Reduction of groundwater storage (see Chapter 5)
- Depletion of interconnected surface water

Full monitoring of the CMA was not implemented as of October 2023, the start of WY 2024. The CMA published the CMA GSP in January 2022, and it was approved by DWR in January 2024. The CMA is working on implementing the GSP (see Chapter 6). Implementing the recommendations from the CMA GSP will improve monitoring for this indicator.

1 23 CCR § 356.2(b)(1)

3.1 GROUNDWATER ELEVATION DATA AND HYDROGRAPHS

CMA Figure 3-1 is a map of the locations of groundwater monitoring network wells. There are several wells included in the CMA monitoring network. Two appendices contain the groundwater level hydrographs[2]: **CMA Appendix A** which is entitled groundwater level hydrographs for assessing chronic decline in groundwater levels, and **CMA Appendix B** which is entitled groundwater level hydrographs for assessing surface water depletion.

Several agencies collect groundwater level data in the CMA. In the CMA these agencies include Santa Barbara County Water Agency, the City of Buellton, Santa Ynez River Water Conservation District (SYRWCD), and USBR.

The SGMA water year runs from October 1st through September 30th. Seasonal high data is the data from March and April 2024. Seasonal low data is the data from October 2024. While this fall collection of data is technically collected in WY 2025, it is less than a month after the end of the water year. The CMA GSA considers this fall data as representative of the seasonal low conditions for WY 2024.

3.2 GROUNDWATER ELEVATION CONTOUR MAPS

This GSP Annual Report must contain *"...elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions."*[3] according to the SGMA regulations. This Fourth Annual Report includes Fall 2023 (**CMA Figure 3-2**), Spring 2024 (**CMA Figure 3-3**), and Fall 2024 (**CMA Figure 3-4**) contour maps. These correspond to the seasonal high and seasonal low groundwater conditions.

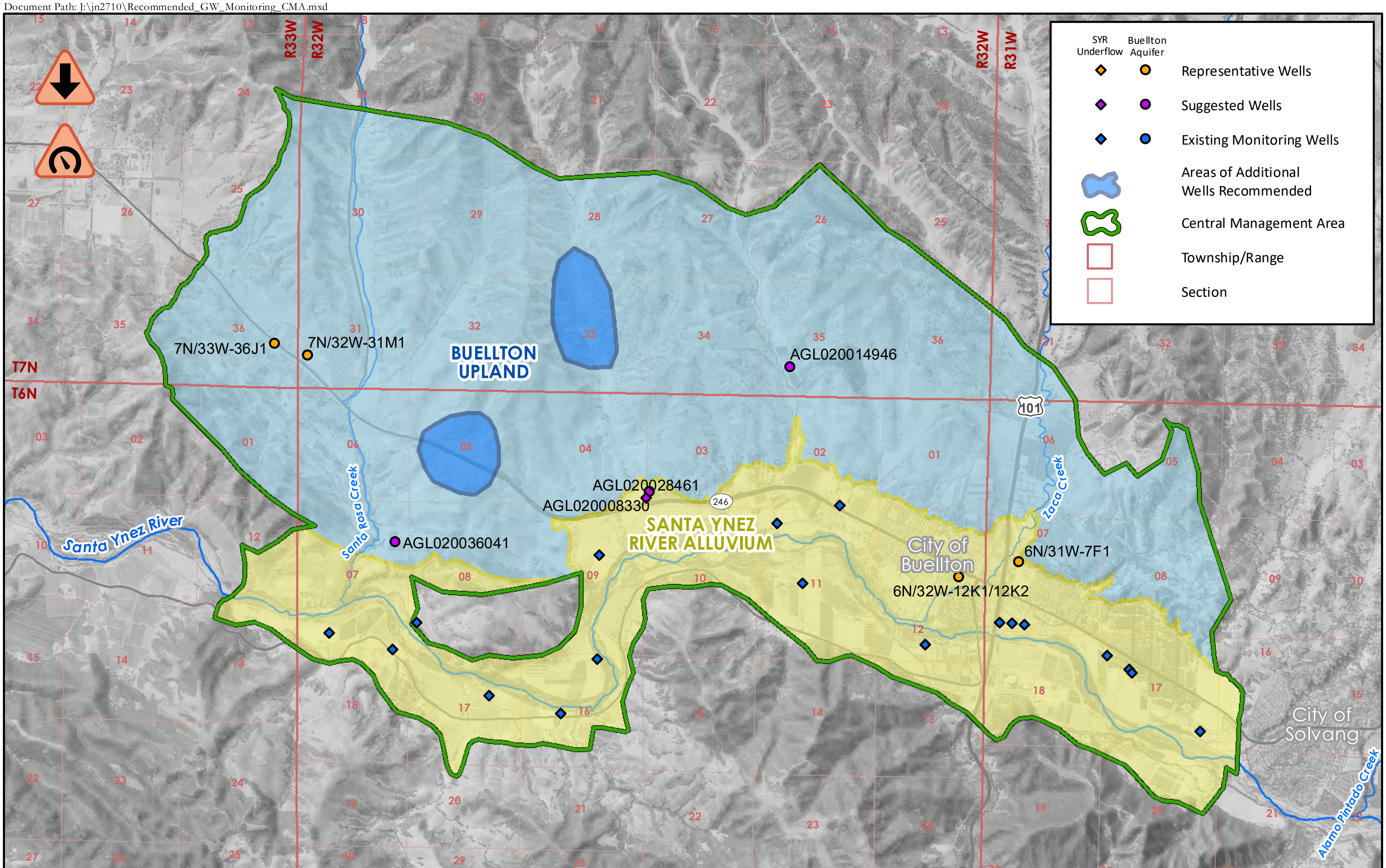
The CMA developed six sets of groundwater elevation contours for WY 2024, including Fall 2023, Spring 2024, and Fall 2024 for the Buellton Aquifer and the river underflow. The Buellton Aquifer consists of the water-bearing Careaga Sand and Paso Robles Formations. River underflow occurs along the Santa Ynez River. SWRCB administers Santa Ynez River underflow as part of the river, so it is not a principal aquifer of the CMA.

---

2 23 CCR § 356.2(b)(1)(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.

3 23 CCR § 356.2(b)(1)(A)

Document Path: J:\jn2710\Recommended_GW_Monitoring_CMA.mxd



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Central Management Area
Groundwater Sustainability Agency

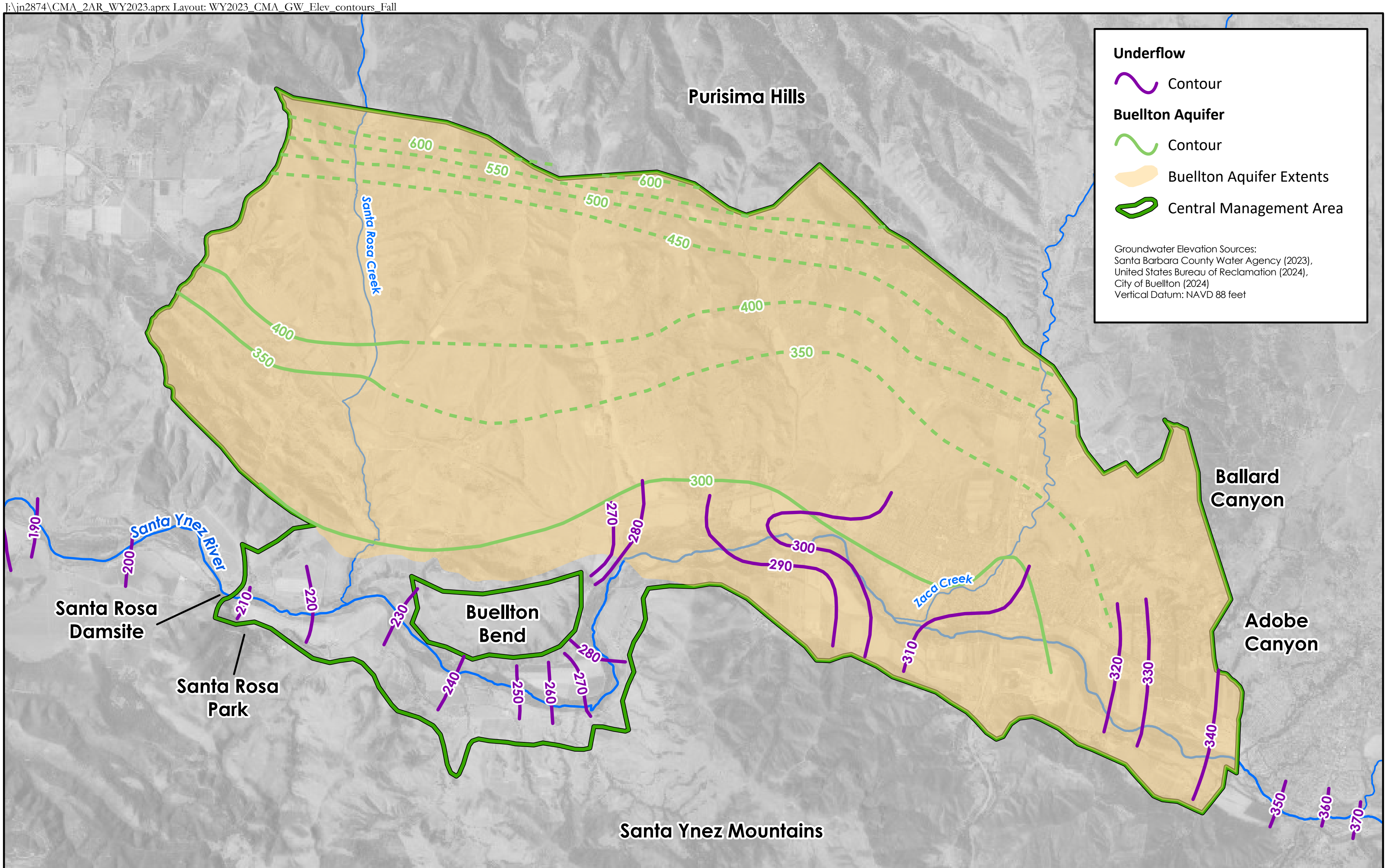
CMA MONITORING NETWORK AND REPRESENTATIVE MONITORING WELLS FOR GROUNDWATER LEVELS AND GROUNDWATER STORAGE

0 0.5 1 Miles

N

CMA FIGURE 3-1

J:\jn2874\CMA_2AR_WY2023.aprx Layout: WY2023_CMA_GW_Elev_contours_Fall



GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL LOW
FALL 2023
CENTRAL MANAGEMENT AREA

WY2023 Annual Report

0 0.5 1 Miles

Sources:
USGS National Elevation Dataset, 2002

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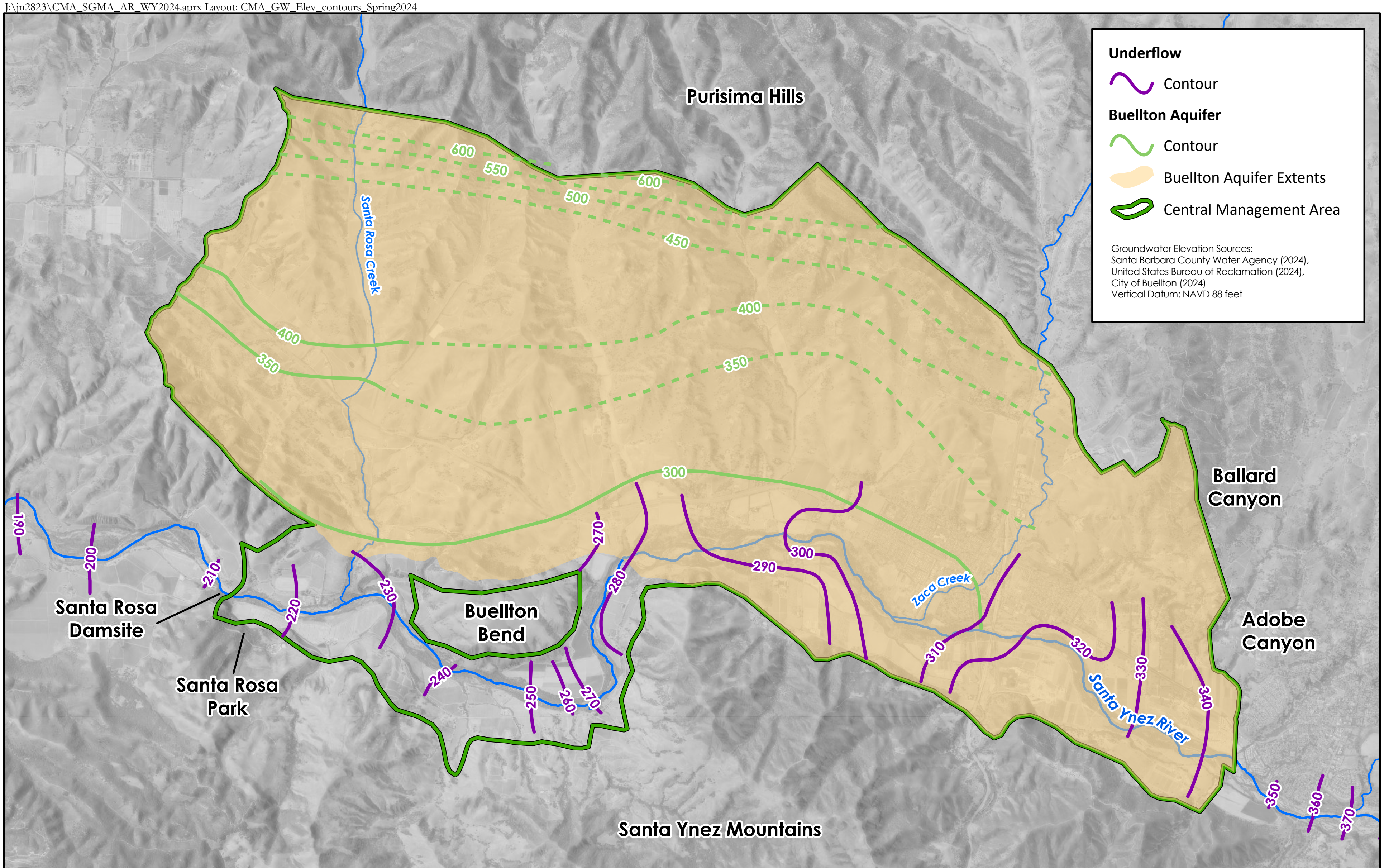
Groundwater Sustainability Agency

CMA FIGURE 3-2

J:\jn2823\CMA_SGMA_AR_WY2024.aprx Layout: CMA_GW_Elev_contours_Spring2024



GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL HIGH
SPRING 2024
CENTRAL MANAGEMENT AREA

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Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

WY2024 Annual Report

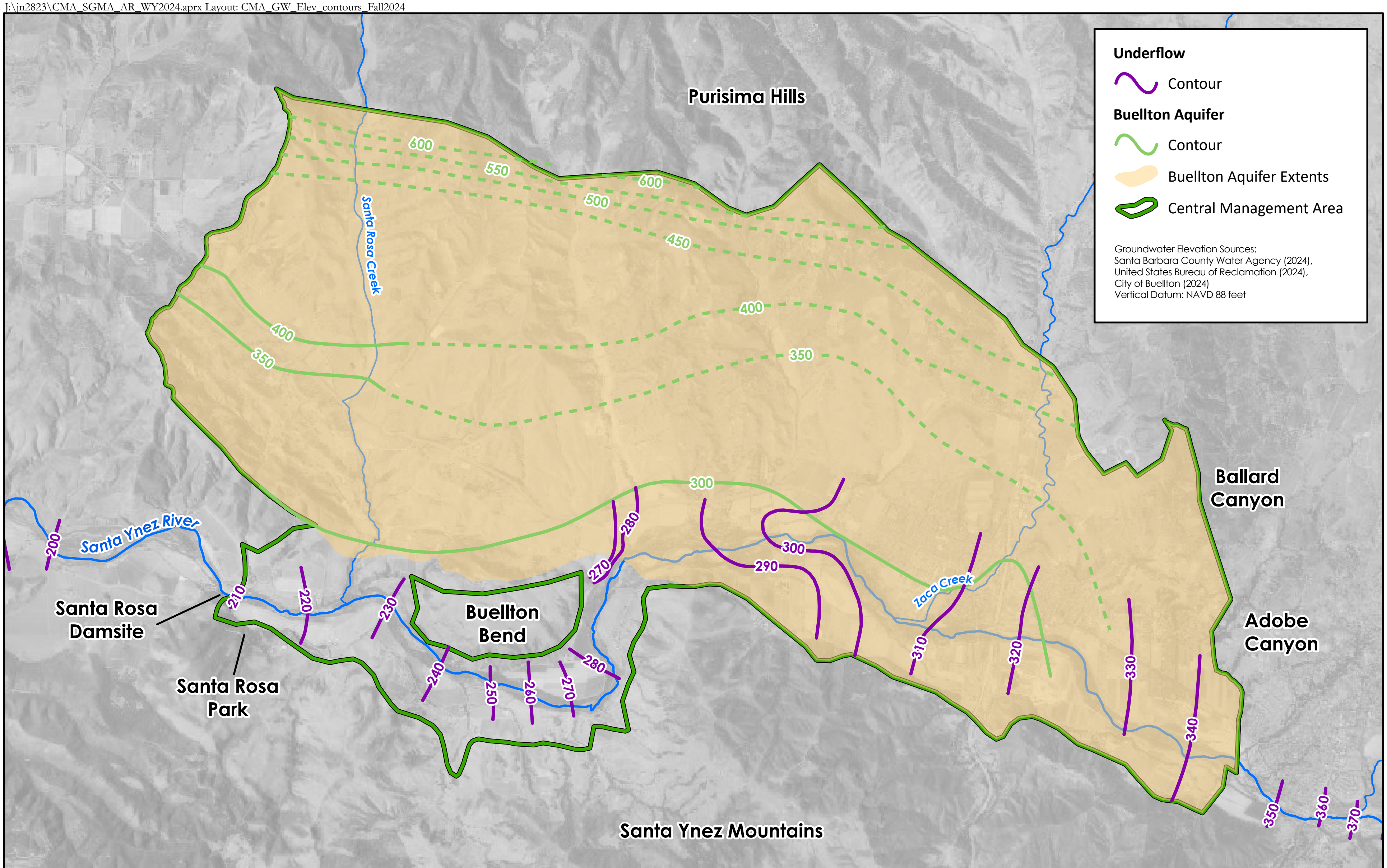
0 0.5 1 Miles

N

Sources:
USGS National Elevation Dataset, 2002

CMA FIGURE 3-3

J:\jn2823\CMA_SGMA_AR_WY2024.aprx Layout: CMA_GW_Elev_contours_Fall2024



GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL LOW
FALL 2024
CENTRAL MANAGEMENT AREA

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Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

WY2024 Annual Report

0 0.5 1 Miles

N

Sources:
USGS National Elevation Dataset, 2002

CMA FIGURE 3-4

3.2.1 Fall 2023 – Start of Year Seasonal Low Contours

CMA Figure 3-2 reproduces the groundwater elevation contour map for Fall 2023 included in the Second Annual Report. The map for Fall 20223 represents conditions at both the end of WY 2023 and at the start of WY 2024. Please see the Fourth Annual Report for additional discussion of the Fall 2023 map.

3.2.2 Spring 2024 – Seasonal High Contours

CMA Figure 3-3 is a groundwater level contour map developed for Spring 2024, which is the seasonal high for WY 2024. Relative to Spring 2023, wells in the Buellton Aquifer indicated a slightly higher water level in Spring 2024. This is likely due to the wet conditions of winter in WY 2024 continuing a trend from WY 2023. As identified in the CMA GSP, the well network for the CMA has data gaps. Chapter 6 addresses the progress of plans to resolve these data gaps.

3.2.3 Fall 2024 – End of Year Seasonal Low Contours

The Fall 2024 groundwater elevations represent the seasonal low groundwater levels for WY 2024. **CMA Figure 3-4** is a groundwater level contour map developed for this seasonal low. The Buellton Aquifer showed an increase in most groundwater levels in Fall 2024 relative to Fall 2023. As with the Spring 2024 water levels, the CMA identified data gaps. Chapter 6 addresses the progress of plans to resolve these data gaps.

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CMA CHAPTER 4: WATER USE AND AVAILABLE SURFACE WATER

Water use is a major component of the water budget. The SGMA regulations require that *"...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*. "[1] This chapter of the Fourth Annual Report provides an update on water use in the Basin.

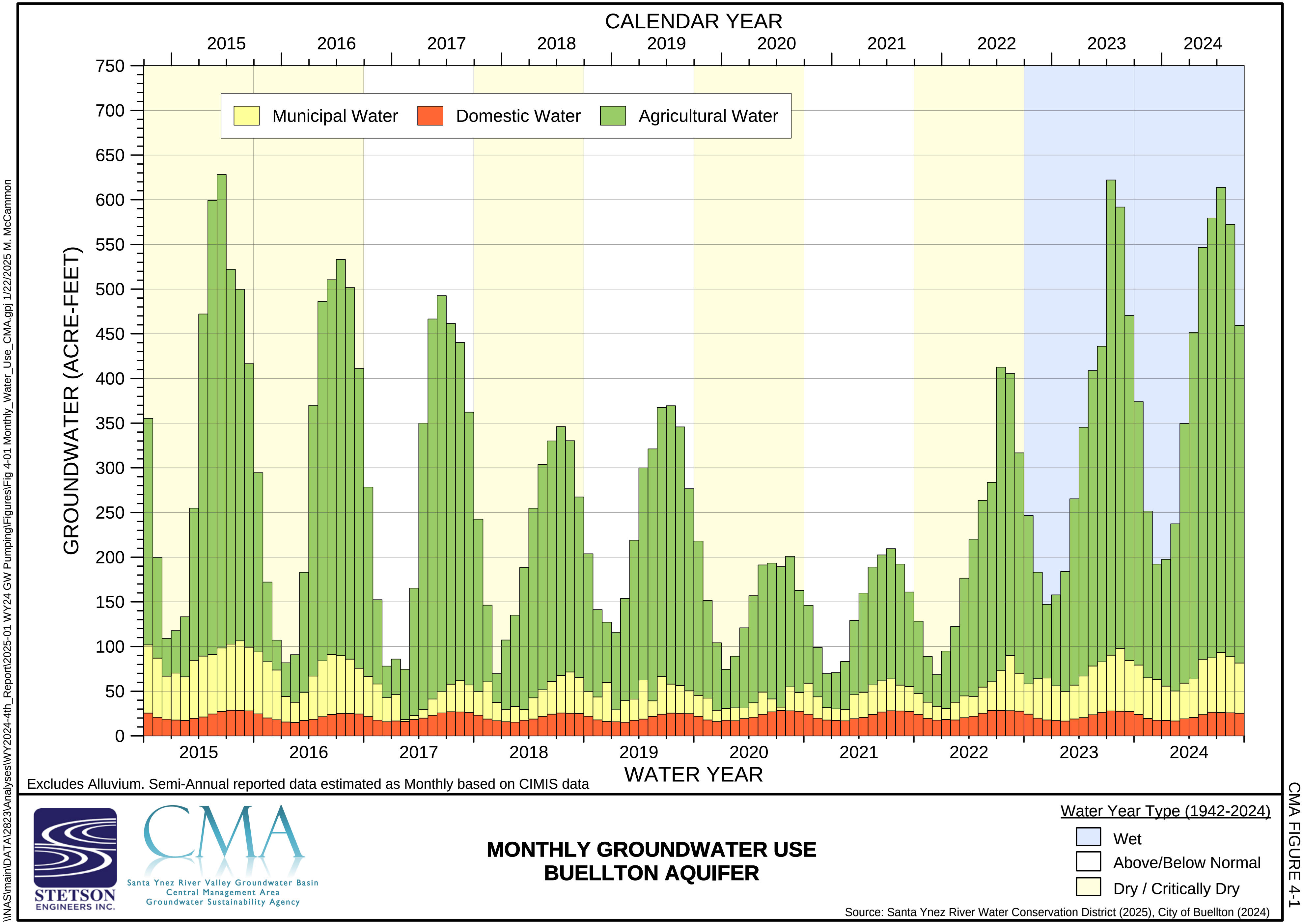
4.1 GROUNDWATER USE

Groundwater production within the CMA Buellton Aquifer is used for agricultural, domestic, municipal, and industrial purposes. There are no managed wetlands in the CMA. Outside of the municipal uses by the City of Buellton, most of the CMA is a mixture of rural areas with agriculture and some rural-suburban development. Groundwater production is reported semi-annually to the SYRWCD.

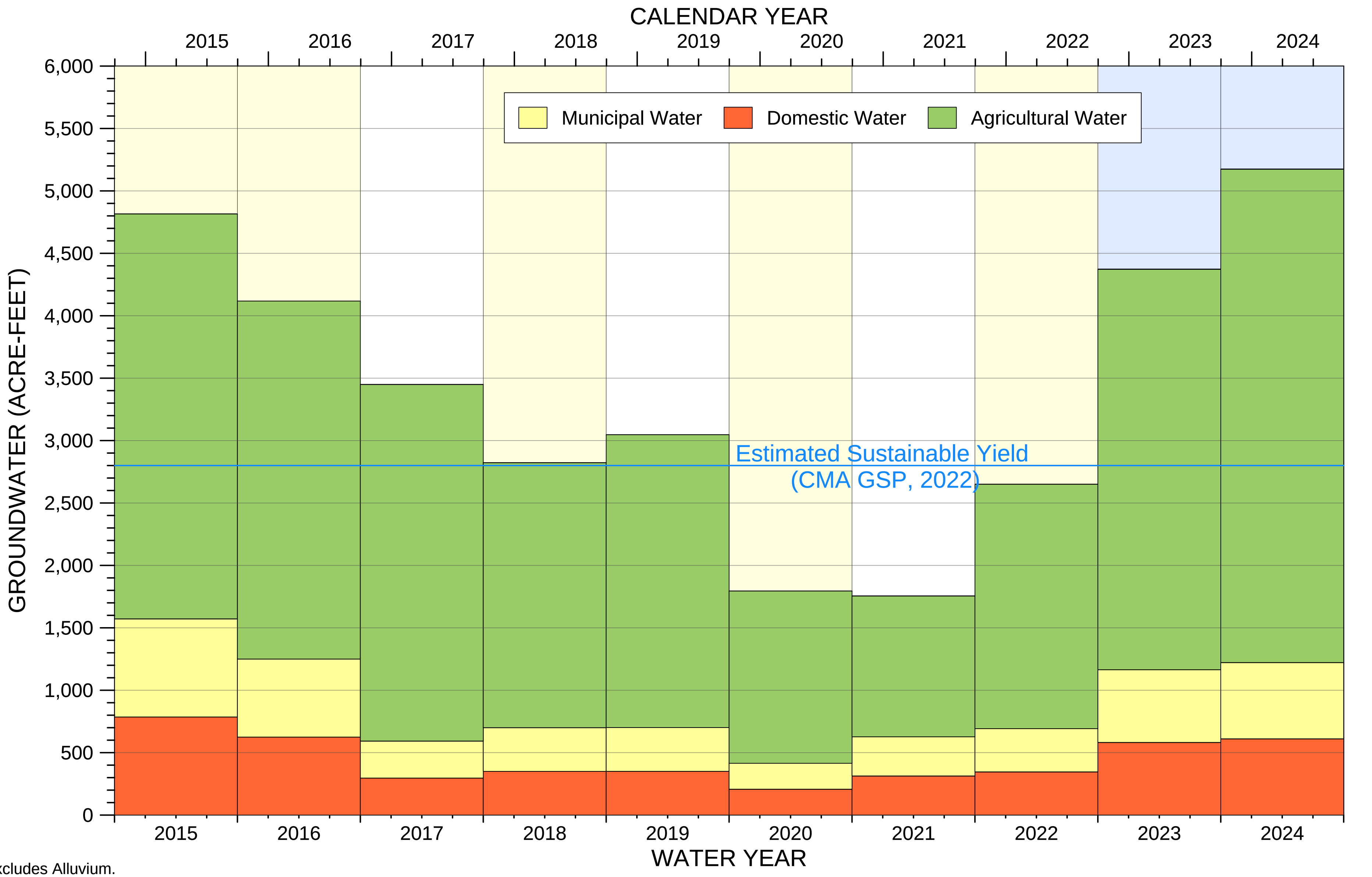
SYRWCD's semi-annual groundwater production data was converted to monthly values using monthly evapotranspiration (ET) from California Irrigation Management Information System (CIMIS) sites (see CMA Figure 2-1 for CIMIS site locations). Municipal data provided by the City of Buellton was compiled into monthly data. **CMA Figure 4-1** shows the monthly groundwater use in the CMA Buellton Aquifer, and **CMA Figure 4-2** shows the annual groundwater use for each water year. **CMA Figure 4-3** is a map[2] showing the spatial distribution of groundwater pumping in the Buellton Aquifer during WY 2024. **CMA Table 4-1** summarizes the groundwater production for WY 2024.

1 23 CCR § 356.2(a) 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.

2 23 CCR § 356.2(a)(2) "Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in [..] a map that illustrates the general location and volume of groundwater extractions."



MONTHLY GROUNDWATER USE
BUELLTON AQUIFER



Excludes Alluvium.

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2025-01 WY24 GW Pumping\Figures\Fig 4-02 Annual_Water_Use_CMA.gpj 1/22/2025 M. McCammon

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CMA
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Central Management Area
Groundwater Sustainability Agency

ANNUAL GROUNDWATER USE
BUELLTON AQUIFER

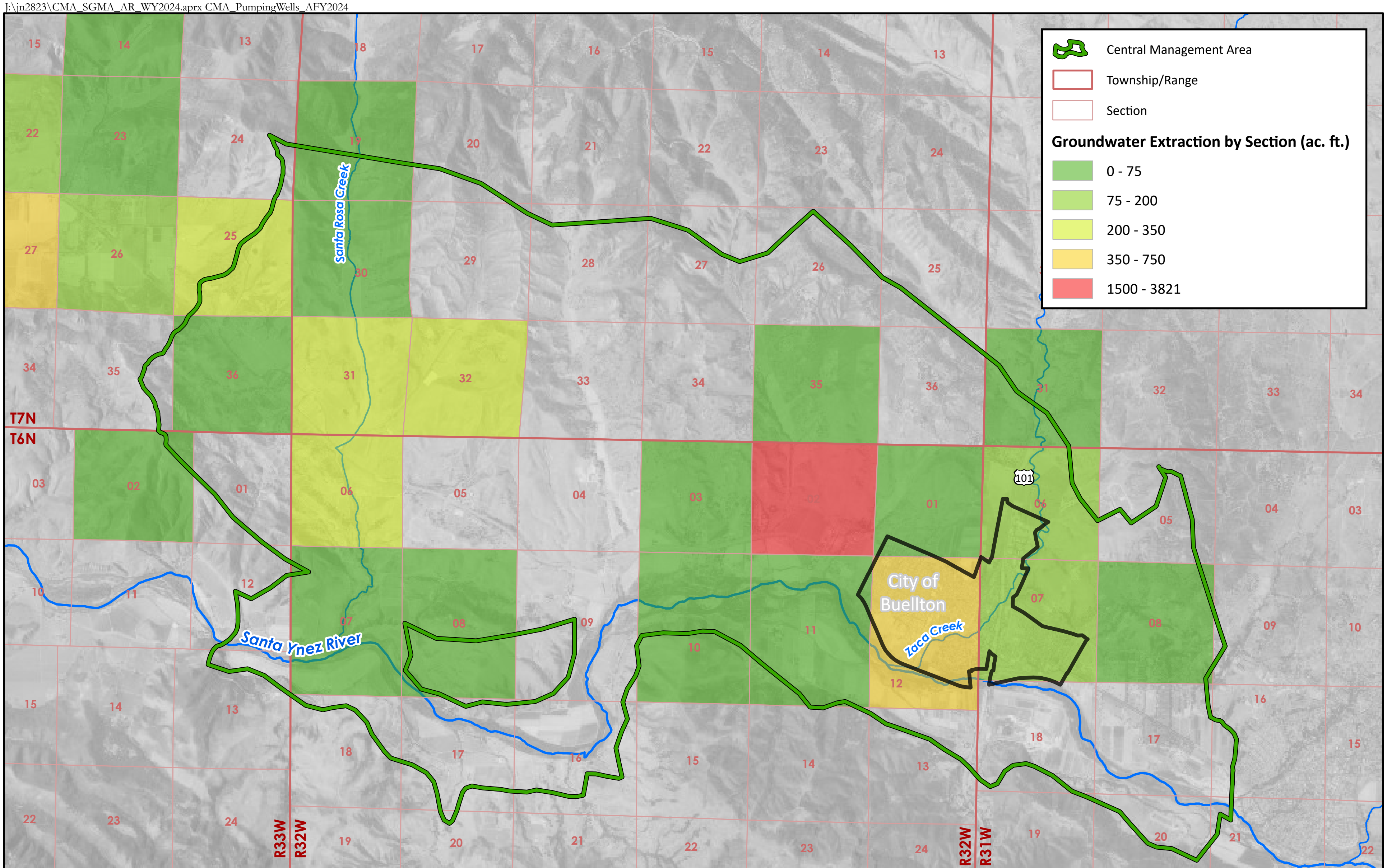
Water Year Type (1942-2024)

- Wet
- Above/Below Normal
- Dry / Critically Dry

Source: Santa Ynez River Water Conservation District (2025), City of Buellton (2024)

CMA FIGURE 4-2

J:\jn2823\CMA_SGMA_AR_WY2024.aprx CMA_PumpingWells_AFY2024



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CMA

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Central Management Area
Groundwater Sustainability Agency

LOCATION AND VOLUME OF GROUNDWATER EXTRACTION 2024

Source: Santa Ynez River Water Conservation District (2024)

0 0.5 1 Miles

N

CMA FIGURE 4-3

CMA Table 4-1
Summary CMA Groundwater Extraction for Water Year 2024

Water Use Sector	Buellton Aquifer	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	260	Self-reported to SYRWCD may include estimates using crop usage	± 30 (~10%)
Agricultural	3,950	Self-reported to SYRWCD may include estimates using crop usage	± 400 (~10%)
Municipal	610	City of Buellton Daily totalizer values	± 10 (~1%)
Total	**4,820**		**± 440**

SYRA pumping (SYRWCD Zone A) is managed as surface water and excluded from CMA Table 4-1 (see CMA Table 4-2).
All numbers rounded to the nearest 10 acre-feet.
Source: SYRWCD (2025), City of Buellton (2024)

4.2 SURFACE WATER USE

Surface water production in the CMA is from the Santa Ynez River Alluvium (underflow) and imported water. Local surface water includes both local tributary flows and the flows of the Santa Ynez River which are partially retained in Lake Cachuma. Imported water is from the State Water Project (SWP). The City of Buellton is the sole water-importing entity in the CMA.

4.2.1 Surface Water Diversions from Santa Ynez River Underflow

Upstream of the Lompoc Narrows, a portion of the Santa Ynez River flows as underflow through a known and definite channel of alluvium. Water flowing in known and definite channels is not groundwater as defined by SGMA,[3] however, this underflow is managed or administered by other agencies. For example, subsurface water above the Lompoc Narrows that is underflow is partially stored in Lake Cachuma per SWRCB Order 2019-148 for later water rights releases. Pumpers from the underflow are required to report

3 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

the amount pumped to both the SYRWCD[4] and the SWRCB. Unlike SGMA, SYRWCD's statute includes all subsurface water as groundwater. The SWRCB water rights Order of 1973 (WR 73-37) was amended in 1989 (WR 89-18) and most recently amended in 2019 (WR 2019-0148). **CMA Table 4-2** shows the total extraction of underflow via river wells upstream within the CMA for WY 2024.[5]

CMA Table 4-2
Summary CMA Surface Water Diversions for Water Year 2024

Water Use Sector	Total	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	670	Self-reported to SYRWCD	± 70 (~10%)
Agricultural	3,240	Self-reported to SYRWCD may include estimates using crop usage.	± 320 (~10%)
Municipal	240	City of Buellton Daily totalizer values	± 10 (~1%)
Total	**4,150**		**± 400**

4.2.2 Water Imports

The Central Coastal Water Authority (CCWA) has delivered imported water from the SWP to the SYRVGB since 1997. CCWA makes water deliveries at turnouts to water distribution systems. CCWA delivers to Lake Cachuma for the South Coast customers outside of the SYRVGB. The Cachuma Project Settlement Agreement allows for the comingling of CCWA water with local water for water rights releases. Within the SYRVGB, four agencies contract with CCWA to provide for SWP deliveries: VSFB, the City of Buellton, the City of Solvang, and the Santa Ynez River Water Conservation District Improvement District Number 1. Of these, only the City of Buellton is in the CMA.

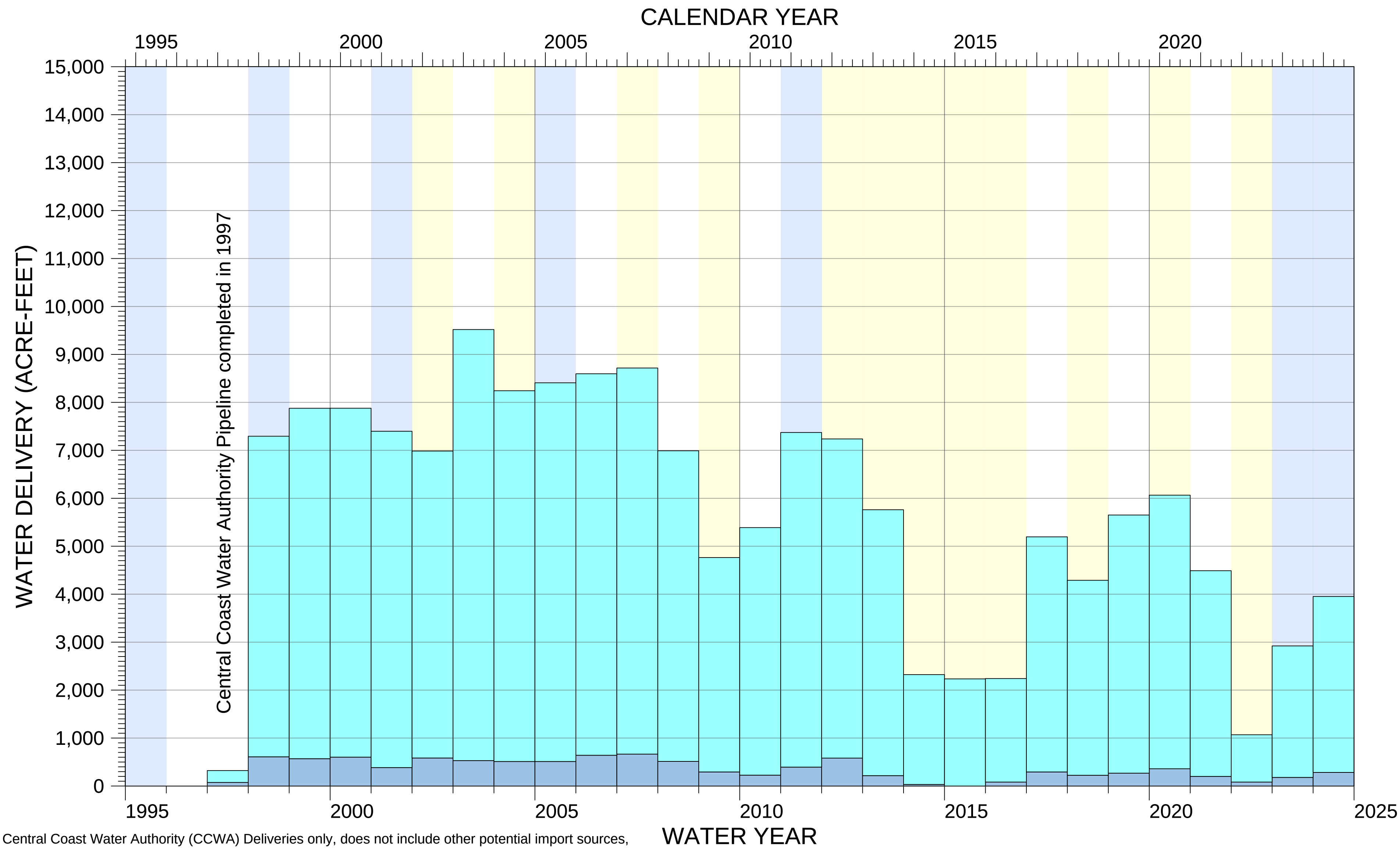
4 CWC Section 75640 "Any person who fails to register a water-producing facility, as required by Chapter 2 (commencing with Section 75540) of this part, is guilty of a misdemeanor."
5 The SYRWCD records pumping in the Santa Ynez River Alluvium as Zone A.

During WY 2024 the City of Buellton imported 283 acre-feet of water, all sourced from the SWP through the CCWA pipeline. **CMA Table 4-3** and **CMA Figure 4-4** show the annual imports through the CCWA pipeline to the CMA and the entire SYRVGB updated through the end of WY 2024.

CMA Table 4-3
Santa Ynez River Valley Groundwater Basin Water Imports in Acre-Feet for Recent Years

Water Year	WMA	CMA	EMA	Total Basin
2015	109	0	2,125	2,234
2016	1,758	82	401	2,241
2017	1,924	293	2,979	5,196
2018	2,296	224	1,770	4,290
2019	2,361	268	3,022	5,651
2020	2,893	359	2,813	6,065
2021	2,239	200	2,051	4,490
2022	268	82	719	1,069
2023	1,015	179	1,727	2,921
2024	2,375	283	873	3,531

Source: CCWA (2024)



Central Coast Water Authority (CCWA) Deliveries only, does not include other potential import sources, or passthrough to South Coast CCWA customers through Lake Cachuma.

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 CCWA Water Imports\Fig 4-04 CCWA Imports CMA.gpj 1/22/2025 M. McCammon

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ANNUAL WATER IMPORTS
CENTRAL COAST WATER AUTHORITY

Water Year Type (1942-2024)
- Wet
- Above/Below Normal
- Dry / Critically Dry

Santa Ynez Imports
- City of Buellton
- Non-CMA

Source: Central Coast Water Authority (2025)

CMA FIGURE 4-4

4.3 SURFACE WATER AVAILABLE FOR GROUNDWATER RECHARGE OR REUSE

During WY 2024, there were no projects within the CMA for direct groundwater recharge or in-lieu use.[6]

The Santa Ynez River and its underflow are within the jurisdiction of and regulated by the SWRCB. SWRCB regulates river flows for beneficial purposes including supporting the steelhead trout (*Oncorhynchus mykiss, O. mykiss*) population.[7] USBR releases water stored in Lake Cachuma to meet downstream water rights and support fish habitat.

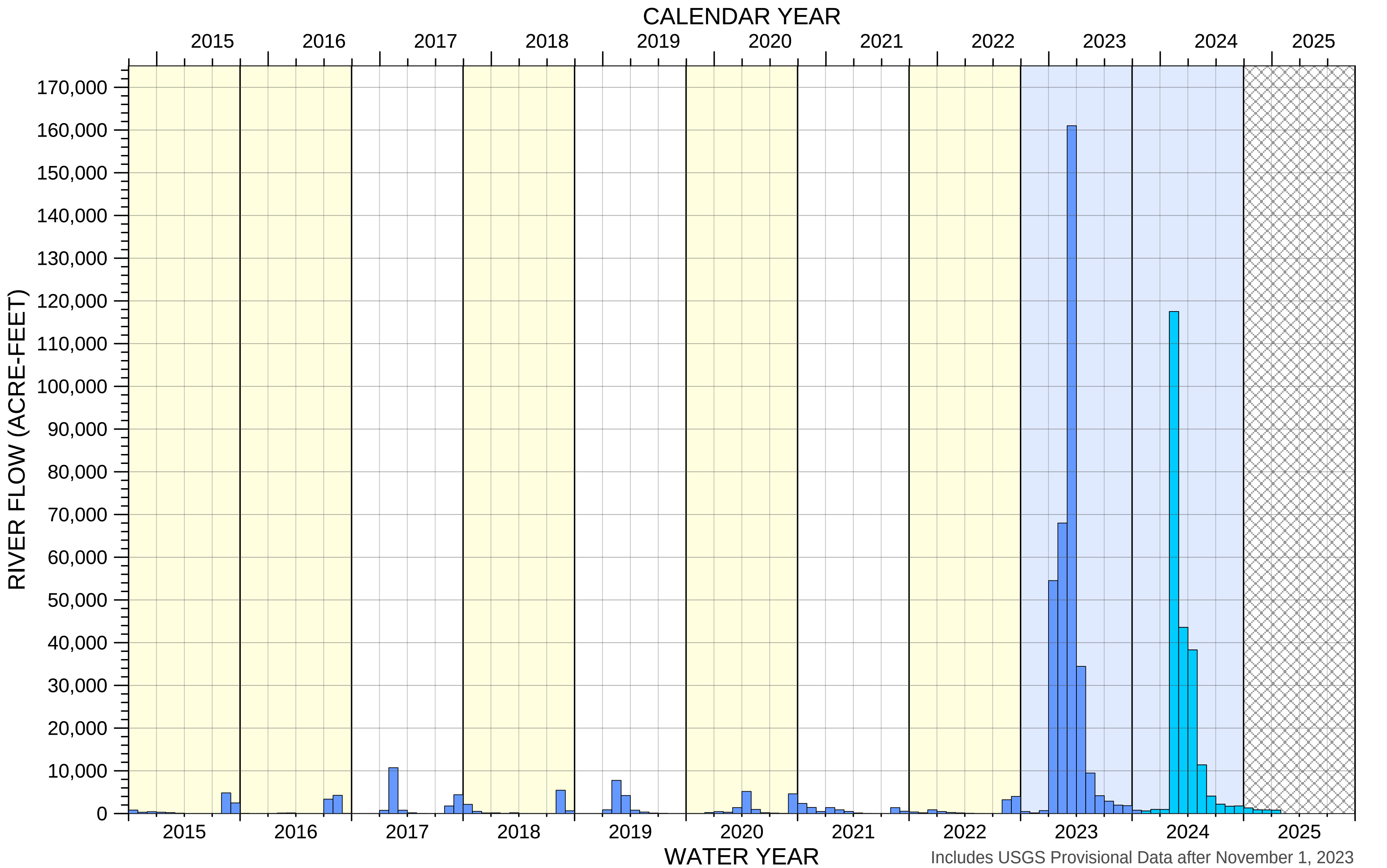
The method for the volume and timing of water rights releases comes from the SWRCB Orders of 1973 (WR 73-37), 1989 (WR 89-18), and 2019 (WR 2019-0148). The SWRCB orders account for the volume of water that would have been available if Lake Cachuma and its dam, Bradbury Dam, were not present. These orders identify two areas that Bradbury Dam prevents water from reaching. The Above Narrows Account (ANA) accounts for the area from Bradbury Dam to the Lompoc Narrows. The ANA is a relatively narrow channel of alluvium along the river (underflow), parts of which are within all three SGMA management areas. The Below Narrows Account (BNA) accounts for a relatively wider area below the Lompoc Narrows in the WMA.

During all of WY 2024, the volume of dewatered storage in the ANA area was relatively low, meaning the elevation of water in the subsurface was high. This was due to the preceding year (WY 2023) being wet and a wet winter in 2023-2024. As a result of there being low dewatered storage, at the direction of the SYRWCD, the USBR did not make water rights releases from Lake Cachuma during 2024.

Measurements at the Solvang stream gauge represent more than 90% of all local surface water flows entering the CMA (Stetson, 2022). **CMA Figure 4-5** shows flows of the Santa Ynez River at the USGS Streamflow gage 11128500 at Solvang, at the EMA-CMA boundary for WY 2015 through October 2024. The location of the Solvang gage is shown in CMA Figure 1-2.

6 23 CCR § 356.2(b)(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.

7 The Cachuma Operation and Maintenance Board (COMB) Fisheries Division conducts the monitoring of steelhead (*Oncorhynchus mykiss*) population in the Santa Ynez River and its tributaries. However, the COMB report comes out in the second quarter of the following water year, which is expected to be published concurrent or after this annual report.



Includes USGS Provisional Data after November 1, 2023

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

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MONTHLY SURFACE FLOW
SANTA YNEZ RIVER AT SOLVANG CALIFORNIA
USGS STREAMGAGE 11128500

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

Source: USGS NWIS (2025)

CMA FIGURE 4-5

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 SW Flow Statistics\Fig 4-05 WY24 CMA Monthly_11128500 SANTA YNEZ R A SOLVANG CMA.grf 1/22/2025 M. McCammon

4.3.1 Treated Wastewater Sources

Within the CMA, wastewater is managed by the City of Buellton and the City of Solvang[8]. Wastewater is conveyed to the treatment facilities before it is discharged as treated effluent to percolation ponds over the Santa Ynez River alluvium. The average daily secondary treated effluent from the City of Buellton and the City of Solvang since 2015 is provided in **CMA Table 4-4** as wastewater plant influent flows.

CMA Table 4-4
Wastewater Influent Volumes for Recent Years

Water Year	City of Buellton Plant Influent	City of Solvang Plant Influent
	Acre-Feet per Year	Acre-Feet per Year
2015	447	710
2016	469	705
2017	473	719
2018	523	696
2019	571	736
2020	504	690
2021	508	717
2022	487	702
2023	478	795
2024	487	808

Source: City of Buellton (2021, 2022, 2023,2024,2025), City of Solvang (2021, 2022, 2023,2024)

8 Solvang Wastewater Treatment Plant is located within the City of Solvang outside of the CMA but discharges its wastewater at the border of the CMA and EMA inside the CMA.

4.4 TOTAL WATER USE

Total water use in the CMA during WY 2024 is comprised of groundwater supplies, surface water diversions from the Santa River underflow, and imported SWP water. See CMA Sections 4.1 and 4.2 above for additional details on these supplies. **CMA Table 4-5** shows the summary of total water use by sector for the water year 2024. **CMA Table 4-6** shows the summary of total water use for WY 2015-WY 2024. Total water use in the CMA was 9,320 AF in WY 2024.

CMA Table 4-5
Summary CMA Total Water Use by Sector for Water Year 2024

Water Use Sector	Total	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	930	Self-Reported to SYRWCD	± 90
Agricultural	7,190	Self-reported to SYRWCD	± 720
Municipal	1,130	Daily totalizer values; Includes CCWA imports to the City of Buellton	± 10
Total	**9,250**		**± 820**

CMA Table 4-6
Summary CMA Total Water Use by Source for Recent Years

Water Year	Total Groundwater (Buellton Aquifer)	Total Surface Water (River Underflow Well Pumping)	Total Imports (CCWA)	TOTAL WATER USE
	Acre-Feet per Year	Acre-Feet per Year	Acre-Feet per Year	Acre-Feet per Year
2015	4,310	4,420	0	8,730
2016	3,740	4,460	80	8,280
2017	3,410	4,900	290	8,600
2018	2,720	5,230	220	8,170
2019	2,940	4,940	270	8,150
2020	1,850	5,040	360	7,250
2021	1,710	4,460	200	6,370
2022	2,580	4,520	80	7,180
2023	4,060	3,990	180	8,230
2024	4,820	4,140	280	9,240

Note: Total water use has been updated to include all pumping data reported to the SYRWCD. Prior annual reports estimated use data for July through September and may not have included all late filers.

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CMA CHAPTER 5: GROUNDWATER STORAGE

Groundwater storage is one of the SGMA sustainability indicators. This chapter presents the changes in groundwater in storage components required by the SGMA regulations:

> *"(5) Change in groundwater in storage shall include the following:*
>
> *(A) Change in groundwater in storage maps for each principal aquifer in the basin.*
>
> *(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 CCR § 356.2(b))

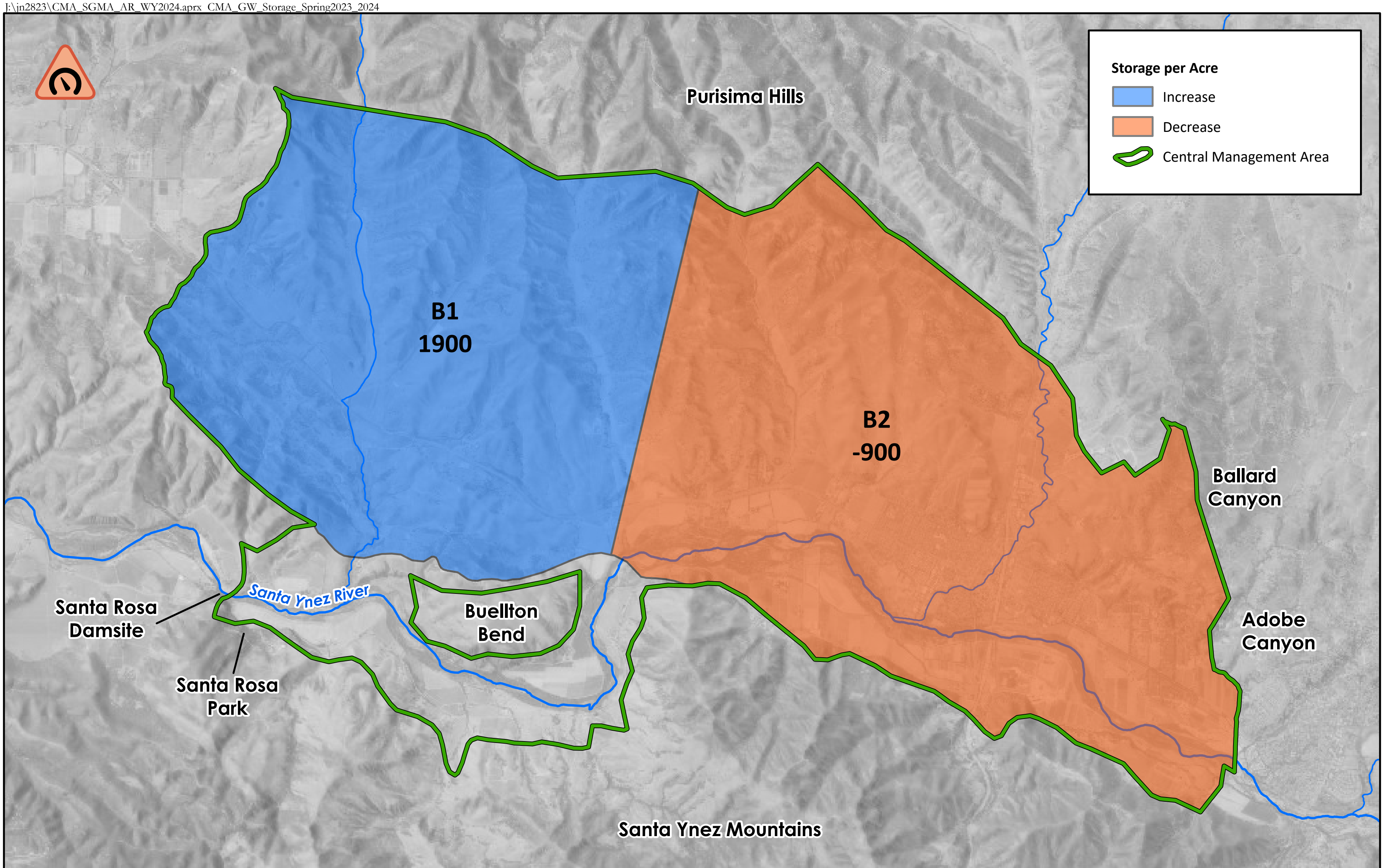
Changes in groundwater in storage are calculated and mapped for the seasonal high (spring-to-spring) using the Thiessen polygon method. This method uses water level observations at representative monitoring wells. In the CMA there is a longer period of record for seasonal high spring water levels than there is for seasonal low fall water levels. Agencies collected water levels from fewer wells during the fall. The CMA uses the seasonal high (spring-to-spring) storage changes for trends due to this historical data collection.

5.1 CHANGE IN GROUNDWATER IN STORAGE MAPS

The SGMA regulations[1] require every Annual Report to contain *"change in groundwater in storage maps for each principal aquifer in the basin."* On the following maps, the polygon color indicates the change in groundwater in storage. Blue indicates increased groundwater in storage. Orange indicates decreased groundwater in storage. Color intensity is relative to the area of the polygon. Darker colors indicate a greater change in storage per acre. Numbers shown in each polygon are the estimated volume change in acre-feet. **CMA Figure 1-1** shows the spring change in groundwater in storage.

1 23 CCR § 356.2(b)(1)

J:\jn2823\CMA_SGMA_AR_WY2024.aprx CMA_GW_Storage_Spring2023_2024



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CHANGE IN GROUNDWATER IN STORAGE
SPRING 2023-SPRING 2024
BUELLTON AQUIFER
CENTRAL MANAGEMENT AREA

DRAFT

0 0.5 1 Miles

Sources:
USGS National Elevation Dataset, 2002

N

CMA FIGURE 5-1

The node of each polygon comes from existing representative monitoring wells (CMA Figure 3-1). The area of each polygon is the area that is closest to the node point, compared to the other node points. The external boundary is the aquifer extent. The CMA uses the following equation to calculate the change in groundwater in storage for each polygon:

Change of Groundwater in Storage (acre-feet) = [area (acres)] x [Sy (unitless)] x [change in groundwater elevation (ft)]

Total Change of Groundwater in Storage (acre-feet) = Σ (Change in Storage for each Polygon)

CMA Figure 5-1 summarizes the total change in groundwater in storage calculated for WY 2024.

CMA Table 5-1
Estimated Change in Groundwater in Storage
in Acre-Feet.

Period		**Buellton Aquifer**
Seasonal High	Spring 2023 to Spring 2024	1000

Numbers rounded to the nearest 100 AF.

The Spring 2023 to Spring 2024 change in groundwater in storage is shown in **CMA Figure 5-1**. This figure represents changes between the seasonal high of 2023 and 2024. **CMA Figure 5-1** shows that the volume of groundwater in storage in the east increased and decreased in the west. The total change in groundwater in storage for the CMA's Buellton Aquifer was a gain of 1,000 AF using this spring-to-spring approach.

5.2 GROUNDWATER USE AND EFFECTS ON STORAGE

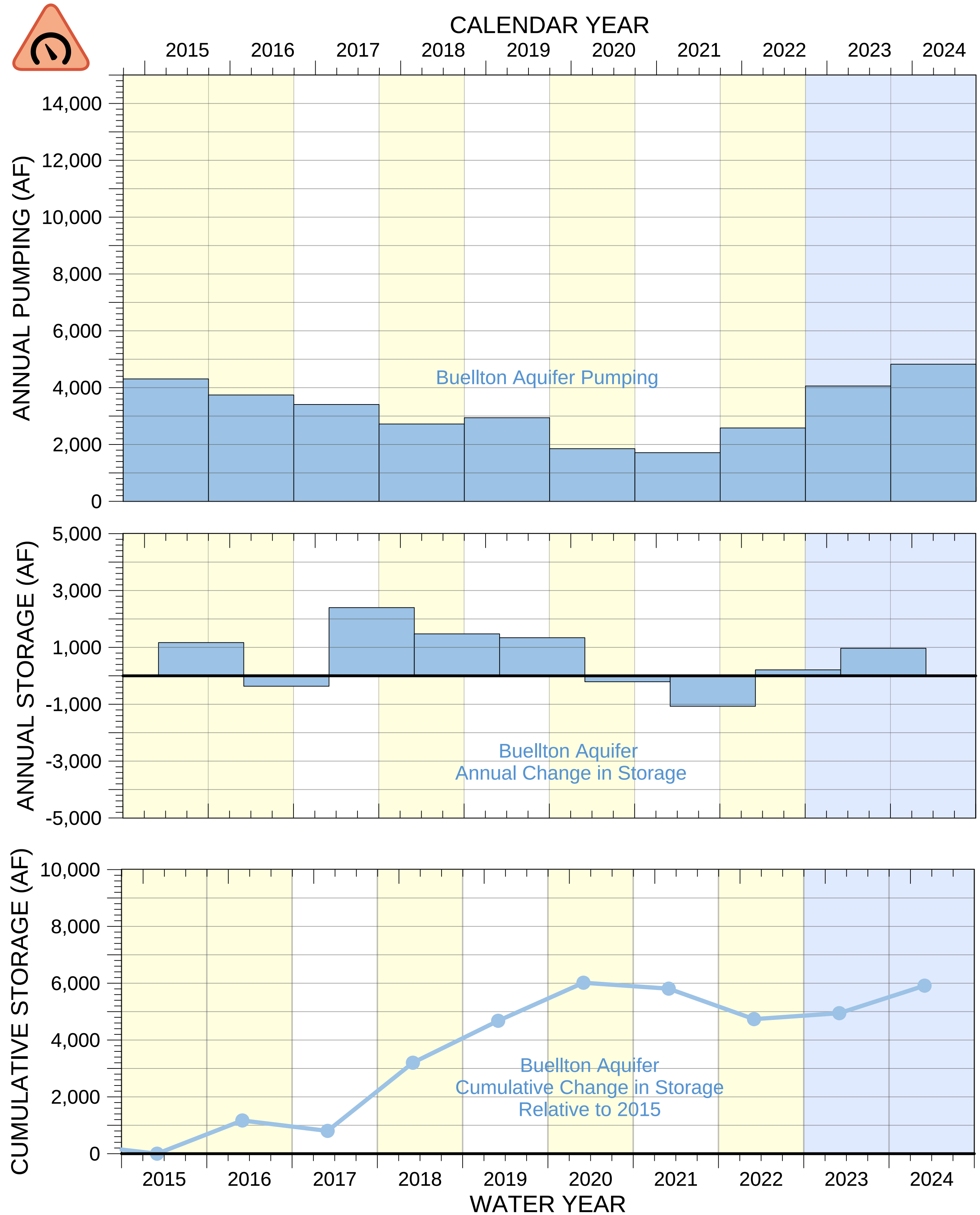
The SGMA regulations require that GSP Annual Reports contain "*A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year*."[2]

The Water Year Type is classified in Chapter 2 of this report using the same method as described in the CMA GSP. Updated groundwater use for WY 2024 is described in Chapter 4. The method for calculating the annual change in groundwater in storage is described earlier in this chapter. Annual storage change was calculated for historical years, including from WY 2015 through the present.

Annual reported groundwater use for the CMA in the Buellton Aquifer is compared to cumulative groundwater storage loss in **CMA Figure 5-2**. The Water Year classifications shown in this figure are consistent with the classification of water years shown in CMA Figure 2-4.

The top of CMA Figure 5-2 shows the annual reported groundwater use for the CMA Buellton Aquifer. The middle of CMA Figure 5-2 shows the annual change in storage, and the bottom of CMA Figure 5-2 set shows the cumulative change starting in March 2015.

[2] 23 CCR § 356.2(b)(5)(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.



Water Year type: Blue = Wet, Yellow = Dry / Critically Dry, White = Above / Below Normal

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COMPARISON OF WATER YEAR TYPE, GROUNDWATER USE, ANNUAL STORAGE, AND CUMULATIVE STORAGE RELATIVE TO MARCH 2015

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CMA CHAPTER 6: PROGRESS TOWARD GSP IMPLEMENTATION AND SUSTAINABILITY

The SGMA regulations (Appendix 1-A) require that the SGMA Annual Reports contain "*A description of progress towards implementing the [GSP], including achieving interim milestones, and implementation of projects or management actions since the previous annual report*."[1] A major milestone in WY 2024 was DWR approval of the GSP on January 18, 2024. As indicated by the previous chapters discussing groundwater levels, water use, and storage, groundwater conditions within the CMA remain sustainable with no undesirable results for the SGMA sustainability criteria. The conditions within the CMA for the additional SGMA indicators are summarized below.

Implementation of general projects and management actions identified in the CMA GSP has begun. The CMA is taking steps to ensure funding to complete the actions planned in the GSP.

6.1 SUSTAINABILITY INDICATORS

Analyses conducted for the CMA GSP indicate that Basin conditions are sustainable with no current undesirable results during WY 2024. This chapter discusses GSP-identified minimum thresholds, measurable objectives, and interim milestones[2] for both the previously discussed sustainability indicators (groundwater levels [Chapter 3], interconnected surface water [Chapter 3], and storage [Chapter 5]), as well as the remaining sustainability indicators (seawater intrusion, water quality, and land subsidence).

1 23 CCR § 356.2(a) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

2 23 CCR § 356.2(a) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

Groundwater Levels

Groundwater Storage

Seawater intrusion (not applicable to CMA)

Degraded water quality

Land subsidence

Interconnected surface water

6.1.1 Chronic Lowering of Groundwater Levels

Chapter 3 provided data and maps for the chronic lowering of groundwater levels sustainability indicator. The January 2022 CMA GSP (3B.2 Undesirable Results) states the following regarding monitoring groundwater levels for undesirable results:

> "Spring groundwater elevations that drop below the established groundwater elevation minimum thresholds in more than 50% of the representative monitoring wells for two consecutive, non-drought[3] years would correspond to an undesirable result associated with chronic lowering of groundwater elevations."

Similarly, for measurable objectives and interim milestones, the CMA GSP (3B.4 Measurable Objectives) states:

[3] Two or more consecutive years that are classified as Dry or Critically Dry (Section 2b, GC) will be defined for this purpose as drought years. All other year types and combination of year types will be defined as non-drought years for the purpose of defining undesirable results under a groundwater sustainability plan.

"Measurable objectives are achieved when the 2011 groundwater elevation is reached in half of the representative monitoring wells (RMWs)."

The interim milestones were set to measurable objectives due to GSP's finding that the CMA conditions were sustainable with no current undesirable results.

The CMA currently has four representative groundwater level monitoring wells in the Buellton Aquifer. **CMA Table 6-1** compares the groundwater level elevations to the sustainable management criteria for each of the four representative groundwater monitoring wells. The sustainable management criteria include Measurable Objectives, Early Warning, and Minimum Thresholds. This table shows all wells were above their Minimum Threshold levels for WY 2024. No undesirable results related to water levels occurred in WY 2024.

CMA Table 6-1
Groundwater Elevations for Groundwater Levels (feet in NAVD88)

Name	ID	Measuring Point	Reference Values			Water Year 2023		Water Year 2024	
			Measurable Objective	Early Warning	Minimum Threshold	Spring	Fall	Spring	Fall
7N/33W-36J1	82	504.54	379	362	357	371	372	373	396
7N/32W-31M1	75	452.60 (±20)	402	364	359	372	373	375	371
6N/32W-12K1, 12K2	909	352.56 (±5)	301	281	276	306	296	302	298
6N/31W – 7F1	90	382.81	307	297	292	305	304	307	308[a]

n/a = No available data
NAVD88 = North American Vertical Datum of 1988
a = Access restrictions resulting in late fall measurement. Measured November 27, 2024.

6.1.2 Reduction of Groundwater in Storage

Chapter 5 of this report addresses the reduction of groundwater in storage. In addition, progress towards sustainability for groundwater storage is tracked along with groundwater levels, as discussed in WMA Section 6.1.1.

6.1.3 Water Quality

The CMA GSP found that "Groundwater quality in the CMA is currently suitable for agricultural, domestic, and municipal supply purposes." The SGMA statute and SGMA regulations on Annual Reports do not include a discussion of general water quality. To support the Central Coast Water Board's water quality mission,[4] the CMA included a periodic water quality evaluation in the CMA WY 2023 annual report.

6.1.4 Seawater Intrusion

The CMA is an inland management area of the Basin and is greater than 20 river miles[5] above the Pacific Ocean. Therefore, seawater intrusion is not an applicable sustainability indicator for the sustainable management of the CMA, and the CMA GSP did not set specific targets within the CMA. For the Santa Ynez River Valley Groundwater Basin as a whole, the WMA addresses the seawater intrusion sustainability indicator, which includes a portion of the coast.

6.1.5 Land Subsidence

Significant land subsidence due to groundwater withdrawal is not occurring in the CMA. Conditions in the CMA are considered to have dropped below the land subsidence minimum threshold when both (1) a decline of six inches (a half foot) from the 2015 land surface elevation because of groundwater extractions, and (2) that decline interferes with either land use or infrastructure.

Two primary data sources are used to characterize the movement of the land surface: remote sensing area data from Interferometric Synthetic Aperture Radar (InSAR) and point data from the continuous global positioning system (CGPS). Both InSAR and CGPS methods provide absolute changes in elevation

4 Central Coast Regional Water Quality Control Board. Bishop, James. June 22, 2023. Public Comment Letter for The Santa Ynez River Valley Groundwater Basin – Annual Report Water Year 2022. 3 pg. https://sgma.water.ca.gov/portal/gspar/comments/214. Access date 2023-12-05.

5 River miles are distance that water flows along the river which accounts for the bends and meanders of the river.

and do not differentiate between land subsidence resulting from excessive groundwater extraction and other sources of vertical movement, such as tectonic movement. Any significant lowering of ground levels indicated by these methods would need to be followed up to identify the cause.

The InSAR maps show the elevation change of the ground over a wide area between two points in time. **CMA Figure 6-1** is a map comparison of October 2023 and October 2024, showing change over WY 2024. **CMA Figure 6-2** is a map comparison of January 2015 and October 2024, which shows cumulative changes since 2015. These two figures show that the vertical change is less than the InSAR method accuracy for most of the CMA.[6]

CGPS collects very high-resolution three-dimensional movement of a sensor over time. The BUEG station, located near the City of Buellton (see CMA Figure 6-1), is a CGPS station that has been in operation since January 2015. **CMA Figure 6-3** graphs the horizontal movement (north-south, east-west) and vertical movement (up-down) of the preliminary data from the USGS. Since 2015, the graph shows movement to the north of 13 inches and movement west of 11 inches. Vertical movement is down by less than an inch through 2024. Data shows a vertical jump of 6 inches in 2024, likely due to some instrument change. This lateral movement is aseismic tectonic movement, and not due to groundwater conditions.

Both InSAR and CGPS methods show no undesirable results related to land subsidence during WY 2024.

6 Reported as 18 mm (0.71 inches) vertical accuracy at 95% confidence level in Towill (2023).

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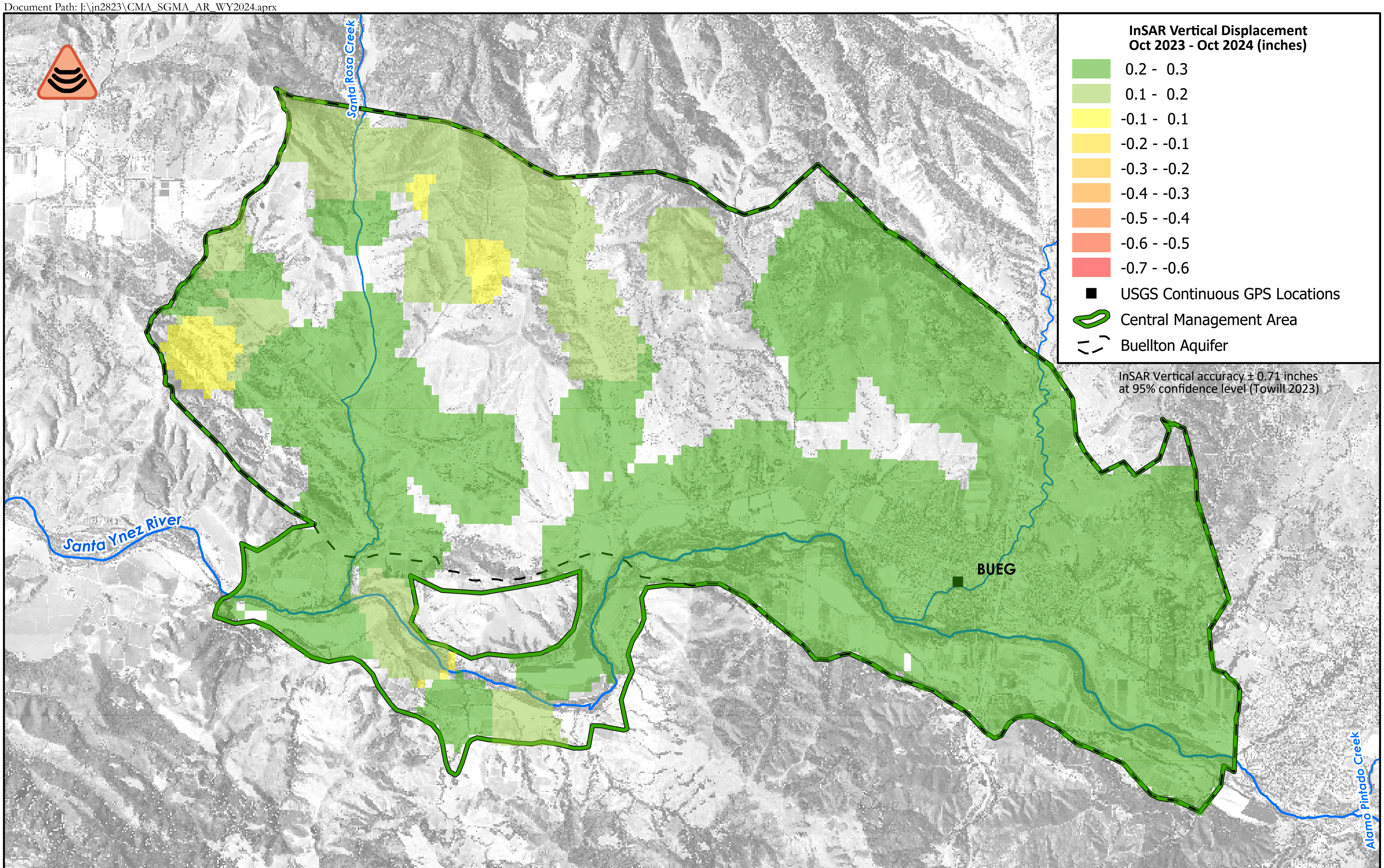

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LAND SUBSIDENCE
OCTOBER 2023 TO OCTOBER 2024
INSAR DATA
WITHIN CENTRAL MANAGEMENT AREA

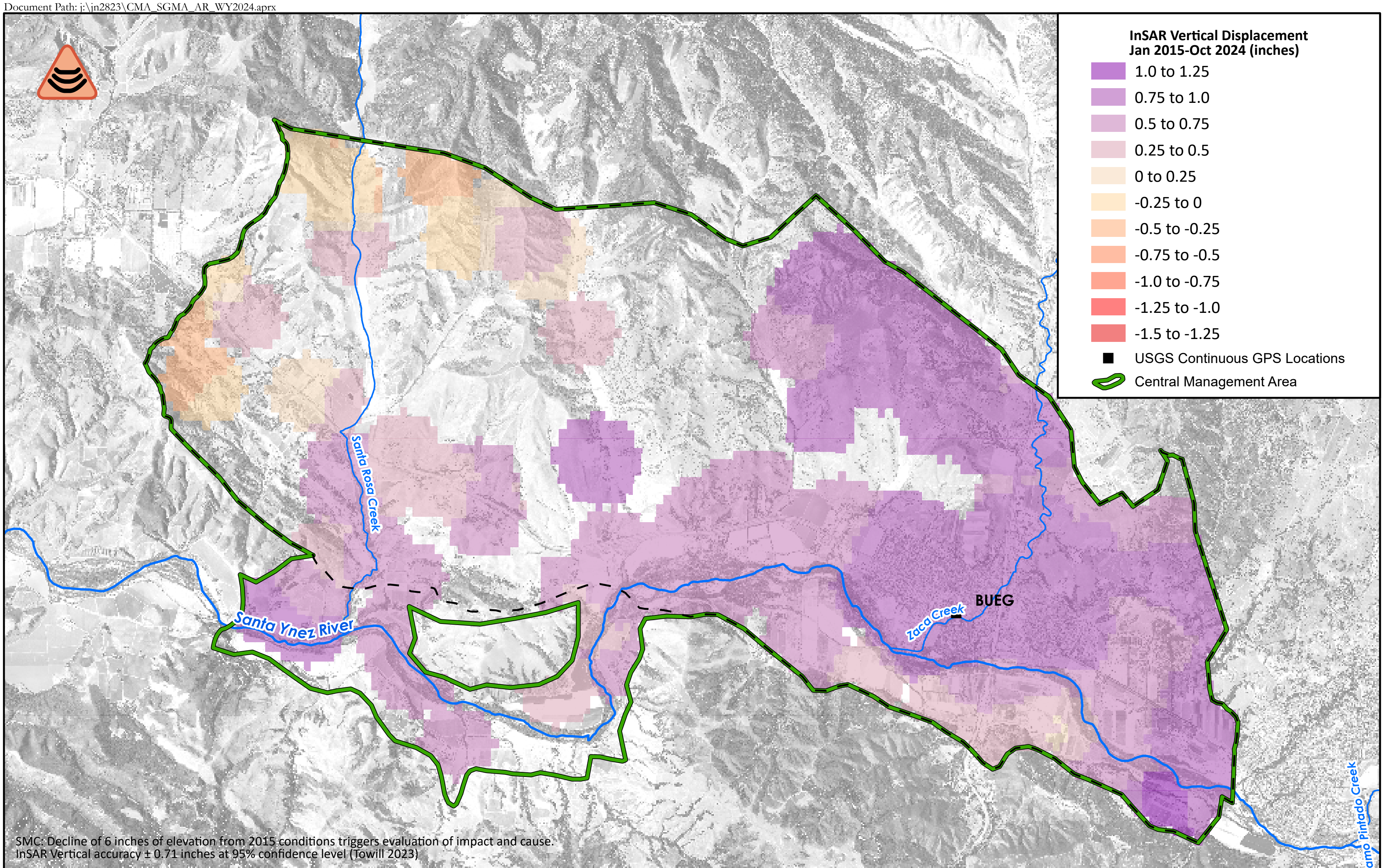
0 0.5 1 Miles

N

Sources:
USGS National Elevation Dataset, 2002
NAIP (2022), DWR (2024)

CMA FIGURE 6-1

Document Path: j:\jn2823\CMA_SGMA_AR_WY2024.aprx



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LAND SUBSIDENCE JANUARY 2015 TO OCTOBER 2024 INSAR DATA

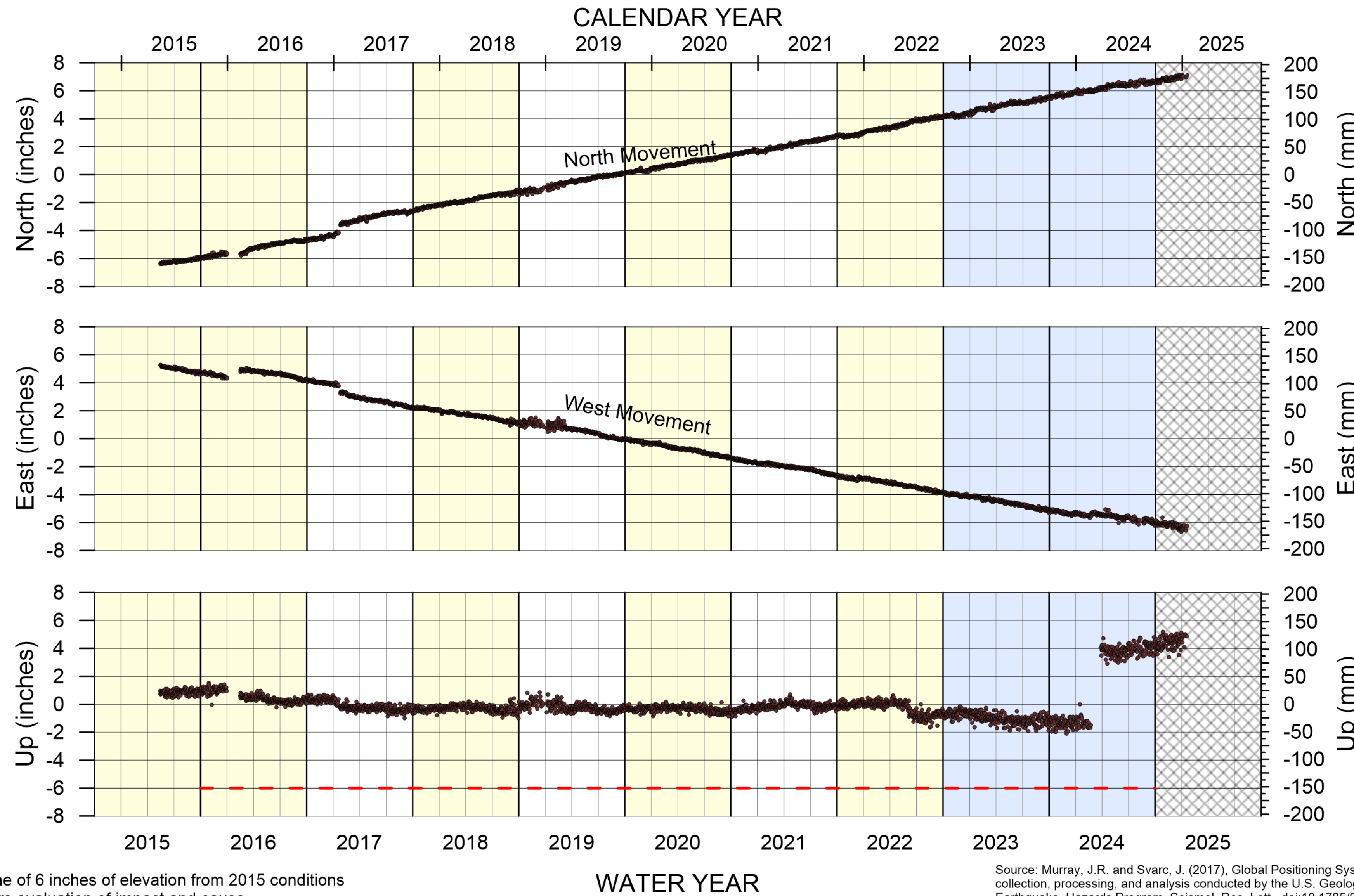
WITHIN CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

N

Sources:
USGS National Elevation Dataset, 2002
NAIP (2022), DWR (2024)

CMA FIGURE 6-2



Decline of 6 inches of elevation from 2015 conditions triggers evaluation of impact and cause.

Source: Murray, J.R. and Svarc, J. (2017), Global Positioning System data collection, processing, and analysis conducted by the U.S. Geological Survey Earthquake Hazards Program, Seismol. Res. Lett., doi:10.1785/022016020 .

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-11 WY24 CGPS Land Subsidence\Fig 6-03 CMA_CGPS WY2024_shift_scale.gpj 1/22/2025 M. McCammon

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CONTINUOUS GLOBAL POSITIONING SYSTEM
BUEG STATION TRENDS
LAND SUBSIDENCE

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

CMA FIGURE 6-3

6.1.6 Interconnected Surface Water and Groundwater Dependent Ecosystems

The SGMA sustainability indicator "depletion of interconnected surface water," is related to the effects of groundwater pumping on surface water flows. Under the SGMA statute, groundwater is water in the identified groundwater aquifers, "but does not include water that flows in known and definite channels"[7] such as the underflows of the Santa Ynez River through its alluvial sediments. The SWRCB, under Order WR 2019-0148 and earlier orders and decisions, regulates all flows of the Santa Ynez River. This regulation by the SWRCB extends to and includes the subsurface flows through the alluvial channel.

The groundwater level hydrographs presented in CMA Appendixes A and B further address the potential depletion of interconnected surface water. As stated in the 2022 CMA GSP (Section 3b.2-6), groundwater elevations in the Santa Ynez River Alluvium that drop to fifteen feet below channel thalweg elevations in two out of the three representative monitoring wells for two consecutive non-drought[8] years would indicate significant and undesirable results for interconnected surface water and groundwater-dependent ecosystems. Similarly, the measurable objective and interim milestone (2022 GSP, Sections 3b.4-6 and 3b.5-6) established goals for the groundwater levels in the Santa Ynez River Alluvium underflow to rise to at least 5 feet below the channel thalweg elevation. **CMA Table 6-2** summarizes the groundwater elevations at the three wells used to measure potential impacts on surface water. This table shows that all wells had water levels above the minimum threshold during WY 2024.

On behalf of the US Bureau of Reclamation, the Cachuma Operation and Maintenance Board (COMB) Fisheries Division monitors the migration of the Southern California Steelhead/rainbow trout (*O. mykiss*) in the Santa Ynez River from Lake Cachuma to the Pacific Ocean. The COMB publishes the report concurrently or after this annual report,[9] conclusions from that report about WY 2024[10] are currently unavailable before the SGMA annual reporting deadline.

---

7 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

8 For this purpose, a year is a drought if it is two or more consecutive years that are classified as Dry or Critically Dry (see Chapter 2 for year classifications). All other year types and combination of year types will be defined as non-drought years for the purpose of defining undesirable results under a groundwater sustainability plan.

9 The COMB Fisheries Division report on WY 2023 was published on July 2, 2024.

10 The COMB Water Year is the same as SGMA, running October 1st to September 30th.

CMA Table 6-2
Groundwater Elevations for Interconnected Surface Water (feet in NAVD88)

Name	ID	Reference Values		Water Year 2023		Water Year 2024	
		Measurable Objective	Minimum Threshold	Spring	Fall	Spring	Fall
6N/32W – 9G1	1120	267	257	260	262	264	270
6N/32W – 13G2	1115	304	294	323	314	311	305
6N/32W – 17R1	1111	332	322	341	339	341	338

NAVD88 = North American Vertical Datum of 1988.
The Measurable Objective is five feet below the Channel Thalweg.
The Minimum Threshold is fifteen feet below the Channel Thalweg.

The most recently published COMB report was about WY 2023 (COMB, 2024). Due to "high flows throughout the migration season" during WY 2023, no trapping was conducted at any traps along the Lower Santa Ynez River (LSYR) mainstem. The WY 2023 report identified that since 2011, only five migrant captures of *O. mykiss* have been made in the mainstem Lower Santa Ynez River (LSYR), and no *O. mykiss* migrants have been observed for 11 of the last 12 years. The CMA boundaries include what COMB calls the "Avenue of the Flags Reach" and the CMA ends above the "Cadwell" property. The 2023 COMB snorkel surveys of the "Avenue of the Flags" reach identified four (4) in the summer survey and three (3) in the fall survey. However, the COMB report indicated active beaver dams throughout the alluvial area upstream of the Lompoc Narrows, with 63 beaver dams between the Lompoc Narrows and Alisal Bridge (this area also includes part of the WMA and EMA).

6.2 Implementation of Project and Management Actions Since Previous Annual Report

The CMA GSA continues to work on SGMA compliance and progress on projects and management actions identified in the GSP to improve sustainability (**CMA Table 6-3**). During WY 2024, the CMA made progress on eight (8) tasks in CMA Table 6-3.

CMA Table 6-3
Summary of CMA GSP Implementation Projects

Project Category	Task	Occurrence	Water Year 2024 Status
Completing Ongoing Field Investigations	Surveying Representative Wells	One Time	
	SkyTEM Airborne Geophysics	One Time	Completed
Monitoring Network Gaps	Video Logging and Sounding Wells	One Time	In Progress
	Add new GWL Monitoring	One Year	In Progress
	Dedicated GWL Monitoring Wells (Outreach)	One Time	In Progress
	SW Gage Installation	One Time	In Progress
Projects and Management Actions	Water Conservation	Annual	
	Groundwater Extraction Fee Study	5 Year	In Progress
	Supplemental Imported Water Fund Reserve Options	One Time	
	Feasibility Study for Bioswale Stormwater Retention	One Time	
Improved Data Collection for Management	Well Registration Update	One Time	In Progress
	Well Metering Requirement	One Time	In Progress
Data Management	Data Updates	Annual	In Progress
Reporting and Plan Updates	SMGA WY Annual Reports	Annual	In Progress
	SGMA Five-Year Plan Assessment	5 Year	

6.2.1 Governance Update

The member agencies approved the GSA's Joint Exercise of Powers Agreement (JPA) at the beginning of WY 2024. The change in governance structure from a Memorandum of Agreement (MOA) to a JPA was communicated to DWR in January 2024. The CMA committee and board of directors ("Board"), as applicable, met eight times in WY 2024, including two joint meetings with the other management areas in the SYRVGB. In WY 2024, the JPA's board of directors received updates on various staffing and administrative matters, including selecting SYRWCD to provide the Executive Director/Plan Manager and administrative support. The CMA also selected an attorney, CPA, and bookkeeping firm. The Board discussed and approved a new GSA Conflict of Interest Code for the JPA. The Board discussed and endorsed an amendment to the JPA for the addition of a non-voting Agricultural Representative for the CMA GSA.

6.2.2 Grants Received

In WY2024, the CMA received a portion of a $5.5M grant from the California Department of Water Resources (“DWR”) to benefit the Santa Ynez River Valley Basin GSAs and specific GSP Implementation projects. The grant agreement is between DWR and the SYRWCD on behalf of the management areas in the Basin. A Subgrant Agreement between the SYRWCD and the GSAs was executed to facilitate grant agreement requirements to the GSAs for project implementation. There are eight components of the grant work that began in WY2024, including:

1. Grant administration
2. Well Extraction Measurement and Reporting
3. Rate Study
4. Annual Report and Periodic GSP Evaluation
5. Monitoring Improvements
6. Storm Water Capture
7. Water Use Efficiency
8. Recycled Water Feasibility Study

The grant components are the Group 1 Projects and Management Actions identified in the WMA 2022 GSP. Components 1-5 are being planned directly for all management areas. Although Components 6-8 are being planned directly for the WMA, the CMA may leverage these studies to jump-start similar projects for the CMA. In WY 2024, the CMA chose a consultant, EKI Environment & Water, Inc. (EKI), to implement most of the grant components, including components 2 and 5-8 above. The progress on these activities is described below.

6.2.3 Groundwater Extraction Fee Study

The CMA chose a consultant, Raftelis, to conduct a rate study for groundwater extractors and find mechanisms to fund the implementation of the GSP. The work for this study is partially funded by Component 3 of the Prop 68 grant. The rate study results are scheduled to be completed in WY 2025. The requested services will find the required revenue to support implementation for the next five years, evaluate the need for a pump charge rate and/or a parcel fee, prepare rate schedules, and offer two recommended rate/fee alternatives. The recommended rate/fee structures will be consistent with industry practice for established rates in California and follow Prop 26 and 218.

6.2.4 Update Well Registration Program and Extraction Measurement Program

As part of implementing Component 2 of the Prop 68 Grant, Well Extraction Measurement and Reporting, work was completed in WY2024 on the pilot test to determine the best methods for well extraction measurements. Landowner outreach was conducted to identify CMA sites that meet the study's criteria. Draft land access agreements and Notices of Exemptions (NOEs) have been drafted to expedite the study once all of the landowners for the study have been identified. EKI worked with AgMonitor to implement projects that measure or estimate extraction through meter and power consumption and LandIQ to install weather stations.

In WY2025, the different methods to measure well extraction (meter, power consumption, and crop consumptive use) will be studied. EKI will work with the GSAs to compile groundwater extraction measurement program rules and regulations. An update to the well registration database will be developed in tandem with the update to the extraction measurement program in WY2025.

6.2.5 Monitoring Improvements

In WY2024, improvements were implemented to improve water level monitoring in the data gap areas identified in the GSP. Four new wells in the Buellton Aquifer were added to the water level monitoring program, and baseline water level data was collected. Changes in water levels will be assessed in the new wells starting in WY2025 and onward. Additional landowners with wells in the data gap areas were identified, and additional wells will be added to the monitoring program in WY2025.

Monitoring improvements were also made with a streamflow gauge at the downstream end of the reach connected to the surface water, as identified in the 2022 GSP. In November and December 2024 (WY2025), site visits to potential stream gage locations were conducted. Access points were identified, discharge measurements were collected, and temporary reference points were installed. This streamflow data collection and program will continue and be discussed more fully in the WY2025 monitoring efforts. The CMA also applied to the California Stream Gage Installation Program (CalSIP) for additional funding to support the new stream gage, critical to monitoring surface water flows and groundwater-dependent ecosystems.

6.2.6 Data Updates and Annual Reporting

The required water level, water quality, and water use data collection, processing, and Data Management System (DMS) maintenance was completed to support the preparation of the WY 2023 Annual Report and this WY 2024 Annual Report. The CMA allows public access to portions of the DMS at the following web address: https://sywater.info/. During WY 2024, the CMA published its third annual report for the Water Year 2023 (October 2022-September 2023). The CMA committee submitted it to DWR on March 25, 2024, before the April 1 deadline.[11] A letter from DWR requested one coordinated and combined annual report for the basin instead of three individual GSA Annual Reports starting in WY2025. The unanimous consensus by the Directors of all three GSAs in the SYRVGB was to accommodate DWR's request in WY2025 to have each GSA hire its consultant to prepare a separate annual report for its respective Management Areas plus one overarching report to tie the three individual reports together. Comments received on the 3rd Annual report by DWR also requested that the pumping data reported to the SYRWCD for the last part of the water year (July through September) be included rather than delayed a year. The CMA GSA has changed the reporting of this data to be included starting in this year's annual report (the 4th Annual report.

11 CWC Section 10728 "On the April 1 following the adoption of a groundwater sustainability plan and annually thereafter, a groundwater sustainability agency shall submit a report to the department [..]"

6.2.7 5-Year Periodic Evaluation

In January 2024, DWR announced that all three GSPs for the Santa Ynez River Valley Basin submitted in January 2022 had been approved by DWR. Under SGMA and GSP Regulations, a Periodic Evaluation of a Basin's GSP is due to the California Department of Water Resources (DWR) at least every five years after initial GSP submission for each basin with an approved GSP or any time the GSP is amended. The CMA GSA's initial GSP was adopted by the Board and submitted in January 2022. A periodic evaluation is due to DWR on or before January 18, 2027. The CMA GSA is expected to begin work on the 5-year Periodic Evaluation in WY2025.

During joint meetings of all three GSAs in the SYRGB in WY2024, the Boards of the three SGMA agencies discussed outreach to and education of pumpers of river alluvium including reporting requirements. The outreach and education are part of the Action Plan approved by all three GSAs and submitted to DWR in January 2024 in connection with the 2022 GSPs. This public outreach on the river alluvium will address the first recommended and corrective action by DWR during the preparation of the 5-Year periodic evaluation starting in WY2025.

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CMA CHAPTER 7: REFERENCES

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SWRCB. 2019. Order WR 2019-0148. In the Matter of Permits 11308 and 11310 (Applications 11331 and 11332) held by the United States Bureau of Reclamation for the Cachuma Project on the Santa Ynez River. State Water Resources Control Board, State of California. SYWATER 218.

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Stetson. 2023. Santa Ynez River Alluvium Underflow and Subterranean Stream Report Prepared in Response to the April 14, 2023, Comments by State Water Resources Control Board Staff regarding Groundwater Sustainability Plans for the Santa Ynez River Valley Groundwater Basin. 75 pg. SYWATER 521.

Towill (2023) InSAR Data Accuracy for California Groundwater basins CGPS Data Comparative Analysis January 2015 to October 2022. Final Report. Towill, Inc. California Department of Water Resources. Contract 4600013876 TO#1. 131 pg. SYWATER 528.

EASTERN MANAGEMENT AREA

Santa Ynez River Valley Groundwater Basin

Eastern Management Area

Groundwater Sustainability Agency

Water Year 2024 (October 2023-September 2024)

Board of Directors*:*

City of Solvang

Elizabeth Orona, Director
David Brown, Alternate Director

Santa Ynez River Water Conservation District

Brett Marymee, Director
Steve Jordan, Alternate Director

Santa Ynez River Water Conservation District, Improvement District No. 1

Brad Joos, Director
Mike Burchardi, Alternate Director

Santa Barbara County Water Agency

Joan Hartmann, Director
Meighan Dietenhofer, Alternate Director

Agricultural Director (Not a Public Agency)

Director and Alternate Director were appointed in October 2024

Officers:

Brett Marymee, Chair

Brad Joos, Vice Chair

William Buelow, Secretary

Elizabeth Orona, Secretary and Treasurer

Daniel Heimel, Executive Director

Keith Lemieu, Legal Counsel

GSA Member Agency Staff Representatives:

Matthew Young
Santa Barbara County Water Agency

Kadie McShirley
Santa Barbara County Water Agency

William J. Buelow, PG
Santa Ynez River Water Conservation District

Paeter Garcia
Improvement District No. 1

Randy Murphy
City of Solvang

As of September 30, 2024

Italicized and gray indicates former committee members or staff representatives.

EMA CHAPTER 1: INTRODUCTION

The Eastern Management Area (EMA) Groundwater Sustainability Agency (GSA) is the exclusive agency responsible for complying with Sustainable Groundwater Management Act (SGMA)[1] requirements in the eastern portion of the Santa Ynez River Valley Groundwater Basin (SYRVGB). The EMA covers the easternmost 151 square miles, which geographically includes the Santa Ynez Upland and Santa Ynez River areas. The Santa Ynez Upland area includes the groundwater system that is subject to regulation under SGMA, as presented on **EMA Figure 1-1**.

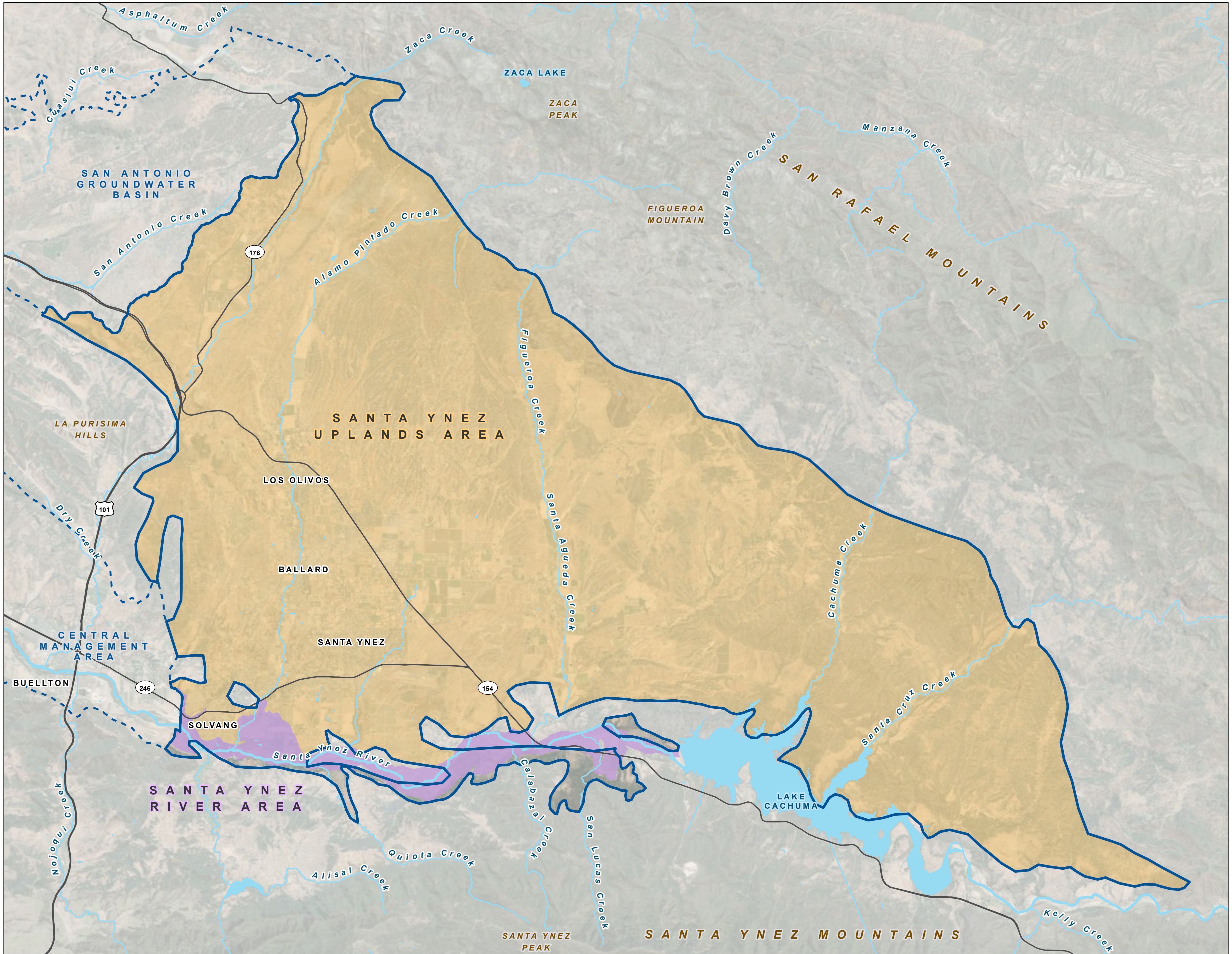
The EMA is bounded on the north and east by impermeable rocks of the San Rafael Mountains and on the northwest by the adjacent San Antonio Creek Valley Groundwater Basin (San Antonio Groundwater Basin). The entire Basin is bounded by the Santa Ynez Mountains on the south. Average precipitation ranges from 15 inches per year in the southern and central areas to about 24 inches per year in the higher elevations (Santa Barbara County, 2012). Several tributaries flow from the San Rafael Mountains and Santa Ynez mountains into the Santa Ynez River along the southern edge of the EMA. The Santa Ynez River flows west of Highway 154, past the communities of Solvang and Santa Ynez.

The EMA GSA consists of four member agencies:

- Santa Ynez River Water Conservation District (SYRWCD),
- Santa Barbara County Water Agency (County of Santa Barbara)
- City of Solvang
- Santa Ynez River Water Conservation District, Improvement District No. 1 (ID No. 1).

In the Santa Ynez Uplands, the principal aquifers are the Paso Robles Formation and Careaga Sand. The base of these water-bearing formations is an irregular surface formed as the result of folding, faulting, and erosion, which extends to a maximum depth of approximately 3,500 feet in some areas.

1 CWC Section 10720 et seq. and 23 CCR § 350 et seq.



Santa Ynez River Valley Groundwater Basin Eastern Management Area

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

- Santa Ynez Uplands Area (area covered by GSP)
- Santa Ynez River Area

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

NOTE

GSP: Groundwater Sustainability Plan

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Feet

Date: November 26, 2024
Data Sources: ESRI, USGS, Maxar 2019

GSI Water Solutions, Inc.

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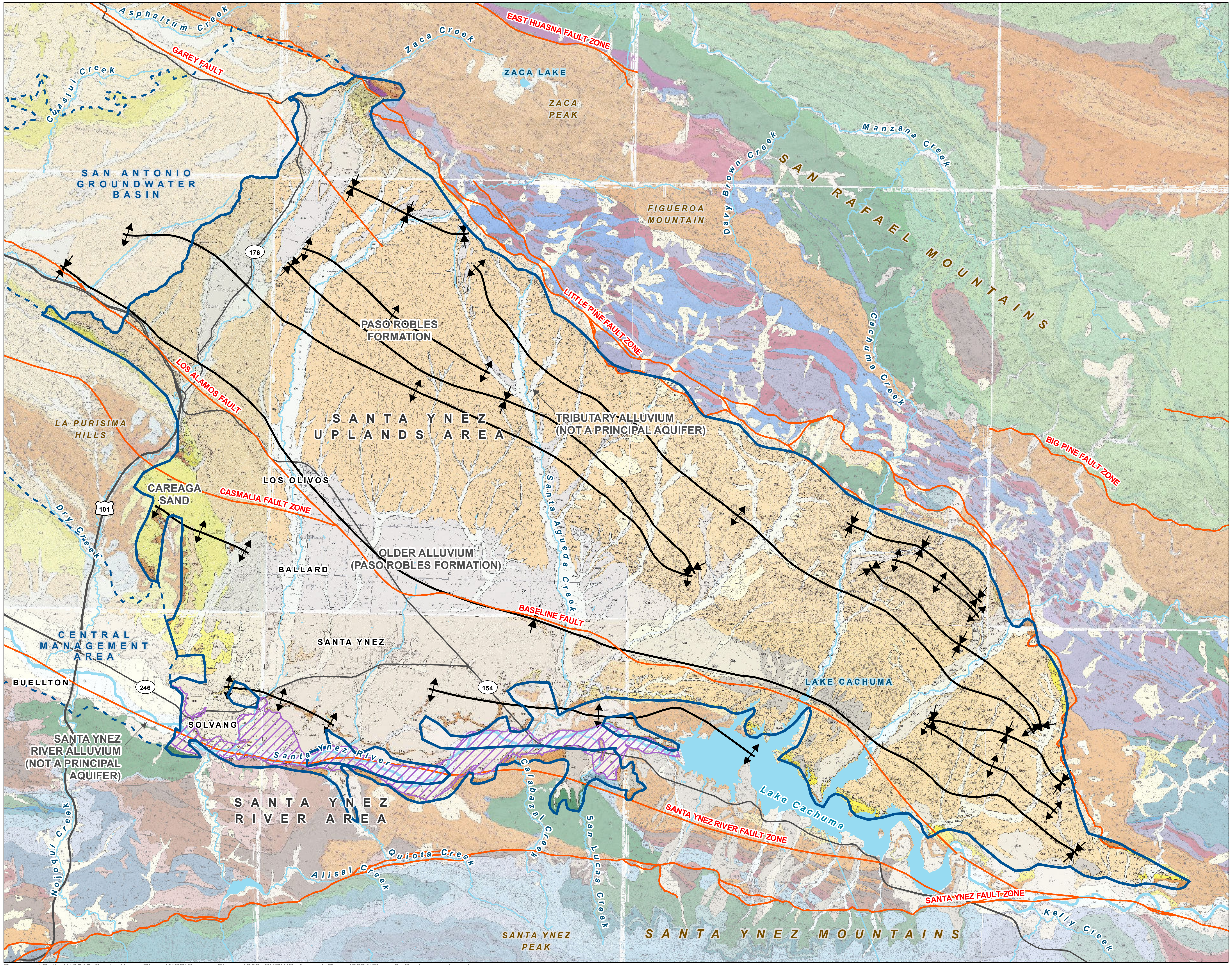
The groundwater basin is generally bound by the mountains rimming the EMA as follows and presented on **EMA Figure 1-2** and **EMA Figure 1-2**:

- The northern and eastern boundary of the EMA is defined by outcropping of impermeable bedrock of the San Rafael Mountains.
- The Santa Ynez Upland is separated from the Santa Ynez River area to the south by a ridge of impermeable bedrock. The Santa Ynez Mountains form the southern boundary of the entire EMA south of the Santa Ynez River.
- The boundary to the northwest is defined as the shared border with the San Antonio Groundwater Basin, which is a topographic watershed divide west of Zaca Creek Canyon, but not necessarily a geologic barrier to groundwater flow.
- The boundary to the west is formed in the Purisima Hills by impermeable consolidated bedrock underlying the Careaga Sand.

Two principal aquifers have been identified in the EMA: the Paso Robles Formation and the Careaga Sand, which are presented on **EMA Figure 1-3** and **EMA Figure 1-4**, respectively. The Paso Robles Formation and the Careaga Sand together extend to a depth of more than 1,500 feet below ground surface (bgs) on average in the EMA with a maximum thickness of up to 3,500 feet. Overlying these formations are the Quaternary-aged Older Alluvium (Qoa), which is derivative of the Paso Robles Formation, and is therefore composed of materials that are very similar to the Paso Robles Formation and extend to a thickness of as much as 150 feet. Because of this similarity, this Older Alluvium is managed as part of the Paso Robles Formation. Large exposures of the formation north and east of the valley receive direct infiltration of rainfall.



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Geologic Map

Annual Report Water Year 2024
for the Santa Ynez River Valley
Groundwater Basin,
Eastern Management Area

LEGEND

Santa Ynez River Area

Geology

- Tributary Alluvium, Qa
- Santa Ynez River Alluvium, Qg
- Older Alluvium, Qoa
- Paso Robles Formation QTp
- Careaga Sand, Tcag
- Monterey Formation, Tm

Geologic Structures

- Fault

Fold Axes

- Anticline
- Syncline

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

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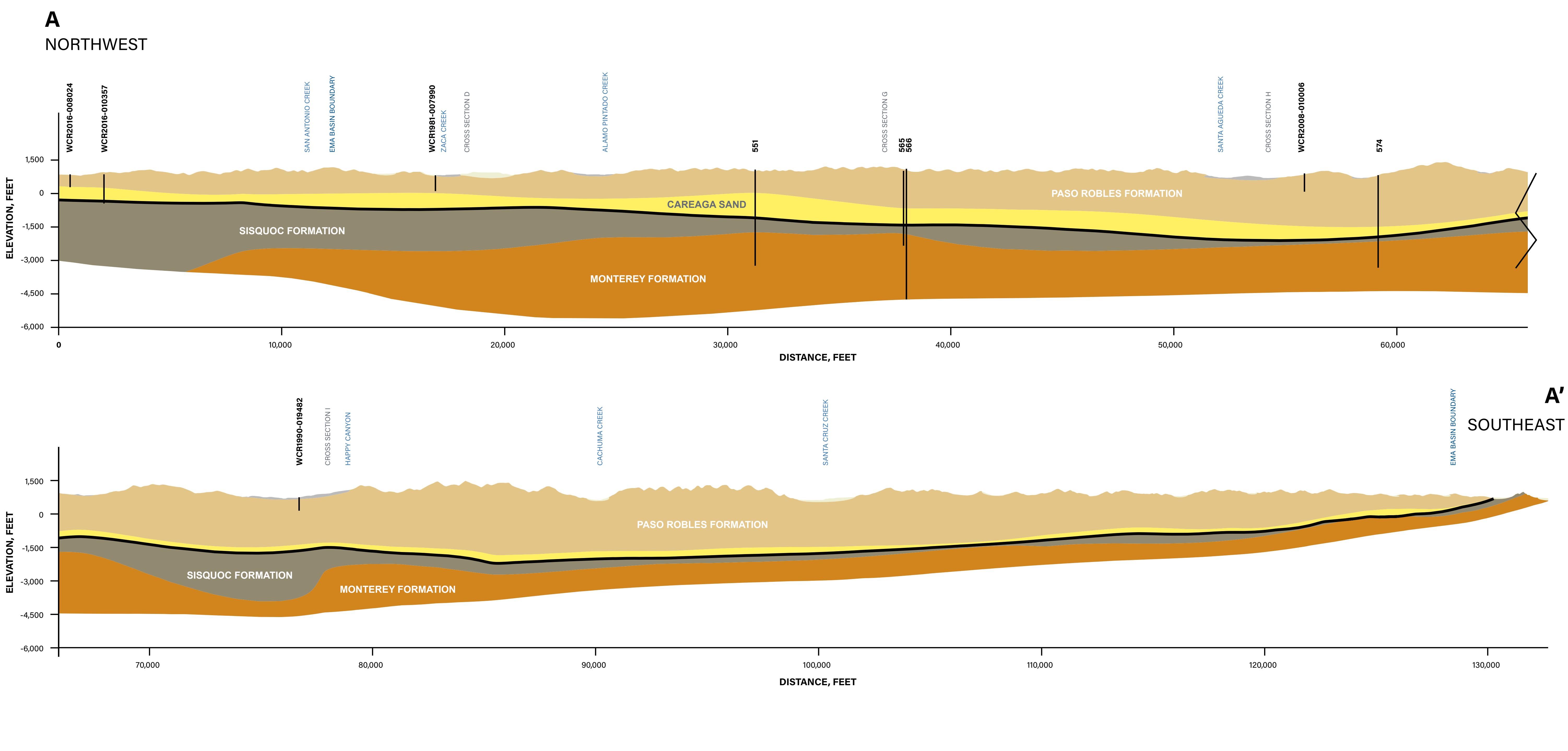
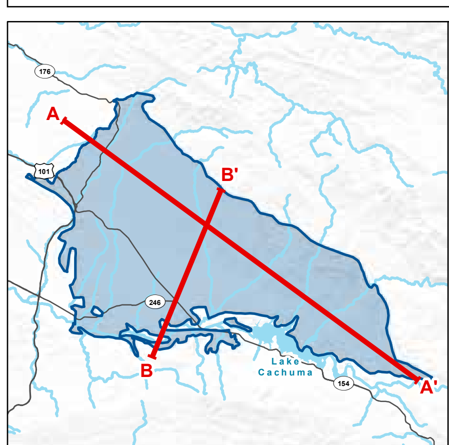
Feet

Date: November 26, 2024
Data Sources: ESRI, USGS, Maxar 2019

GSI Water Solutions, Inc.





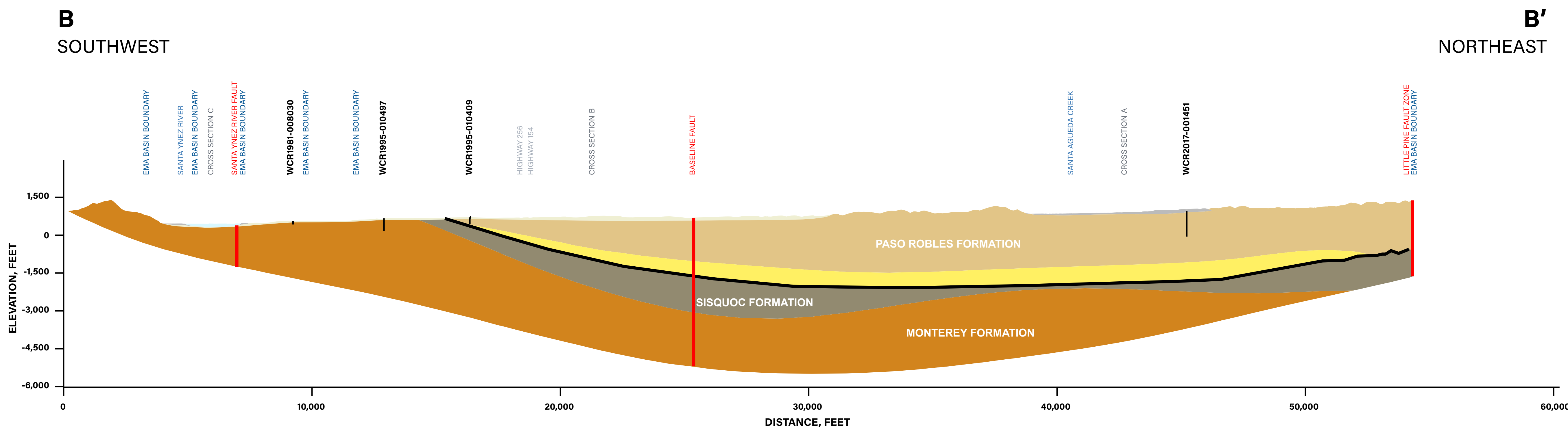
LEGEND

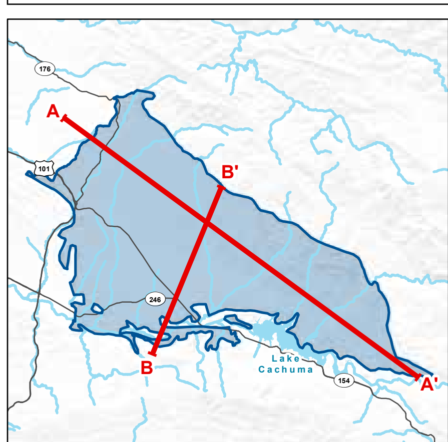
- Qa – Tributary Alluvium
- Qoa (Principal Aquifer) – Older Alluvium
- QTp (Principal Aquifer) – Paso Robles Formation
- Tca – Careaga Sand
- Basin Bottom
- Tsq (Principal Aquifer) – Sisquoc Formation
- Tm – Monterey Formation

Cross Section A

Annual Report Water Year 2024 for the
Santa Ynez River Valley Groundwater Basin,
Eastern Management Area

GSI Water Solutions, Inc.





LEGEND

- Qa – Tributary Alluvium
- Qoa (Principal Aquifer) – Older Alluvium
- QTp (Principal Aquifer) – Paso Robles Formation
- Tca – Careaga Sand
- Basin Bottom
- Tsq (Principal Aquifer) – Sisquoc Formation
- Tm – Monterey Formation

Cross Section B

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

GSI Water Solutions, Inc.

Vertical heterogeneity in the water-bearing properties of the Paso Robles Formation is the result of coarse-grained sediment beds that yield water freely to wells alternating with fine-grained beds that do not, where higher well yields are typically attributed to the wells that penetrate the coarse-grained lenses. Production from wells completed in this formation can range between less than 100 gallons per minute (gpm) to as much as 1,500 gpm depending largely on the length of the aquifer perforated by individual wells. With that, considerable variability is known to exist within the formation throughout the EMA. Whereas the upper part consists of relatively coarse-grained materials typical of alluvial fan deposits, the lower part of the complexly folded Paso Robles Formation is finer-grained. The coarser-grained upper portions of the Paso Robles Formation yield groundwater to wells at higher flow rates than the underlying portions. Fine-grained zones act as local confining beds and are likely the cause of the localized artesian conditions that were historically reported in some wells screened within the Paso Robles Formation in Happy Canyon and along Alamo Pintado Creek.

In the Santa Ynez Uplands, the Careaga Sand is approximately 800 feet thick on average and varies from 200 to 900 feet. There are large exposures of the formation in the Purisima Hills along the western edge of the EMA. However, because the lateral extent of the Careaga Sand aquifer is limited relative to that of the Paso Robles Formation, fewer wells are completed in the Careaga Sand than in the overlying Paso Robles Formation. In the EMA, wells completed in the Careaga Sand produce between 12 to 325 gpm.

The primary components of groundwater recharge to the aquifers are mountain front recharge, streamflow percolation, deep percolation of direct precipitation, and agricultural irrigation return flow.

Natural groundwater discharge areas in the EMA include springs and seeps, some groundwater discharge to surface water, and evapotranspiration (ET) by phreatophytes. The largest component of groundwater discharge is pumping of groundwater from wells. The regional direction of groundwater flow in both principal aquifers is generally from the north to the south-southwest.

1.1 MONITORING NETWORKS AND PROTOCOL

This section provides a brief description of the groundwater monitoring programs and monitoring results.

The EMA Plan summarized the existing groundwater monitoring network and protocol for including a subset of these wells into the Representative Monitoring Network. Under SGMA, monitoring networks are required to be developed to provide sufficient data quality, frequency, and spatial distribution to characterize groundwater and interconnected surface water, and to evaluate changing aquifer conditions in response to implementation of the EMA Plan. The monitoring networks developed in the EMA Plan support efforts to:

- Monitor changes in groundwater conditions and demonstrate progress toward achieving measurable objectives and avoiding undesirable results as defined in the EMA Plan.
- Quantify annual changes in groundwater storage.
- Monitor status of the beneficial uses and users of groundwater.

Monitoring networks have been developed for each of the five sustainability indicators applicable[2] to the EMA in relation to groundwater pumping and implementation of the EMA Plan:

Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning implementation horizon.

Significant and unreasonable reduction of groundwater storage.

Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

Significant and unreasonable land subsidence that substantially interferes with surface land uses.

Depletion of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

Monitoring for the first two sustainability indicators (chronic lowering of water levels and reduction of groundwater in storage) is being implemented using the same representative monitoring well sites. The EMA Plan identifies a network of 24 representative wells for water level monitoring (GSI, 2022). Of these,

2 The sixth and final indicator, seawater intrusion, is not applicable to the EMA as an inland management area. Seawater intrusion is applicable to the WMA, which is the sole coastal management area for the SYRWCB.

15 wells are screened solely in the Paso Robles Formation, and 9 wells are screened solely in the Careaga Sand.

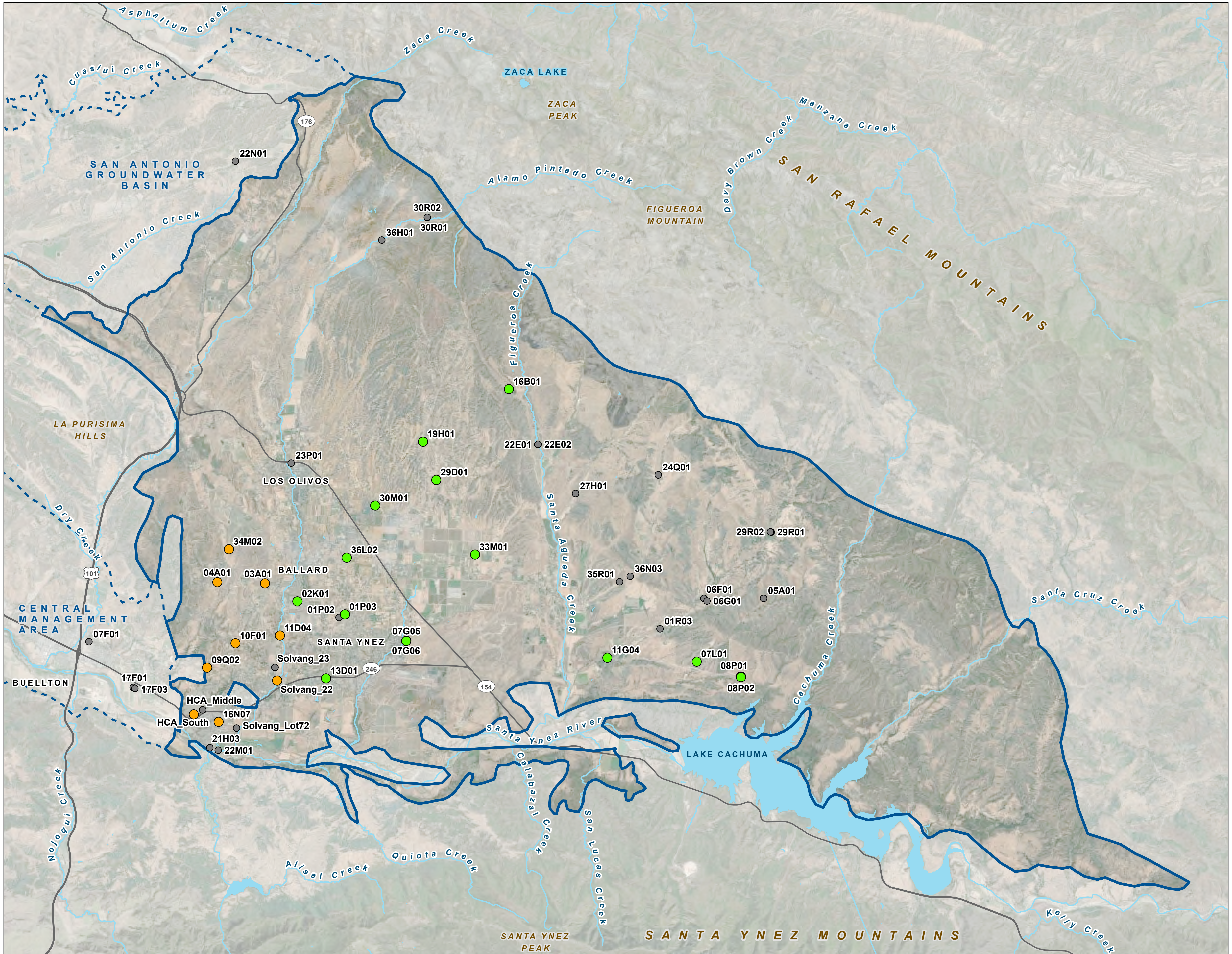
The wells included in the representative monitoring network documented in the EMA Plan are subject to change during EMA Plan the implementation period. Specifically, one of the representative Paso Robles formation wells (-08P01) has been dry since the issuance of the EMA Plan while an adjacent well completed in the same formation has not. Therefore, this well is no longer considered to be representative of the Paso Robles Formation and has been removed from the representative monitoring well network. Additional discussion of proposed changes to the monitoring network is provided in this section.

EMA Figure 1-5 displays the locations of the representative monitoring wells, and **EMA Appendix A** includes a summary of information for each of the wells.

1.1.1 Monitoring Data Gaps

Although the existing groundwater level monitoring network presented in the EMA Plan satisfied the well density guidelines cited in the DWR best management practice guidance for monitoring networks (DWR, 2016a and 2016b), two low-density areas have been identified within the EMA where the addition of monitoring wells would improve the understanding of groundwater conditions discussed in this section (see Figure 4-2 in GSI, 2022). The first area includes northwestern portions of the Santa Ynez Uplands from Los Olivos to the northern boundary of the Basin and EMA, including the northern reaches of Zaca Creek and Alamo Pintado Creek. The second area is in the Paso Robles Formation in the central portion of the EMA, generally including the area surrounding Santa Agueda Creek and Happy Canyon.

Efforts are underway to contact owners of wells in these areas to determine whether additional existing wells can be incorporated in the monitoring program. Including these wells into the groundwater level monitoring network would increase the accuracy of groundwater elevation throughout the EMA, identify trends, and enhance efforts to sustainably manage the EMA. At least one additional monitoring well will be installed within one of the data gap areas as part of the grant for SGMA implementation activities.



Groundwater Level Monitoring Network

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Representative Well (by screened aquifer)

- Careaga Sand
- Paso Robles Formation
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

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0 5,000 10,000 15,000
FEET

Date: February 18, 2025
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

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1.1.2 Additional Monitoring

Evaluation of the water quality sustainability indicator will be achieved through existing groundwater quality monitoring networks, including the SWRCB Division of Drinking Water (DDW) public supply well water quality program and the SWRCB Irrigated Lands Regulatory Program (ILRP). The EMA GSA is not charged with managing groundwater quality unless it can be shown that water quality degradation is caused by groundwater pumping in the EMA, or the EMA GSA implements a project that degrades water quality. Constituents of concern (COCs) identified in the EMA Plan are based on regulatory standards (i.e., maximum contaminant levels [MCLs] and secondary MCLs [SMCLs]) for drinking water established by the SWRCB DDW and the U.S. Environmental Protection Agency.[3] For agricultural uses, COCs are based on basin water quality objectives presented in the Water Quality Control Plan for the Central Coastal Basin (RWQCB, 2019).

There are 56 wells from the existing monitoring programs within the groundwater quality monitoring network, of which 26 are municipal and public water system drinking water supply wells from the SWRCB's Groundwater Ambient Monitoring and Assessment database. The remainder of the wells were either agricultural and/or domestic wells from the ILRP database. Well construction information is unknown for the ILRP wells.

According to the California Department of Conservation, Geologic Energy Management Division's online Well Finder, or WellSTAR, tool, the Zaca Oil Field is the only oil and gas field located within or adjacent to the EMA. The U.S. Geological Survey, in cooperation with the SWRCB, initiated the California Oil, Gas, and Groundwater (COGG) Program in 2015.[4] The objective of the COGG Program is to determine whether groundwater quality may be adversely impacted by nearby oil and gas development activities (Davis et al., 2018). For the current water year, it was determined that reports are not yet available from the COGG Program relevant to the EMA. When results from the COGG Program are available for review, the EMA GSA will consider these findings as part of the overall groundwater quality monitoring program.

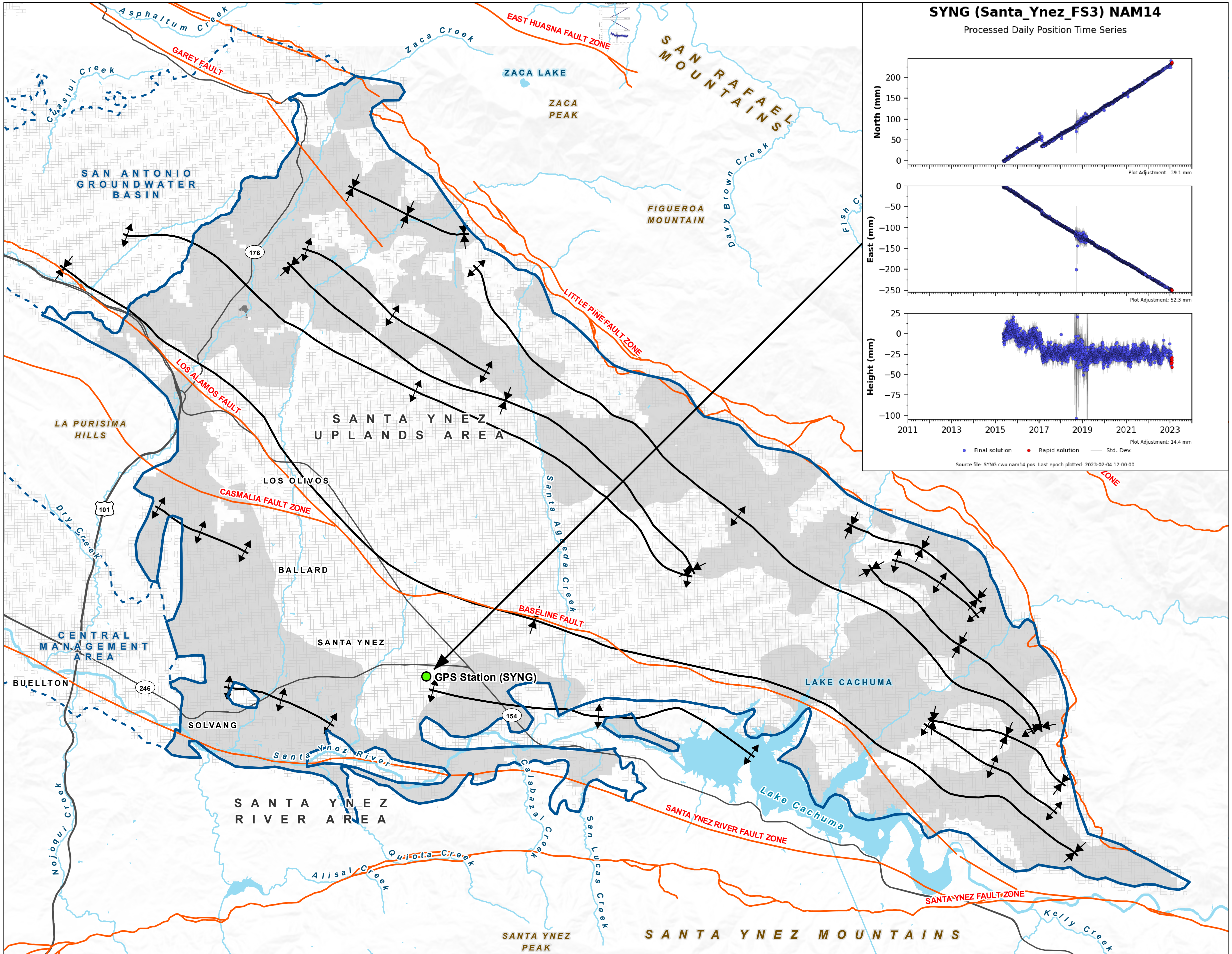
3 The list of MCLs and SMCLs is available at State Water Resource Control Board. September 12, 2024. *Contaminants in Drinking Water.* https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chemicalcontaminants.html . Access date 2025-02-14.

4 Description available at California Water Science Center, United States Geological Survey. 2025. *California Oil, Gas, and Groundwater (COGG) Program*. https://webapps.usgs.gov/cogg/ . Access date 2025-02-14.

Land subsidence caused by groundwater extraction is monitored as part of implementation of the EMA Plan. Land surface elevations in the EMA are measured using Interferometric Synthetic Aperture Radar (InSAR) data provided by DWR and by the University NAVSTAR Consortium (UNAVCO) Continuous Global Positioning System (CGPS) Station near the Santa Ynez Airport. InSAR measures ground elevation using microwave satellite imagery data. Any presence of subsidence is estimated using Interferometric Synthetic Aperture Radar (InSAR) data provided by DWR. The accuracy associated with the InSAR measurement and reporting methods is 0.1 feet (or 1.2 inches). A land surface change of less than 0.1 feet is therefore within the noise of the data and is evidence that no subsidence has occurred. Examination of the data between June 2015 and October 2024 shows that no measurable land subsidence has occurred. The EMA GSA will continue to monitor and report annually on any subsidence in the EMA.

Available data to date indicate that (1) land subsidence rates have not exceeded rates observed from 2015 through 2024 at the UNAVCO CGPS station near Santa Ynez and thus, the minimum threshold has not been exceeded; and (2) land subsidence that causes significant and unreasonable damage to groundwater supply or land uses (including agricultural, residential, rural residential, and town buildings), or infrastructure, and property interests has not been documented. The EMA will annually assess subsidence using the UNAVCO CGPS and InSAR data provided by DWR. UNAVCO CGPS and InSAR data are shown on **EMA Figure 1-6**.

The interconnected surface water monitoring network will consist of piezometers in the potential groundwater-dependent ecosystem (GDE) areas identified in the EMA Plan within the distal ends of Alamo Pintado Creek and Zanja de Cota Creek. The piezometers are scheduled to be installed in the upcoming year using SGMA grant funds awarded to the Basin by DWR. These piezometers will be used to assess whether depletion of interconnected surface water is occurring and whether significant and unreasonable adverse impacts to GDEs or reductions in discharge of interconnected surface water may be occurring because of groundwater conditions. As described in the EMA Plan, the EMA GSA will use groundwater levels within these forthcoming monitoring wells as a proxy for evaluating the minimum threshold in the EMA Plan for depletion of interconnected surface waters.



Land Subsidence

Annual Report Water Year 2024
for the Santa Ynez River Valley
Groundwater Basin,
Eastern Management Area

LEGEND

Vertical Displacement Point Data Location Q4 2024

GPS Station SYNG

Interpolated InSAR Raster of Cumulative Displacement, 6/13/2015 - 10/1/2024

Vertical Displacement (InSAR)

0.0 to 0.09

0.1 to 0.11 (max)

Geologic Structures

Fault

Fold Axes

Anticline

Syncline

All Other Features

Eastern Management Area Bulletin 118 Boundary

Other Bulletin 118 Groundwater Basin Boundary

Major Road

Watercourse

Waterbody

NOTES

InSAR accuracy for the period shown is 0.1 feet. InSAR results less than this value are not considered to be evidence of actual subsidence

Areas outside of the InSAR point data grid do not have raw data.

N

0 5,000 10,000 15,000
Feet

Date: March 4, 2024
Data Sources: ESRI, USGS, Maxar 2019

GSI Water Solutions, Inc.

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EMA CHAPTER 2: BASIN CONDITIONS

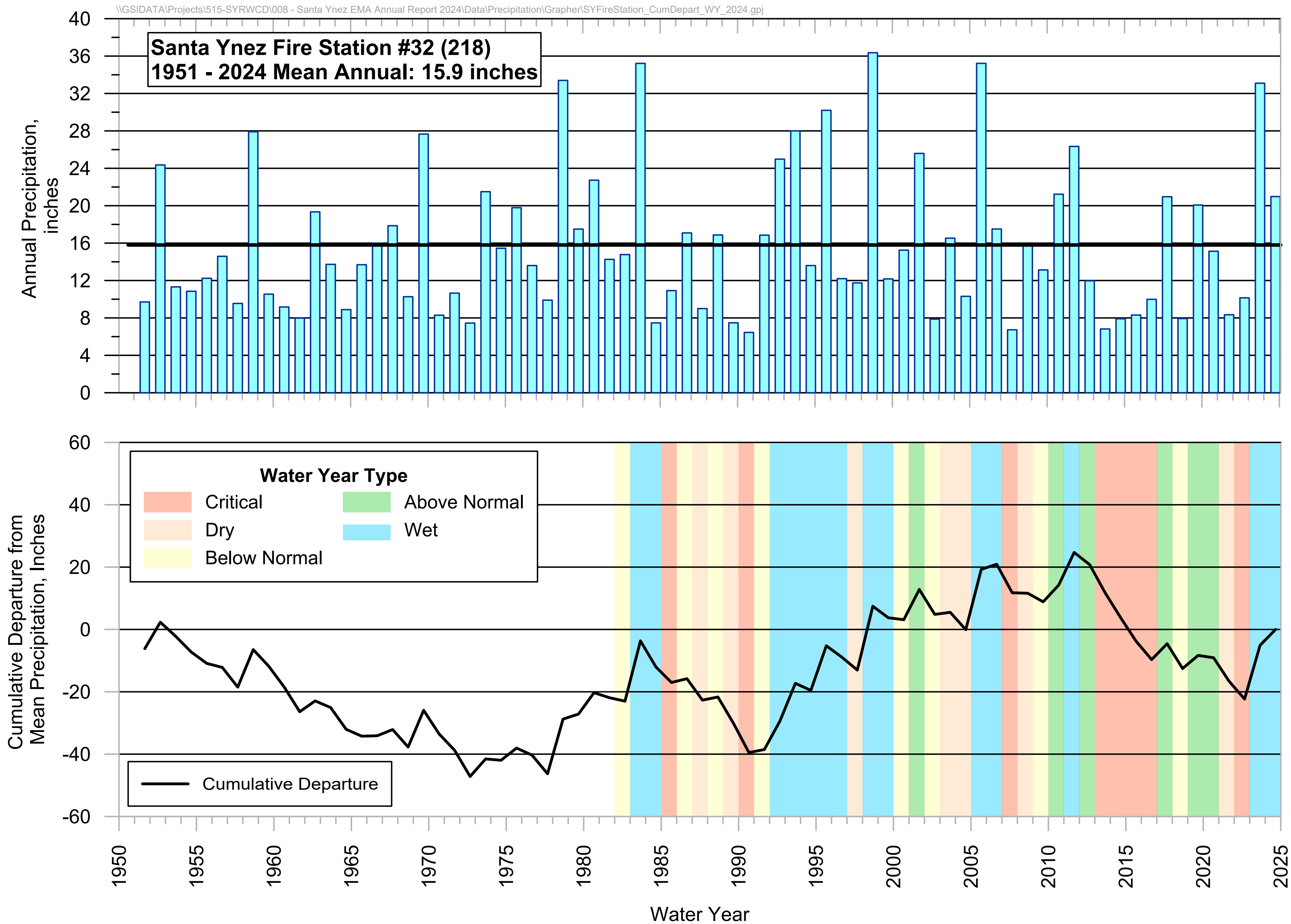
During Water Year 2024, a total of 21 inches of precipitation was recorded at the Santa Ynez Fire Station #32 (Santa Barbara County Station No. 218 gauge). A graph of the cumulative departure from average annual precipitation, and water year type are presented in **EMA Figure 2-1**. The long-term average annual precipitation for water years 1951 through 2024 is 15.9 inches. Water year types in the EMA were identified using DWR guidance (DWR, 2021), which principally considers the rainfall that fell during the current and prior water years. The water year index presented on **EMA Table 2-1** is calculated in accordance with DWR's guidance[1]:

Water years are categorized according to the following designations, which are determined in comparison to rank of each year to the preceding 29 years, as shown on EMA Table 2-1:

- Wet (greater than 70 percent)
- Above normal (50 to 70 percent)
- Below normal (30 to 50 percent)
- Dry (15 to 30 percent)
- Critical (less than 15 percent)

The period covered by the EMA Plan included data through the end of water year 2018. Since that time, the six water years of 2019 through 2024 have included two wet years (2023 and 2024), two above normal years (2019 and 2020), one dry year (2021) and one critical year (2022) according to DWR water year calculations. Overall, rainfall during the period since 2018 has averaged 18 inches per year, which is somewhat wetter than the period of record by approximately 13 percent (or 2 inches per year).

[1] Index = (0.40 * Current Year's precipitation) + (0.60 * Previous Year's Precipitation)



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Annual Precipitation and Water Year Type
Santa Ynez Fire Station
Santa Ynez River Valley Groundwater Basin, Eastern Management Area

EMA FIGURE 2-1

EMA Table 2-1
Water Year Type in the EMAs for Recent Years, Based on Precipitation at Santa Ynez Fire Station #32

Water Year	Precipitation (in/year)	Water Year Index [A]	Water Year Type [A]
2011	26.3	24.3	Wet
2012	12	17.7	Above Normal
2013	6.8	8.9	Critical
2014	7.9	7.5	Critical
2015	8.3	8.2	Critical
2016	10	9.3	Critical
2017	21	16.6	Above Normal
2018	7.9	13.1	Below Normal
2019	20.1	15.2	Above Normal
2020	15.1	17.1	Above Normal
2021	8.3	11.1	Dry
2022	10.2	9.4	Critical
2023	33.1	23.9	Wet
2024	21.0	25.8	Wet

Notes: The water years shaded according to the designations determined in comparison of each year to the preceding 29 years. Based on the below table:

Color	Year Type
Cyan	Wet
Green	Above Normal
Yellow	Below Normal
Tan	Dry
Red	Critical

[A] Defined in DWR, 2021 based on mean annual precipitation measured at the Santa Ynez Fire Station #32 (Santa Barbara County Station No. 218 gauge) (see Section 3.3 of the EMA Plan). The average is calculated as the mean of the period of record (WY1955-WY 2023).
Notes: EMA = Eastern Management Area; in/year = inches per year.
Source: Precipitation from Santa Barbara County - Flood Control District station #218 - Santa Ynez Fire Station #32

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EMA CHAPTER 3: GROUNDWATER HYDROGRAPHS AND CONTOURS

This section describes groundwater elevations in the EMA beginning in October 2023. For the current Annual Report, groundwater elevation maps have been prepared for each of the two principal aquifers during the spring and fall periods of water year 2023 and 2024.

These maps present the most up-to-date seasonal conditions in the Paso Robles Formation and the Careaga Sand. The monitoring data has been reviewed for quality and an appropriate timeframe has been selected to represent conditions in the spring and fall of each year. The data used to represent groundwater conditions are based on the best-available groundwater elevation data for the two principal aquifers, even though some well construction information is incomplete or unavailable for some of the wells. Consequently, a careful review of these data was conducted prior to uploading to the DWR's Monitoring Network Module, which replaces the California Statewide Groundwater Elevation Monitoring program.

The groundwater elevation contour maps were generated based on data collected by Santa Barbara County Water Agency, ID No. 1, and City of Solvang staff. Notably, the number of wells in the Representative Monitoring Network for both principal aquifers has decreased since 2018. Monitoring of several wells completed within the Careaga Sand in the northwestern portion of the EMA adjacent to the San Antonio Groundwater Basin has been discontinued following 2018 due to a denial of access by the well owners. Likewise, two wells completed within the Paso Robles Formation that were monitored through 2018 as presented in the EMA Plan are no longer available for monitoring. The reduction in the number of wells monitored in each of the principal aquifers in recent years has proportionally reduced the accuracy of our understanding of groundwater conditions, which in turn affects the accuracy of the estimated change in groundwater in storage. The EMA GSA is undertaking efforts to add additional monitoring wells to address these identified data gaps.

3.1 SEASONAL HIGH AND LOW (SPRING AND FALL)

Groundwater elevation data from all available monitoring wells completed in the principal aquifers were used to create groundwater elevation contour maps to assess seasonal variability in each principal aquifer. To maintain consistency with the EMA Plan and represent conditions that can be easily compared from year to year, this Annual Report attempts to use the same set of wells included in the monitoring network described in the EMA Plan.

Approximately 35 wells are measured by Santa Barbara County Water Agency staff on behalf of the GSA in the spring and fall periods, as access to the wells is available. Additional wells are monitored by the City of Solvang. As implementation of the EMA Plan progresses, additional wells are being considered for addition to the monitoring network considering accessibility, location, well construction, and representative hydrograph signatures. Of the wells monitored, the locations of which are shown on EMA Figure 1-5, a total of 15 wells within the Paso Robles Formation and 9 within the Careaga Sand have been identified as representative monitoring sites (RMSs) for the purpose of monitoring sustainability indicators.

In accordance with the SGMA regulations, the following information is presented in this report based on available data:

- Groundwater elevation contour maps are presented with the seasonal high and seasonal low groundwater conditions. Groundwater conditions were described in the prior annual report through the fall of 2023. Groundwater elevation contour maps are presented in this report for the spring and fall periods of 2023 and 2024 for comparison.
- A map depicting the change in groundwater elevation for the preceding water year is provided. Changes in groundwater elevation maps are presented in this report for the period of Spring 2023 through Spring 2024.
- A description of the seasonal variability in groundwater conditions is provided in the groundwater elevation maps between the Spring and Fall of 2024.
- Hydrographs for representative wells (RMSs) are presented in **EMA Appendix B**.

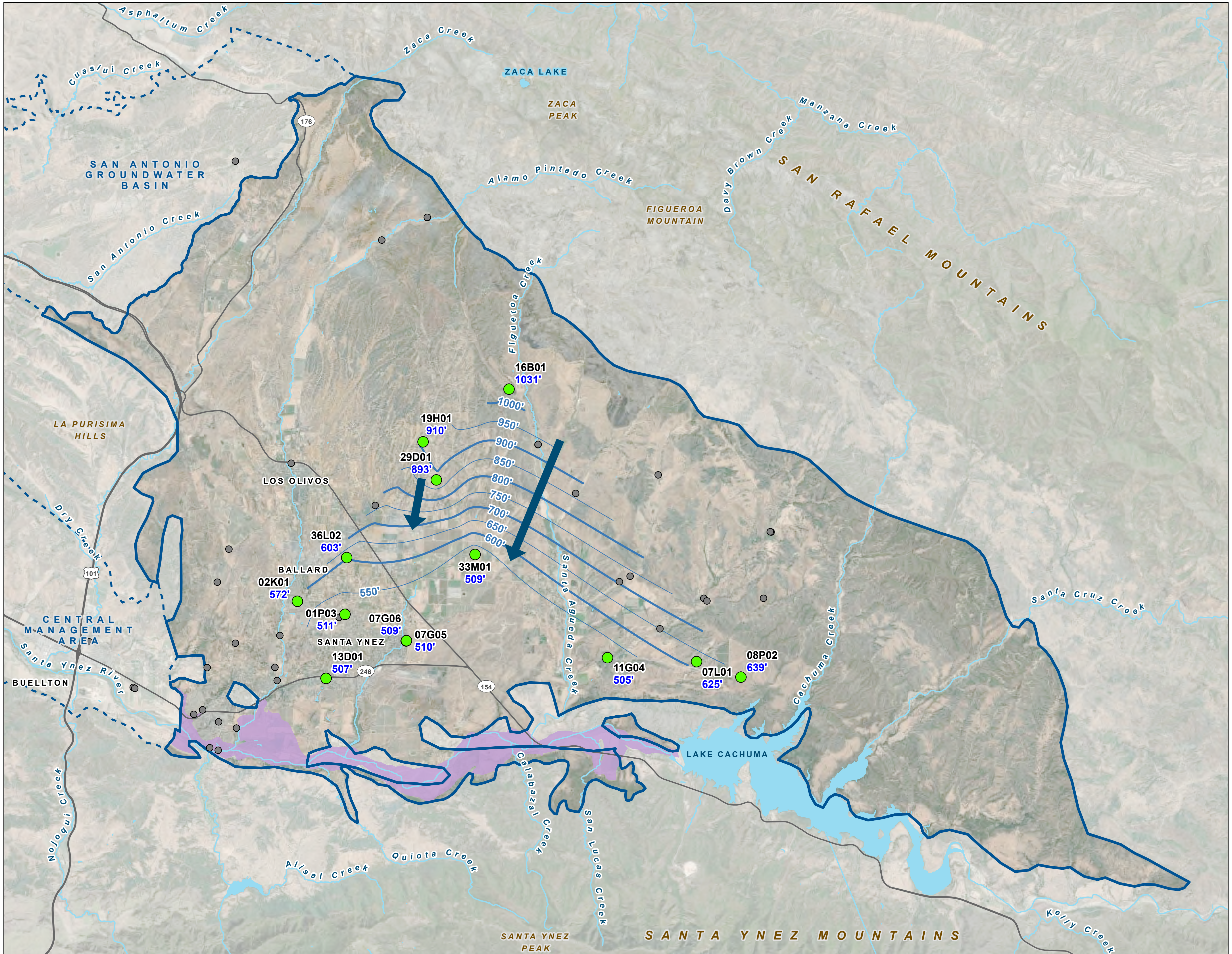
3.1.1 PASO ROBLES FORMATION GROUNDWATER ELEVATION CONTOURS

Groundwater elevation contour maps provide information about spatial variability of groundwater conditions, yearly and seasonal fluctuations, trends in groundwater conditions, groundwater flow directions, and horizontal groundwater gradients. The seasonal low groundwater elevations typically occur in the fall. In general, the spring groundwater conditions are represented by March to May measurements and fall conditions are represented by October measurements. For consistency with the EMA Plan, best attempts were made to use the same well data sets for preparing groundwater contouring as available. As noted above, several wells used to characterize groundwater conditions presented in the EMA Plan are no longer available to be monitored in both the northwestern and eastern portions of the EMA and therefore the area of the groundwater contours is limited to the area with water elevation data, as presented on the figures.

Overall, groundwater in the Paso Robles Formation continues to flow towards the south and southwest from the San Rafael Mountains as presented on the following figures (**EMA Figure 3-1** through **EMA Figure 3-4**), and which is consistent with the observations in the EMA Plan. The horizontal groundwater gradients during these periods are relatively unchanged from year to year and range between 0.02 feet per foot (ft/ft) throughout most of the Santa Ynez Uplands to approximately 0.05 ft/ft in limited areas.

Groundwater elevations within the Paso Robles Formation have generally risen during the Water Year 2024 relative to the previous spring in response to increased precipitation and decreased total production in the reporting period. Specifically, the groundwater elevations in the Paso Robles Formation representative monitoring wells have risen by an average of 8 feet between the spring periods of 2023 and 2024. During this period, water elevations in 11 of 13 Paso Robles Formation representative wells with water level data rose compared to the previous year, with water levels in one well rising by as much as 49 feet).

Between the fall periods of 2023 and 2024, the water levels in the representative Paso Robles Formation wells rose by an average of 3 feet. During this period, groundwater elevations in 10 of 12 representative wells with water level data rose compared to the previous year.



Paso Robles Formation Groundwater Elevation Contours, Spring 2023

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Paso Formation Groundwater Elevation, Spring 2023

- Major
- Minor
- Groundwater Flow Direction
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Paso Robles Formation Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

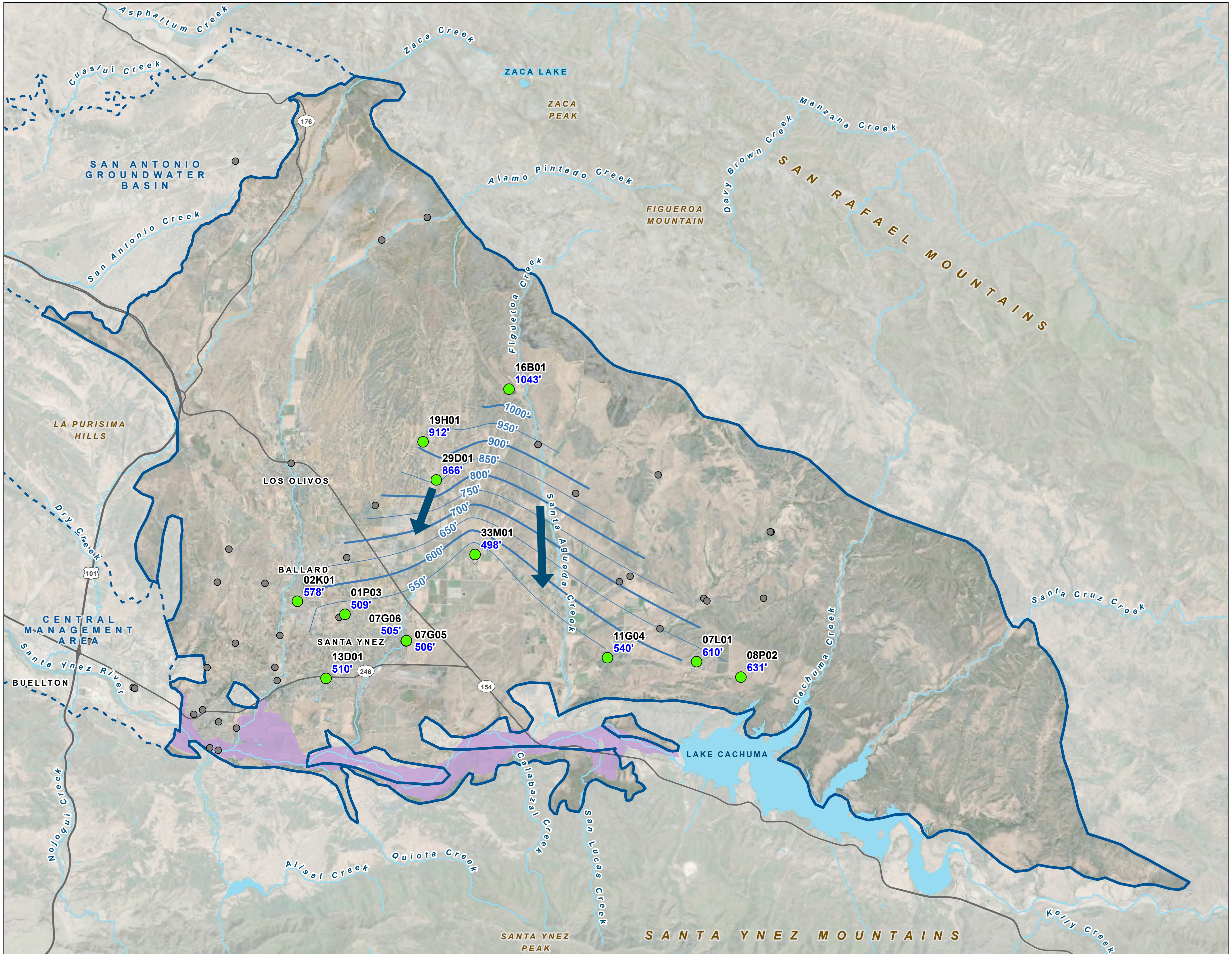
N

0 5,000 10,000 15,000
FEET

Date: January 30, 2025
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure6_Paso_GW_Contours_Spring2023.aprx, Figure6_Paso_GW_Contours_Spring2023, bramos



Paso Robles Formation Groundwater Elevation Contours, Fall 2023

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Paso Formation Groundwater Elevation, Fall 2023

- Major
- Minor
- Groundwater Flow Direction
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Paso Formation Well
  Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

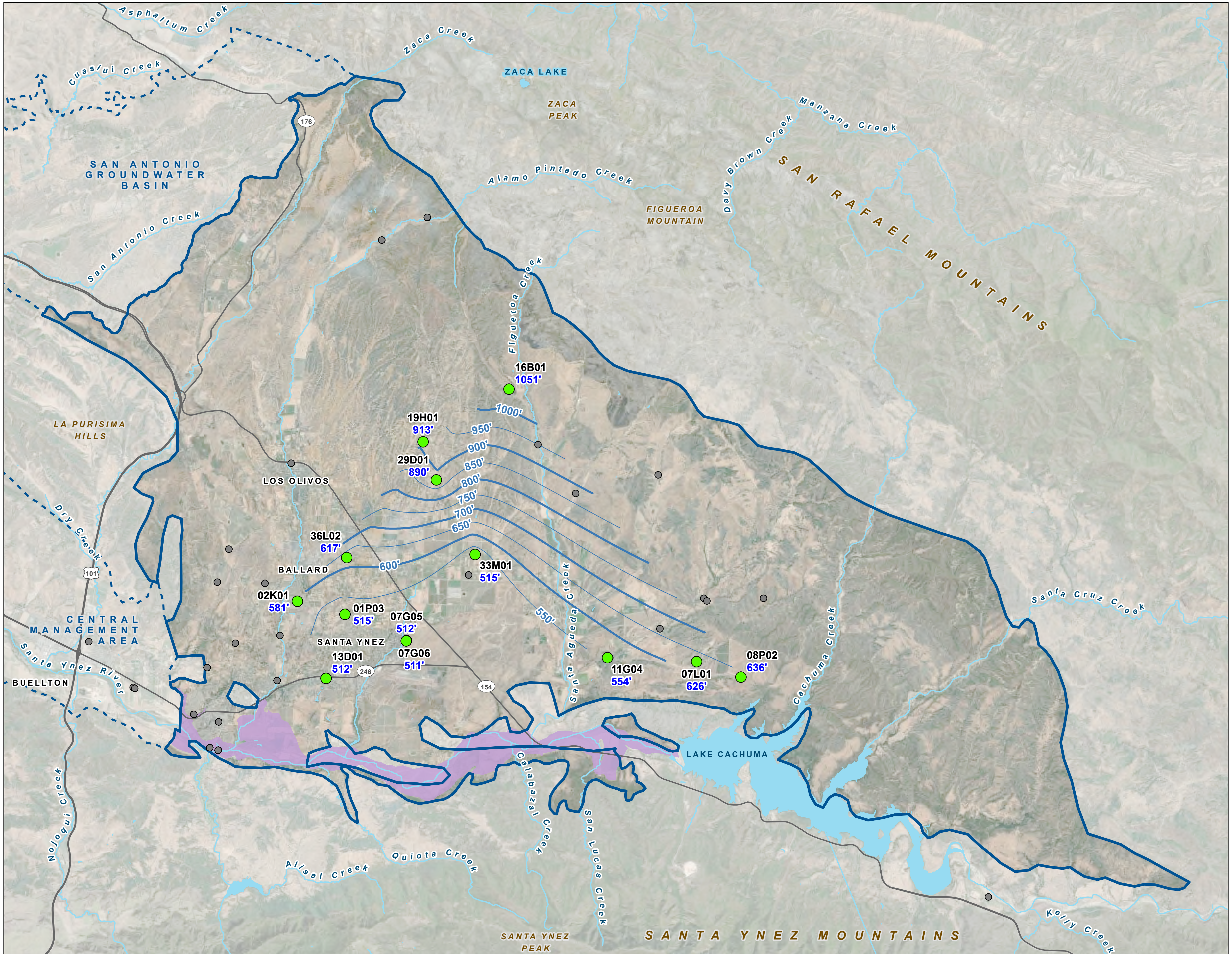
N

0 5,000 10,000 15,000
FEET

Date: January 30, 2025
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure7_Paso_GW_Contours_Fall2023.aprx, Figure7_Paso_GW_Contours_Fall2023, bramos



Paso Robles Formation Groundwater Elevation Contours, Spring 2024

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Paso Formation Groundwater Elevation, Spring 2024

- Major
- Minor
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Paso Robles Formation Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

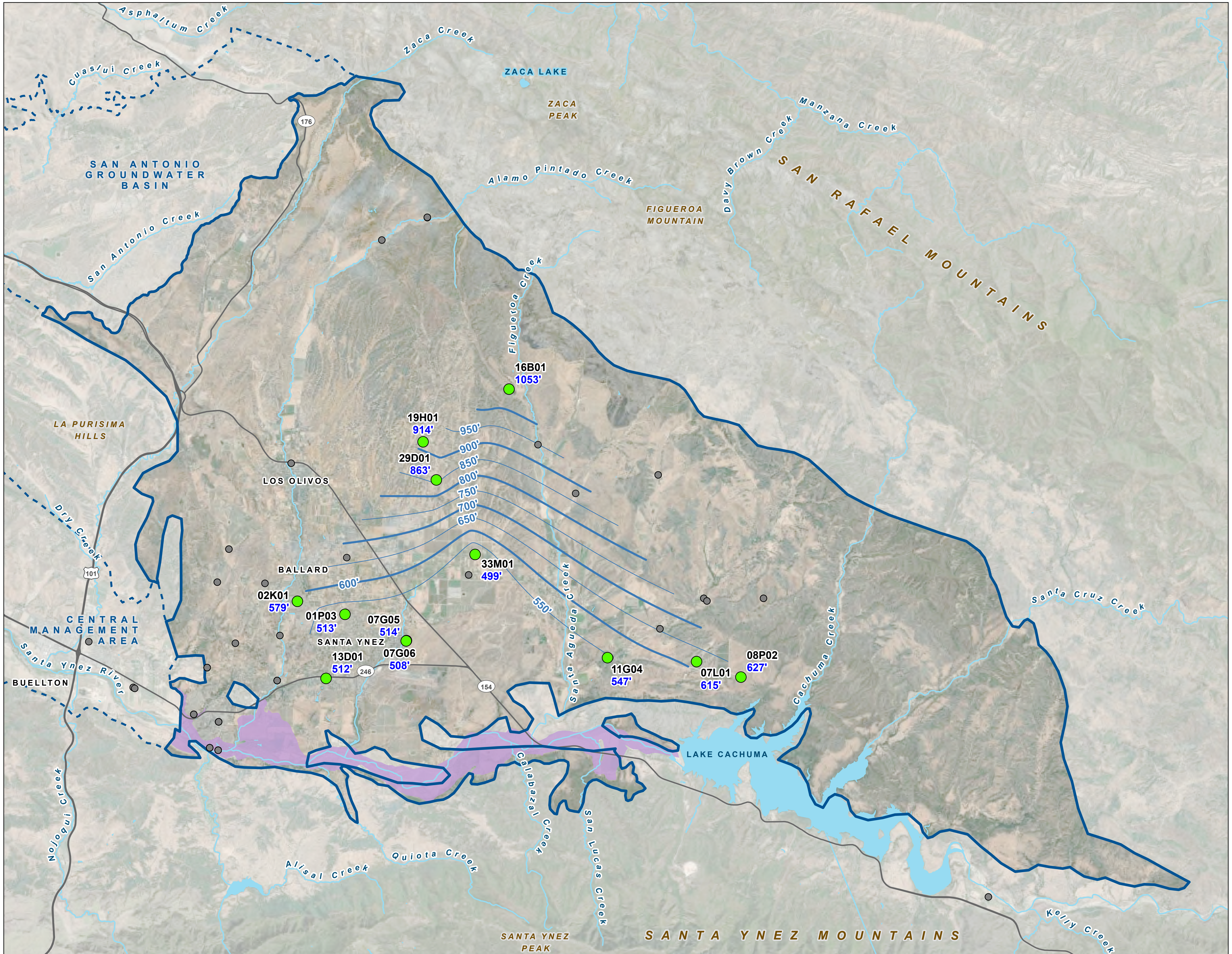
N

0 5,000 10,000 15,000
FEET

Date: January 30, 2025
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure8_Paso_GW_Contours_Spring2024.aprx, Figure8_Paso_GW_Contours_Spring2024, bramos



Paso Robles Formation Groundwater Elevation Contours, Fall 2024

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Paso Formation Groundwater Elevation, Fall 2024

- Major
- Minor
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Paso Formation Well
  Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

N

0 5,000 10,000 15,000
FEET

Date: January 30, 2025
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure9_Paso_GW_Contours_Fall2024.aprx, Figure9_Paso_GW_Contours_Fall2024, bramos

Groundwater elevations in the EMA in the fall are usually lower than in the spring in response to limited to no summertime rainfall and increased pumping needed to satisfy irrigation demand in the warmer summer and early fall months. Groundwater elevations in the Paso Robles Formation during the Spring and Fall of 2024 are presented as EMA Figure 3-3 and EMA Figure 3-4, respectively.

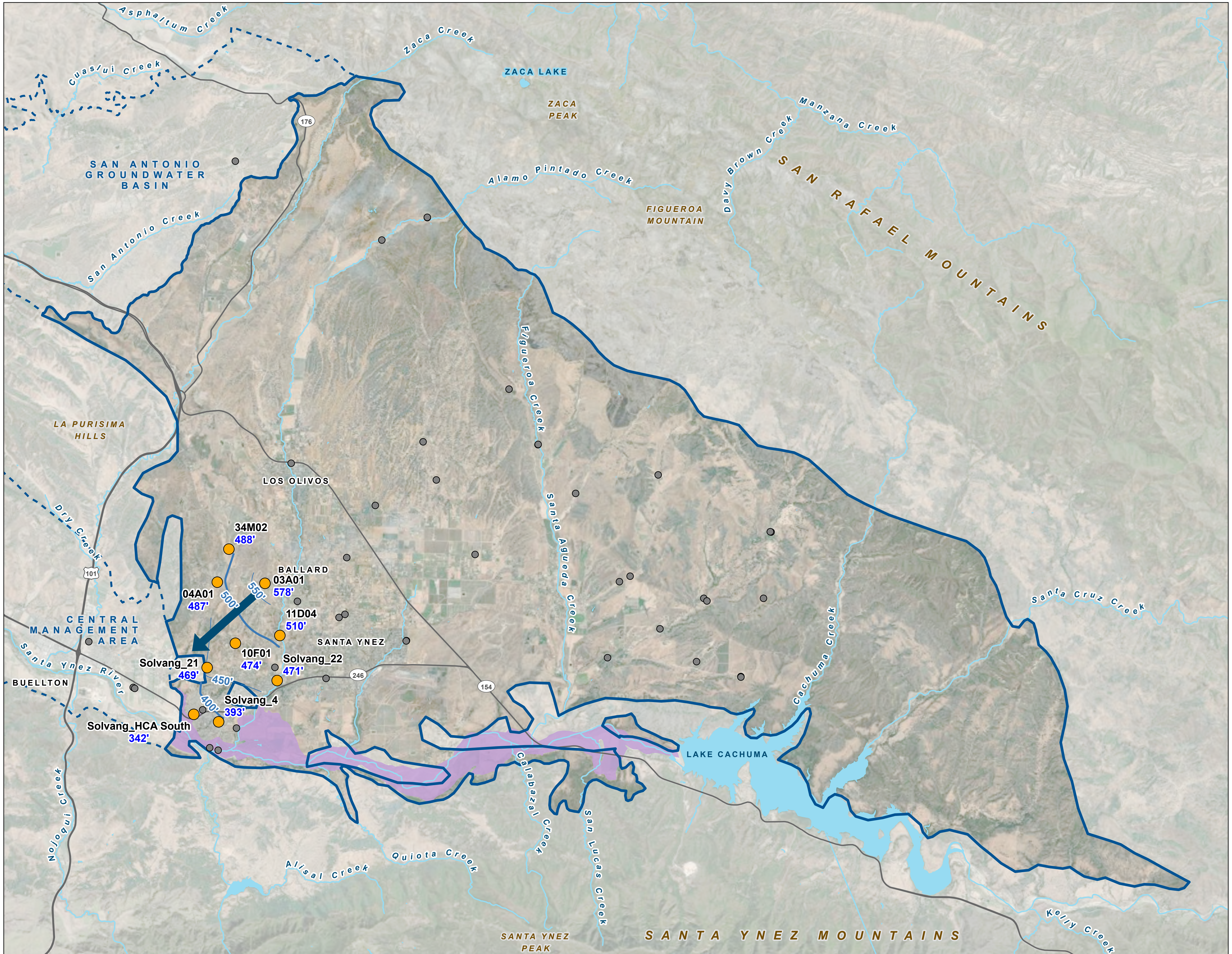
3.1.2 CAREAGA SAND AQUIFER GROUNDWATER ELEVATION CONTOURS

Contour maps were prepared for the groundwater elevations within the Careaga Sand for the spring and fall 2024 periods. These contour maps from the spring period represent the seasonal high groundwater levels. As in the Paso Robles Formation, the seasonal low groundwater elevations within the Careaga Sand typically occur in the fall, though to a lesser degree than within the Paso Robles Formation.

Overall, groundwater in the Careaga Sand continues to flow towards the southwest in the area below the communities of Ballard, Santa Ynez, and Solvang as presented **EMA Figure 3-5** through **EMA Figure 3-8**, and consistent with contours presented in the EMA Plan. The horizontal groundwater gradients during these periods are relatively unchanged from those presented in the EMA Plan and range between 0.01 to 0.02 ft/ft.

Groundwater elevations in the representative Careaga Sand wells have declined during Water Year 2024 relative to the previous spring by an average of approximately 1 foot, with a decline of as much as 36 feet in a single well. However, water levels in the other Careaga Sand wells rose during this period by an average of approximately 4 feet. Between the fall periods of 2023 and 2024, groundwater elevations have risen by an average of 3 feet, with rise of as much as 19 feet in a single well.

Groundwater elevations in the Caraga Sand during the spring and fall of 2024 are presented as EMA Figure 3-7 and EMA Figure 3-8, respectively. Groundwater elevation hydrographs of the wells presented on the map are included in Appendix B, indicate that groundwater levels tend to be lower in the fall than in the spring, with a slight rise in the representative Careaga Sand wells of approximately 1 foot in 2024.



Careaga Sand Groundwater Elevation Contours, Spring 2023

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Careaga Sand Groundwater Elevation, Spring 2023

- Major
- Minor
- Groundwater Flow Direction
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Careaga Sand
  Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

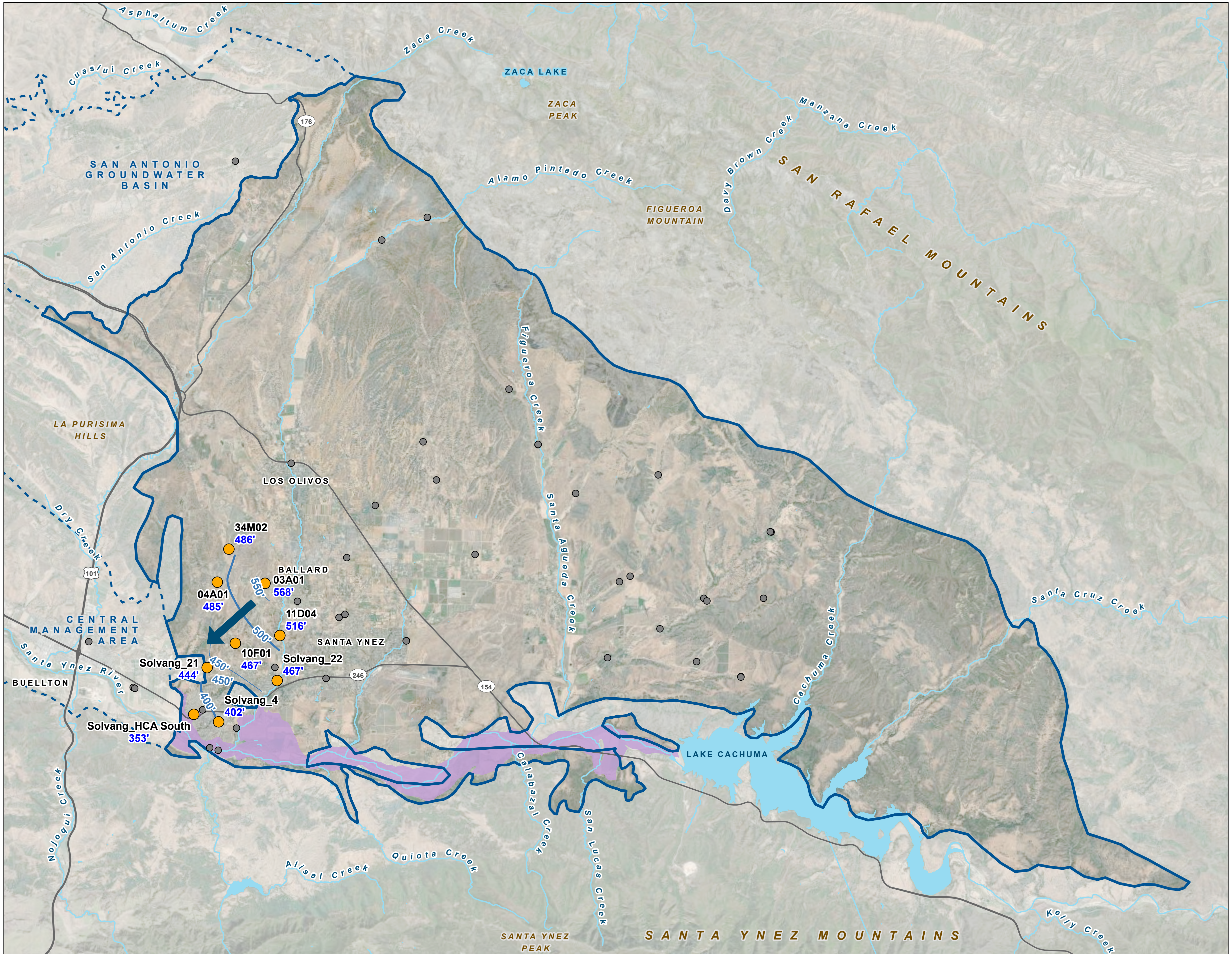
N

0 5,000 10,000 15,000
FEET

Date: November 27, 2024
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure10_Careaga_GW_Contours_Spring2023.aprx, Figure10_Careaga_GW_Contours_Spring2023, bramos



Careaga Sand Groundwater Elevation Contours, Fall 2023

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Careaga Sand Groundwater Elevation, Fall 2023

- Major
- Minor
- Groundwater Flow Direction
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Careaga Sand
  Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

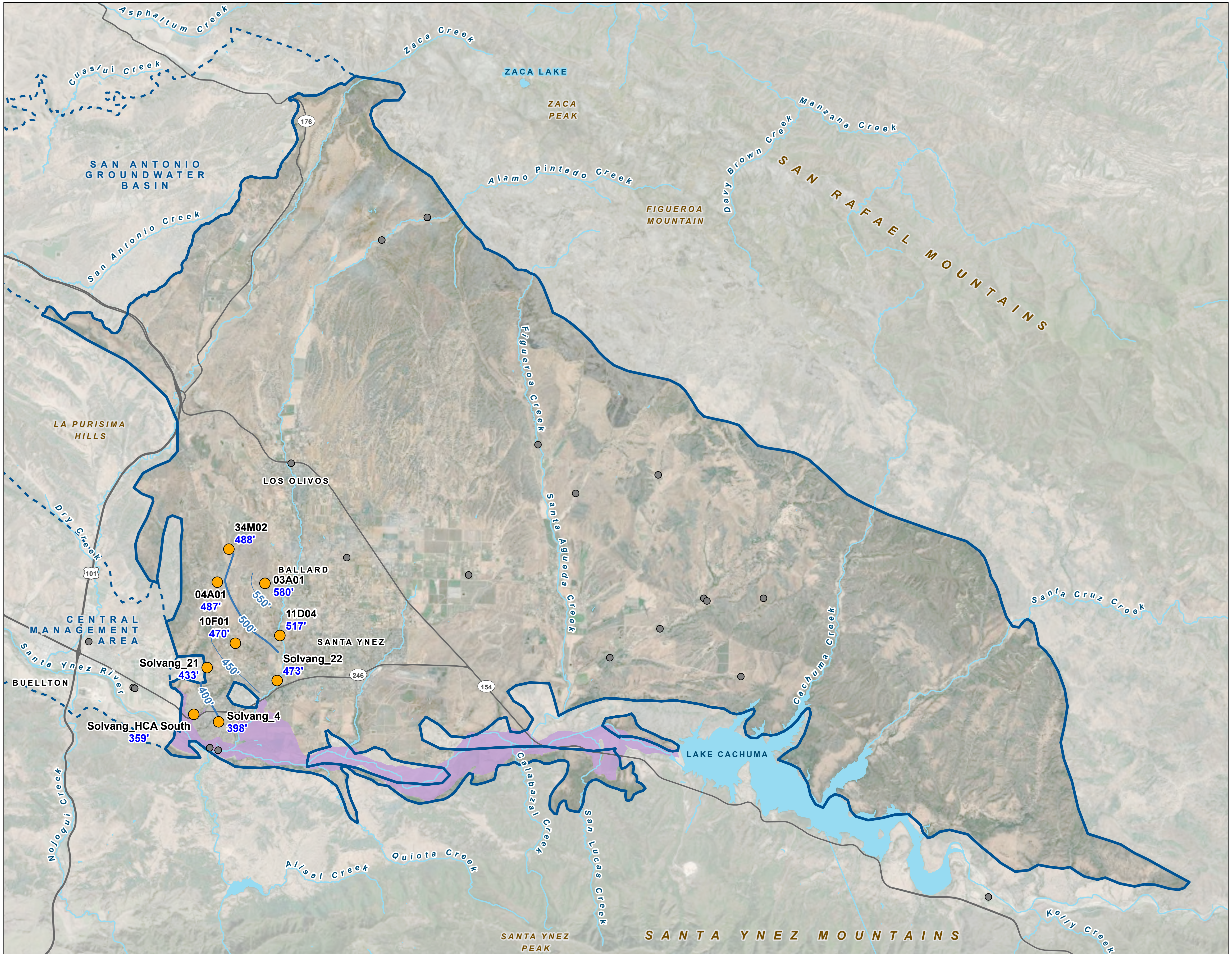
- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

N

0 5,000 10,000 15,000
FEET

Date: November 27, 2024
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.



Careaga Sand Groundwater Elevation Contours, Spring 2024

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Careaga Sand Groundwater Elevation, Spring 2024

- Major
- Minor
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Careaga Sand
  Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

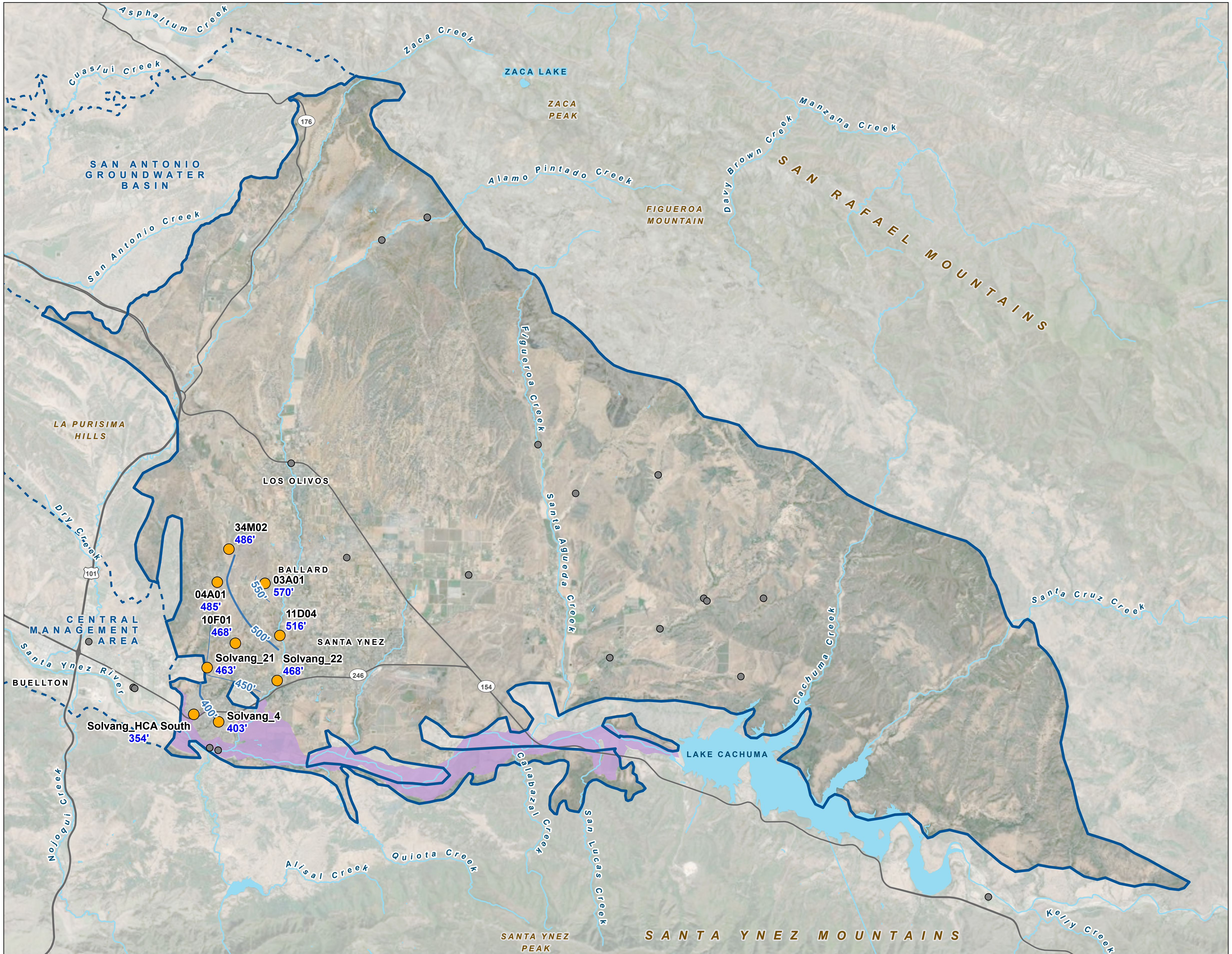
N

0 5,000 10,000 15,000
FEET

Date: November 28, 2024
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure12_Careaga_GW_Contours_Spring2024.aprx, Figure12_Careaga_GW_Contours_Spring2024, bramos



Careaga Sand Groundwater Elevation Contours, Fall 2024

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Careaga Sand Groundwater Elevation, Fall 2024

- Major
- Minor
- Santa Ynez River Area

Representative Well (by screened aquifer)

- Careaga Sand
  Water Level Elevaton (feet NAVD 88)
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

Date: November 28, 2024
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

3.2 HYDROGRAPHS

Groundwater elevation hydrographs are used to evaluate groundwater behavior in each principal aquifer. Changes in groundwater elevation in the EMA can result from many influencing factors, which may include changing hydrologic trends, seasonal variations in precipitation, varying groundwater extractions, and changing inflows and outflows. Climatic variation can be one of the most significant factors affecting groundwater elevations over time. For this reason, the hydrographs also display water year type categorized as wet, above normal, below normal, dry, or critical (see classification from EMA Figure 2-1 and EMA Table 2-1).

Groundwater elevation hydrographs and an associated location map for the 15 representative wells completed in the Paso Robles Formation and 9 wells completed within the Careaga Sand are presented in EMA Appendix B. Groundwater elevation hydrographs and an associated location map for the 15 representative wells completed in the Paso Robles Formation and 9 wells completed within the Careaga Sand are presented in the beginning of Appendix B. The hydrographs include available well construction data and measurable objectives and minimum thresholds for groundwater elevations that were developed during the preparation of the EMA Plan.

As described in the EMA Plan, the measurable objectives at the RMSs were selected as the groundwater levels measured during Spring 2012, and minimum thresholds were set relative to spring of 2018 groundwater elevations.[1]

Of the 15 representative wells in the Paso Robles Formation presented in EMA Appendix B, water levels were able to be measured in 13 wells. A total of 4 of the 13 wells with water level data, or 31 percent, exhibited groundwater elevations below the minimum threshold in the Paso Robles Formation as of Spring 2024. One of the nine wells completed in the Careaga Sand, or 11%, exhibited groundwater elevations below the minimum threshold in Spring 2024.

1 The minimum threshold values presented in this annual report have been corrected based on changes to the reference point elevations. The rationale for determining minimum thresholds remain unchanged from those described in the EMA Plan (based on spring 2018 groundwater elevations).

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EMA CHAPTER 4: WATER USE AND AVAILABLE SURFACE WATERS

4.1 GROUNDWATER USE

This section presents the metered and estimated groundwater extractions from the EMA for Water Year 2024. The metered and estimated groundwater extractions from the EMA for the last few water years are included in the tables for comparison. The types of groundwater extraction described in this section include municipal (**EMA Table 4-1**), agricultural (**EMA Table 4-2**), and rural domestic (**EMA Table 4-3**). Each of the following subsections includes a description of the method of measurement and a qualitative level of accuracy for each estimate. The level of accuracy is rated on a qualitative scale of low, medium, and high. The annual groundwater extraction volumes for all water use sectors are shown in **EMA Table 4-5**.

4.1.1 Municipal Metered and Other Self-Reported Well Production Data

Metered groundwater pumping extraction data are from the City of Solvang and ID No. 1. **EMA Table 4-1** presents these metered data, the self-reported data provided by pumpers within the SYRWCD, and estimated extraction data for mutual water companies. The accuracy rating of the metered production data from Solvang and ID No. 1 is high, while the accuracy rating of the self-reported production data from pumpers within SYRWCD and from mutual water companies is considered medium due to the lack of quantified production data (flow meters). As with many of the tables, data from the prior several water years are included for comparison.

EMA Table 4-1
Municipal and Other Self-Reported Groundwater Extractions
In the Eastern Management Area for Recent Water Years

Water Year	Water Year Type	ID No. 1	Self-Reported to SYRWCD	City of Solvang	Mutual Water Companies	Total
2019	Above Normal	298	948	186	951	2,382
2020	Above Normal	621	970	289	957	2,837
2021	Dry	795	1,069	456	963	3,284
2022	Critical	1,001	1,046	430	969	3,485
2023	Wet	948	1,298	270	975	3,491
2024	Wet	887	1,366	182	981	3,416

Values in acre-feet, past years shown in gray.
Notes:
ID No. 1 = Santa Ynez River Water Conservation District, Improvement District No. 1
SYRWCD = Santa Ynez River Water Conservation District

4.1.2 Estimate of Agricultural Extraction

During Water Year 2024, approximately 74 percent of the estimated total groundwater extraction was used to supply agriculture in the EMA. Agricultural water demand for the areas outside of the SYRWCD boundaries was estimated based on the OpenET ensemble methods.[1] Within the SYRWCD boundaries, agricultural water demand was based self-reported pumping volumes provided by SYRWCD, which were used in part for the preparation of the EMA Plan. These data constitute a primary source of groundwater use within the SYRWCD portion of the EMA in lieu of reliable production data derived from calibrated flow meters. These methods are "self-reported" from landowners based primarily on estimates of planted

[1] OpenET uses reference ET data calculated using the American Society of Civil Engineers (ASCE) Standardized Penman-Monteith equation for a grass reference surface, and usually notated as 'ETo'. For California, OpenET uses Spatial CIMIS meteorological datasets generated by the California DWR to compute ASCE grass reference ET. OpenET provides ET data from multiple satellite-driven models, and also calculates a single "ensemble value" from those models. The models currently included are ALEXI/DisALEXI, eeMETRIC, geeSEBAL, PT-JPL, SIMS, and SSEBop. The models included in the OpenET ensemble have been used by government agencies with responsibility for water use reporting and management in the western U.S., and some models are widely used internationally (OpenET, 2023).

acreages and crop-specific water duty factors provided by SYRWCD in their Groundwater Production Information and Instructions pamphlet (SYRWCD, 2010).

Aside from self-reported data, agricultural groundwater extraction was estimated with the use of satellite-based estimates of the total amount of water that is transferred from the land surface to the atmosphere through the process of evapotranspiration (ET). The OpenET method of this technology uses an "ensemble model" derived from Landsat satellite data to produce ET data and ultimately field-scale water use at a spatial resolution of 30 meters by 30 meters (0.22 acres per pixel). Additional inputs include gridded weather variables such as solar radiation, air temperature, humidity, wind speed, and precipitation (OpenET, 2023).

The OpenET method was developed as a collaboration between National Aeronautics and Space Administration, the Desert Research Institute, and the Environmental Defense Fund. The method provides monthly crop water use for a defined area at the field scale. The OpenET data is being used throughout the state where calibrated flow meters are not widely available as part of an open-source groundwater accounting platform, freely available, to help GSAs manage the transition to sustainable supplies. The accuracy of these OpenET data are considered to be medium. The use of calibrated flow meters from each well completed in a principal aquifer to each irrigated field or landowner parcel would provide higher quality data than the OpenET method.

The use of OpenET data and analysis methods have been refined considerably in the past several years. Together, these methods may help address concerns about potential errors in agricultural water use estimation that could occur, including the variability of actual water use during variable hydrology (water year type), and any water applied outside of the typical crop need or for frost control.

Crop water demands that are met from precipitation were considered in the analysis by subtracting the volume of rain received on a monthly time-step. Monthly and annual applied irrigation volumes were estimated based on crop-specific irrigation efficiency factors. Groundwater extractions for frost protection are captured to the extent that the produced water results in increased ET. It is assumed that the remainder of the water produced for frost protection remains within the EMA and a portion of this water percolates back to groundwater.

Based on these methods the estimated agricultural groundwater production for Water Year 2024 is approximately 9,400 afy, as presented in **EMA Table 4-2**.

EMA Table 4-2
Agricultural Irrigation Groundwater Extractions
In the Eastern Management Area,
for Recent Water Years

Water Year	Water Year Type	Agricultural Demand (acre-feet)
2019	Above Normal	12,278
2020	Above Normal	11,812
2021	Dry	13,379
2022	Critical	13,264
2023	Wet	9,099
2024	Wet	9,436

Past years shown in gray.

Notably, estimated groundwater extraction in the Santa Ynez Uplands for agricultural use during wet Water Years 2023 and 2024 were considerably lower than the prior water year 2022 (critical), likely due to the considerable amount of precipitation that fell during the water year, which partially satisfied crop water demands.

4.1.3 Rural Domestic Groundwater Extraction

Rural domestic pumping within the EMA is defined as all domestic pumping occurring outside of SYRWCD not associated with a small public water system. Rural domestic pumping was calculated by conducting an aerial survey to identify land parcels with home sites in the area outside the SYRWCD in 2018. The 2018 domestic demand for each of these parcels was estimated using variable demand factors based on parcel acreage, as specified in Tetra Tech (2010) (**EMA Table 4-3**). The calculated 2018 rural domestic demand was then adjusted through 2024 using a compilation of census data for nearby communities.

EMA Table 4-3
Rural Domestic Demand Factors Based on Lot Size

Lot Size (acres)	Annual Water Use (acre-feet per year per lot)
0.16	0.14
0.5	0.52
1	0.82
5	0.98
10	1.15

Source: Tetra Tech, 2010

The accuracy of this groundwater budget component is considered medium because these groundwater extraction components were estimated based on an aerial survey and published estimated water demand based on parcel size.

EMA Table 4-4 presents the calculated rural domestic groundwater demand for Water Year 2024.

EMA Table 4-4
Rural Domestic Groundwater Extractions
In the Eastern Management Area for Recent Water Years

Water Year	Water Year Type	Rural Domestic (acre-feet)
2019	Above Normal	305
2020	Above Normal	307
2021	Dry	309
2022	Critical	311
2023	Wet	313
2024	Wet	315

Past years shown in gray.

4.1.4 Total Groundwater Extraction Summary

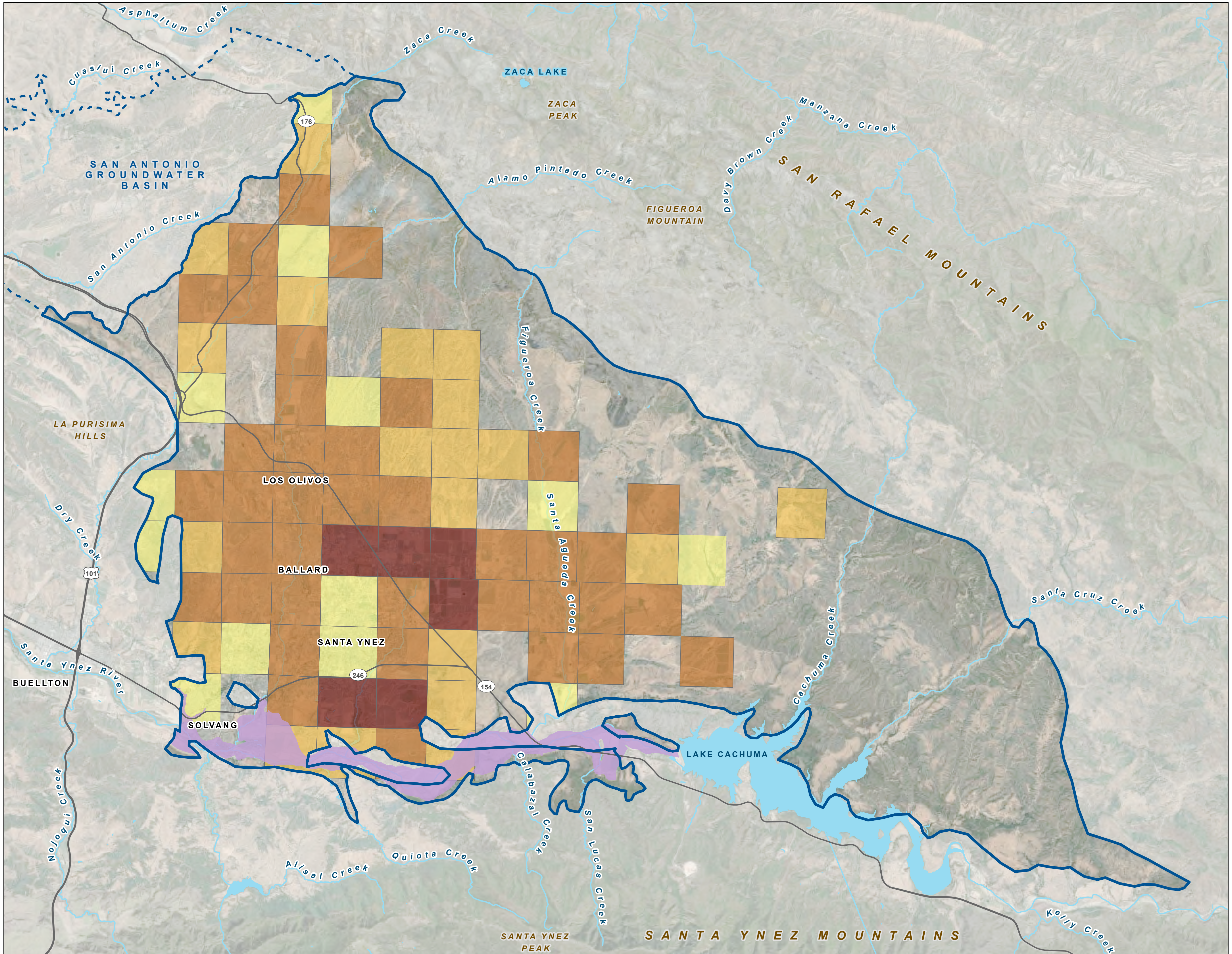
The total estimated volume of groundwater extracted in the EMA during Water Year 2024 was approximately 12,800 acre-feet (AF), as shown in **EMA Table 4-5**. As required, the table presents the total metered and estimated water use by sector and indicates the method of measure and associated level of accuracy.

EMA Table 4-5
Groundwater Extractions by Water Use Sector in Acre-Feet,
In the Eastern Management Area,
for Recent Water Years

Water Year	Water Year Type	Municipal and Self-Reported Domestic	Mutual Water Companies	Rural Domestic	Agricultural	EMA Total
2019	Above Normal	1,431	951	305	12,278	14,965
2020	Above Normal	1,880	957	307	11,812	14,956
2021	Dry	2,320	963	309	13,379	16,971
2022	Critical	2,516	969	311	13,264	17,060
2023	Wet	2,516	975	313	9,099	12,903
2024	Wet	2,076	981	315	9,436	12,808
Method of Measure	N/A	Provided by ID No. 1 (metered), City of Solvang (metered), and SYRWCD (user reported)	Estimated based on population data	Estimated based on population data	OpenET	N/A
Level of Accuracy	N/A	High (metered) / Low (user reported)	Medium	Medium	Medium (OpenET)	N/A

Past years shown in gray.
Notes:
NA = not applicable
ID No. 1 = Santa Ynez River Water Conservation District, Improvement District No. 1
SYRWCD = Santa Ynez River Water Conservation District

The locations of these extractions were based on the known locations of metered pumping from the municipal users, estimates of pumping from rural domestic users, and agricultural land use spatial data. Together, the spatial distribution of these extractions during the most recent water year in 2024 are presented on **EMA Figure 4-1**, in terms of acre-feet per square mile.



Location and Volume of Groundwater Extractions, Water Year 2024

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Santa Ynez River Area

Groundwater Extraction by Section (Acre-Feet Per Square Mile)

- 25 - 50
- 50 - 100
- 100 - 500
- 500 - 1555

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

N

0 5,000 10,000 15,000
FEET

Date: February 18, 2025
Data Sources: ESRI, USGS, Maxar 2019

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4.2 SURFACE WATER USE

This section provides a summary of the surface water supplies used within the EMA during Water Year 2024. ID No. 1 imports water into the EMA via the Cachuma Project and the State Water Project (SWP). ID No. 1 normally does not receive its Cachuma Project water directly; instead, in addition to its own entitlement of SWP supplies, it also receives an amount of SWP water through an Exchange Agreement with the South Coast members of the Cachuma Project, whereby ID No.1 provides its Cachuma Project water to the South Coast in exchange for an equivalent amount of SWP water from the South Coast agencies. As a member agency of the Central Coast Water Authority (CCWA), ID No. 1 has a Table A allocation of 2,000 acre-feet per year (AFY) and a 200 AF drought buffer of imported SWP water. Of that amount, 1,500 AFY are contractually committed for use by the City of Solvang. As documented by DWR, the availability of Table A supplies is highly variable and projected to decrease over time. The drought buffer effectively increases the amount of water to be delivered in the event that overall deliveries are reduced by a given percentage. ID No.1 and the City of Solvang also produce surface water from the Santa Ynez River underflow for use in the Santa Ynez Uplands.

In addition to imported water sources, users within the EMA extract water within the Santa Ynez River Area from the Santa Ynez River Alluvium for municipal, domestic, industrial, and agricultural uses. Pumping data from this area of the EMA are provided by the City of Solvang (metered), ID No. 1 (metered), and from SYRWCD as "self-reported" pumping data from well owners within SYRWCD. The river well production data from ID No. 1, Solvang, and the other self-reported pumping records aggregate uses together into the SYRWCD categories of (1) agricultural; (2) "other" water, which includes municipal, industrial, small public water systems, and domestic use; and (3) "special" irrigation water, which refers to urban landscape and golf course irrigation. These pumping volumes have been compiled on a water year basis and are reported annually on a July-through-June fiscal year basis in SYRWCD's annual reports, which have been prepared for 46 years.

Pumping volumes provided by the City of Solvang and ID No. 1 are from metered pumping and are considered exceptionally reliable and accurate. Likewise, some of the self-reported pumping data provided by SYRWCD annual reports are also from metered pumping records and are similarly accurate. A large portion of the self-reported SYRWCD pumping data is estimated from self-reported records using crop-specific water duty factors provided by SYRWCD for its water use estimates and annual reports. These pumping estimates based on self-reported records are of medium accuracy, due to the uncertainty of standardized crop water duty factors and reliability of self-reporting. The total annual volume of surface water used in the EMA for Water Year 2024 was approximately 6,000 acre-feet (AF), as presented on **EMA Table 4-6**.

EMA Table 4-6
Surface Water Use in Acre-Feet,
In the Eastern Management Area,
for Recent Water Years

Water Year	City of Solvang Table A	ID No. 1 Table A	ID No. 1 Exchange	Solvang River Wells	ID No. 1 River Wells	Other Reported River Wells [A]	Total Reported River Wells	Total
2019	759	50	2,213	160	739	1,658	2,557	5,579
2020	745	315	1,740	148	567	1,566	2,281	5,081
2021	612	0	1,439	240	1,142	1,775	3,157	5,208
2022	590	0	544	270	1,632	1,478	3,380	4,514
2023	495	189	615	316	939	2,245	3,500	4,799
2024	808	0	1,753	166	557	2,734	3,457	6,018
Method of Measure	Metered	Metered	Metered	Metered	Metered	User Reported	Metered/Reported	NA
Level of Accuracy	High	High	High	High	High	Medium	High/Medium	NA

Past years shown in gray.
Notes:
[A] Includes wells within Santa Ynez River Water Conservation District Zone A.
NA = not applicable
ID No. 1 = Santa Ynez River Water Conservation District, Improvement District No. 1

4.3 TOTAL WATER USE

This section summarizes the total estimated annual groundwater and surface water used to meet municipal, agricultural, and rural domestic demands within the EMA. For the Water Year 2024, the quantification of estimated total water use was completed from: reported metered municipal water production and metered surface water delivery, SYRWCD reported groundwater and Santa Ynez River well pumping within its boundaries; and estimates of agricultural and rural water demand outside of SYRWCD. **EMA Table 4-7** presents the total metered and estimated water use in the EMA, which was approximately 18,800 AFY for Water Year 2024. The method of measurement and a qualitative level of accuracy for each estimate is rated on a scale of low, medium, and high.

EMA Table 4-7
Total Water Use in Acre-Feet,
In the Eastern Management Area,
for Recent Water Years

Water Year	Water Year Type	Groundwater Use	Surface Water Use	Total
2019	Above Normal	14,965	5,579	20,544
2020	Above Normal	14,956	5,081	20,037
2021	Dry	16,971	5,208	22,179
2022	Critical	17,060	4,514	21,574
2023	Wet	12,903	4,799	17,702
2024	Wet	12,808	6,018	18,826
Method of Measure	NA	Metered, User Reported, and Estimated	Metered/User Reported	NA
Level of Accuracy	NA	High (metered) to Low (user reported)	High to Medium	NA

Past years shown in gray.
Notes:
NA = not applicable

EMA CHAPTER 5: GROUNDWATER STORAGE

This section presents an overview of the estimated change in groundwater storage within the two principal aquifers in the EMA. The annual changes in groundwater in storage have been estimated using two methods based on the availability of data. Where groundwater elevation data are sufficient and spatially distributed from year to year, the change in storage estimate relied on these data. However, because these data are lacking in a portion of the Santa Ynez Uplands, the change in groundwater in storage in this area was estimated using the inflow and outflow components from the water budget described in the EMA Plan.

5.1 ANNUAL CHANGES IN GROUNDWATER IN STORAGE

As discussed in EMA Section 1.1.1 and EMA Chapter 3: above, the current EMA groundwater monitoring network for the Paso Robles Formation by increasing the number and spatial distribution of wells to adequately represent groundwater conditions for the entire aquifer throughout the Santa Ynez Uplands. While the groundwater elevation monitoring network used for contouring groundwater elevations for Water Year 2018 for both principal aquifers provided sufficient spatial coverage of the EMA at that time, the monitoring network used for Water Year 2024 is significantly smaller in the Paso Robles Formation.

The groundwater elevation changes depicted on the maps presented in this section are used, along with the storage coefficient, to calculate the proportion of that change that is due to groundwater in storage. The portion of void space in the aquifer that can be utilized for groundwater storage is represented by an aquifer storage coefficient, which is similar to porosity, and is a unitless factor that is multiplied by the total saturated aquifer volume change between water years.

5.1.1 Paso Robles Formation

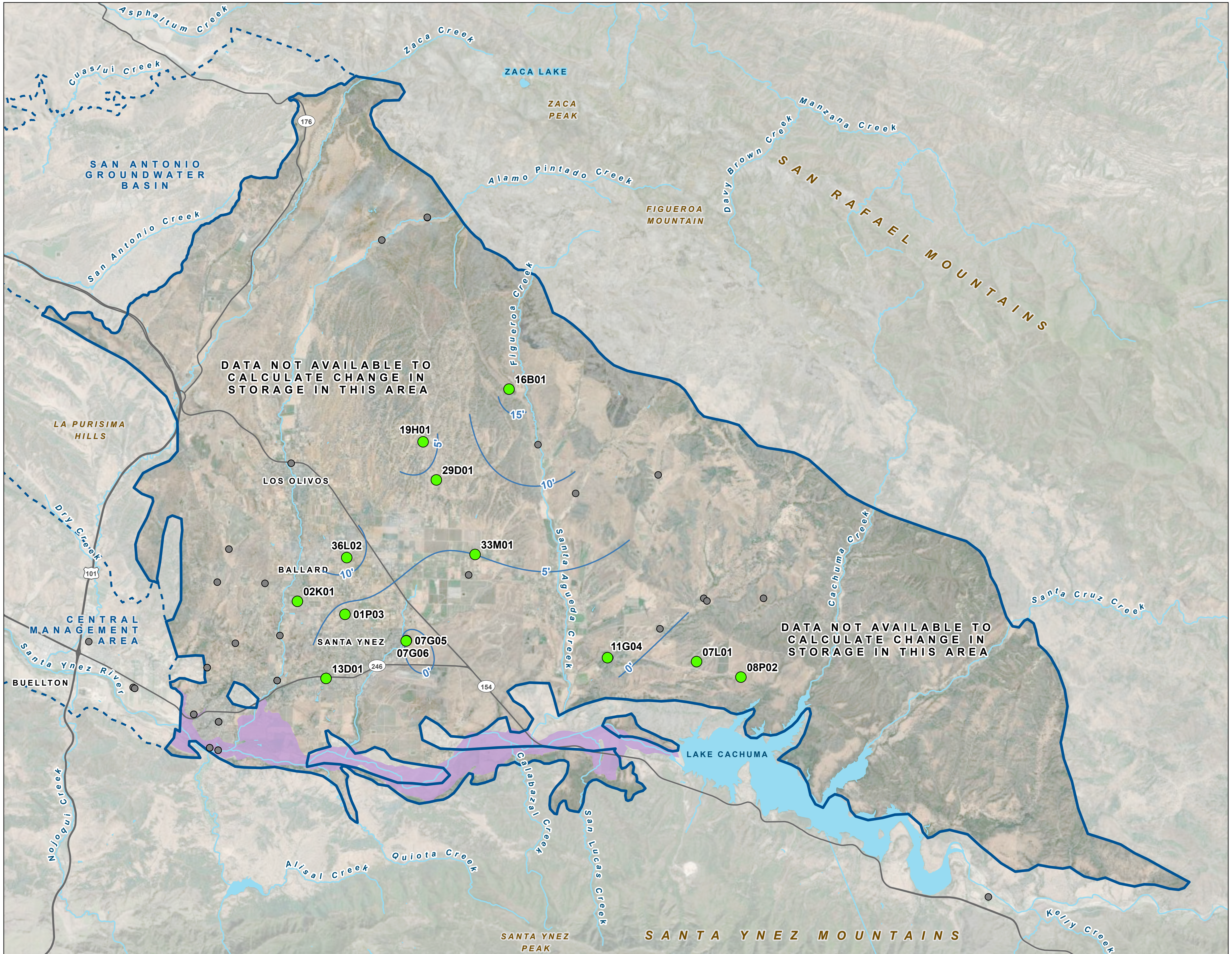
The extent of the groundwater monitoring network that are used to prepare groundwater elevation contours within the Paso Robles Formation is evident in Spring 2024 (EMA Figure 3-3) and the Fall 2024 (EMA Figure 3-4). Although the existing groundwater level monitoring network satisfies the DWR's well density guidance in the portion of the basin that wells are currently accessible, there are two areas identified within the EMA, the northwest and the eastern portions, where the addition of monitoring wells would improve the EMA hydrogeologic conceptual model (HCM) including the understanding of groundwater levels as discussed in the EMA Plan. The EMA GSA is currently working to address these identified data gaps.

Nonetheless, the change in storage can be inferred for a portion of the Paso Formation using the change in groundwater elevation map between the Spring 2023 to Spring 2024 presented on **EMA Figure 5-1**. The change in storage map generated by this method is not considered representative of changes in groundwater conditions throughout the entire EMA and therefore was not used to calculate the change in groundwater in storage. The change in storage within the Paso Robles Formation was estimated based on both the overall water budget (for both aquifers) and, also, the change in storage calculation for the Careaga Sand, described below. The remainder of the change in storage, which did not occur in the Careaga Sand, occurred in the largest principal aquifer in the EMA of the Paso Robles Formation.

5.1.2 Careaga Sand

Changes in groundwater in storage within the Careaga Sand for Water Year 2024 were derived by comparing spring groundwater elevation contour maps from one year to the next. Specifically, Spring 2024 groundwater elevations for the Careaga Sand (EMA Figure 3-7) were subtracted from Spring 2023 groundwater elevations (EMA Figure 3-5), resulting in a map depicting the changes in groundwater elevations that occurred during the 2024 water year (**EMA Figure 5-2**).

The change in groundwater elevation map for Water Year 2024 within the Careaga Sand (EMA Figure 5-2), shows rises in groundwater elevation of several feet in most areas, with a limited area of significant decline associated with a single well.



Paso Robles Formation Change of Groundwater Elevation, Spring 2023 to Spring 2024

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

- Santa Ynez River Area
- Change in Groundwater Elevation

Representative Well (by screened aquifer)

- Paso Robles Formation
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

N

0 5,000 10,000 15,000
FEET

Date: February 7, 2025
Data Sources: ESRI, USGS, Maxar Imagery (2020)

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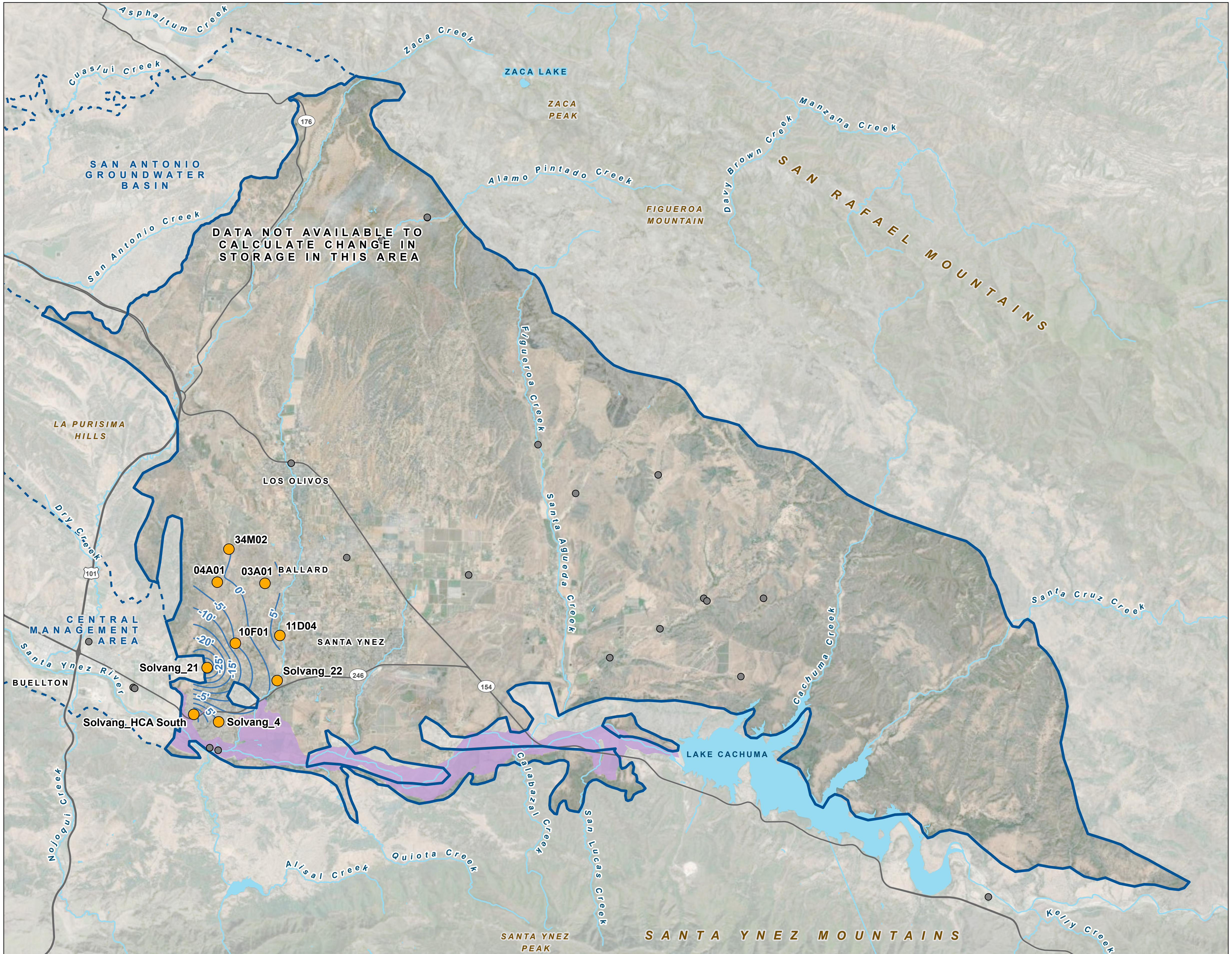
Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure15_Paso_WLE_Change_Spring_24-23.aprx, Figure15_Paso_WLE_Change_Spring24-23, awebb



Careaga Sand Change of Groundwater Elevation, Spring 2023 to Spring 2024

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

- Santa Ynez River Area
- Change in Groundwater Elevation

Representative Well (by screened aquifer)

- Careaga Sand
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Bulletin 118 Boundary
- Other Bulletin 118 Groundwater Basin Boundary
- Major Road
- Watercourse
- Waterbody

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Date: February 4, 2025
Data Sources: ESRI, USGS, Maxar Imagery (2020)

GSI Water Solutions, Inc.

Document Path: Y:\0515_Santa_Ynez_River_WCD\Source_Figures\008_SYRWC_Annual_Report2024\Figure16_Careaga_WLE_Change_Spring_24-23.aprx, Figure16_Careaga_WLE_Change_Spring_24-23, awebb

5.2 ANNUAL AND CUMULATIVE CHANGE IN GROUNDWATER IN STORAGE

The change in storage for the Paso Robles Formation calculated by the water budget method and the change in storage calculation for the Careaga Sand based on changes in groundwater elevations, are utilized to develop the EMA-wide annual change of groundwater in storage calculations for both principal aquifers for Water Year 2024 and are presented in **EMA Table 5-1**. The volume of groundwater in storage increased by approximately 6,000 AF during the wet Water Year 2024, when rainfall totaled 30 percent above average. This estimated annual increase in groundwater in storage during water Year 2024 matches similar estimated increases in storage that occurred in years with similar amounts of rainfall (i.e. ~20 inches), including water years 2010, 2017, and 2019. The average increase in groundwater in storage during these four similar years was approximately 4,000 AFY. Estimated increases of groundwater in storage, sometimes modestly so, occurred during all water years when the area received 17 or more inches of precipitation.

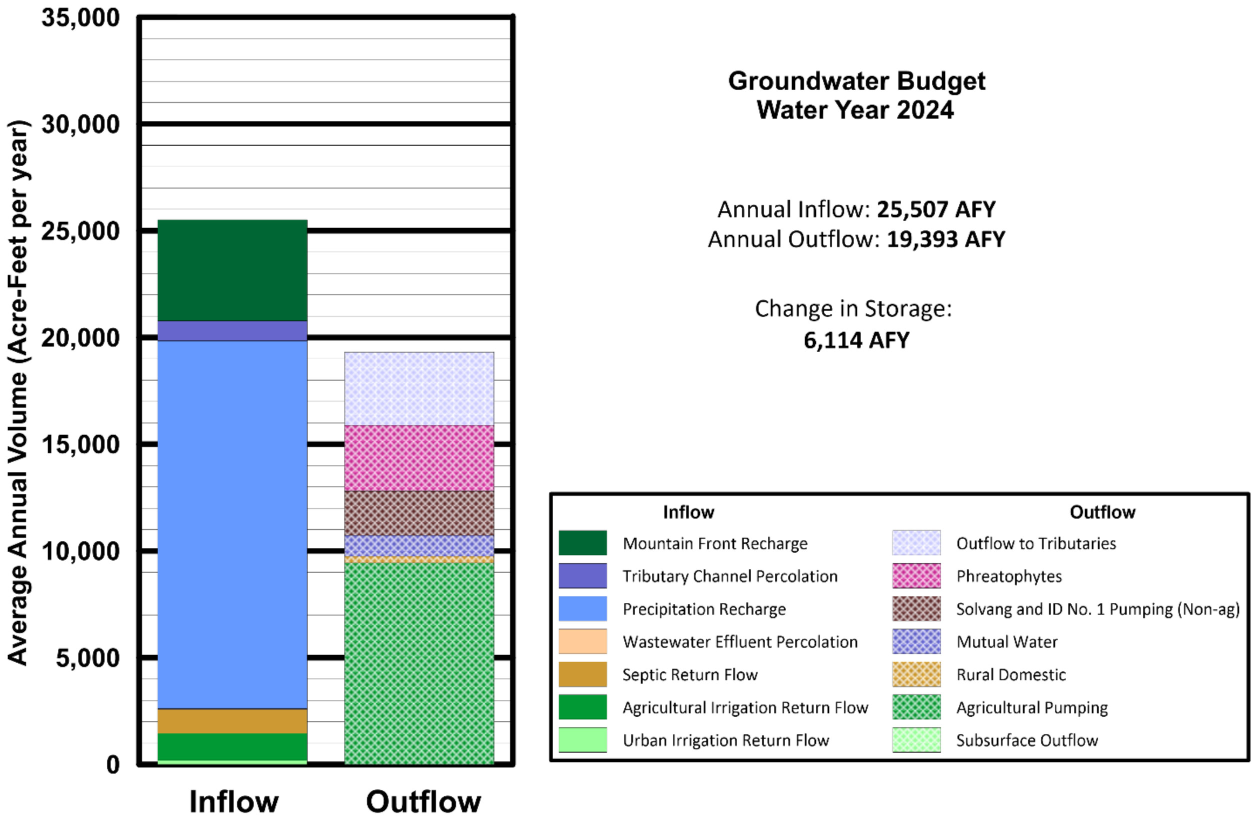
EMA Table 5-1
Annual Estimated Change in Groundwater in Storage,
In the Eastern Management Area,
for Recent Water Years

Water Year	Water Year Type	Chage in Storage (Paso Robles Formation)	Change in Storage (Careaga Sand)	Total Annual Change in Storage
2019	Above Normal	3,047	996	4,043
2020	Above Normal	-1,662	-477	-2,139
2021	Dry	-12,737	-825	-13,562
2022	Critical	-10,983	-495	-11,478
2023	Wet	17,677	307	17,984
2024	Wet	6,737	-623	6,114

Values in acre-feet, past years shown in gray.

A summary of the average inflows and outflows associated with each component of the water budget within the EMA during Water Year 2024 is presented graphically on **EMA Figure 5-3**.

EMA Figure 5-3
Groundwater Budget Volumes,
Water Year 2024
Eastern Management Area

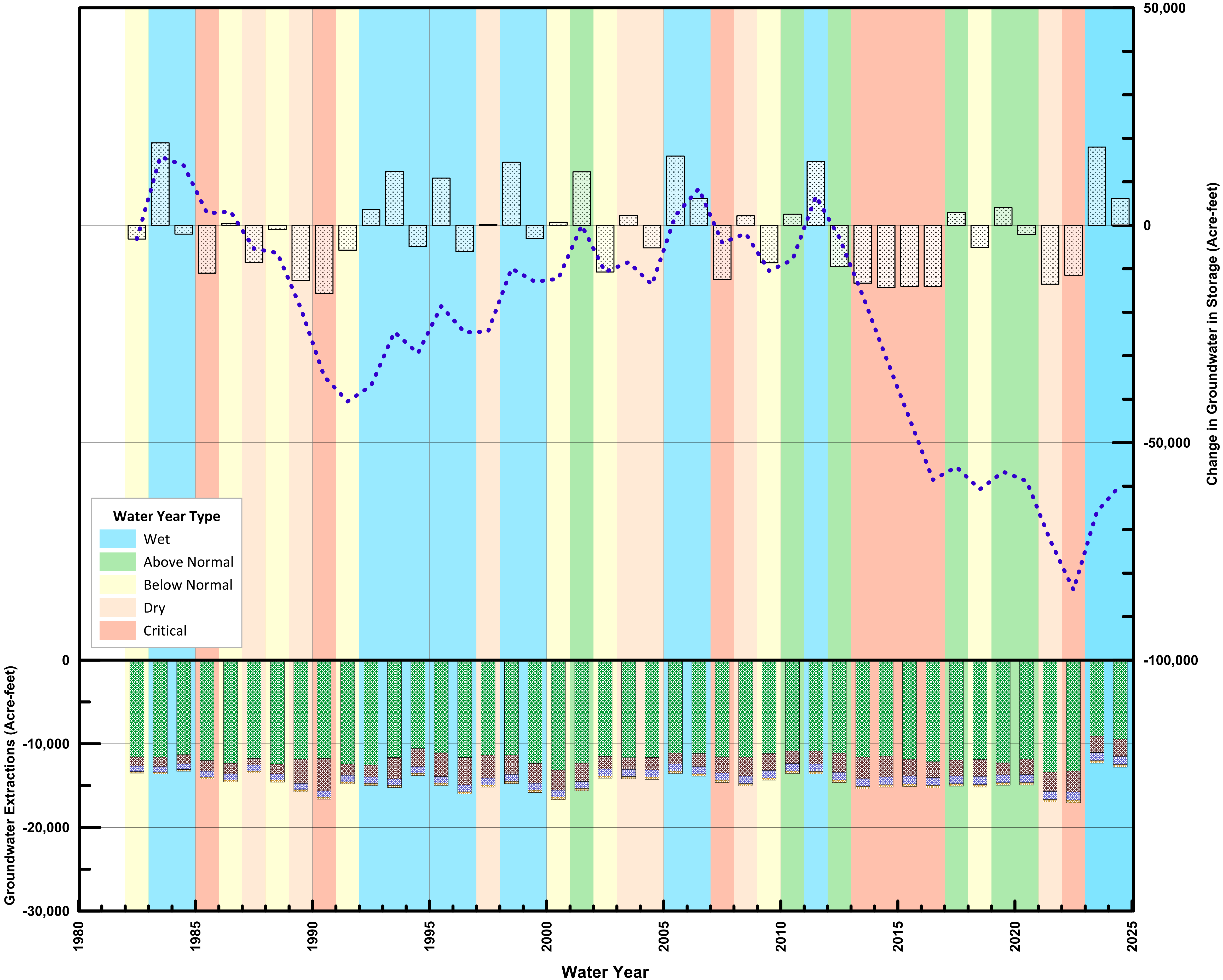


While the overall volume of groundwater in storage rose during Water Year 2024, the net volume of groundwater in storage has declined by approximately 15,200 AF since water year 2015. The annual and cumulative change in groundwater in storage since water year 1981 is presented on **EMA Figure 5-4**, which includes the period since January of 2015.

EMA FIGURE 5-4

Cumulative Change in Groundwater in Storage

Santa Ynez River Valley Groundwater Basin - Eastern Management Area Annual Report Water Year 2024



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EMA CHAPTER 6: PROGRESS TOWARD GSP IMPLEMENTATION AND SUSTAINABILITY

This section summarizes several activities that are underway to implement the Groundwater Sustainability Plans for the three management areas in the Basin. These activities are associated with the planning, development, and construction to implement these Plans, which, Basin-wide, include:

- Well Extraction Measurement Demonstration Projects and Basin Reporting Program,
- Rate Studies,
- Basin Plan 5-Year Updates,
- Monitoring Improvement and Expansion,
- Stormwater Capture and Infiltration Project Designs (WMA),
- Water Use Efficiency Strategic Plan, and
- Recycled Water Feasibility Study.

Together these support management actions that are being implemented within the EMA to maintain sustainability and avoid undesirable results. Within the EMA portion of the Basin, these actions are focused primarily on implementing a series of EMA GSA activities outlined below:

- Expanding groundwater monitoring network,
- Enhanced survey for potential GDEs,
- Filling identified data gaps,
- Registering and metering wells,
- Reporting metered production,
- Implementing a revenue generating fee program,
- and developing new and expanding existing water use efficiency programs for implementation within the EMA.

As described in the EMA Plan (GSI, 2022), the need for projects and management actions is based on groundwater conditions, including the following:

- The average amount of groundwater pumping in the EMA is greater than the estimated sustainable yield, and an overall trend of declining groundwater levels has been documented.
- Water budgets prepared for annual reports indicate that the amount of groundwater in storage is generally in decline and may continue to decline in the future because of pumping in the EMA exceeding the estimated sustainable yield

To achieve the goal of mitigating continued declines in groundwater levels in the EMA, achieving and maintaining the sustainability goal, and avoiding undesirable results as required by SGMA, the EMA Plan sets forth several Groups of potential projects and management actions. The following section describes the actions that have been initiated now that the EMA Plan has been submitted to and approved by DWR.

Potential management actions and future projects are categorized into three groups as documented in the EMA Plan:

- The management actions included in Group 1 will be initiated following adoption of the EMA Plan by the EMA GSA.
- The Group 2 management actions and Group 3 projects may be considered for implementation as conditions dictate and the effectiveness of the Group 1 management actions are assessed.

6.1 Group 1 Management Actions under Development

Group 1 management actions that are being implemented, partially or wholly funded by a Proposition 68 grant for SGMA implementation activities include the following:

1. Address Data Gaps
    - Expand Monitoring well network in the EMA to increase spatial coverage and well density,
    - Perform video surveys in representative wells that currently do not have adequate construction records to confirm well construction
    - Review/update water usage factors and crop acreages
2. Groundwater Pumping Fee Program
3. Well Registration Program and Well Meter Installation Program
4. Water use efficiency programs

6.2 SUMMARY OF PROGRESS TOWARD MEETING BASIN SUSTAINABILITY

Relative to the conditions reported in the EMA Plan, the findings from this Water Year 2024 Annual Report indicate that groundwater levels in the Paso Robles Formation have generally risen relative to the previous spring, but on average remain below the Spring 2018 elevations. The current water levels with representative wells are presented relative to the minimum threshold values on **EMA Table 6-1.**

EMA Table 6-1
Summary of Water Levels in Representative Wells,
Eastern Management Area

Well ID	Principal Aquifer	Minimum Threshold	Spring 2023	Fall 2023	Spring 2024	Fall 2024
7N/31W-34M02	Careaga Sand	482	488	486	488	486
6N/31W-03A01	Careaga Sand	573	578	**568**	580	**570**
6N/31W-04A01	Careaga Sand	481	487	485	487	485
6N/31W-09Q02	Careaga Sand	446	469	**444**	**433**	463
6N/31W-10F01	Careaga Sand	463	474	467	470	468
6N/31W-11D04	Careaga Sand	502	510	516	517	516
6N/31W-16N07	Careaga Sand	377	393	402	398	403
6N/31W-xxxx	Careaga Sand	467	471	469	473	468
Solvang HCA	Careaga Sand	320	342	353	359	352
6N/29W-07L01	Paso Robles Formation	637	**625**	**610**	**626**	**615**
6N/29W-08P01 [A]	Paso Robles Formation	676	Dry	Dry	Dry	Dry
6N/29W-08P02	Paso Robles Formation	653	**639**	**631**	**636**	**627**
6N/30W-07G05	Paso Robles Formation	513	**510**	**506**	**512**	514
NN/30W-07G06	Paso Robles Formation	511	**509**	**505**	**511**	**508**
6N/30W-11G04	Paso Robles Formation	510	**505**	540	554	547
6N/31W-01P03	Paso Robles Formation	514	**511**	**509**	515	**513**
6N/31W-02K01	Paso Robles Formation	556	572	578	581	579
6N/31W-13D01	Paso Robles Formation	494	507	510	512	512
6N/31W-16B01	Paso Robles Formation	1,018	1,031	1,043	1,051	1,053
7N/30W-19H01	Paso Robles Formation	896	910	912	913	914
7N/30W-29D01	Paso Robles Formation	849	893	866	890	863
7N/30W-30M01 [B]	Paso Robles Formation	559	NM	NM	NM	NM

Well ID	Principal Aquifer	Minimum Threshold	Spring 2023	Fall 2023	Spring 2024	Fall 2024
7N/30W-33M01	Paso Robles Formation	514	**509**	**498**	515	**499**
7N/31W-36L02	Paso Robles Formation	615	**603**	NM	617	616

All elevations are in feet, North American Vertical Datum of 1988 (NAVD 88)
Notes:
Bolded values shaded in tan are below the minimum threshold value.
NM = Not Measured
A: Well -08P01 has been dry since the issuance of the EMA Plan and is not considered to be representative of the Paso Robles Formation. It has therefore been removed from the representative monitoring well network for water levels within this principal aquifer.
B: Water level data in Well -30M01 has been difficult to measure for many years. As shown, water level measurements have not been available for any period during water years 2022 and 2023.

Within the EMA, the lowering of groundwater levels within the two principal aquifers may cause undesirable results as described in Section 5.5.1 of the EMA Plan. Along with other criteria, the lowering of groundwater levels that are likely to cause undesirable results are characterized based on groundwater elevations levels that "remain below minimum thresholds … in 50 percent of representative wells." When this occurs in fewer than 50 percent of the wells, the lowering of groundwater levels is unlikely to cause undesirable results. **EMA Table 6-2** shows the proportions of these wells in each principal aquifer that have had groundwater levels below the minimum threshold since the period covered by the EMA Plan ended, which ended in water year 2018. When more than 50% of the representative wells have water levels below the minimum thresholds, the cells in **EMA Table 6-2** are shaded tan.

During the spring of Water Year 2024 a total of 31% of the representative wells within the Paso Robles Formation wells (4 of 13 with water level data) remained below the minimum threshold values, as shown on **EMA Table 6-2**. In the Careaga Sand, the water elevations in 11 % of the representative Careaga Sand wells (only 1 of 9) were below the minimum threshold values in Spring 2024.

EMA Table 6-2
Proportion of Representative Wells With Groundwater Levels Below the Minimum Threshold, Eastern Management Area

Water Year	Period	Paso Robles Formation Wells	Careaga Sand Wells
2019	Spring	0%	0%
2020	Spring	20%	0%
	Fall	**55%**	N/A
2021	Spring	13%	11%
	Fall	50%	22%
2022	Spring	46%	11%
	Fall	**62%**	33%
2023	Spring	**62%**	0%
	Fall	50%	22%
2024	Spring	31%	11%
	Fall	38%	11%

Values represent percentage of representative wells below the minimum threshold

The wells included in the representative monitoring network documented in the EMA Plan are subject to change during the EMA Plan's implementation period. Specifically, one of the representative Paso Robles formation wells. (-08P01) is no longer considered to be representative of the Paso Robles Formation because it went dry shortly after submission of the EMA Plan and has therefore been removed from the representative monitoring network. Likewise, another well (-30M01) is no longer able to be measured and has been removed from the representative monitoring network. Additional wells have been identified and are being considered for incorporation into the monitoring network, and at least one additional monitoring well will be installed within one of the data gap areas as part of the grant for SGMA implementation.

Based on the rainfall conditions over the past 20 years, drought is a predominant factor leading to groundwater elevation declines. Group 1 management actions are being implemented to address data gaps through improvement of the monitoring and data-collection networks, implementation of a groundwater pumping measurement program, and promotion of water use efficiency.

While groundwater elevations continue to remain below the minimum thresholds in some of the representative wells, the number of wells falling below the minimum thresholds has not resulted in the observation of any undesirable results described in the EMA Plan (EMA GSP Section 5.5.1). Group 1 management actions (as outlined in Section 6 of the EMA Plan) are being planned, and implementation is projected to result in improved conditions. If these do not improve groundwater conditions, and it is determined that groundwater pumping is contributing to undesirable results, additional management actions described in the EMA Plan (e.g., Group 2 and 3) may be warranted. The effect of the management actions will be reviewed periodically, and additional Group 2 management actions and Group 3 projects may be considered and implemented as necessary to avoid undesirable results.

The EMA GSA is not charged with managing groundwater quality unless it can be shown that water quality degradation is caused by groundwater pumping in the EMA, or the EMA GSA implements a project that degrades water quality. As described in the EMA Plan, groundwater quality in the EMA is generally suitable for both drinking water and agricultural purposes (GSI, 2022). Potential degradation of groundwater quality caused by groundwater pumping or implementation of projects and management actions will be monitored as part of the EMA's water quality monitoring network.

Land subsidence caused by groundwater extraction will be monitored as part of the EMA Plan. Subsidence can be estimated using InSAR data provided by DWR. Minor subsidence has been observed in the EMA using InSAR data provided by DWR for June 2015 through October 2024. This data shows that an average subsidence of approximately 0.018 feet per year has occurred in certain parts of the Basin over the period of record. This is a minor rate of subsidence that does not exceed the minimum threshold value and is relatively insignificant and not a major concern for the EMA. The EMA GSA will continue to monitor and report annually on any subsidence.

Potential GDEs associated with one of the principal aquifers were identified on the distal ends of Alamo Pintado Creek and Zanja de Cota Creek where groundwater may be interconnected with surface water. As described in the EMA Plan, the EMA GSA is planning to install piezometers in the GDE areas shown in EMA GSP Section 4 to assess whether depletion of interconnected surface water is occurring. These piezometers should be able to assess whether significant and unreasonable adverse impacts to GDEs or reductions in discharge of interconnected surface water to the Santa Ynez River may be occurring because of groundwater conditions. Planning for the installation of the proposed piezometers is underway using SGMA grant funding awarded by DWR.

Planning is underway to implement projects and management actions and to evaluate their effectiveness. It is anticipated that the projects and management actions will enable the EMA to sustainably manage groundwater and achieve sustainability goals as defined in the EMA Plan.

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EMA CHAPTER 7: REFERENCES

Davis, T., M. Landon, and G. Bennett. 2018. Prioritization of Oil and Gas Fields for Regional Groundwater Monitoring Based on Preliminary Assessment of Petroleum Resource Development and Proximity to California's Groundwater Resources. Scientific Investigation Report 2018-5065.

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APPENDICES

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Joint Appendix A:

Portions of Sustainable Groundwater Management Act Statute and Regulations Specific to Annual Report Requirements Effective August 15, 2016

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Portions of Sustainable Groundwater Management Act Statute and Regulations Specific to Annual Report Requirements

CALIFORNIA WATER CODE
DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES
PART 2.74. SUSTAINABLE GROUNDWATER MANAGEMENT
CHAPTER 6. GROUNDWATER SUSTAINABILITY PLANS

Section 10728. Annual Reporting By Groundwater Sustainability Agency To Department

On the April 1 following the adoption of a groundwater sustainability plan and annually thereafter, a groundwater sustainability agency shall submit a report to the department containing the following information about the basin managed in the groundwater sustainability plan:

(a) Groundwater elevation data.
(b) Annual aggregated data identifying groundwater extraction for the preceding water year.
(c) Surface water supply used for or available for use for groundwater recharge or in-lieu use.
(d) Total water use.
(e) Change in groundwater storage.

CALIFORNIA CODE OF REGULATIONS
TITLE 23. WATERS
DIVISION 2. DEPARTMENT OF WATER RESOURCES
CHAPTER 1.5. GROUNDWATER MANAGEMENT
SUBCHAPTER 2. GROUNDWATER SUSTAINABILITY PLANS

ARTICLE 2. Definitions

§ 351. Definitions

The definitions in the Sustainable Groundwater Management Act, Bulletin 118, and Subchapter 1 of this Chapter, shall apply to these regulations. In the event of conflicting definitions, the definitions in the Act govern the meanings in this Subchapter. In addition, the following terms used in this Subchapter have the following meanings:
[...]

(d) "Annual report" refers to the report required by Water Code Section 10728

[..]

(am) "Water year" refers to the period from October 1 through the following September 30, inclusive, as defined in the Act.

ARTICLE 4. Procedures

§ 353.4. Reporting Provisions

Information required by the Act or this Subchapter, including Plans, Plan amendments, annual reports, and five-year assessments, shall be submitted by each Agency to the Department as follows:

(a) Materials shall be submitted electronically to the Department through an online reporting system, in a format provided by the Department as described in Section 353.2.

(b) Submitted materials shall be accompanied by a transmittal letter signed by the plan manager or other duly authorized person.

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.

ARTICLE 6. Department Evaluation and Assessment

§ 355.6. Periodic Review of Plan by Department

[...]

(b) The Department shall evaluate approved Plans and issue an assessment at least every five years. The Department review shall be based on information provided in the annual reports and the periodic evaluation of the Plan prepared and submitted by the Agency.

§ 355.8. Department Review of Annual Reports

The Department shall review annual reports as follows:

(a) The Department shall acknowledge the receipt of annual reports by written notice and post the report and related materials on the Department's website within 20 days of receipt.

(b) The Department shall provide written notice to the Agency if additional information is required.

(c) The Department shall review information contained in the annual report to determine whether the Plan is being implemented in a manner that will likely achieve the sustainability goal for the basin, pursuant to Section 355.6.

ARTICLE 7. Annual Reports and Periodic Evaluations by the Agency

§ 356. Introduction to Annual Reports and Periodic Evaluations by the Agency

This Article describes the procedural and substantive requirements for the annual reports and periodic evaluation of Plans prepared by an 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.

(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.

(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.

(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.

(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.

(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.

(5) Change in groundwater in storage shall include the following:

(A) Change in groundwater in storage maps for each principal aquifer in the basin.

(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.

(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.

ARTICLE 8. Interagency Agreements

§ 357.4. Coordination Agreements

[…]

(d) The coordination agreement shall describe a process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations.

WMA Appendix A:

Groundwater Level Hydrographs for Assessing Chronic Decline in Groundwater Levels, Western Management Area

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WMA APPENDIX A:
GROUNDWATER LEVEL HYDROGRAPHS
FOR ASSESSING
CHRONIC DECLINE IN GROUNDWATER LEVELS,
WESTERN MANAGEMENT AREA

WATER YEAR 2024

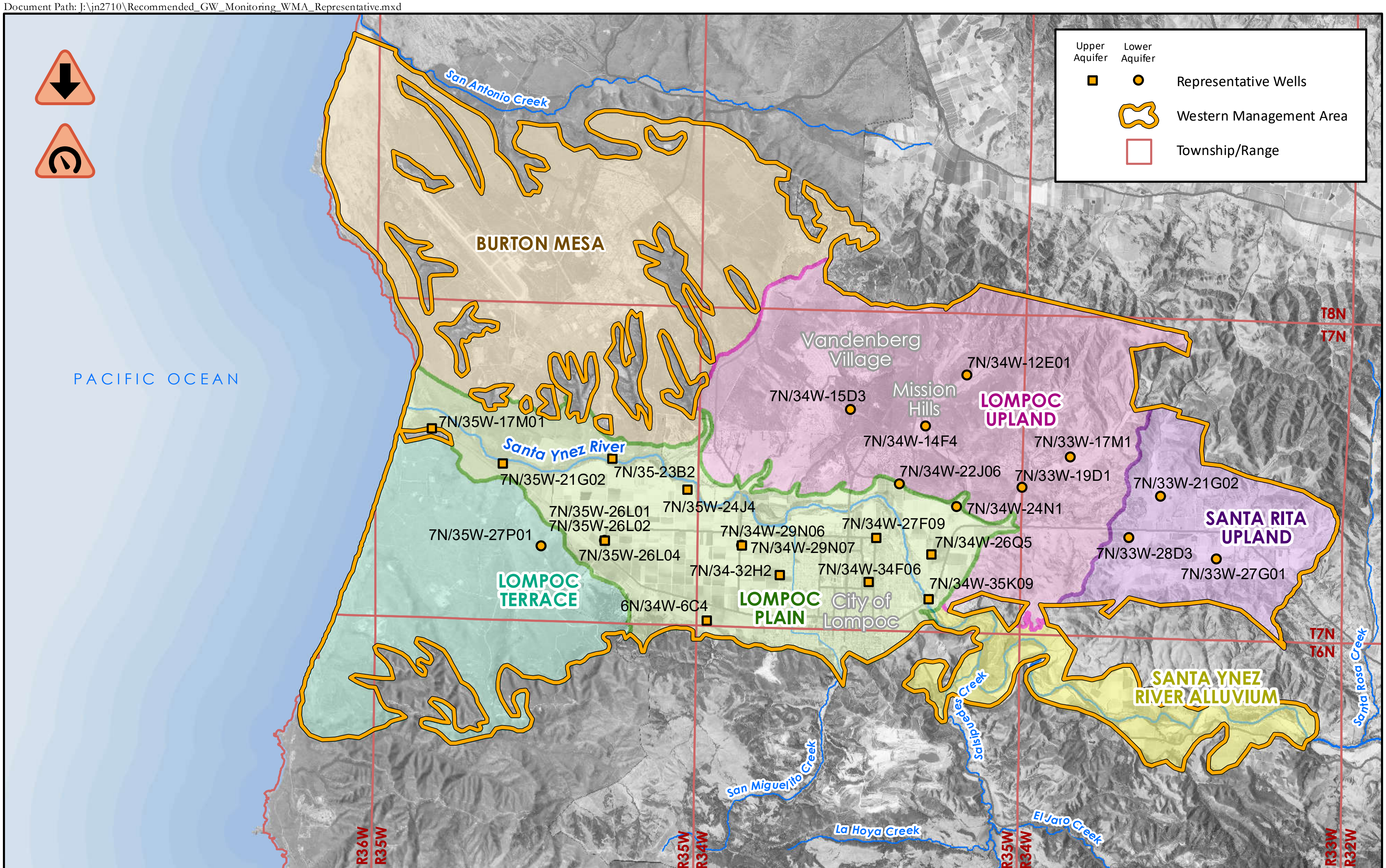
This appendix includes hydrographs, which are graphs of water levels in wells. These are the representative wells for monitoring groundwater level decline. As per the SGMA regulations, this includes the period from January 1, 2015 through the end of the Water Year 2024. Shown on these graphs are key SGMA criteria: measurable objective, early warning, and minimum threshold. The Appendix is organized into two sections: Upper Aquifer and Lower Aquifer.

The Groundwater Sustainability Plan (GSP) includes hydrographs of the long-term period of record. A copy of the GSP, water level data, and hydrographs are available at https://sywater.info .

LIST OF ACRONYMS AND ABBREVIATIONS

BGS	below ground surface
CASGEM	California Statewide Groundwater Elevation Monitoring
FT	feet
NAVD88	North American Vertical Datum of 1988
USBR	United States Bureau of Reclamation
USGS	United States Geologic Survey
WL	Water Level
WMA	Western Management Area

Document Path: J:\jn2710\Recommended_GW_Monitoring_WMA_Representative.mxd



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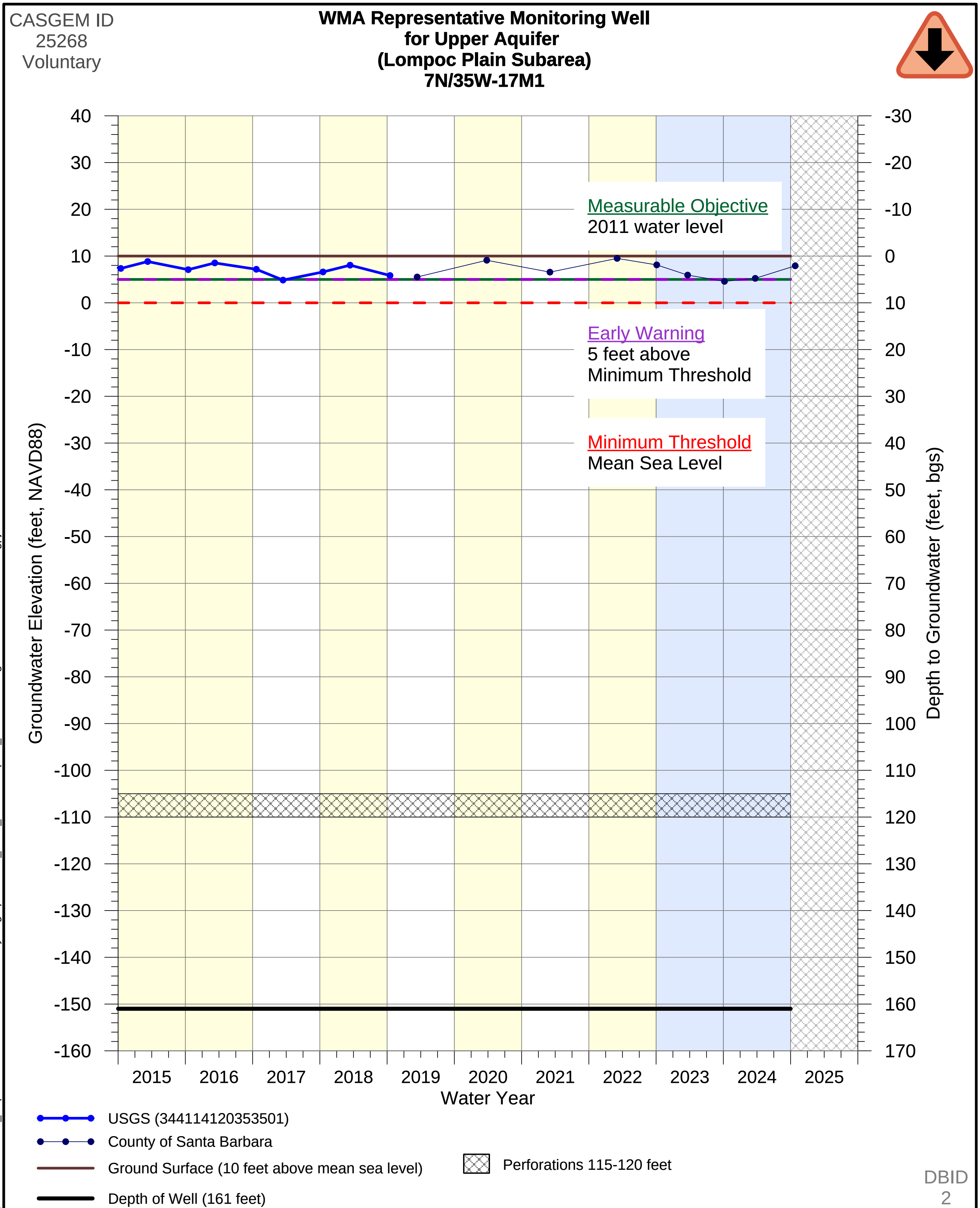
WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

WMA REPRESENTATIVE MONITORING WELLS FOR GROUNDWATER LEVELS AND GROUNDWATER STORAGE



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REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

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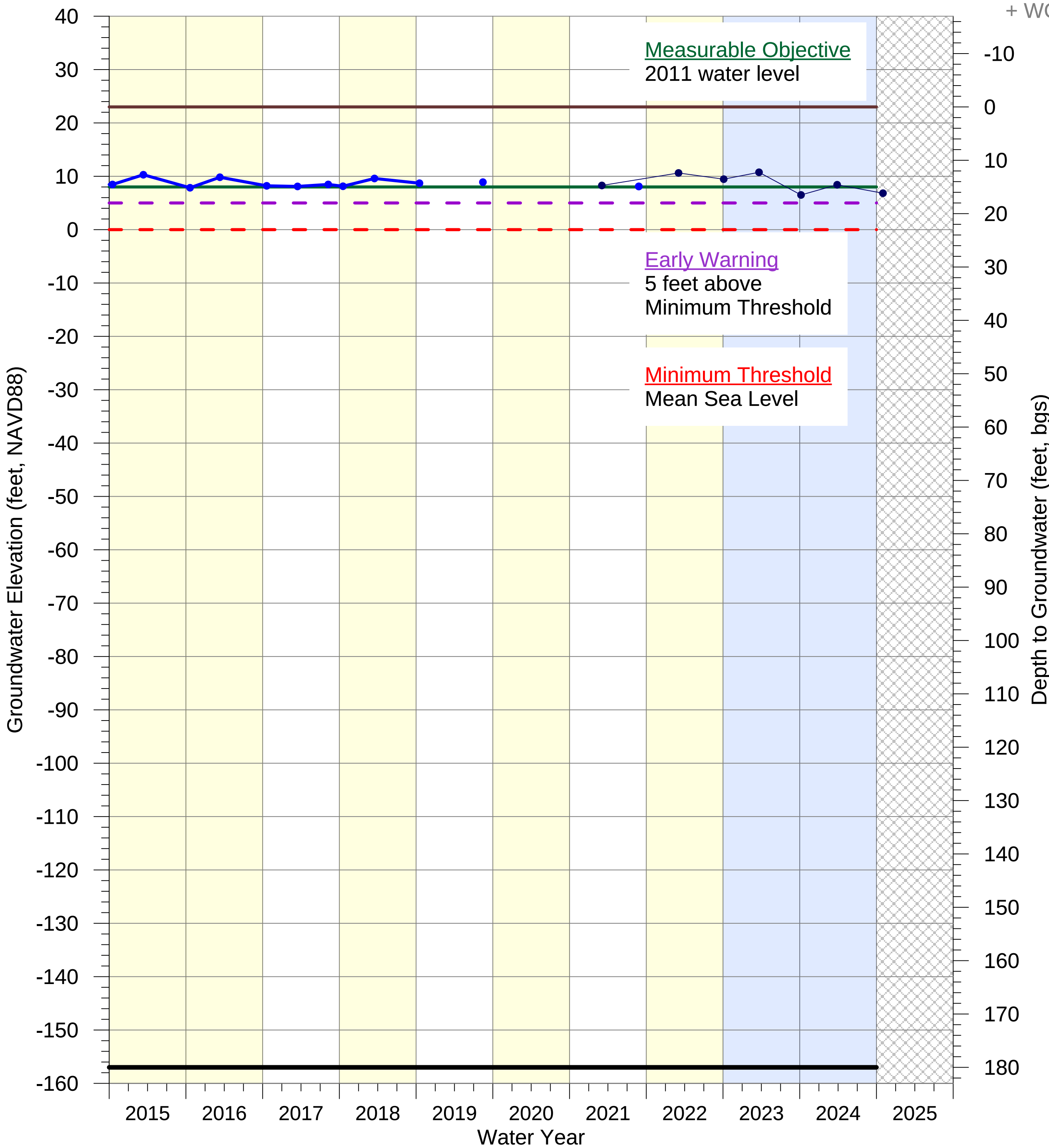
WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

FIGURE A1-02

CASGEM ID
25271
Voluntary

WMA Representative Monitoring Well for Upper Aquifer (Lompoc Plain Subarea) 7N/35W-21G2

+ ISW
+ WQ



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WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

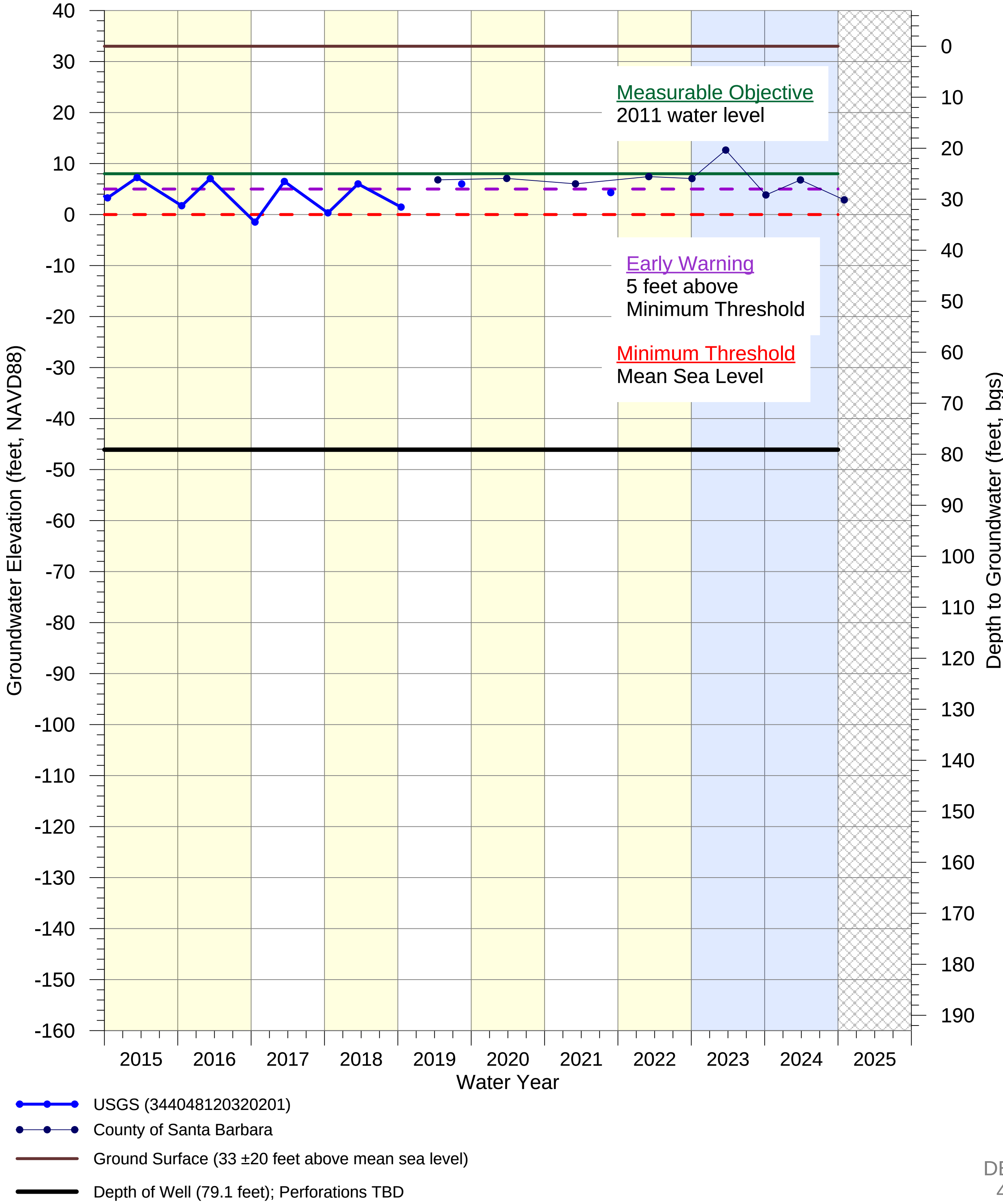
REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A1-03

CASGEM ID
49171
Voluntary

WMA Representative Monitoring Well for Upper Aquifer (Lompoc Plain Subarea) 7N/35W-23B2



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40

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Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

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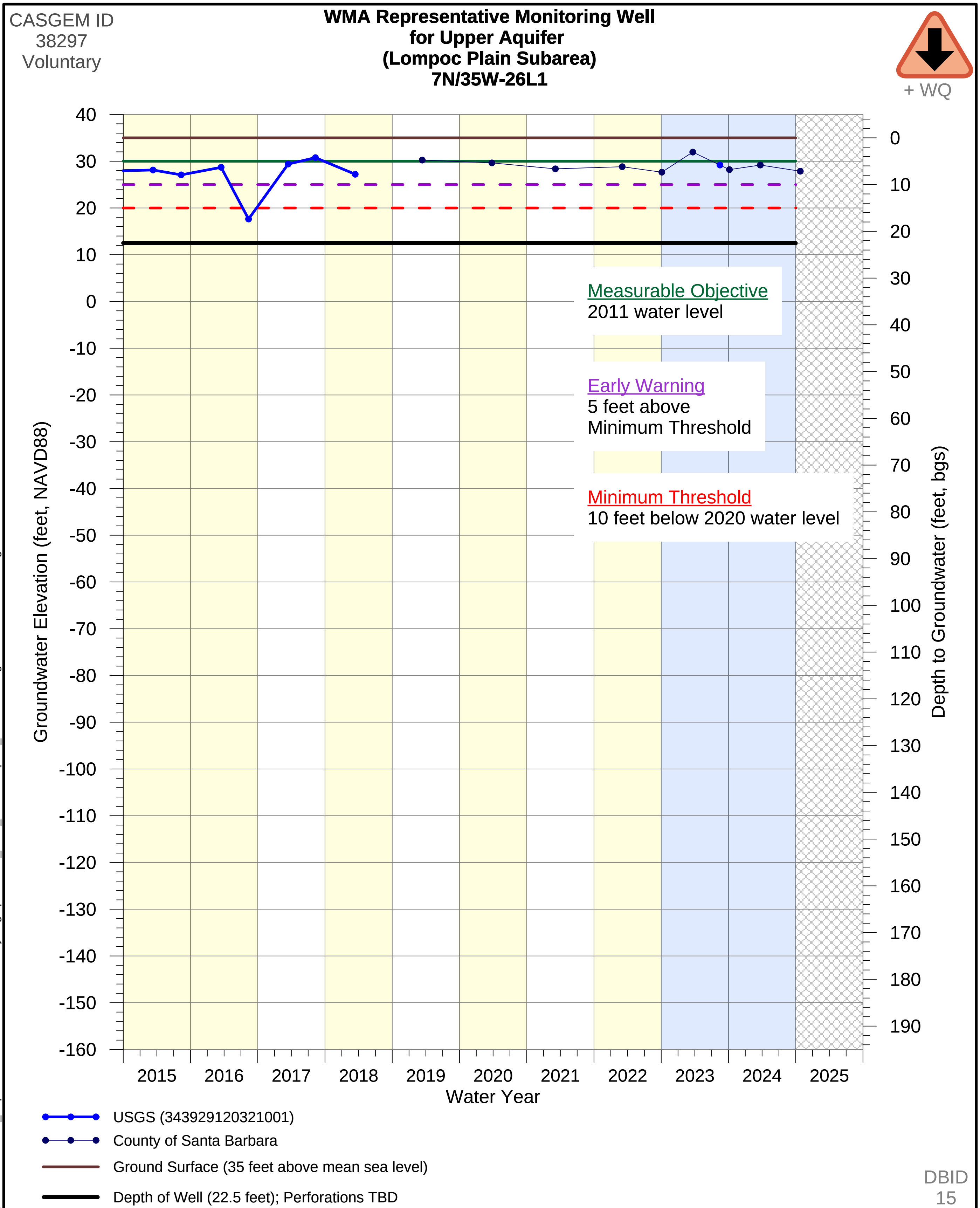
FIGURE A1-04



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Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

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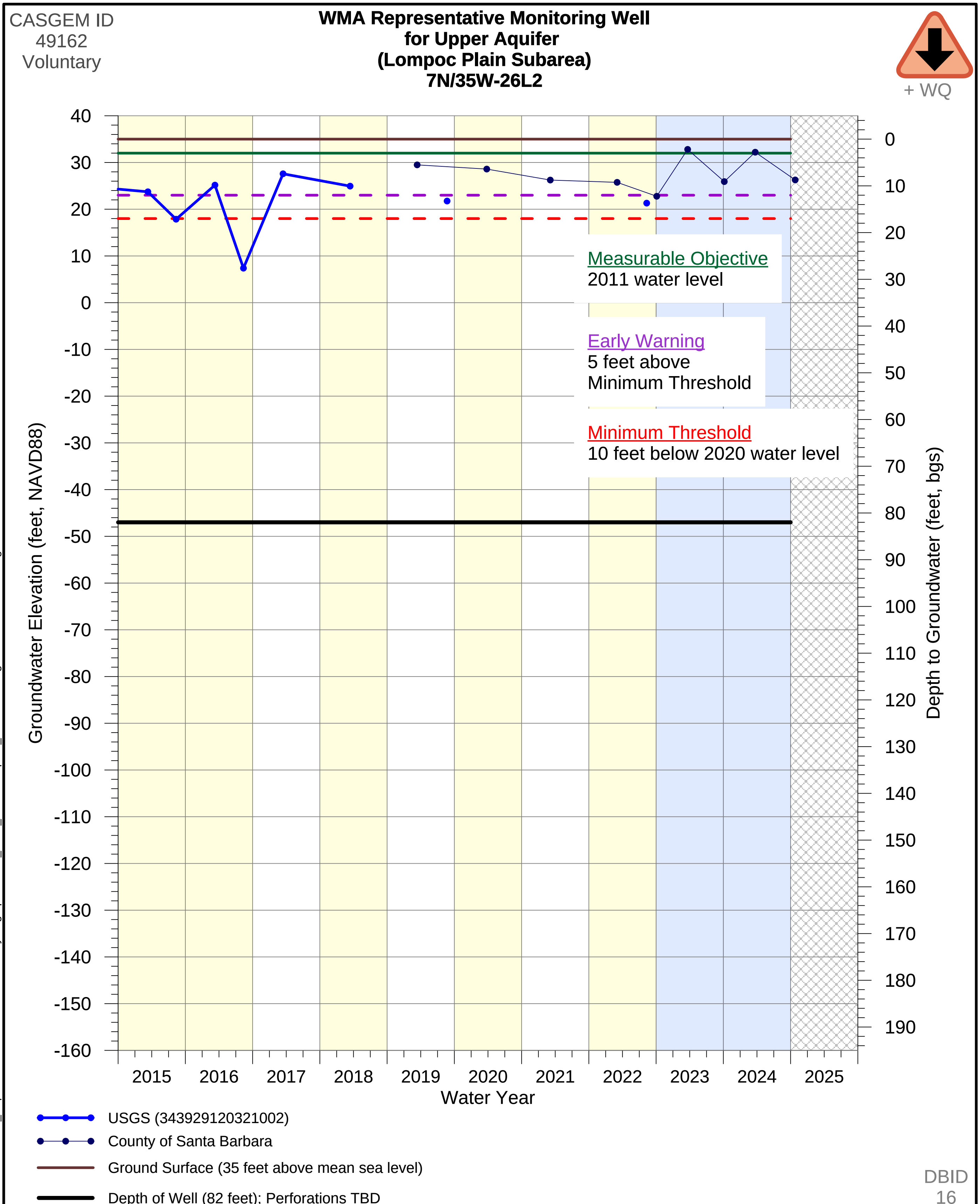
FIGURE A1-05



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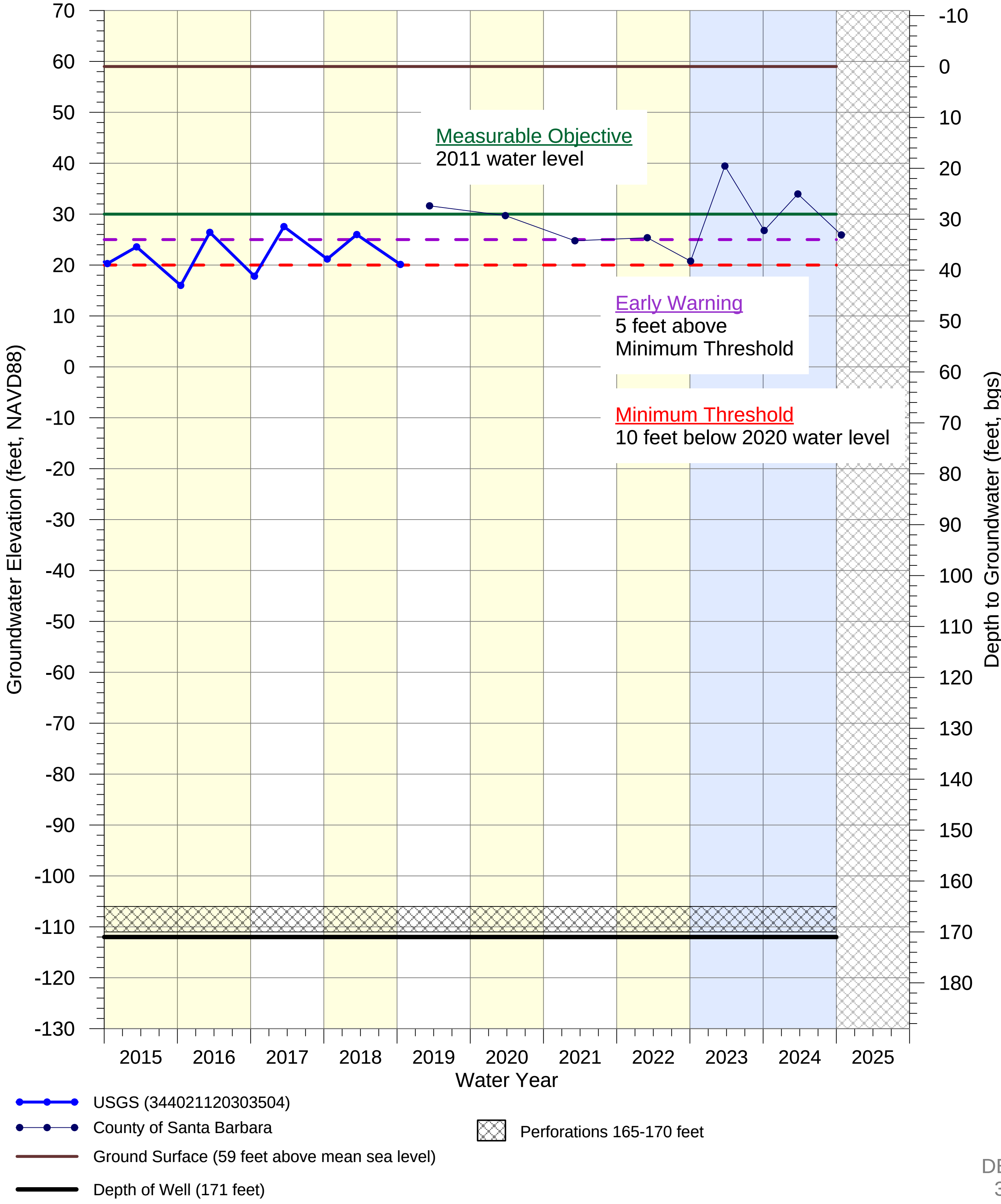
REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)

Wet | No Data | Above/Below Normal | Dry / Critically Dry

CASGEM ID
49146
Voluntary

WMA Representative Monitoring Well for Upper Aquifer (Lompoc Plain Subarea) 7N/35W-24J4



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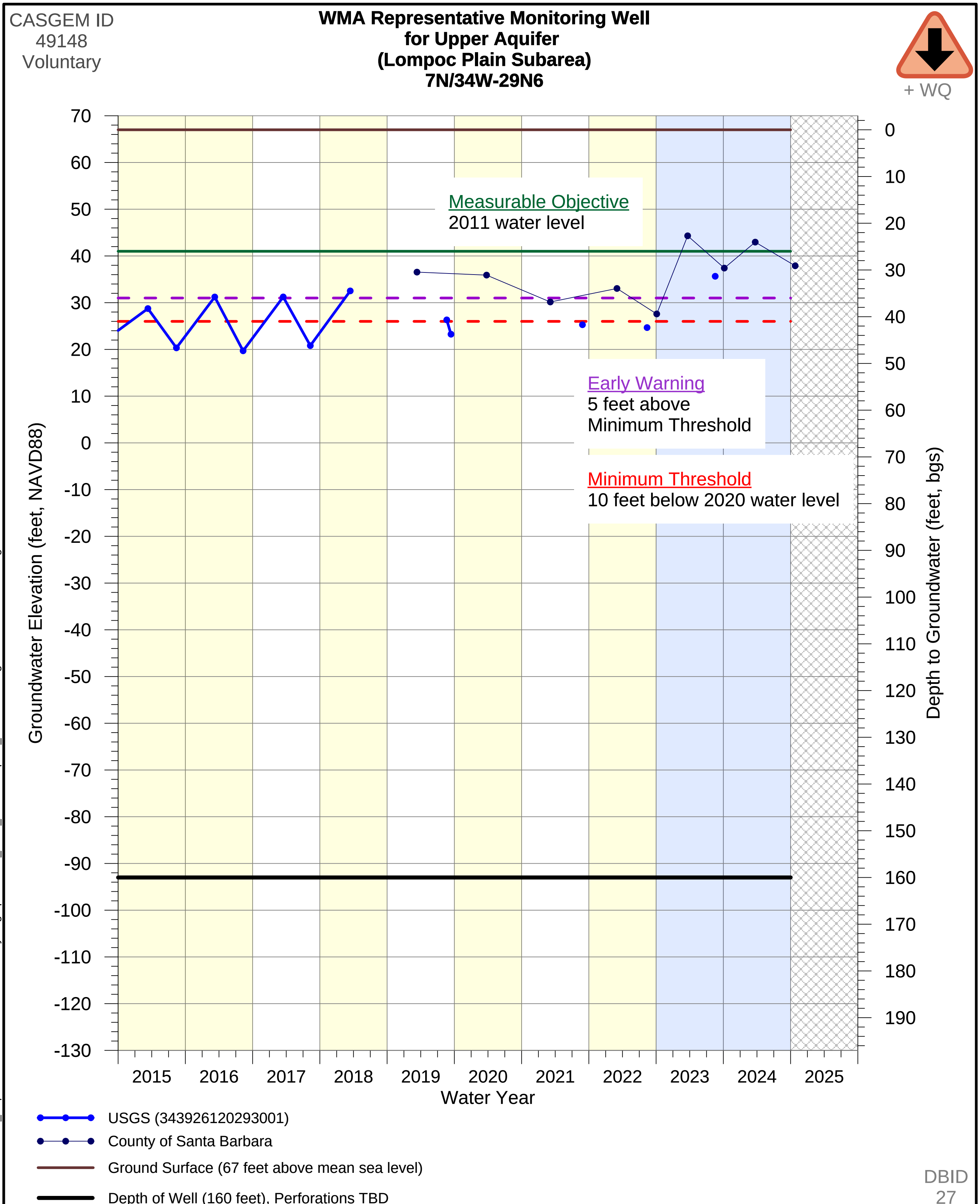
WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A1-07



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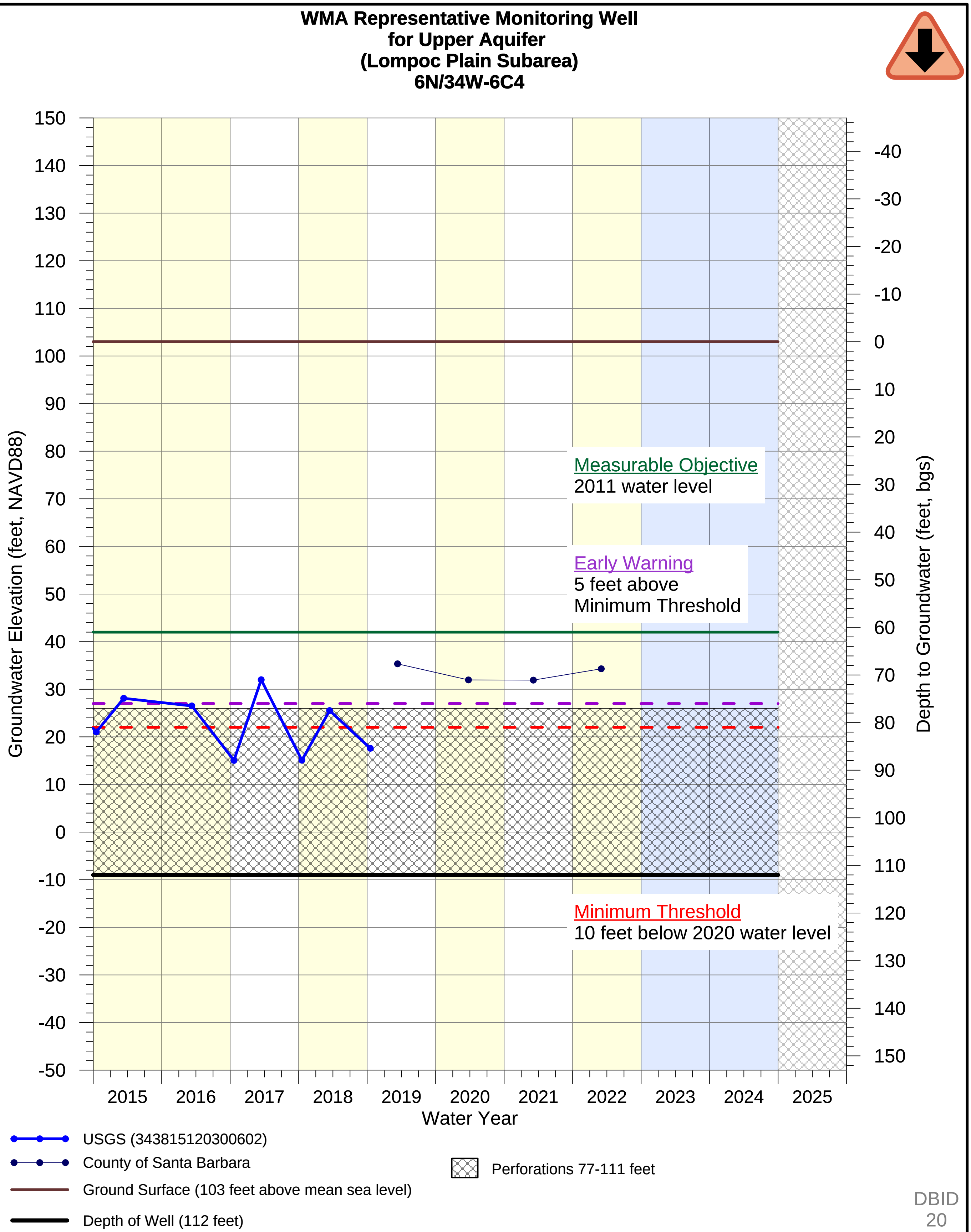
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A1-08



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REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

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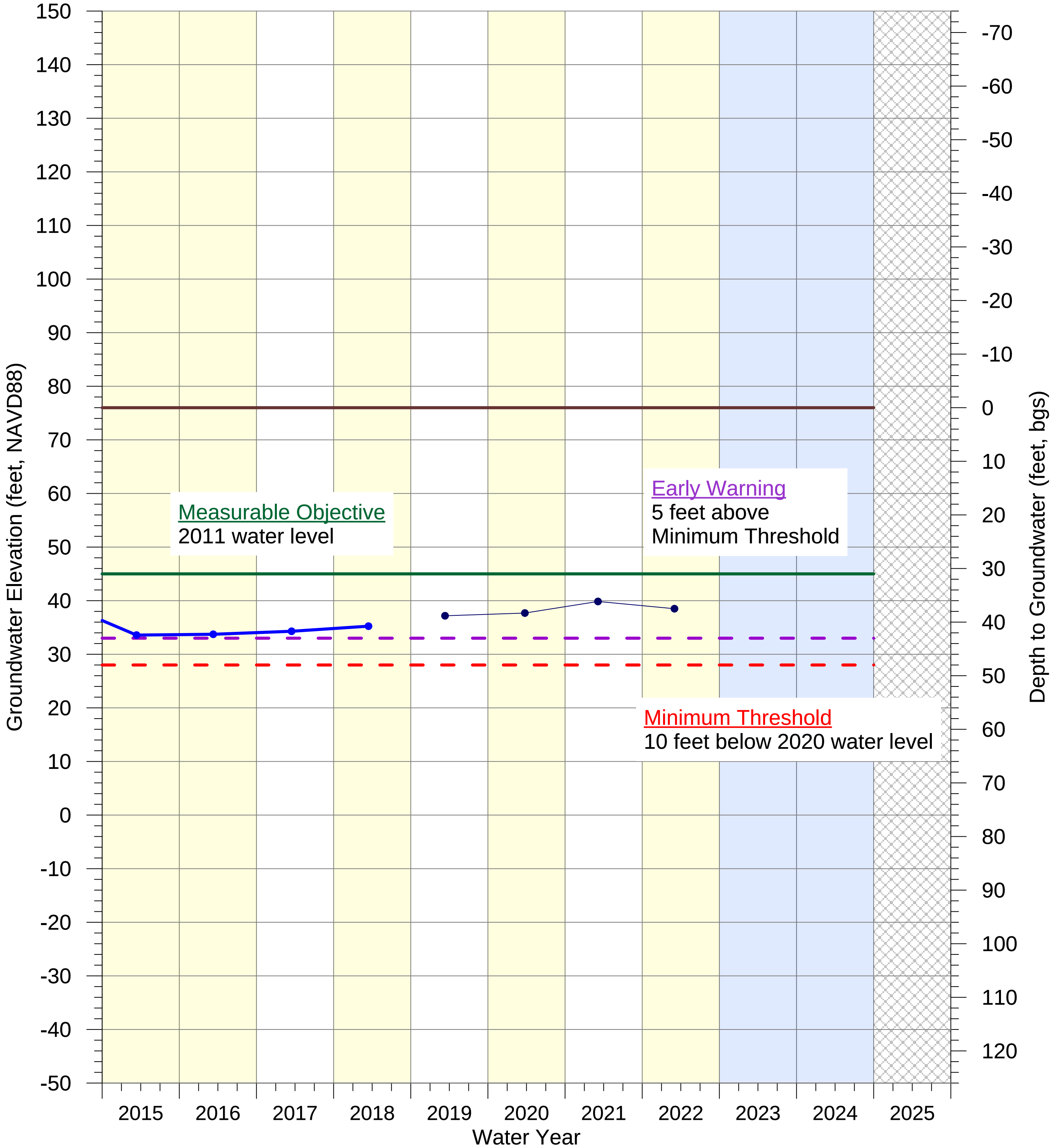
FIGURE A1-09

CASGEM ID
49151
Voluntary

WMA Representative Monitoring Well for Upper Aquifer (Lompoc Plain Subarea) 7N/34W-32H2



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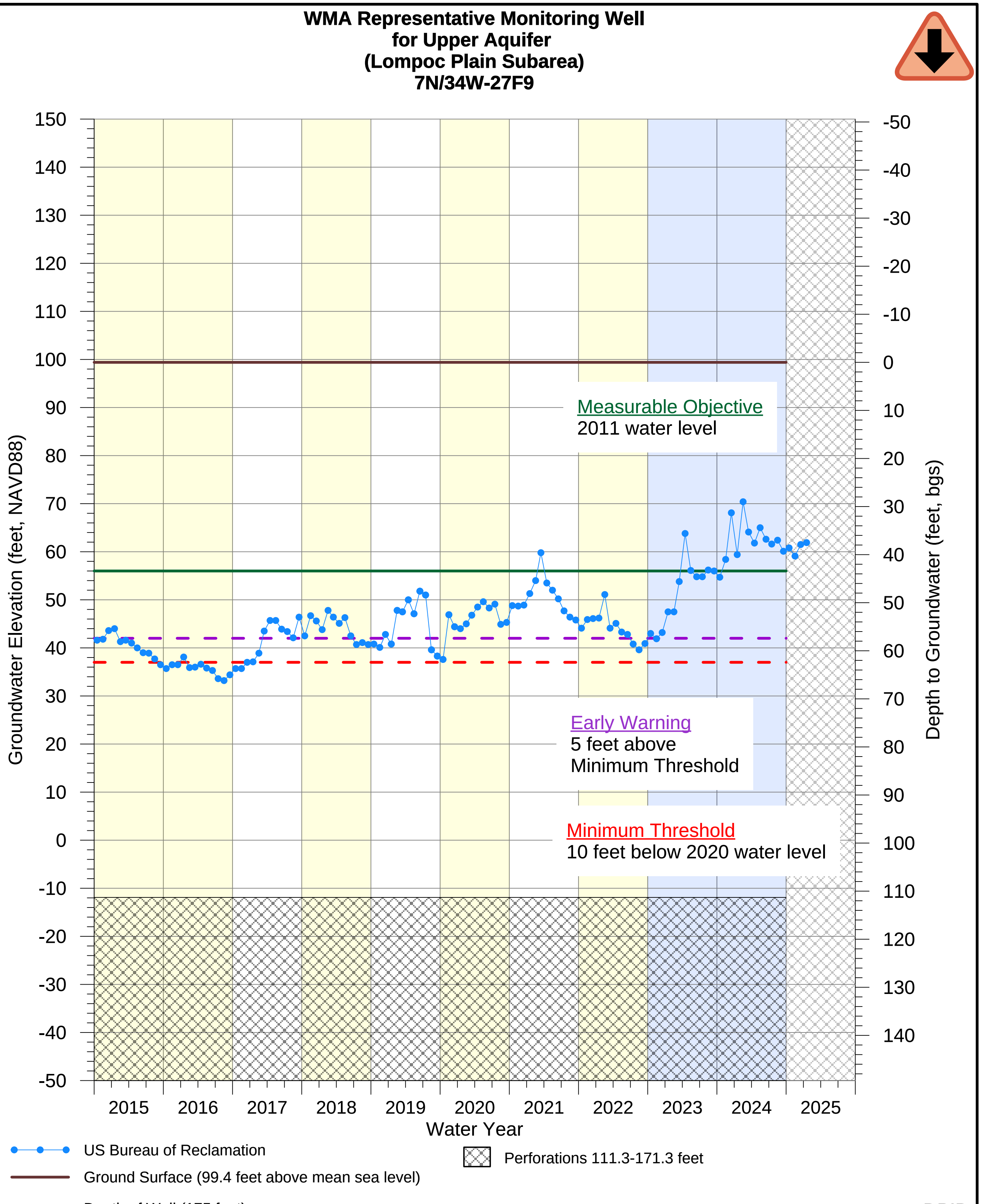
WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)

Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A1-10



US Bureau of Reclamation data includes estimates.

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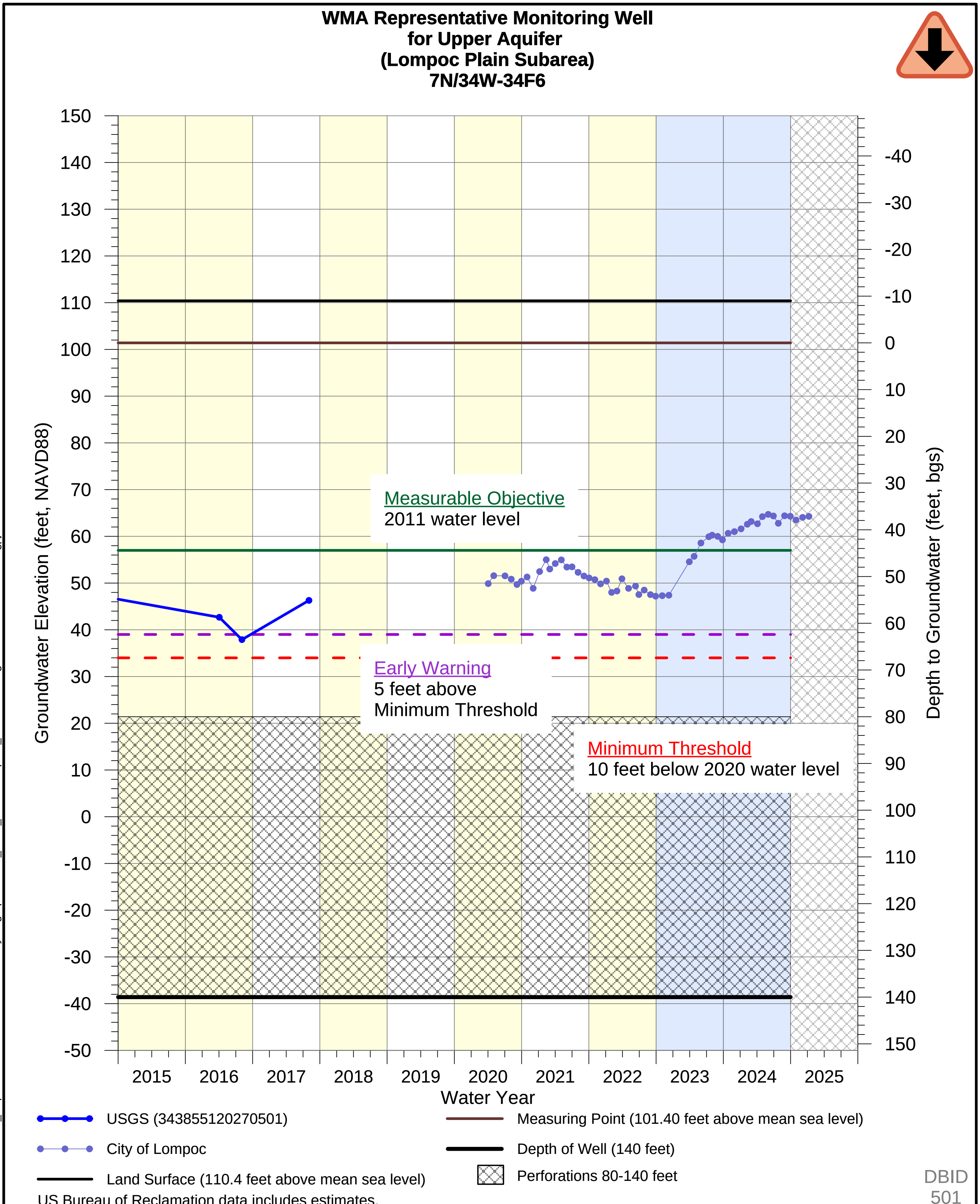
WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry



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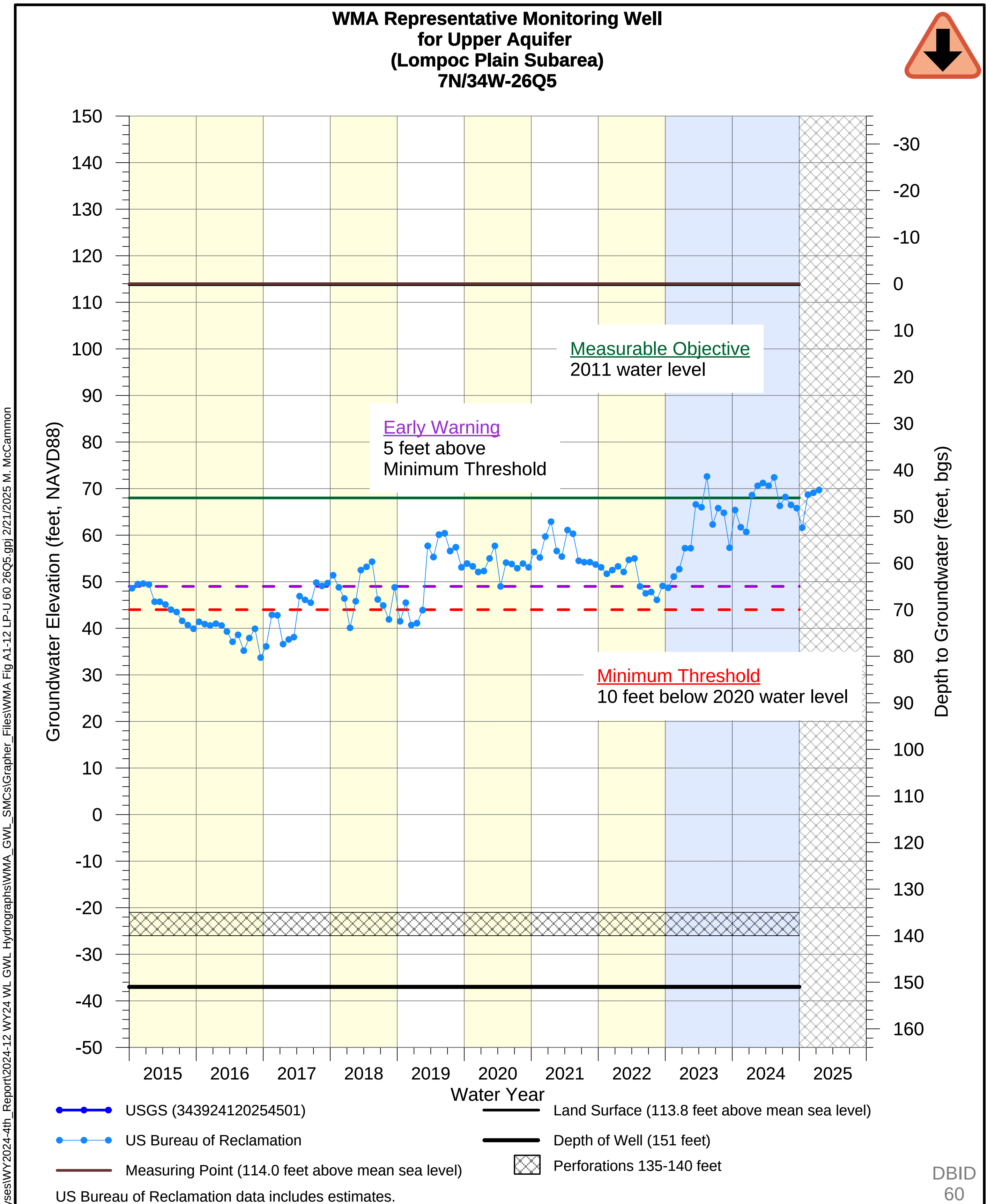
WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry



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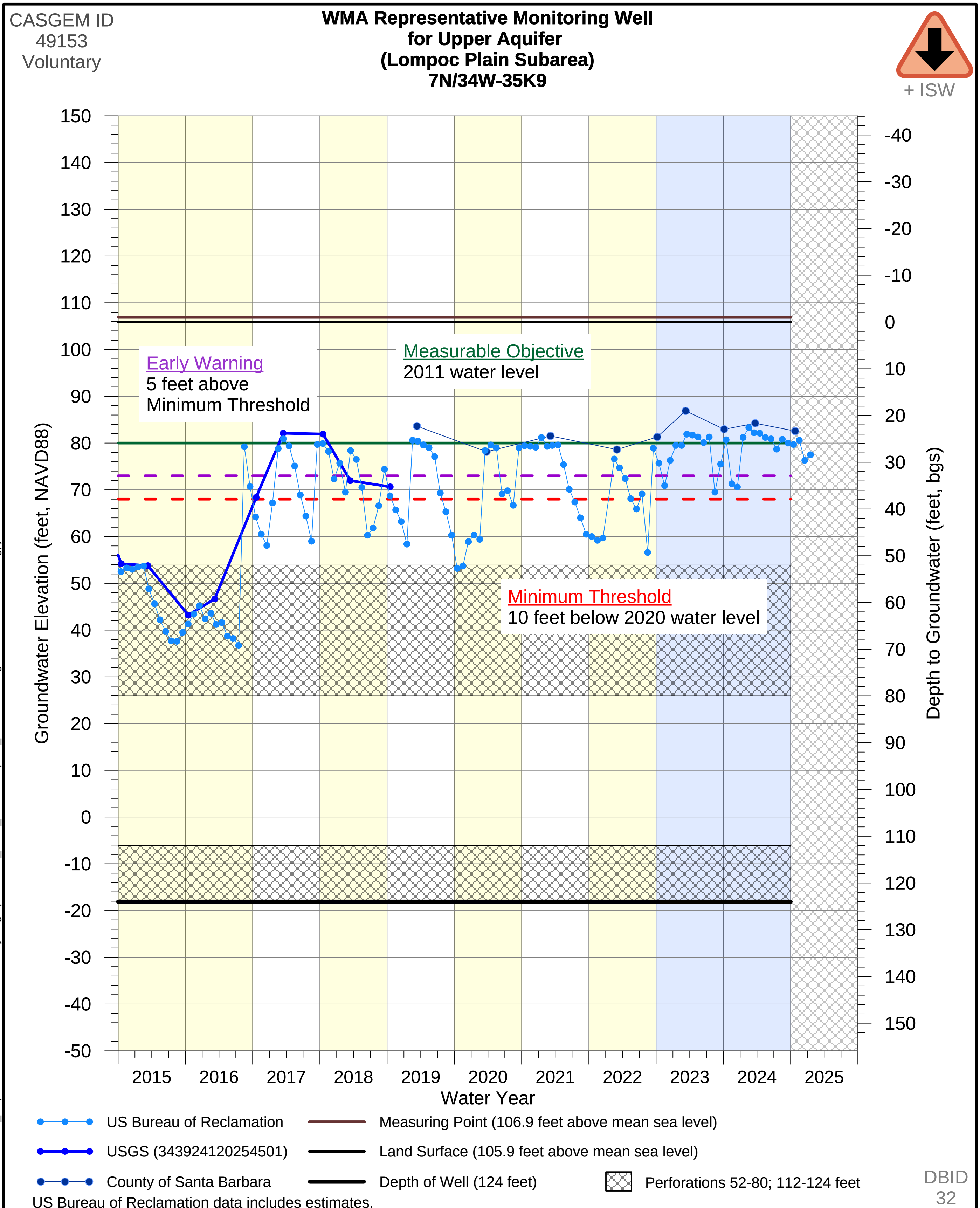
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry



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WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Upper Aquifer - Lompoc Plain

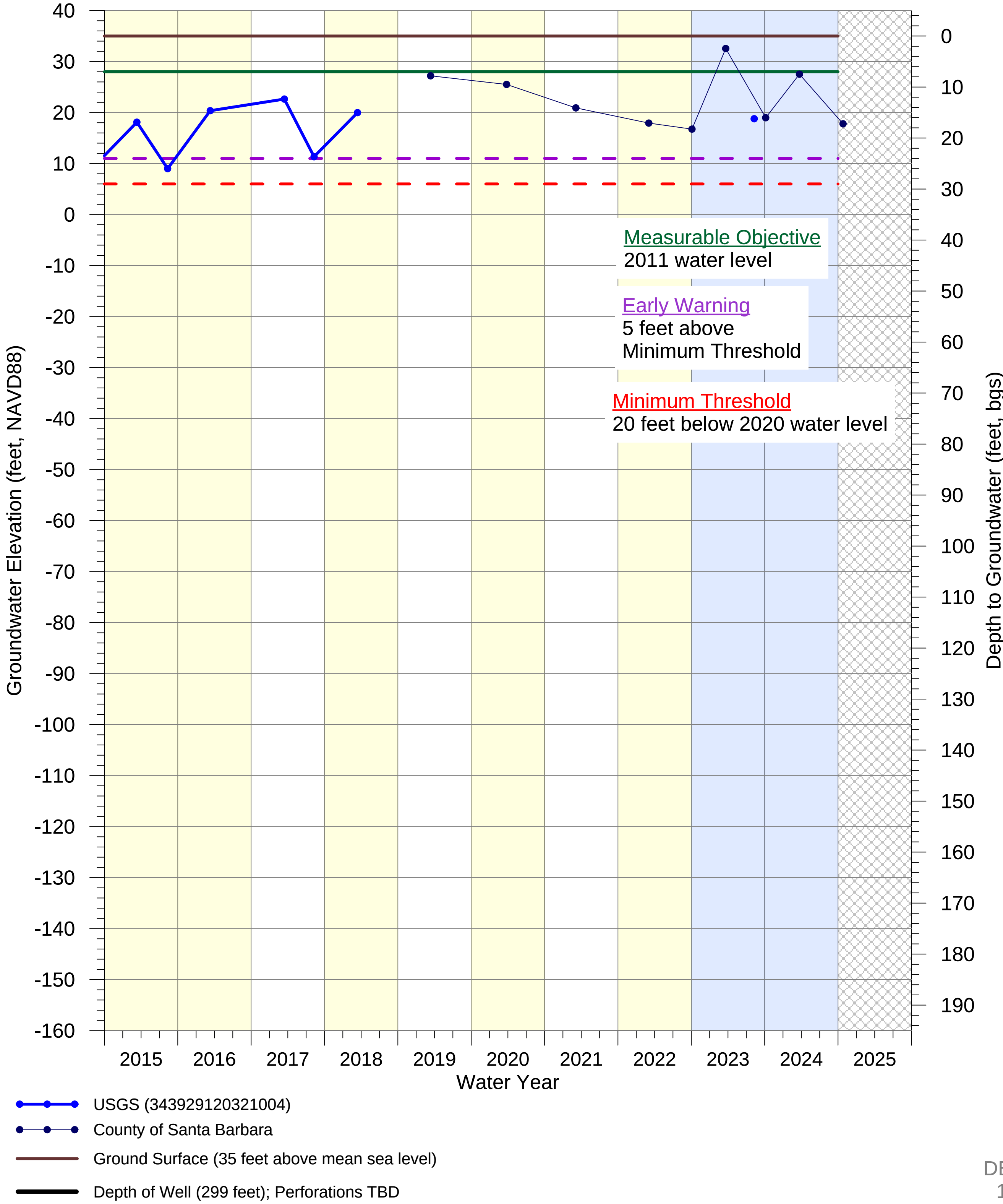
Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A2-01

CASGEM ID
38298
Voluntary

WMA Representative Monitoring Well
for Lower Aquifer
(Lompoc Plain Subarea)
7N/35W-26L4

+ WQ



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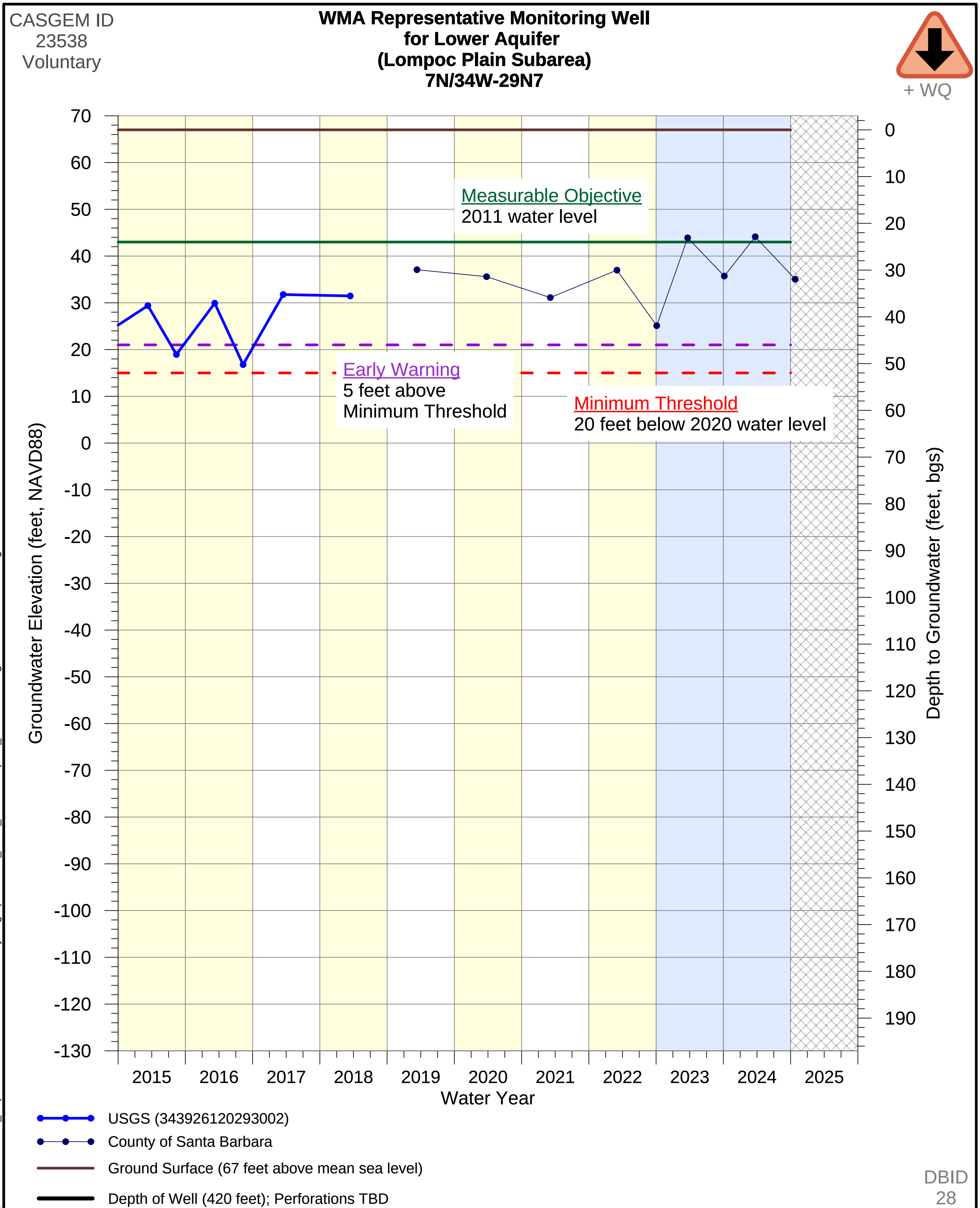
WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Plain

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A2-02



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WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

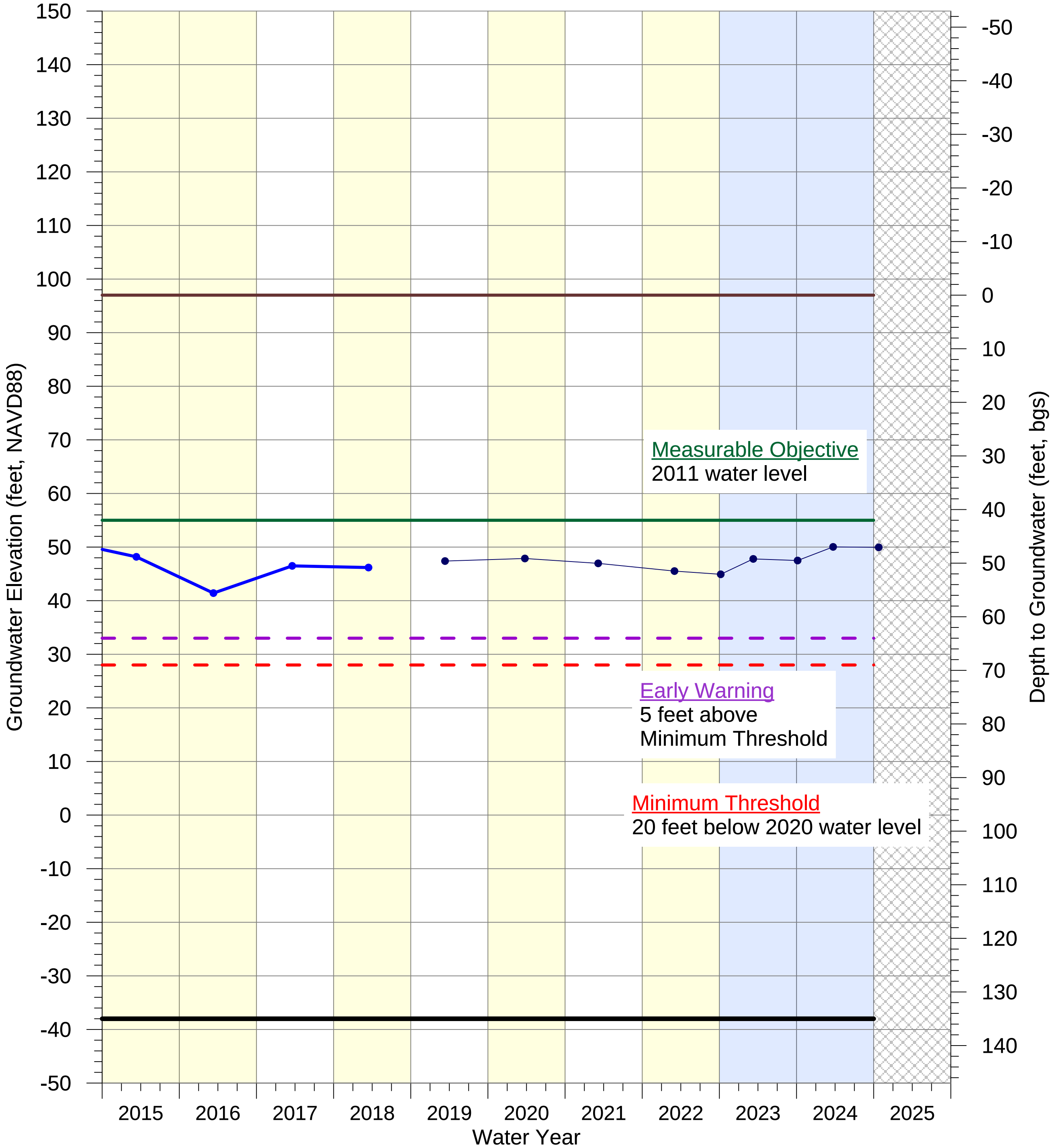
REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Plain

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A2-03

CASGEM ID 49155 Voluntary

WMA Representative Monitoring Well for Lower Aquifer (Lompoc Plain Subarea) 7N/34W-22J6



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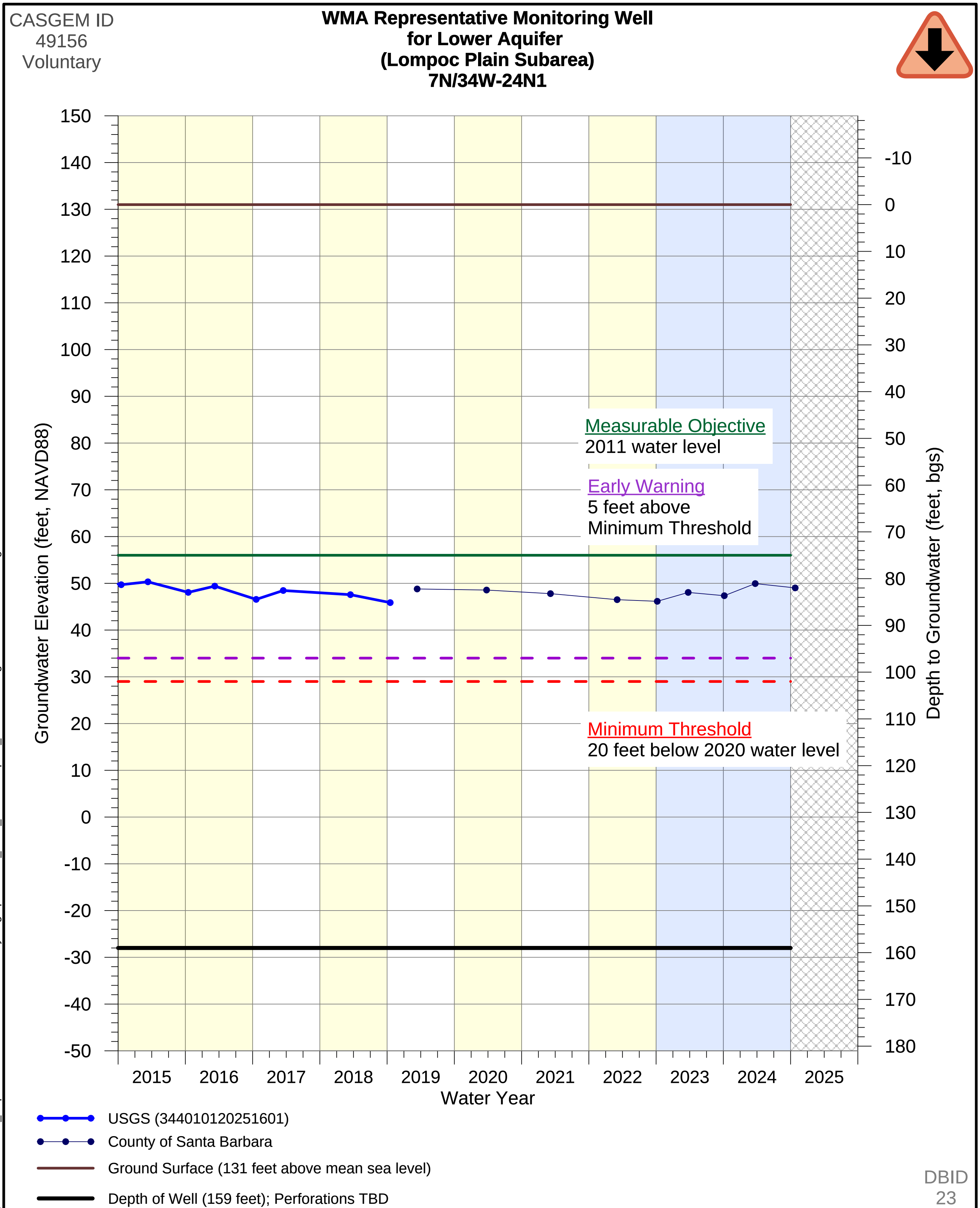
STETSON ENGINEERS INC.

WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Plain

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A2-04



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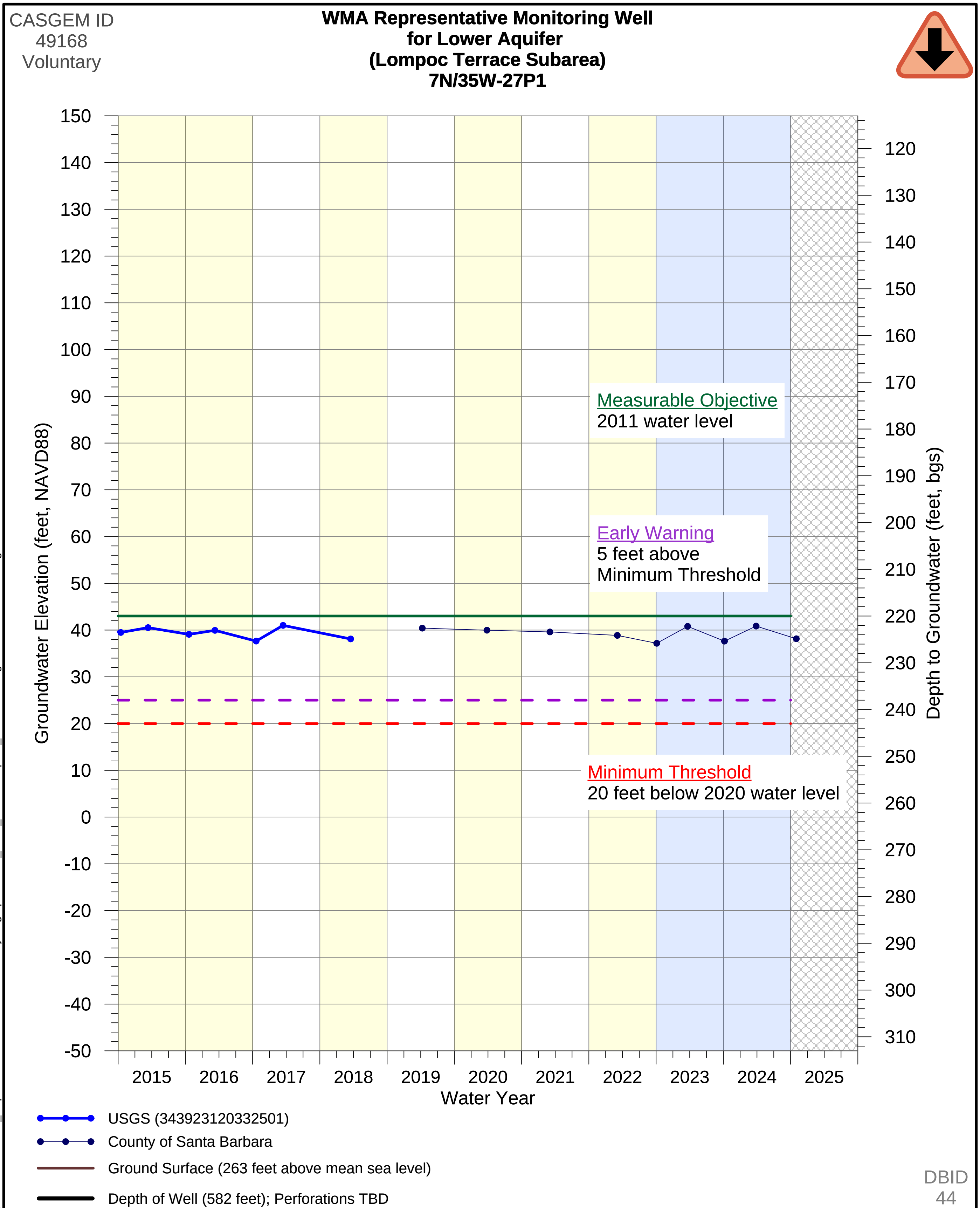
STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Plain

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A2-05



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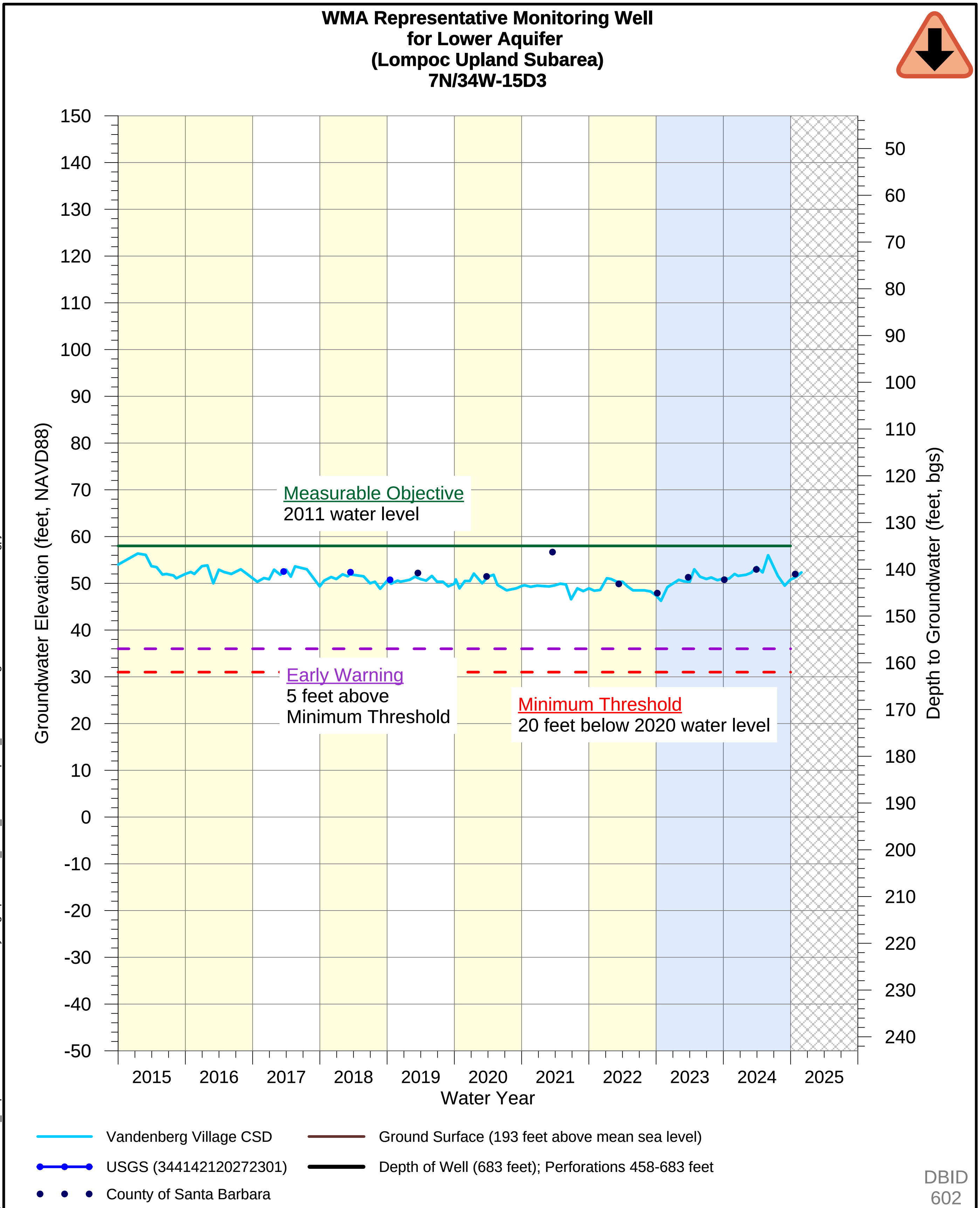
WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Terrace

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A2-06



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WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

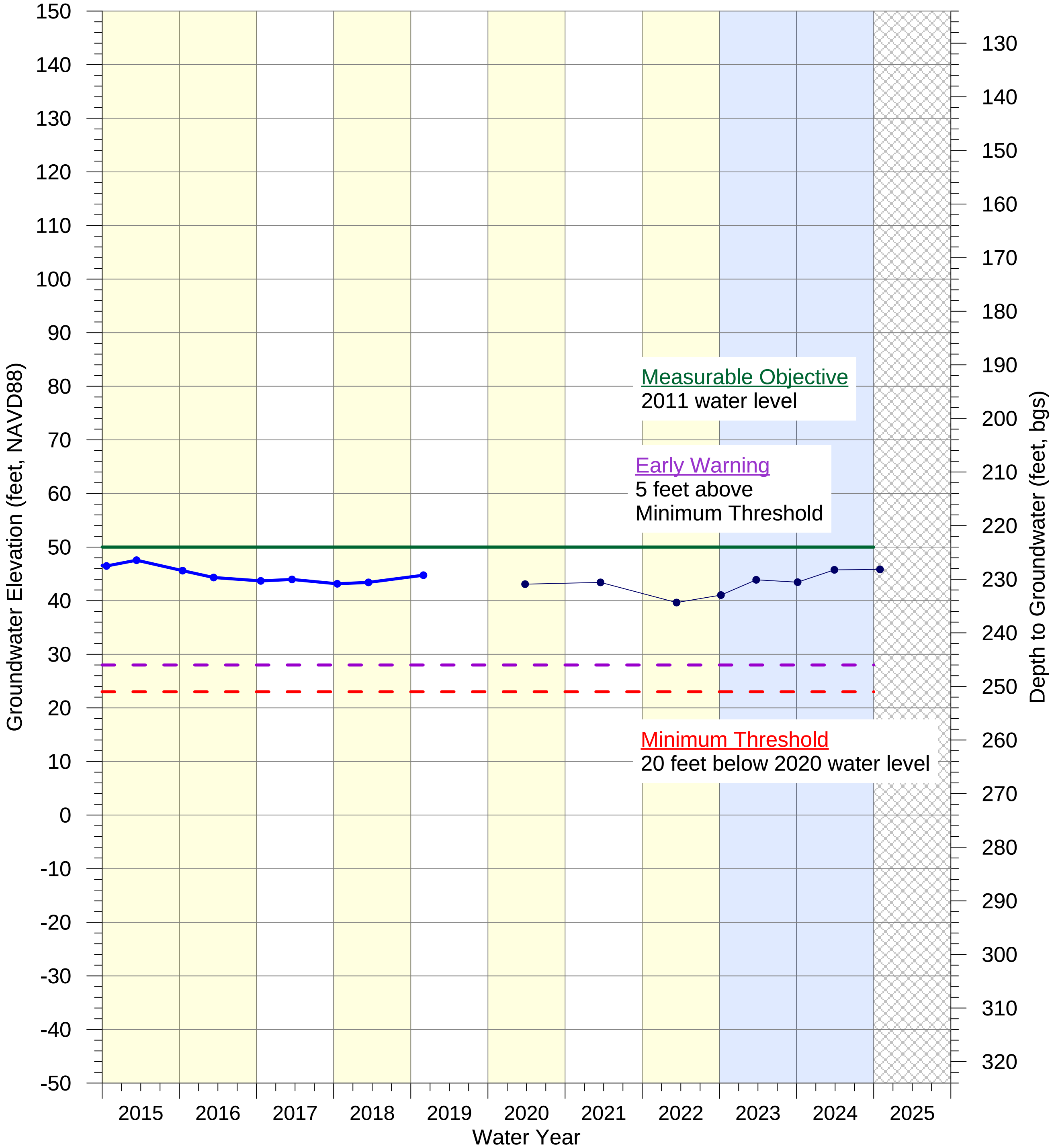
REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Upland

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A2-07

CASGEM ID
49142
Voluntary

WMA Representative Monitoring Well
for Lower Aquifer
(Lompoc Upland Subarea)
7N/34W-14F4



DBID
52

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-12 WY24 WL GWL Hydrographs\WMA_GWL_SMCs\Grapher_Files\WMA Fig A2-07 LU-L 52 14F4.grf 1/6/2025 M. McCammon

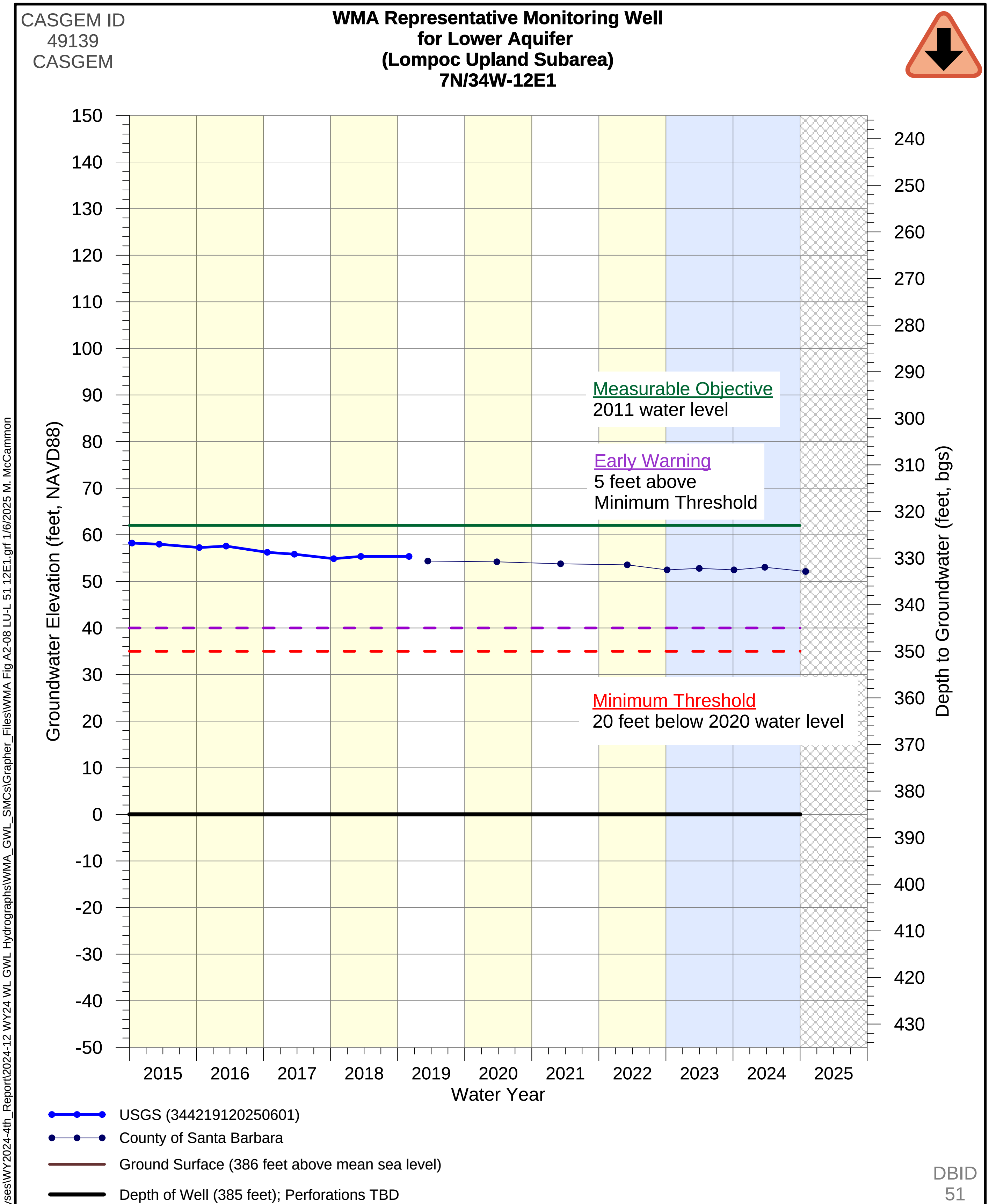
STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Upland

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A2-08



STETSON ENGINEERS INC.

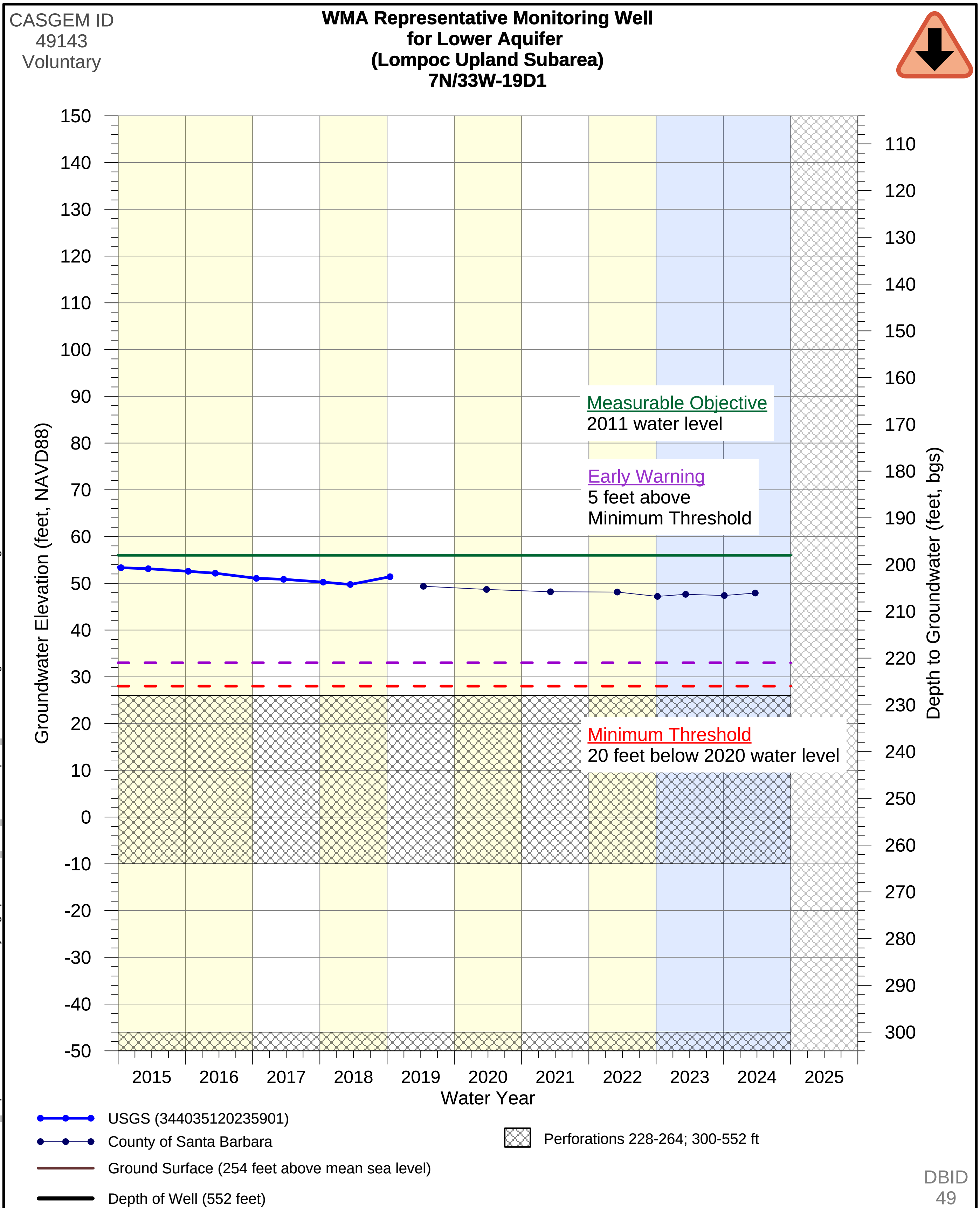
WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Upland

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A2-09



STETSON ENGINEERS INC.

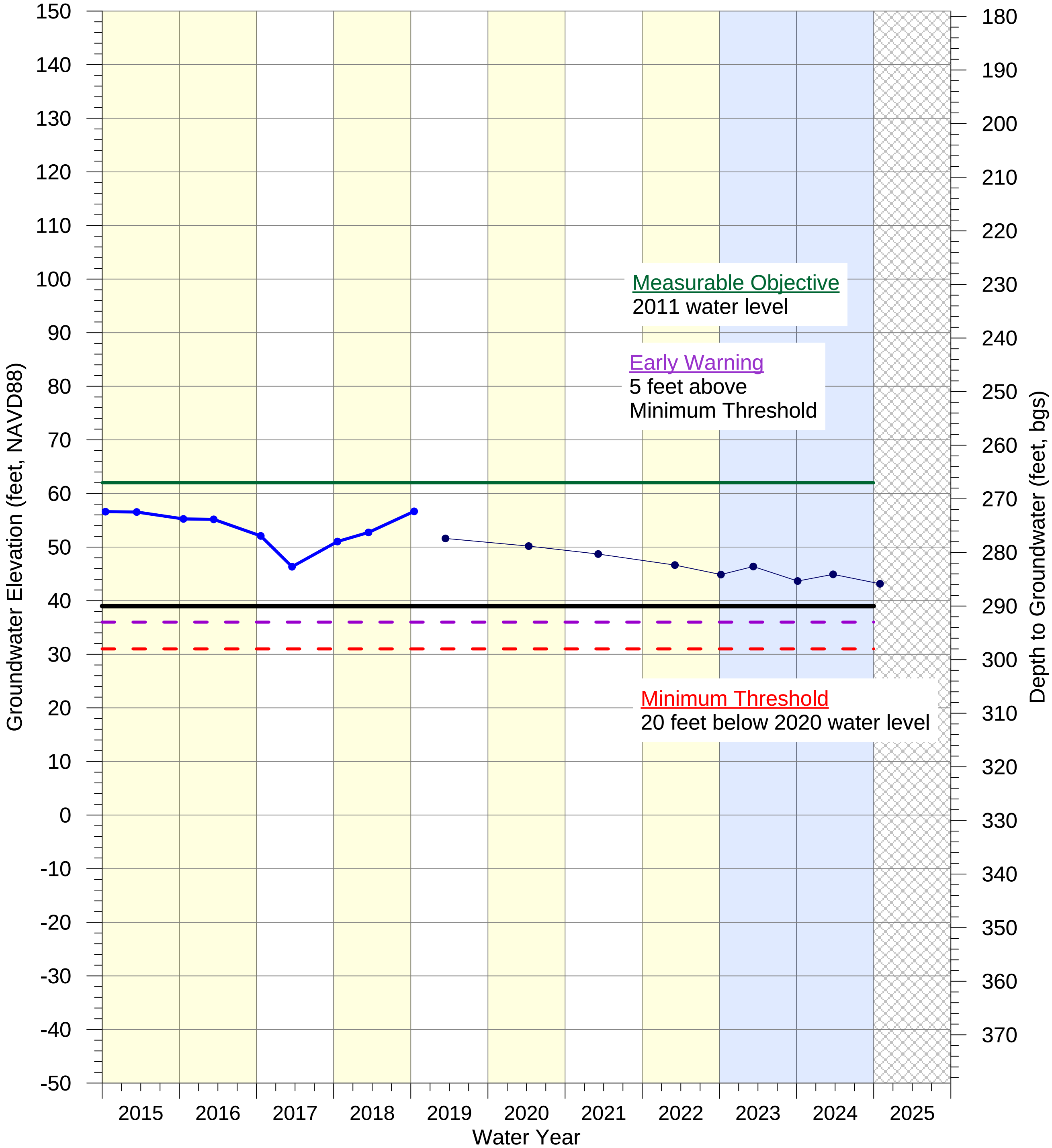
WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Upland

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

CASGEM ID
49144
Voluntary

WMA Representative Monitoring Well for Lower Aquifer (Lompoc Upland Subarea) 7N/33W-17M1



USGS (344100120224901)
County of Santa Barbara
Ground Surface (329 feet above mean sea level)
Depth of Well (290 feet); Perforations TBD

DBID
47

\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-12 WY24 WL GWL Hydrographs\WMA_GWL_SMCs\Grapher_Files\WMA Fig A2-10 LU-L 47 17M1.grf 1/6/2025 M. McCammon

STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

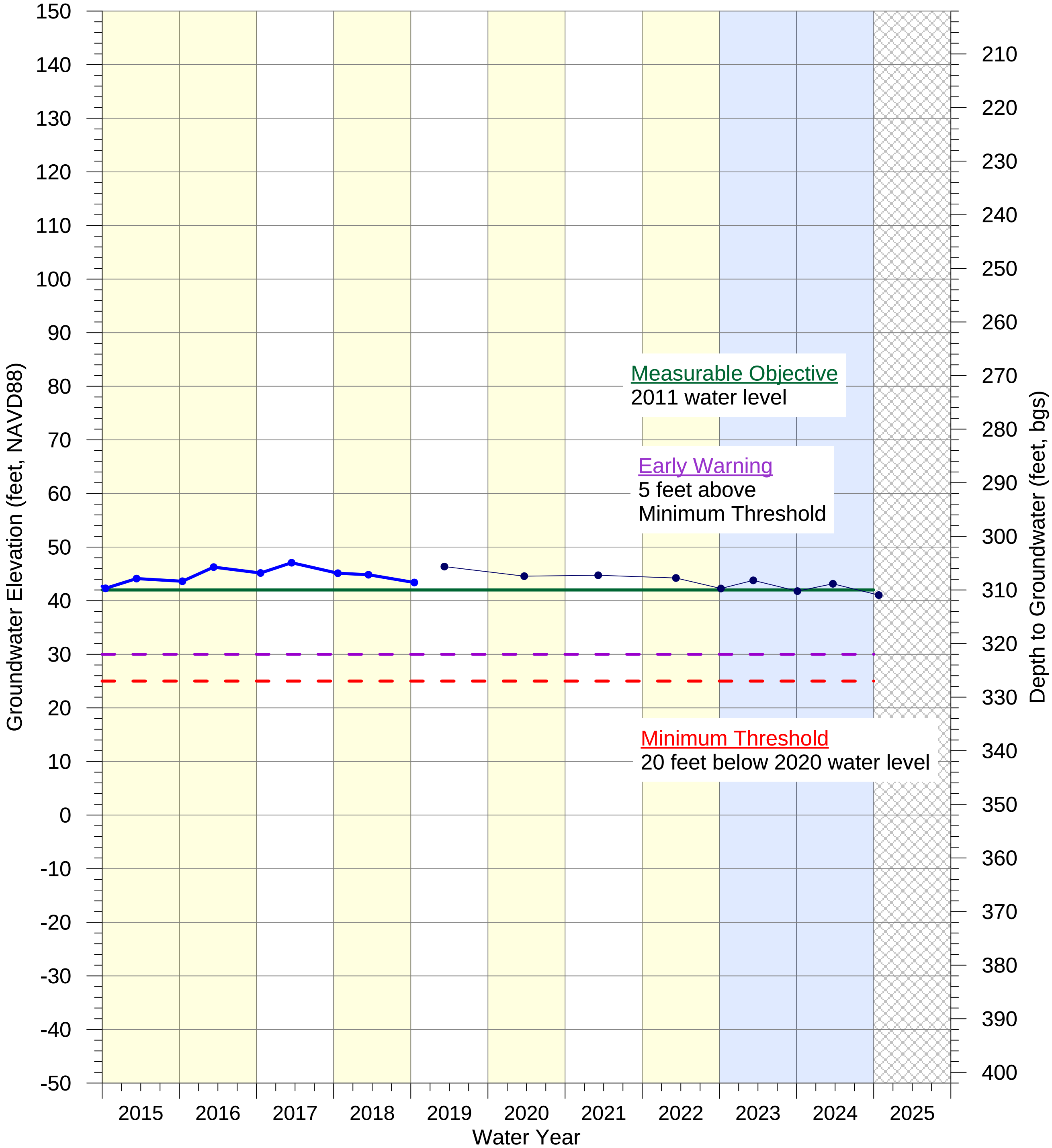
REPRESENTATIVE MONITORING WELL
Lower Aquifer - Lompoc Upland

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

FIGURE A2-11

CASGEM ID
49129
Voluntary

WMA Representative Monitoring Well
for Lower Aquifer
(Santa Rita Upland Subarea)
7N/33W-28D3



USGS (343946120215301)

County of Santa Barbara

Ground Surface (352 feet above mean sea level)

Depth of Well (600 feet); Perforations TBD

DBID
81

STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Santa Rita Upland

Water Year Type (1942-2024)

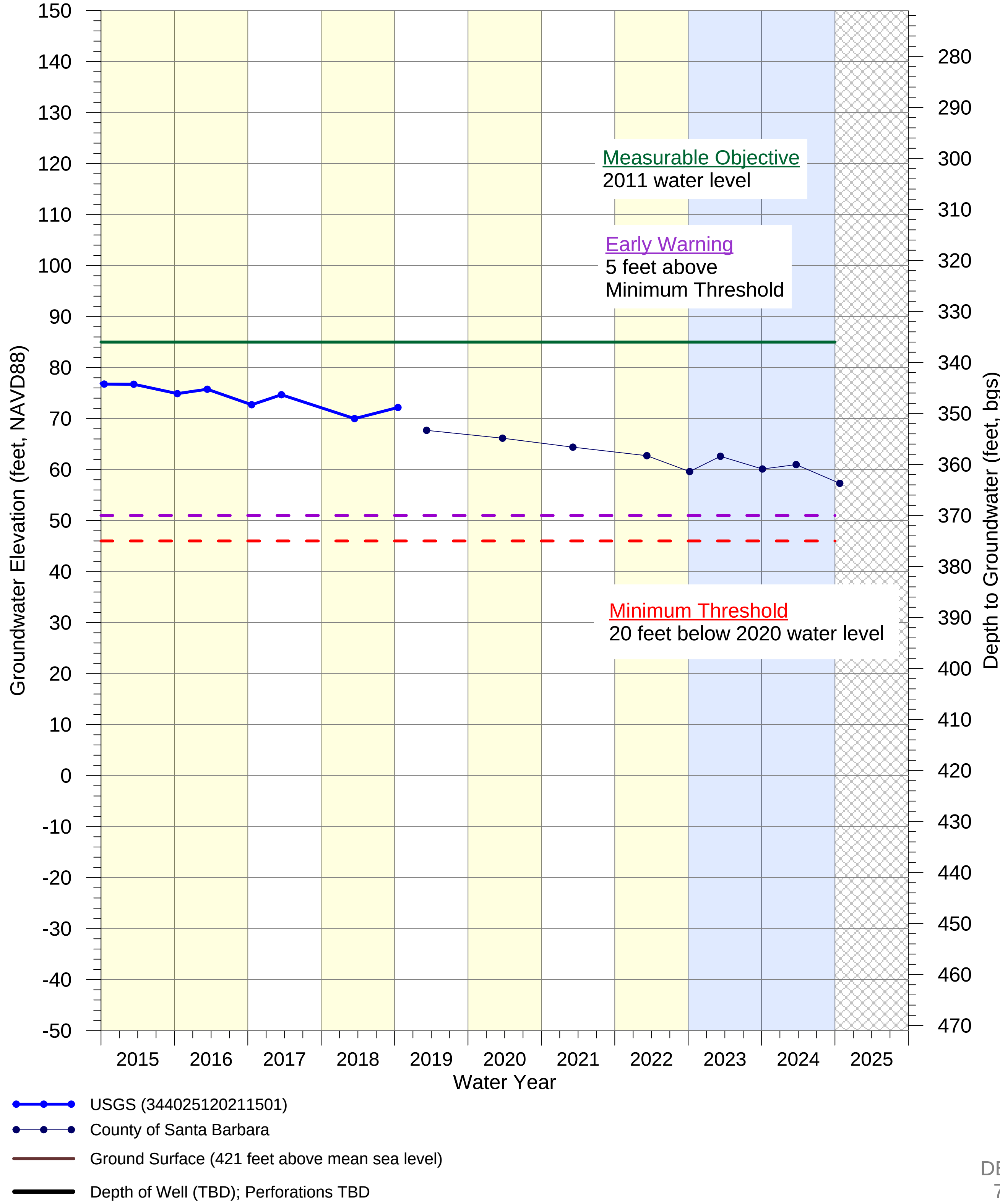
Wet
No Data
Above/Below Normal
Dry / Critically Dry

\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-12 WY24 WL GWL Hydrographs\WMA_GWL_SMCs\Grapher_Files\WMA Fig A2-11 SR-L 81 28D3.grf 1/6/2025 M. McCammon

FIGURE A2-12

CASGEM ID 23686 Voluntary

WMA Representative Monitoring Well for Lower Aquifer (Santa Rita Upland Subarea) 7N/33W-21G2



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STETSON ENGINEERS INC.

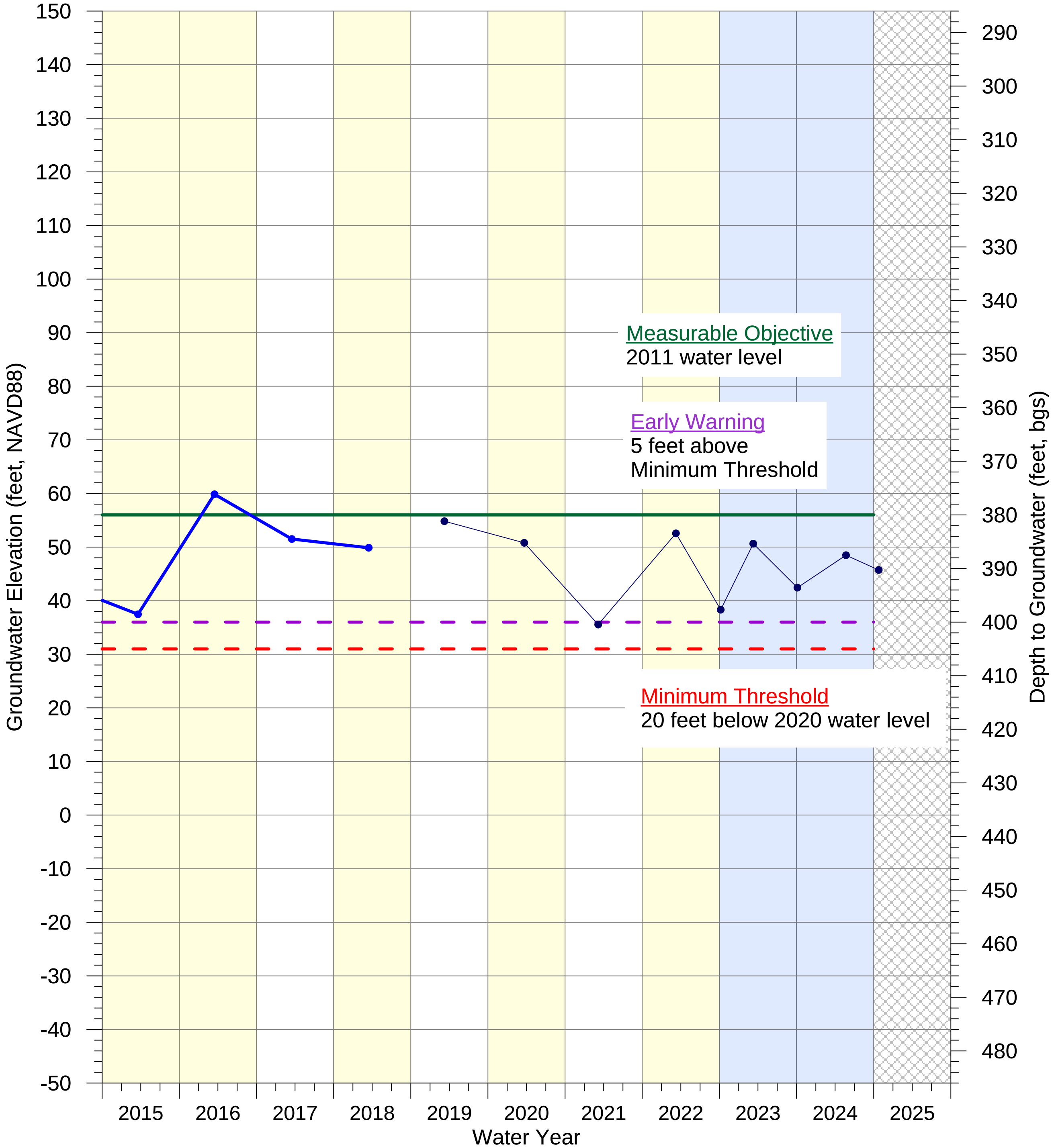
WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Santa Rita Upland

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

CASGEM ID 49132 Voluntary

WMA Representative Monitoring Well for Lower Aquifer (Santa Rita Upland Subarea) 7N/33W-27G1



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STETSON ENGINEERS INC.

WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Lower Aquifer - Santa Rita Upland

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

WMA Appendix B:

Groundwater Level Hydrographs for Assessing Surface Water Depletion, Western Management Area

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WMA APPENDIX B:

GROUNDWATER LEVEL HYDROGRAPHS FOR ASSESSING SURFACE WATER DEPLETION, WESTERN MANAGEMENT AREA

WATER YEAR 2024

This appendix includes hydrographs, which are graphs of water levels in wells. These are the representative wells for monitoring potential surface water depletion. As per the SGMA regulations, this includes the period from January 1, 2015 through the end of the Water Year 2024. Shown on these graphs are key SGMA criteria: measurable objective, early warning, and minimum threshold.

The Groundwater Sustainability Plan (GSP) includes hydrographs of the long-term period of record. A copy of the GSP, water level data and hydrographs are available at https://sywater.info.

LIST OF ACRONYMS AND ABBREVIATIONS

BGS	below-ground surface
CASGEM	California Statewide Groundwater Elevation Monitoring
FT	feet
NAVD88	North American Vertical Datum of 1988
USBR	United States Bureau of Reclamation
USGS	United States Geologic Survey
WL	Water Level
WMA	Western Management Area

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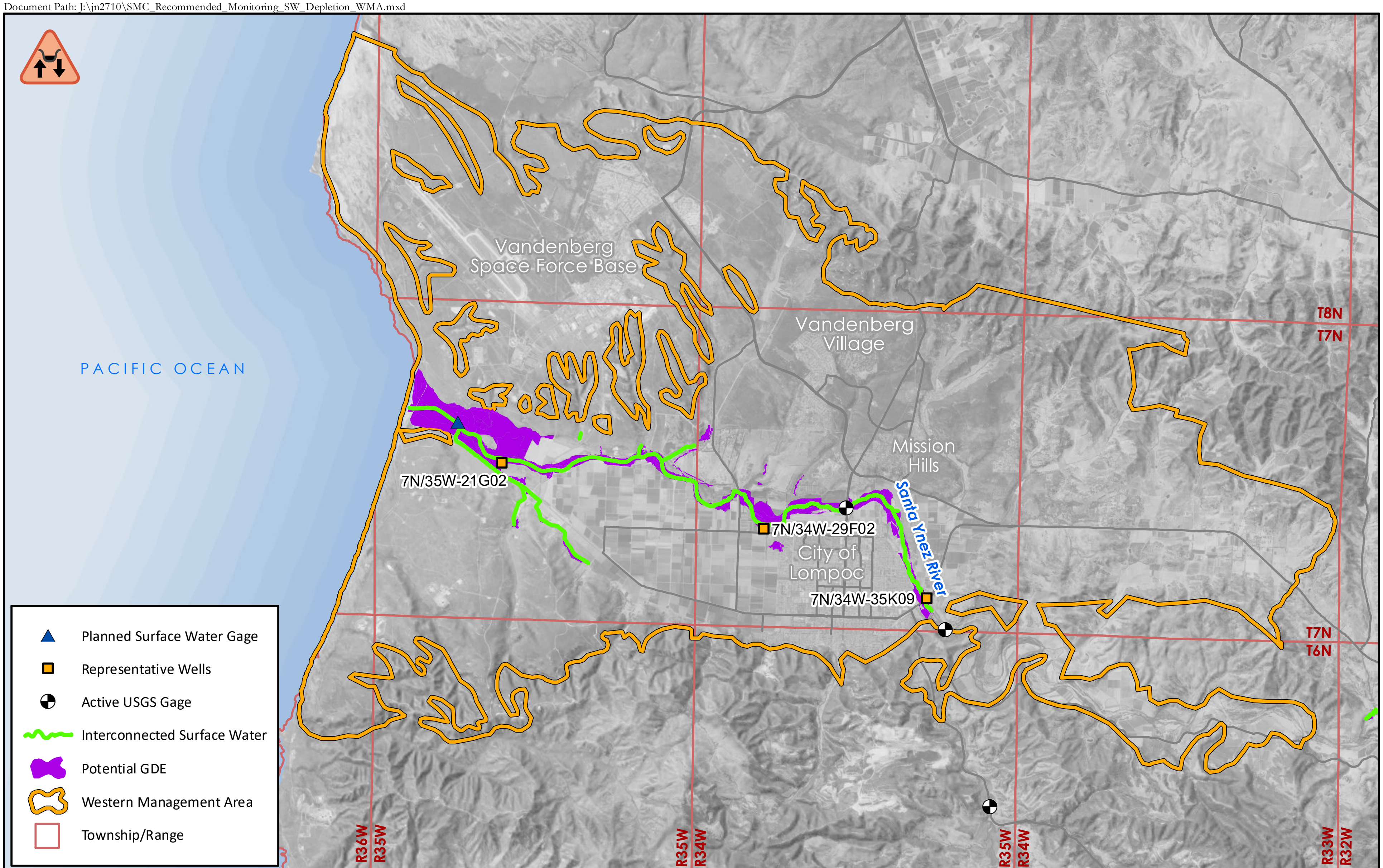


STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

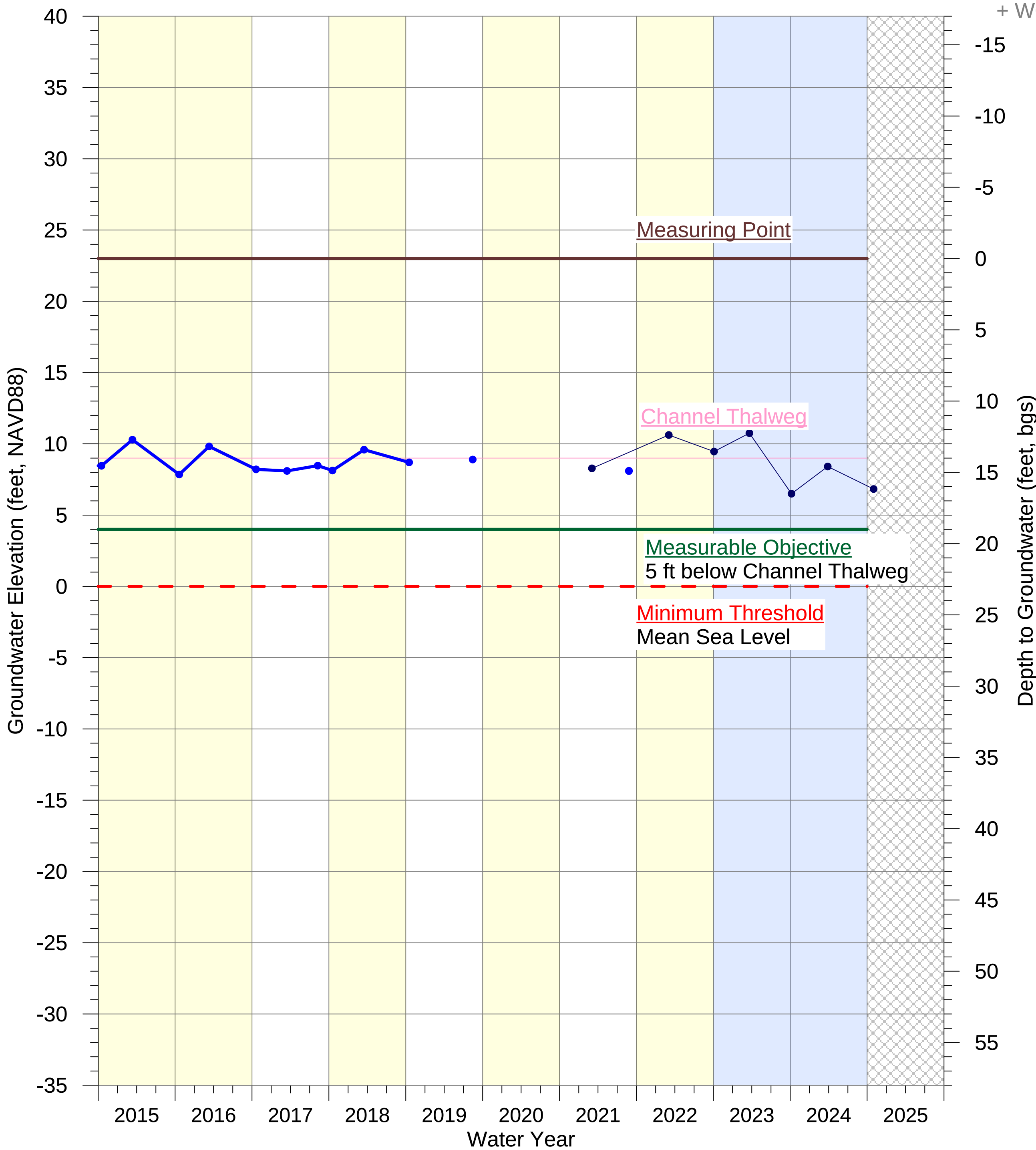
WMA REPRESENTATIVE MONITORING FOR INTERCONNECTED SURFACE WATER AND GROUNDWATER DEPENDENT ECOSYSTEMS

FIGURE B-01

CASGEM ID
25271
Voluntary

WMA Representative Monitoring Well for
Interconnected Surface Water and Groundwater Dependent Ecosystems
(Lompoc Plain Subarea)
7N/35W-21G2

+ GWL
+ WQ



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STETSON ENGINEERS INC.

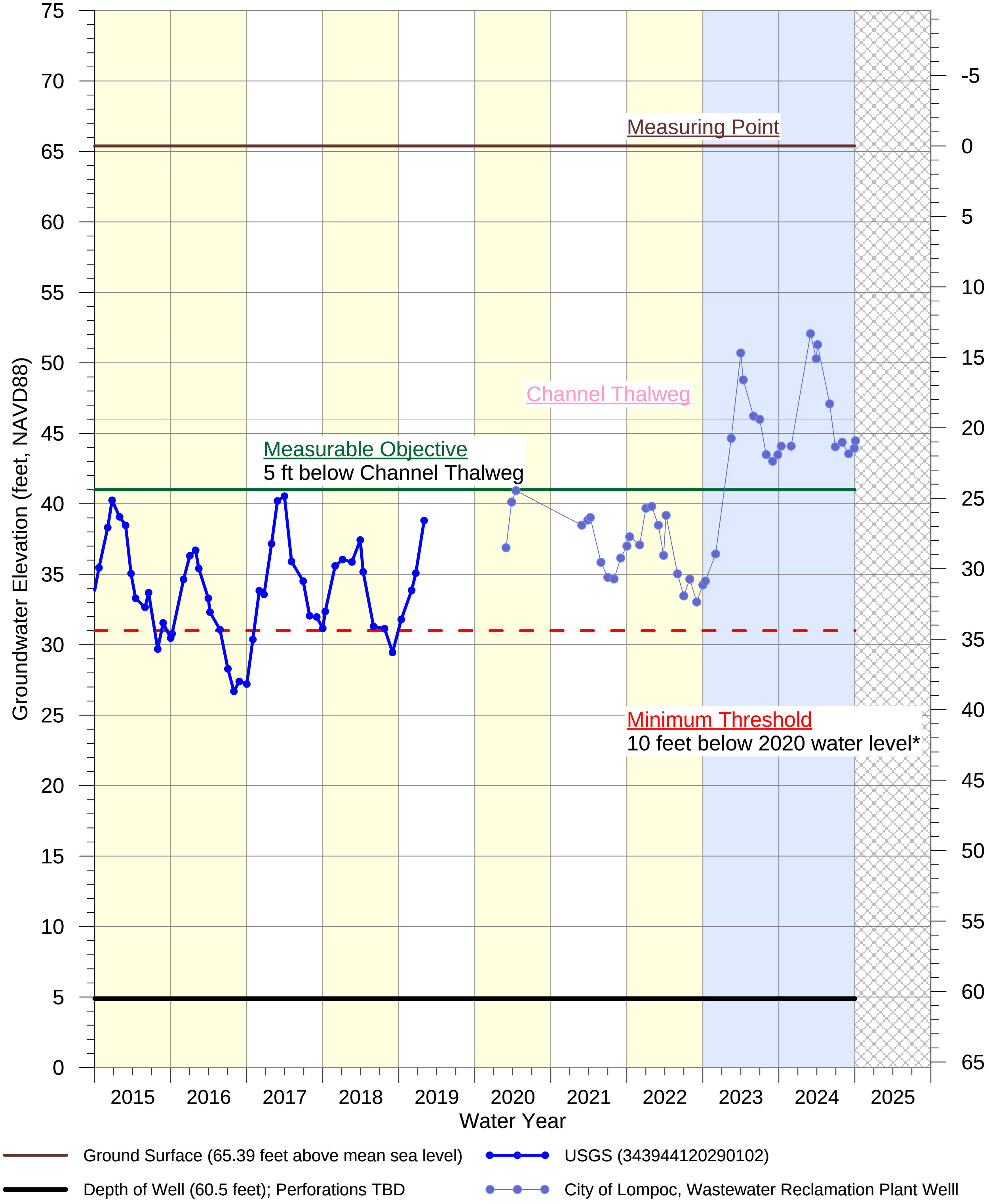
WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

CASGEM ID
36328
Voluntary

WMA Representative Monitoring Well for Interconnected Surface Water and Groundwater Dependent Ecosystems (Lompoc Plain Subarea) 7N/34W-29F2



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STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2024)

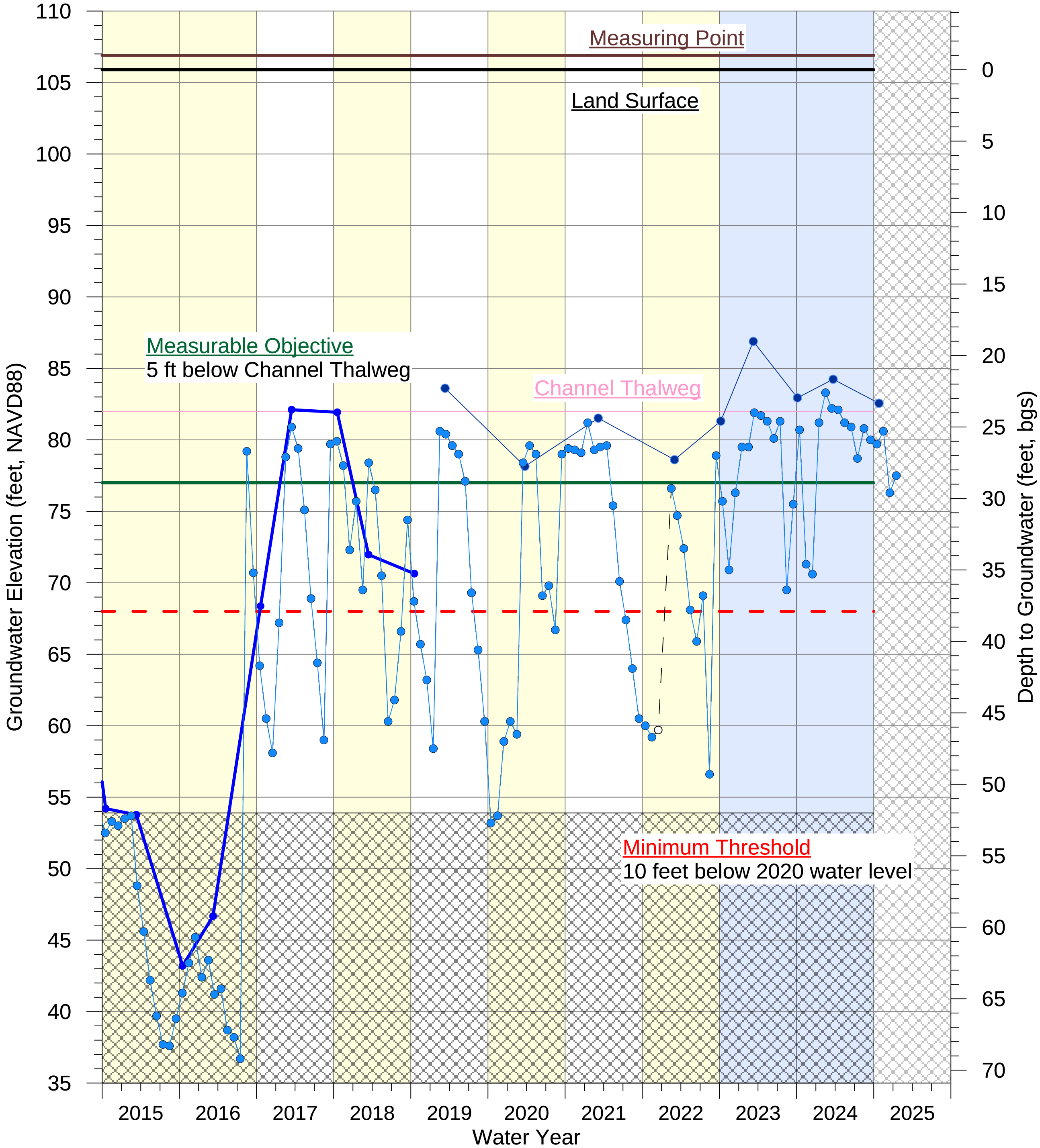
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE B-03

CASGEM ID
49153
Voluntary

WMA Representative Monitoring Well for
Interconnected Surface Water and Groundwater Dependent Ecosystems
(Lompoc Plain Subarea)
7N/34W-35K9

+ GWL



US Bureau of Reclamation
US Bureau of Reclamation (Estimated)
USGS (343924120254501)
County of Santa Barbara

Measuring Point (106.9 feet above mean sea level)
Land Surface (105.9 feet above mean sea level)
Depth of Well (124 feet)
Perforations 52-80; 112-124 feet

DBID
32

\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2025-01 WY24 GDE GWL Hydrographs\WMA_GDE_Hydrograph_Grapher\WMA Fig B-03 LP-U 32 35K9.gpj 2/21/2025 M. McCammon

STETSON ENGINEERS INC.

WMA
Santa Ynez River Valley Groundwater Basin
Western Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2024)
Wet
No Data
Above/Below Normal
Dry / Critically Dry

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CMA Appendix A:

Groundwater Level Hydrographs for Assessing Chronic Decline in Groundwater Levels, Central Management Area

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CMA APPENDIX A:
GROUNDWATER LEVEL HYDROGRAPHS
FOR ASSESSING
CHRONIC DECLINE IN GROUNDWATER LEVELS,
CENTRAL MANAGEMENT AREA

WATER YEAR 2024

This appendix includes hydrographs, which are graphs of water levels in wells. These are the representative wells for monitoring groundwater level decline. As per the SGMA regulations, this includes the period from January 1, 2015 through the end of the Water Year 2024. Shown on these graphs are key SGMA criteria: measurable objective, early warning, and minimum threshold. All included wells are in the Buellton Aquifer.

The Groundwater Sustainability Plan (GSP) includes hydrographs of the long-term period of record. A copy of the GSP, water level data, and hydrographs are available at https://sywater.info .

LIST OF ACRONYMS AND ABBREVIATIONS

BGS	below ground surface
CASGEM	California Statewide Groundwater Elevation Monitoring
CMA	Central Management Area
FT	feet
NAVD88	North American Vertical Datum of 1988
USBR	United States Bureau of Reclamation
USGS	United States Geologic Survey
WL	Water Level

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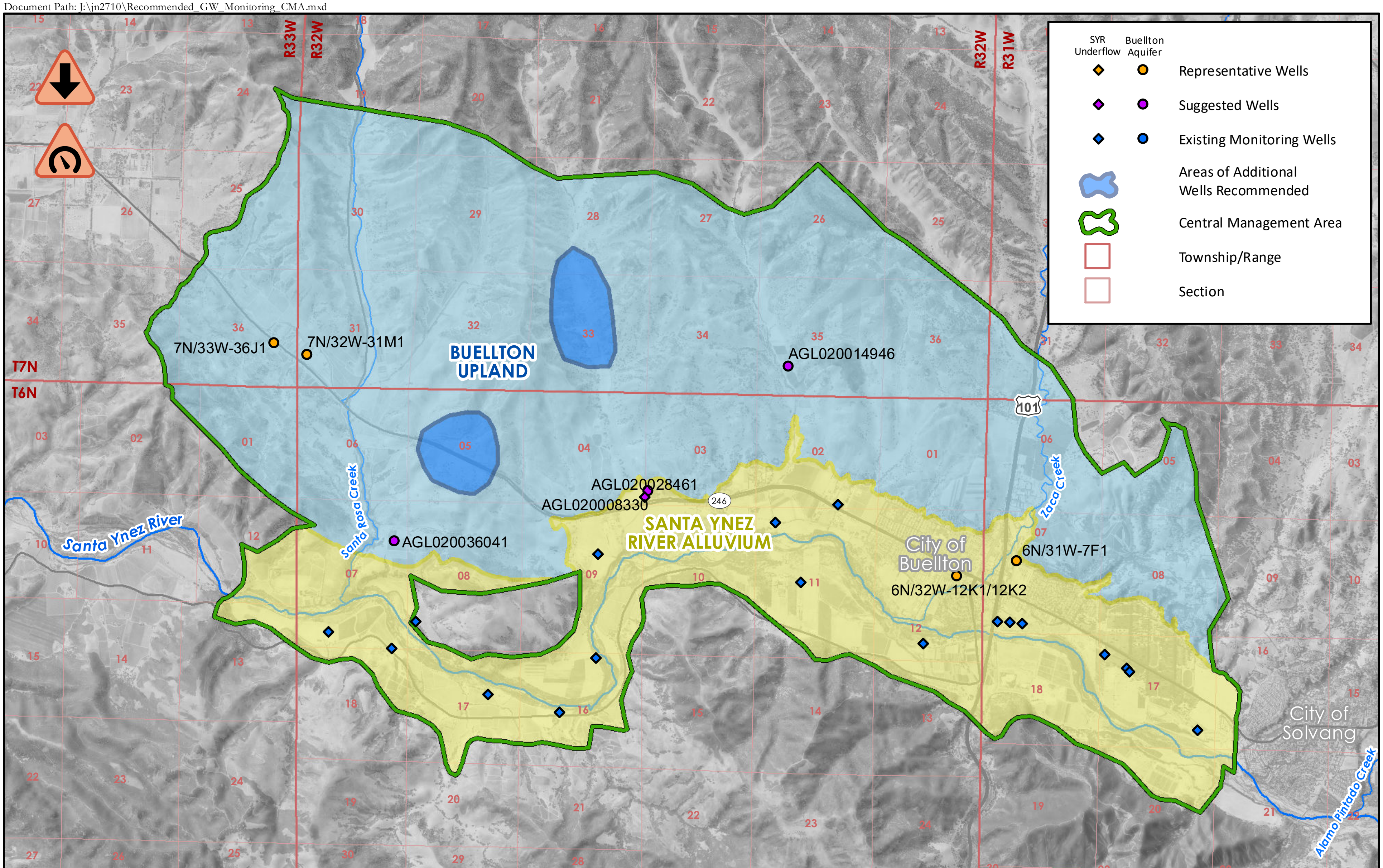


STETSON ENGINEERS INC.

CMA

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

CMA MONITORING NETWORK AND REPRESENTATIVE MONITORING WELLS FOR GROUNDWATER LEVELS AND GROUNDWATER STORAGE

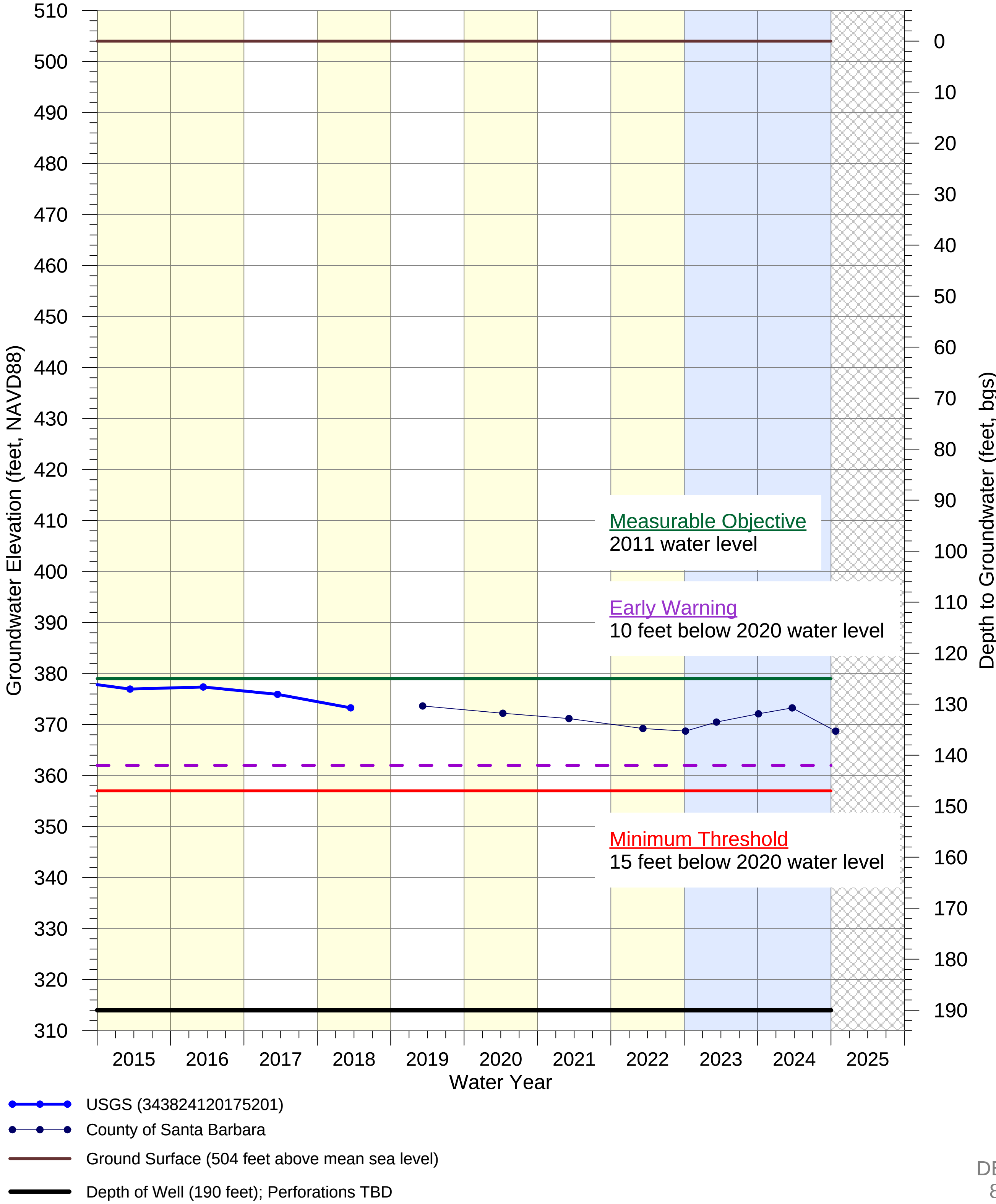
0 0.5 1
Miles

N

FIGURE A1-01

CASGEM ID
25268
Voluntary

CMA Representative Monitoring Well
for Buellton Aquifer
(Buellton Upland Subarea)
7N/33W-36J1



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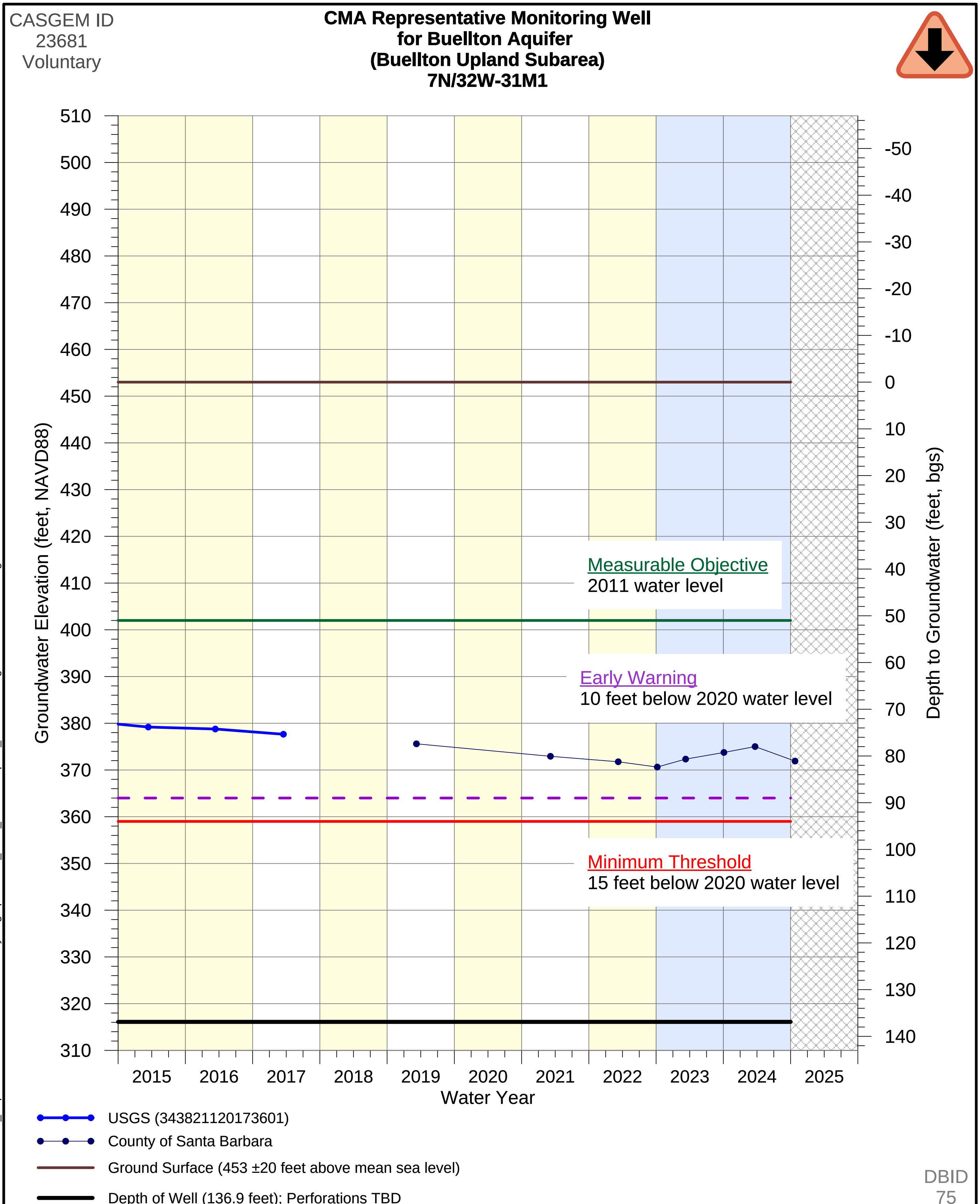
STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Buellton Aquifer
Buellton Upland

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A1-02



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STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Buellton Aquifer
Buellton Upland

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

\\NAS\main\DATA\2823\Analyses\WY2024-4th_Report\2024-12 WY24 WL GWL Hydrographs\CMA_GWL_SMCs\Grapher_Files\CMA Fig A2-01 Allv 909 12K2.gpj 2/21/2025 Stetson

STETSON ENGINEERS INC.

CMA Santa Ynez River Valley Groundwater Basin Central Management Area Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Buellton Aquifer
Santa Ynez River Alluvium

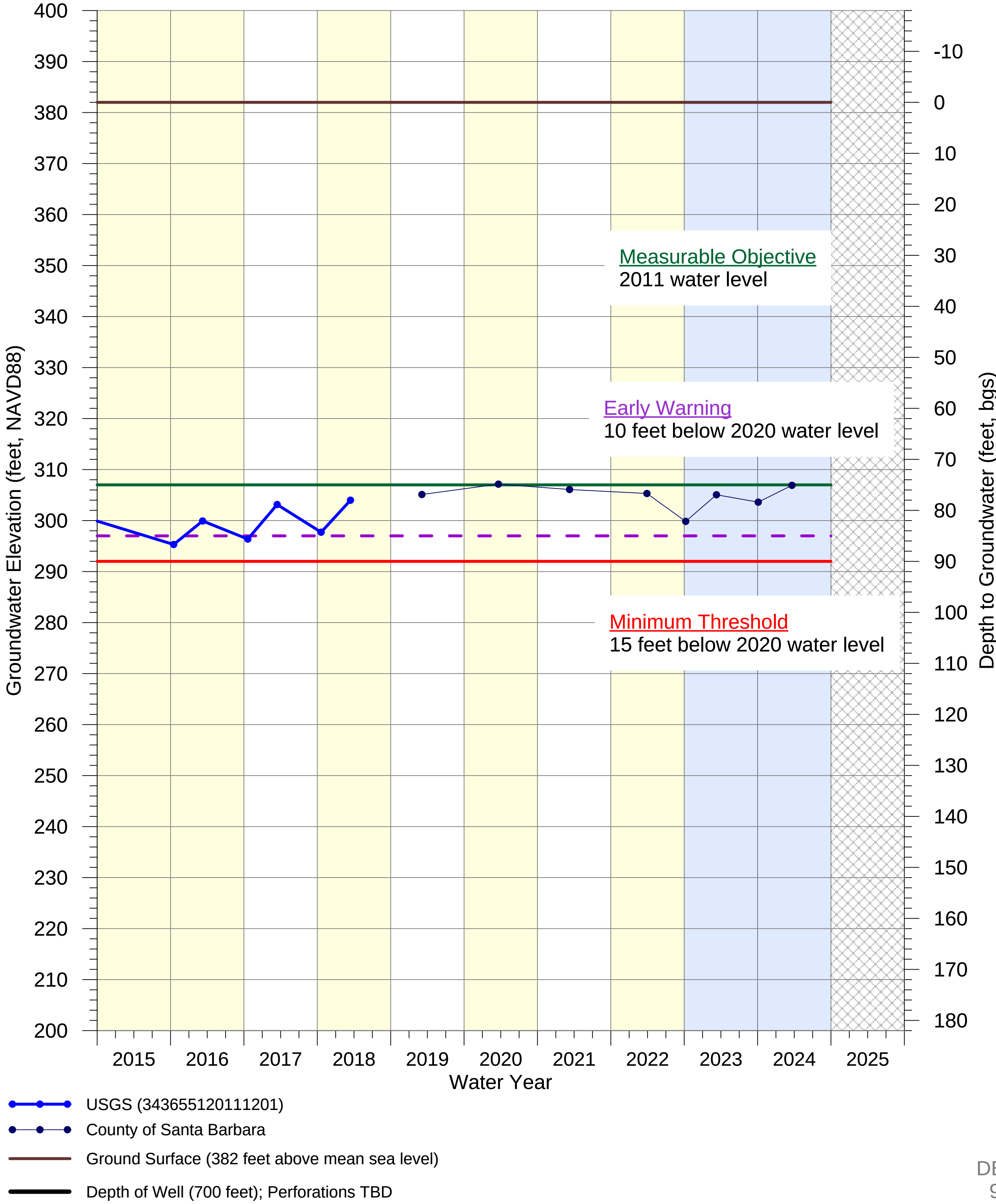
Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE A2-02

CASGEM ID
49120
CASGEM

**CMA Representative Monitoring Well
for Buellton Aquifer
(Santa Ynez River Alluvium Subarea)
6N/31W-7F1**



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STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

**REPRESENTATIVE MONITORING WELL
Buellton Aquifer
Santa Ynez River Alluvium**

Water Year Type (1942-2024)

Wet
No Data
Above/Below Normal
Dry / Critically Dry

CMA Appendix B:

Groundwater Level Hydrographs for Assessing Surface Water Depletion, Central Management Area

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CMA APPENDIX B:

GROUNDWATER LEVEL HYDROGRAPHS FOR ASSESSING SURFACE WATER DEPLETION, CENTRAL MANAGEMENT AREA

WATER YEAR 2024

This appendix includes hydrographs, which are graphs of water levels in wells. These are the representative wells for monitoring potential surface water depletion. As per the SGMA regulations, this includes the period from January 1, 2015 through the end of the Water Year 2024. Shown on these graphs are key SGMA criteria: measurable objective, early warning, and minimum threshold.

The Groundwater Sustainability Plan (GSP) includes hydrographs of the long-term period of record. A copy of the GSP, water level data and hydrographs are available at https://sywater.info.

LIST OF ACRONYMS AND ABBREVIATIONS

BGS	below-ground surface
CASGEM	California Statewide Groundwater Elevation Monitoring
CMA	Central Management Area
FT	feet
NAVD88	North American Vertical Datum of 1988
USBR	United States Bureau of Reclamation
USGS	United States Geologic Survey
WL	Water Level

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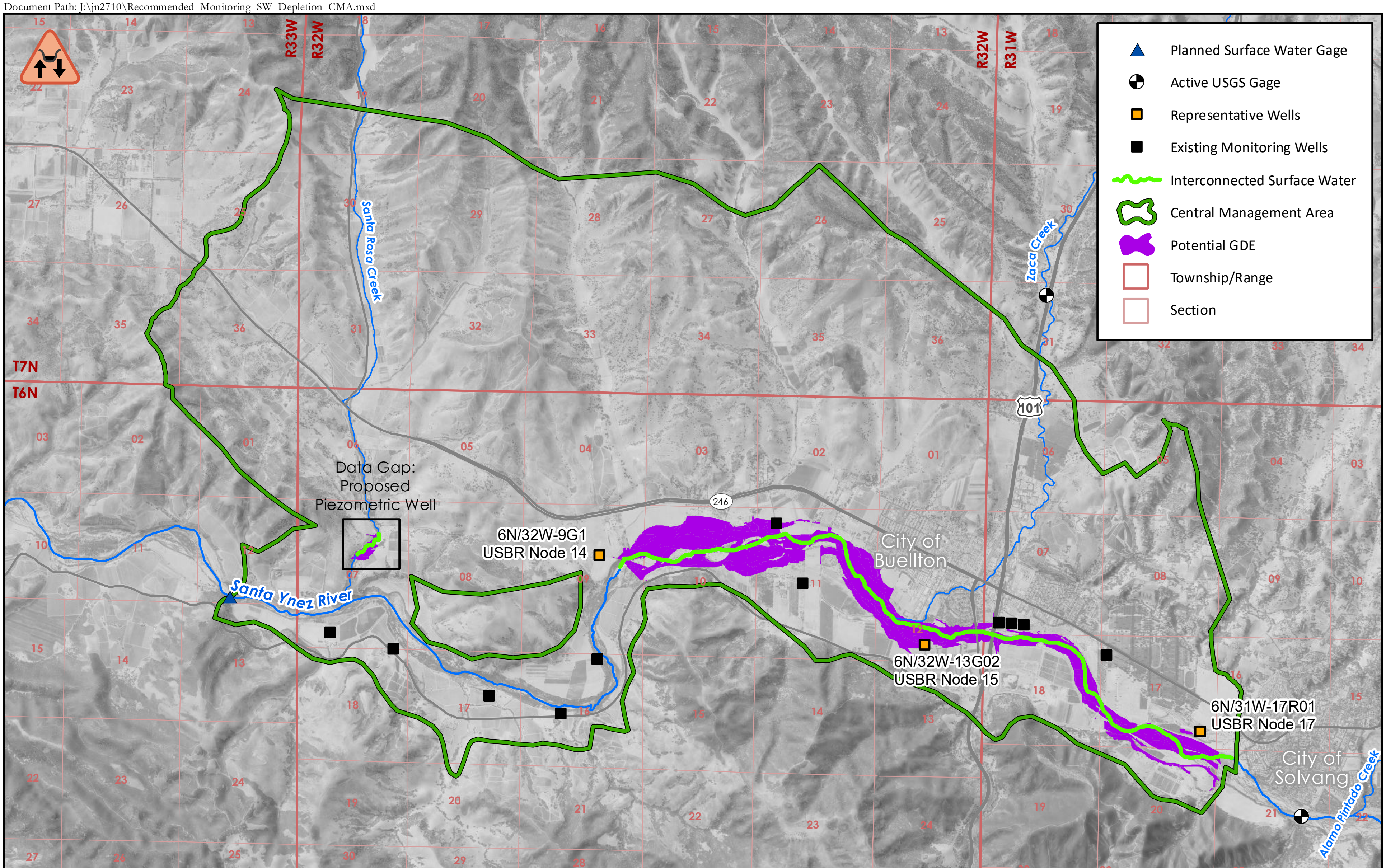


STETSON ENGINEERS INC.

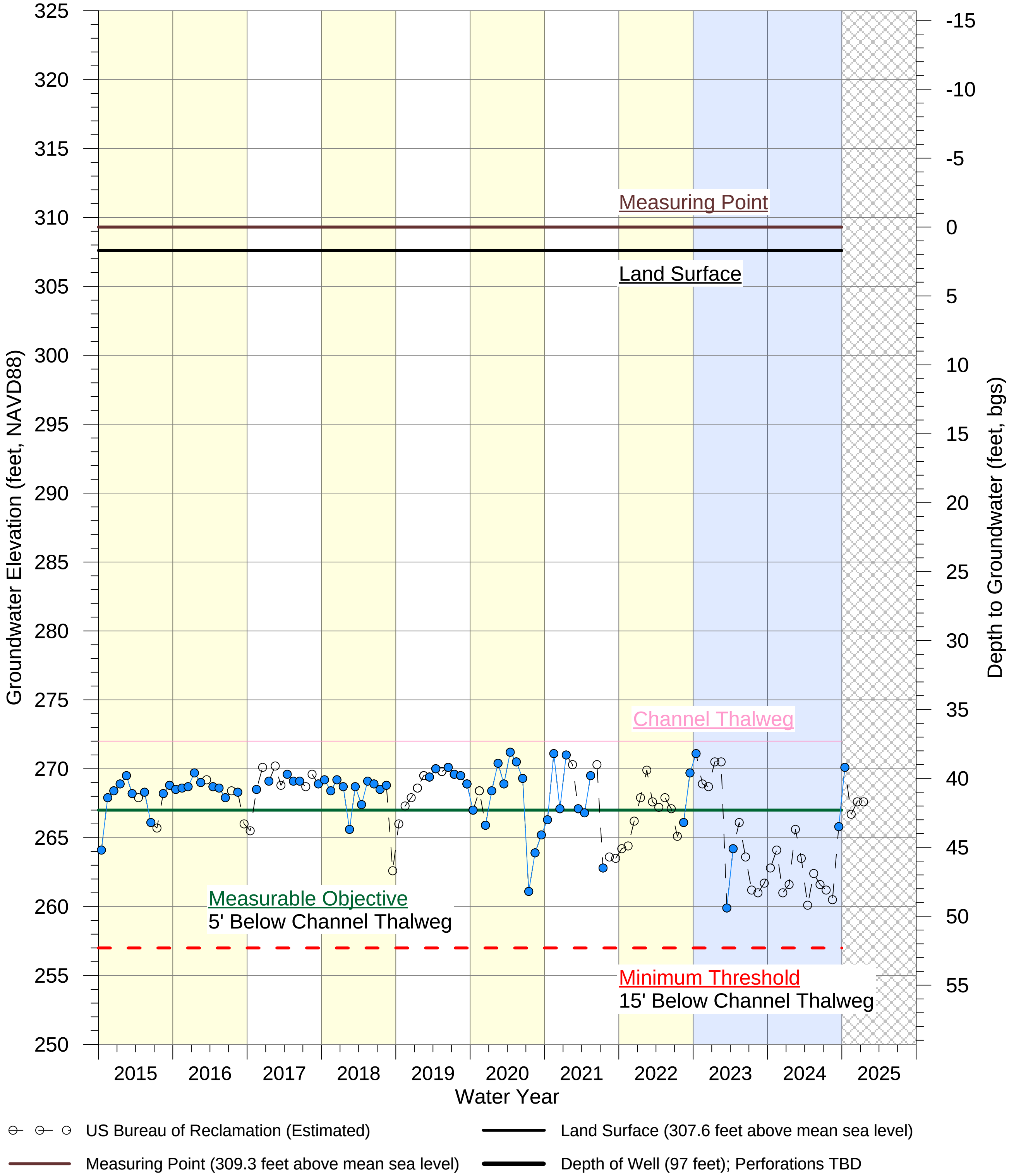
CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

CMA MONITORING NETWORK AND REPRESENTATIVE MONITORING FOR INTERCONNECTED SURFACE WATER AND GROUNDWATER DEPENDENT ECOSYSTEMS

0 0.5 1 Miles

N

CMA Representative Monitoring Well for Interconnected Surface Water and Groundwater Dependent Ecosystems 6N/32W-9G1



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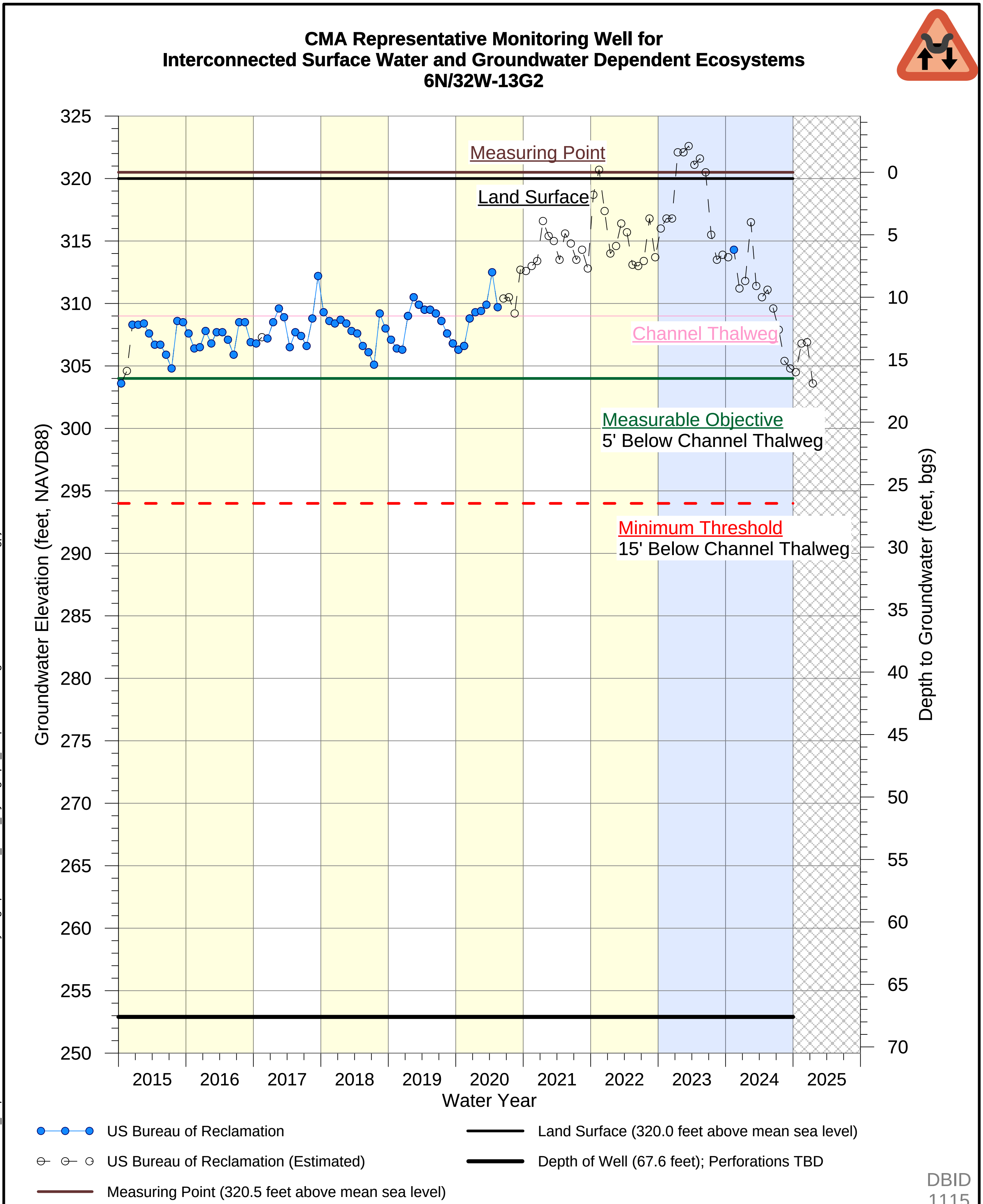
STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2024)
- Wet
- Above/Below Normal
- Dry / Critically Dry

FIGURE B-02



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STETSON ENGINEERS INC.

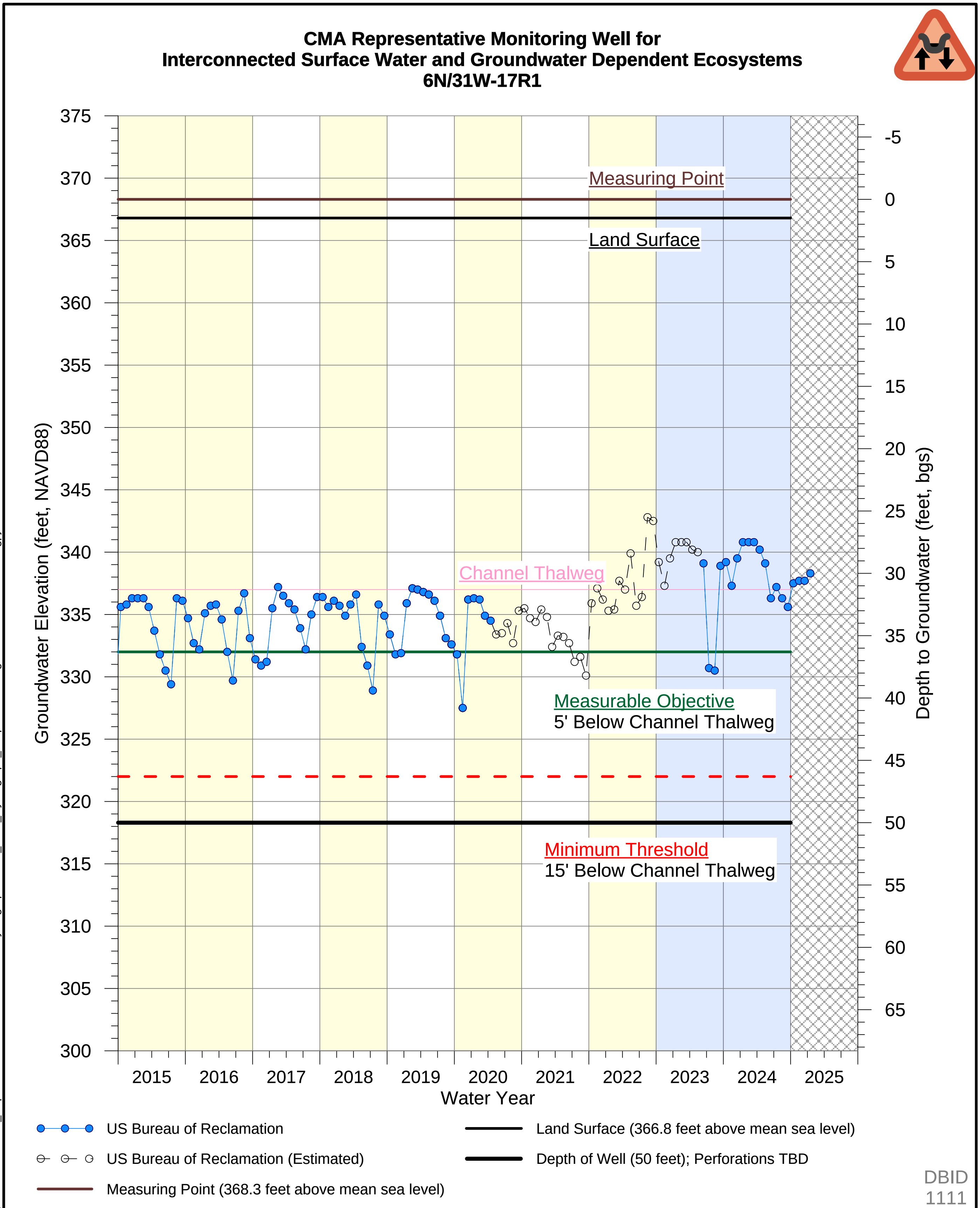
CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2024)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE B-03



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STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2024)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

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EMA Appendix A:

Summary of Representative Well Data, Eastern Management Area

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EMA Table A-1. Representative Groundwater Level Monitoring Network – Paso Robles Formation Wells

Representative Well ID	Well Use	Well Depth (ft)	Screen Interval(s) (ft bgs)	Ground Elevation (ft NAVD 88)	Reference Point Elevation (ft NAVD 88)	First Date Measured	Last Date Measured	Years
6N/29W-07L01	Agricultural	—	—	869	871	1960	2024	64
6N/29W-08P01	Domestic	—	210 (top)	896	897	1934	2024	90
6N/29W-08P02	Domestic	—	—	896	897	1966	2024	58
6N/30W-07G05	Municipal	166	—	604	607	1962	2024	62
6N/30W-07G06	Municipal	566	305 to 410	602	604	1962	2024	62
6N/30W-11G04	Agricultural	400	130 to 390	681	683	2010	2024	14
6N/31W-01P03	Municipal	505	195 to 490	633	635	1967	2024	57
6N/31W-02K01	Domestic	—	—	620	621	1942	2024	82
6N/31W-13D01	Domestic	152	—	625	627	1941	2024	83
7N/30W-16B01	Agricultural	—	—	1,066	1,090	1950	2024	74
7N/30W-19H01	Agricultural	—	—	1,090	1,106	1954	2024	70
7N/30W-29D01	Agricultural	—	—	918	919	1905	2024	119
7N/30W-30M01	Agricultural	—	—	807	808	1905	2022	117
7N/30W-33M01	Agricultural	349	150 to 340	764	765	1954	2024	70
7N/31W-36L02	Domestic	—	—	723	724	1942	2024	82

Notes

— = no data available

? = Unknown

bgs = below ground surface

ft = foot or feet

NAVD 88 = North American Vertical Datum of 1988

EMA Table A-2. Representative Groundwater Level Monitoring Network – Careaga Sand Wells

Representative Well ID	Well Use	Well Depth (ft)	Screen Interval(s) (ft bgs)	Ground Elevation (ft NAVD 88)	Reference Point Elevation (ft NAVD 88)	First Date Measured	Last Date Measured	Years
7N/31W-34M02	Agricultural	—	—	671	673	2014	2024	10
6N/31W-03A01	Domestic	—	—	739	740	1963	2024	61
6N/31W-04A01	Domestic	259	—	601	603	1956	2024	68
6N/31W-09Q02	Municipal	550	250 to 540	757	754	2011	2024	13
6N/31W-10F01	Agricultural	265	—	556	557	1966	2024	58
6N/31W-11D04	Agricultural	447	93 (top)	565	567	1955	2024	69
6N/31W-16N07	Municipal	145	99 to 127	479	478	2011	2024	13
6N/31W-xxxx[1]	Municipal	329	190 to 325	503	501	2011	2024	13
Solvang HCA[1]	Municipal	490	180 to 470	398	403	2011	2024	13

Notes

[1] The State Well Number for these wells is not known at this time.

— = no data available

? = Unknown

bgs = below ground surface

ft = foot or feet

NAVD 88 = North American Vertical Datum of 1988

EMA Table A-3. Representative Well Water Elevations – Paso Robles Formation Wells

(All elevations are in feet NAVD 88)

Representative Well ID	Minimum Threshold	Spring 2023	Fall 2023	Spring 2024	Fall 2024
6N/29W-07L01	637	**625**	**610**	**626**	**615**
6N/29W-08P01	676	Dry	Dry	Dry	Dry
6N/29W-08P02	653	**639**	**631**	**636**	**627**
6N/30W-07G05	513	**510**	**506**	**512**	514
6N/30W-07G06	511	**509**	**505**	511	**508**
6N/30W-11G04	510	**505**	540	554	547
6N/31W-01P03	514	**511**	**509**	515	**513**
6N/31W-02K01	556	572	578	581	579
6N/31W-13D01	494	507	510	512	512
7N/30W-16B01	1,018	1,031	1,043	1,051	1,053
7N/30W-19H01	896	910	912	913	914
7N/30W-29D01	849	893	866	890	863
7N/30W-30M01	559	NM	NM	NM	NM
7N/30W-33M01	514	**509**	**498**	**515**	**499**
7N/31W-36L02	615	**603**	NM	617	616

Notes

Bolded values are below the minimum threshold value.

[1] Nearby Pumping

[2] Replacement well nearby measured

— = no data available

NAVD 88 = North American Vertical Datum of 1988

NM = Not measured

EMA Table A-4. Representative Well Water Elevations – Careaga Sand Wells

(All elevations are in feet NAVD 88)

Representative Well ID	Minimum Threshold	Spring 2023	Fall 2023	Spring 2024	Fall 2024
7N/31W-34M02	484	488	486	488	486
6N/31W-03A01	572	578	**568**	580	**570**
6N/31W-04A01	481	487	485	487	485
6N/31W-09Q02	446	469	**444**	**433**	463
6N/31W-10F01	463	474	467	470	468
6N/31W-11D04	502	510	516	517	516
6N/31W-16N07	377	393	402	398	403
6N/31W-xxxx	467	471	469	473	468
Solvang HCA	320	342	353	359	354

Notes

Bolded values are below the minimum threshold value.

NM = Not Measured

NAVD 88 = North American Vertical Datum of 1989

EMA Table A-5. Other County Water Agency/City of Solvang-Monitored Well Water Elevations

(All elevations are in feet NAVD 88)

Well ID	Aquifer	Spring 2023	Fall 2023	Spring 2024	Fall 2024
6N/29W-05A01	Tributary Alluvium	1,174	1,169	1,174	1,171
6N/29W-06F01	Tributary Alluvium	830	828	828	825
6N/29W-06G01	Tributary Alluvium	828	828	827	826
7N/30W-22E01	Tributary Alluvium	912	912	--	--
8N/31W-36H01	Tributary Alluvium	1,167	1,141	1,166	1,137
6N/31W-17F01[1]	Santa Ynez River Alluvium	331	325	330	325
6N/31W-17F03[1]	Santa Ynez River Alluvium	324	327	331	326
6N/31W-21H03[1]	Santa Ynez River Alluvium	--	--	--	--
6N/31W-22M01[1]	Santa Ynez River Alluvium	--	--	--	--
6N/30W-01R03	Tributary Alluvium / Paso Robles Formation	601	--	603	601
7N/30W-24Q01	Tributary Alluvium / Paso Robles Formation	1,158	1,154	1,162	1,168
7N/30W-27H01	Tributary Alluvium / Paso Robles Formation	Pumping	841	--	--
8N/30W-30R01	Tributary Alluvium / Paso Robles Formation	1,242	1,216	1,230	1,223
8N/30W-30R02	Tributary Alluvium / Paso Robles Formation	--	--	--	1,213
6N/31W-01P02	Paso Robles Formation	--	--	--	--
7N/29W-29R01	Paso Robles Formation	--	--	--	--
7N/29W-29R02	Paso Robles Formation	--	--	--	--
7N/30W-22E02	Paso Robles Formation	--	--	--	--
7N/30W-35R01	Paso Robles Formation	--	--	--	--
7N/30W-36N03	Paso Robles Formation	--	--	--	--
7N/31W-23P01	Paso Robles Formation	--	--	776	786
8N/31W-22N01	Paso Robles Formation	--	--	--	--
Solvang_23	Paso Robles Formation / Careaga Sand	--	--	--	--
6N/31W-07F01	Careaga Sand	308	307	385	--
HCA_Middle	Careaga Sand	--	--	--	--
Solvang_Lot72	Careaga Sand	--	--	--	--

Notes

[1] These wells are in the Santa Ynez River alluvium area of the Santa Ynez EMA the

[2] Nearby pumping

-- = no data available

NAVD 88 = North American Vertical Datum of 1988

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EMA Appendix B:

Representative Monitoring Site Hydrographs, Eastern Management Area

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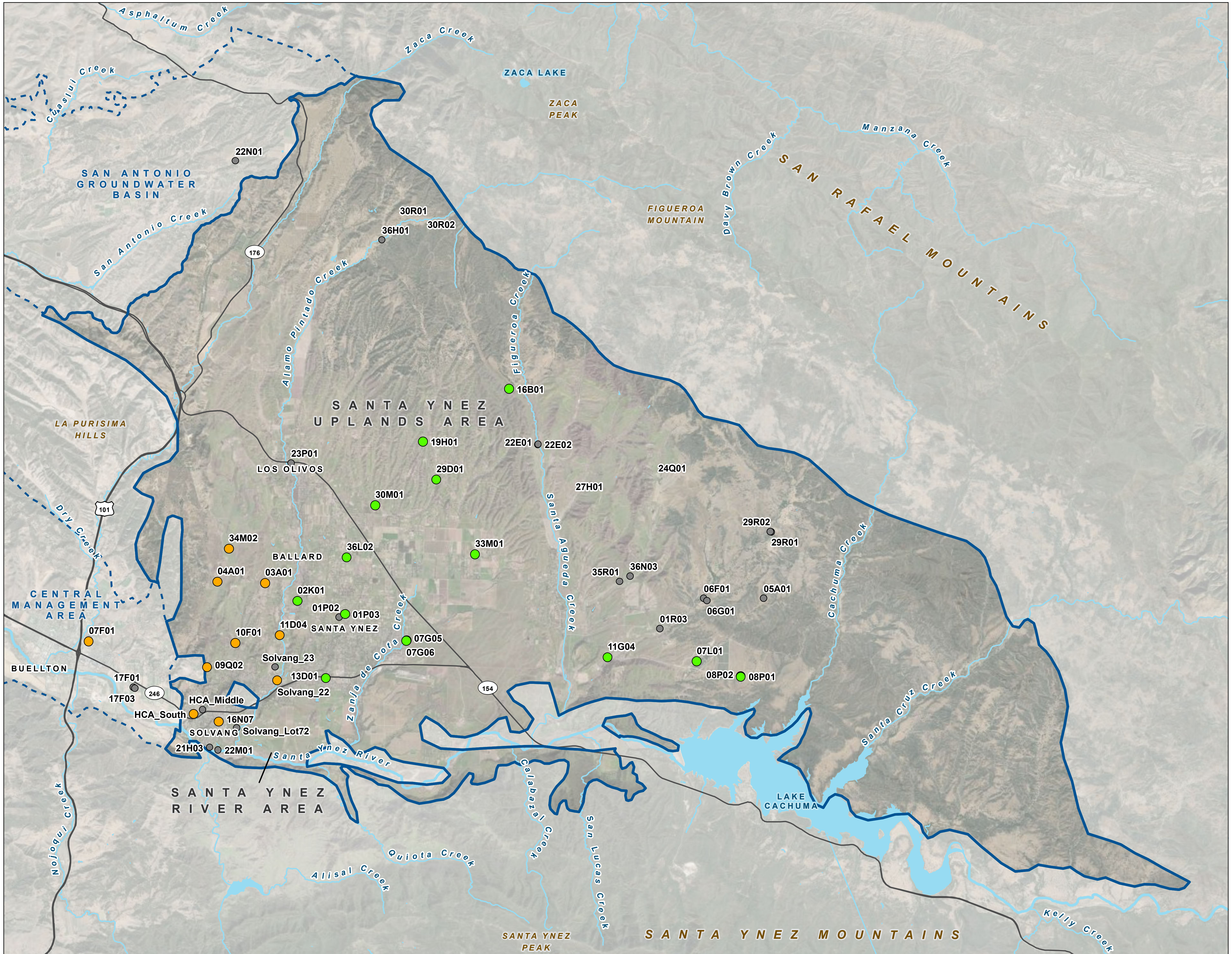

Groundwater Level Monitoring Network

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

LEGEND

Representative Well (by screened aquifer)

- Careaga Sand
- Paso Robles Formation
- Monitored by Santa Barbara County Water Agency

All Other Features

- Eastern Management Area Basin Boundary
- Major Road
- Watercourse
- Waterbody

0 5,000 10,000 15,000
Feet

Date: February 29, 2024
Data Sources: ESRI, USGS, Maxar 2020

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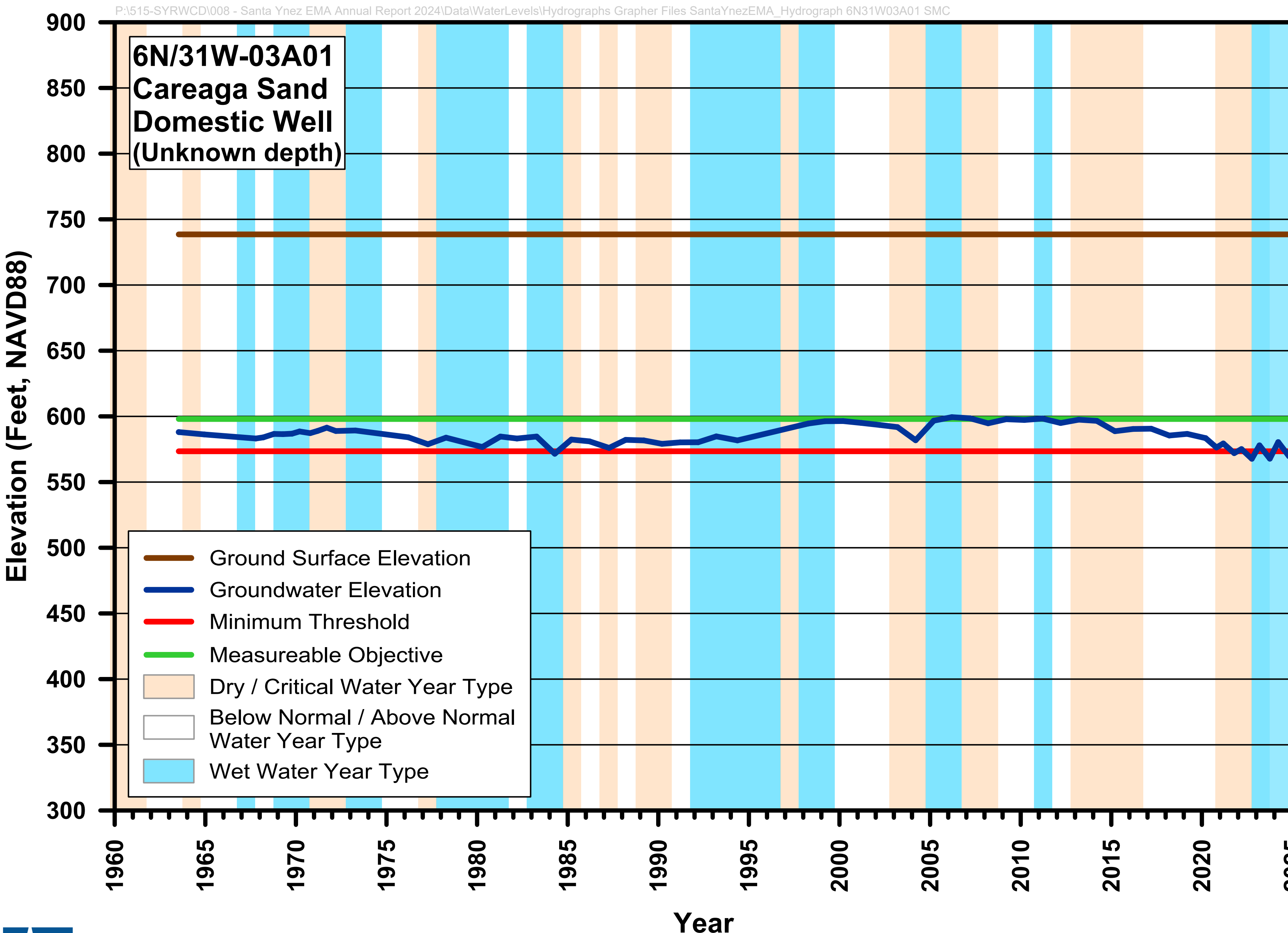

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Groundwater Elevation Hydrograph

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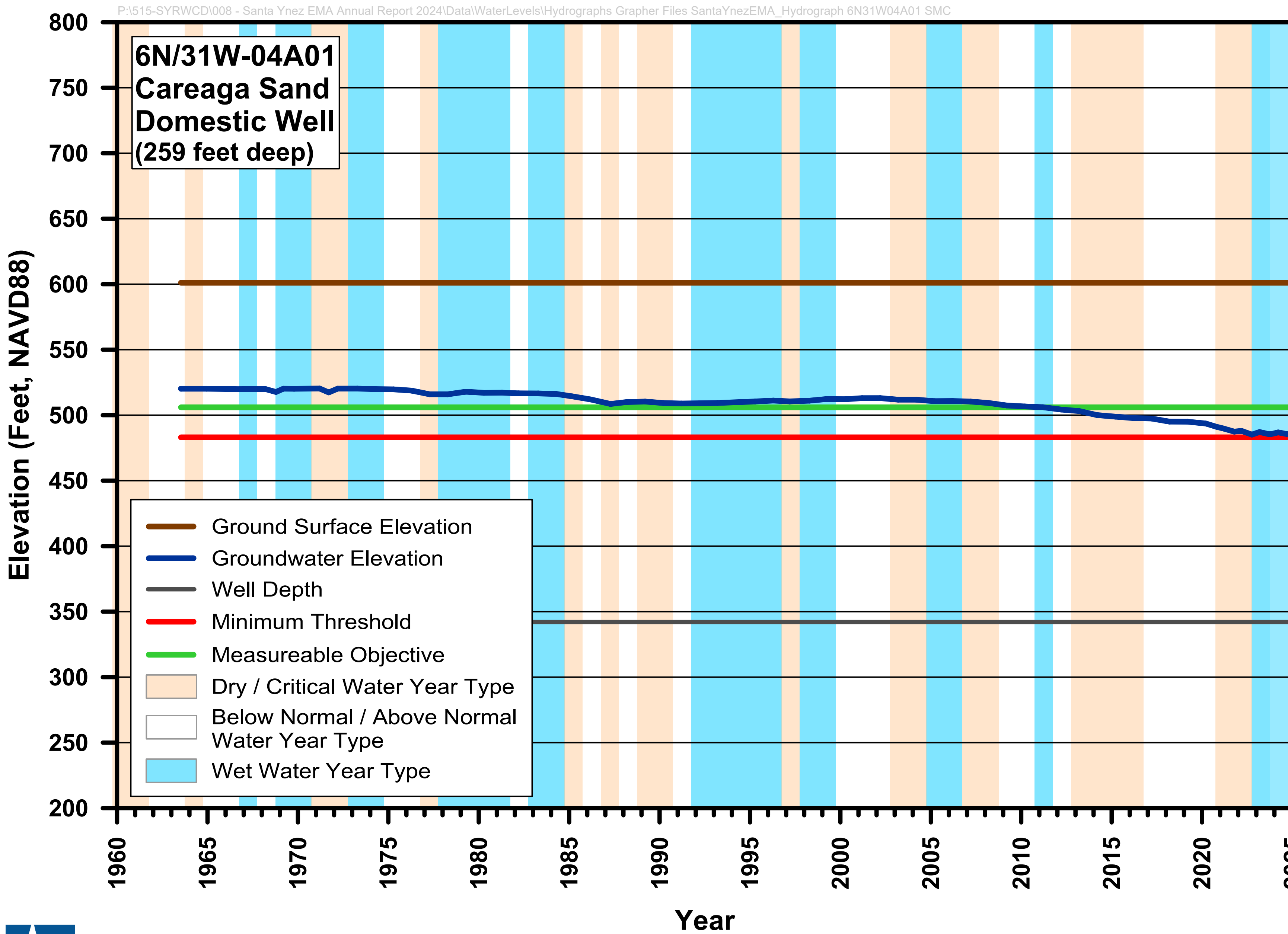

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Groundwater Elevation Hydrograph
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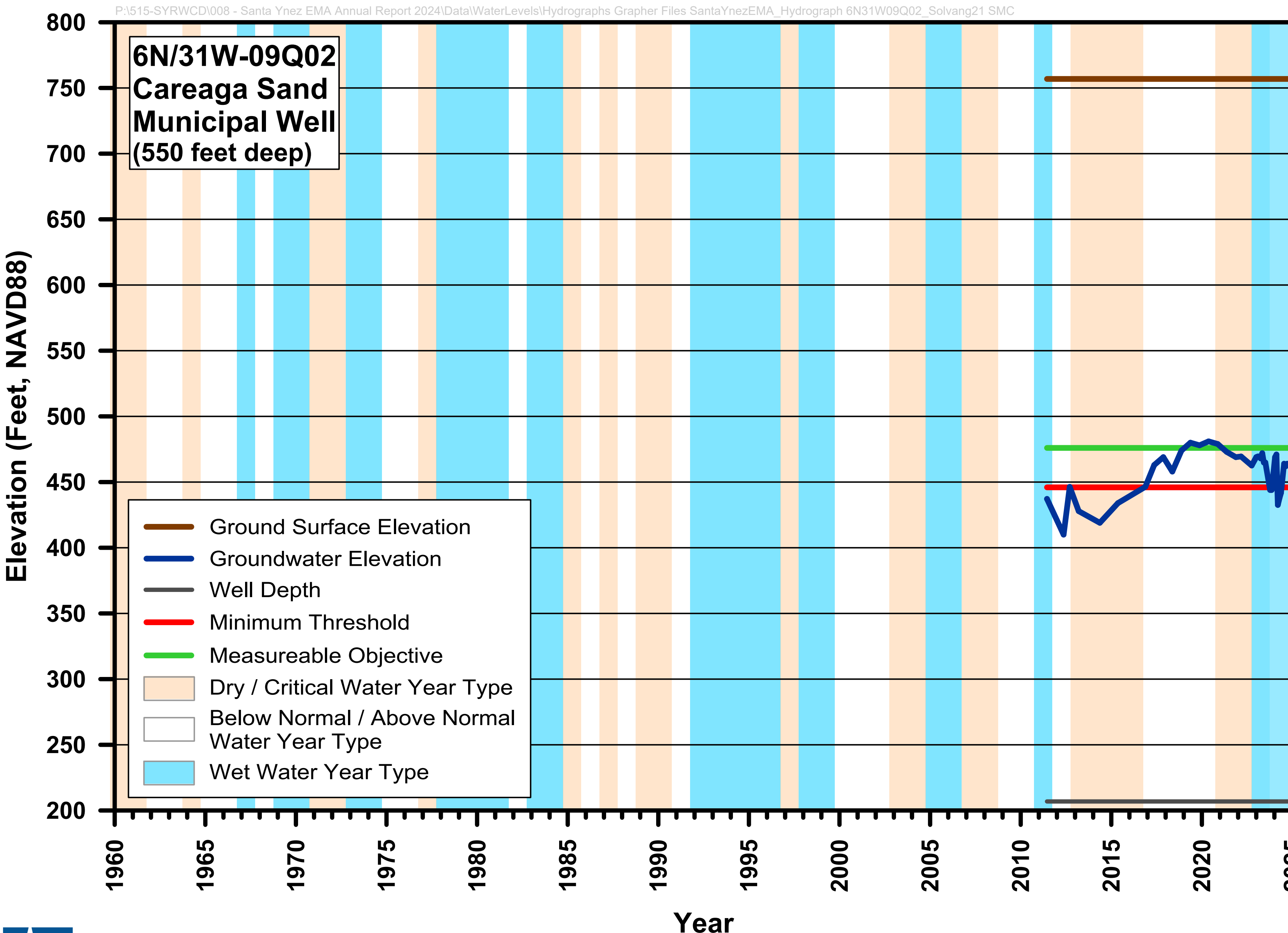

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Groundwater Elevation Hydrograph

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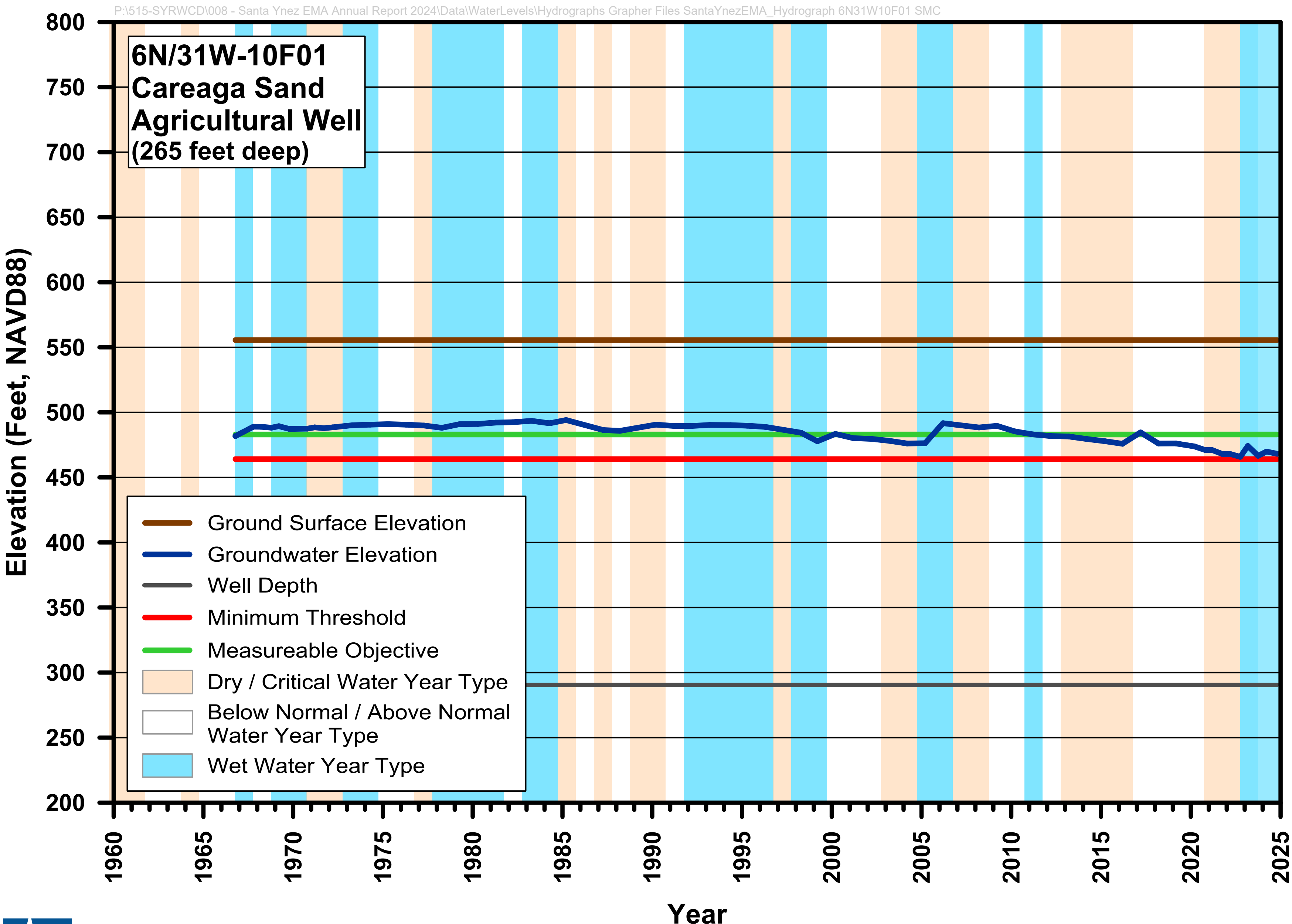

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Groundwater Elevation Hydrograph
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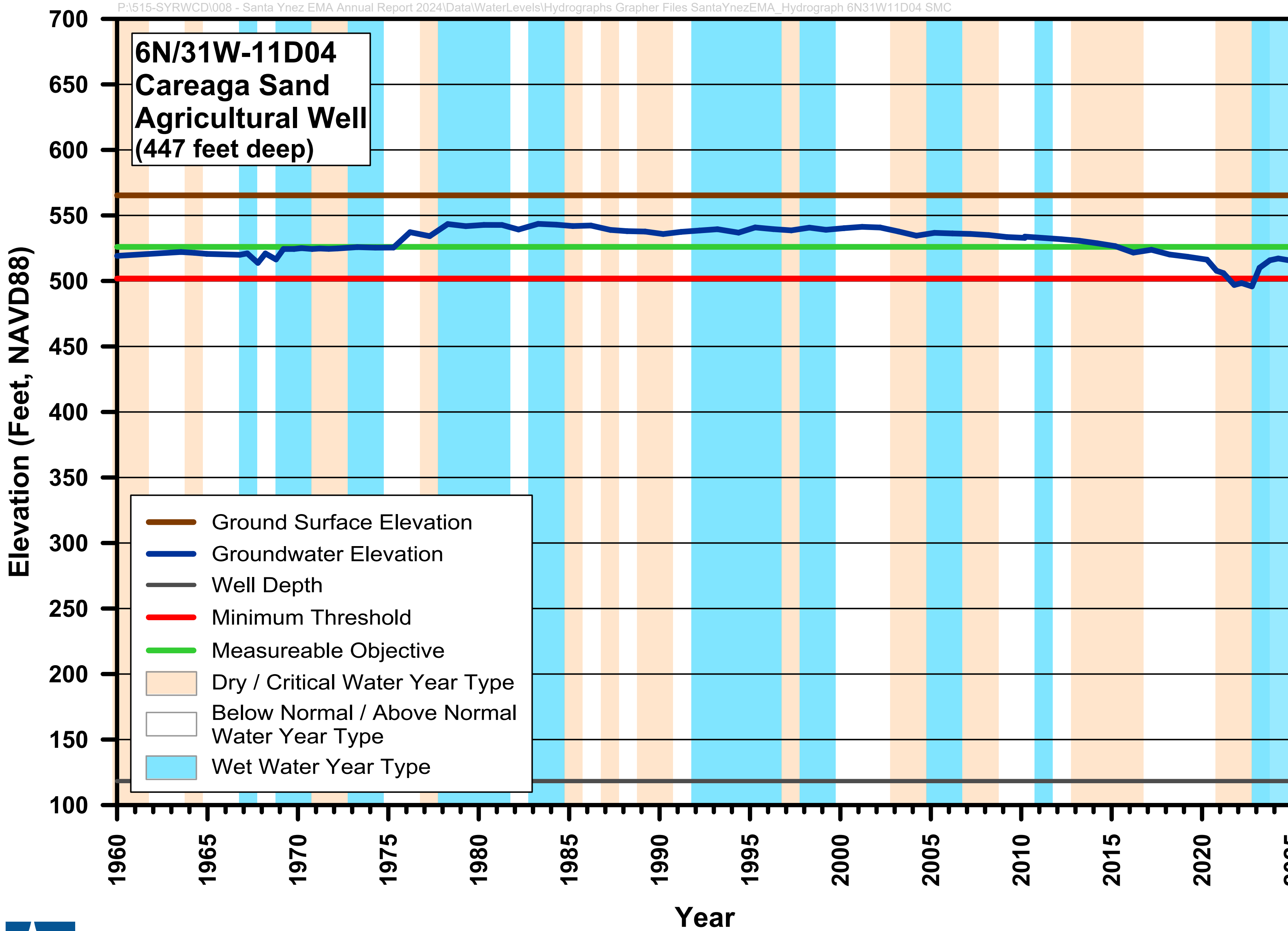

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Groundwater Elevation Hydrograph
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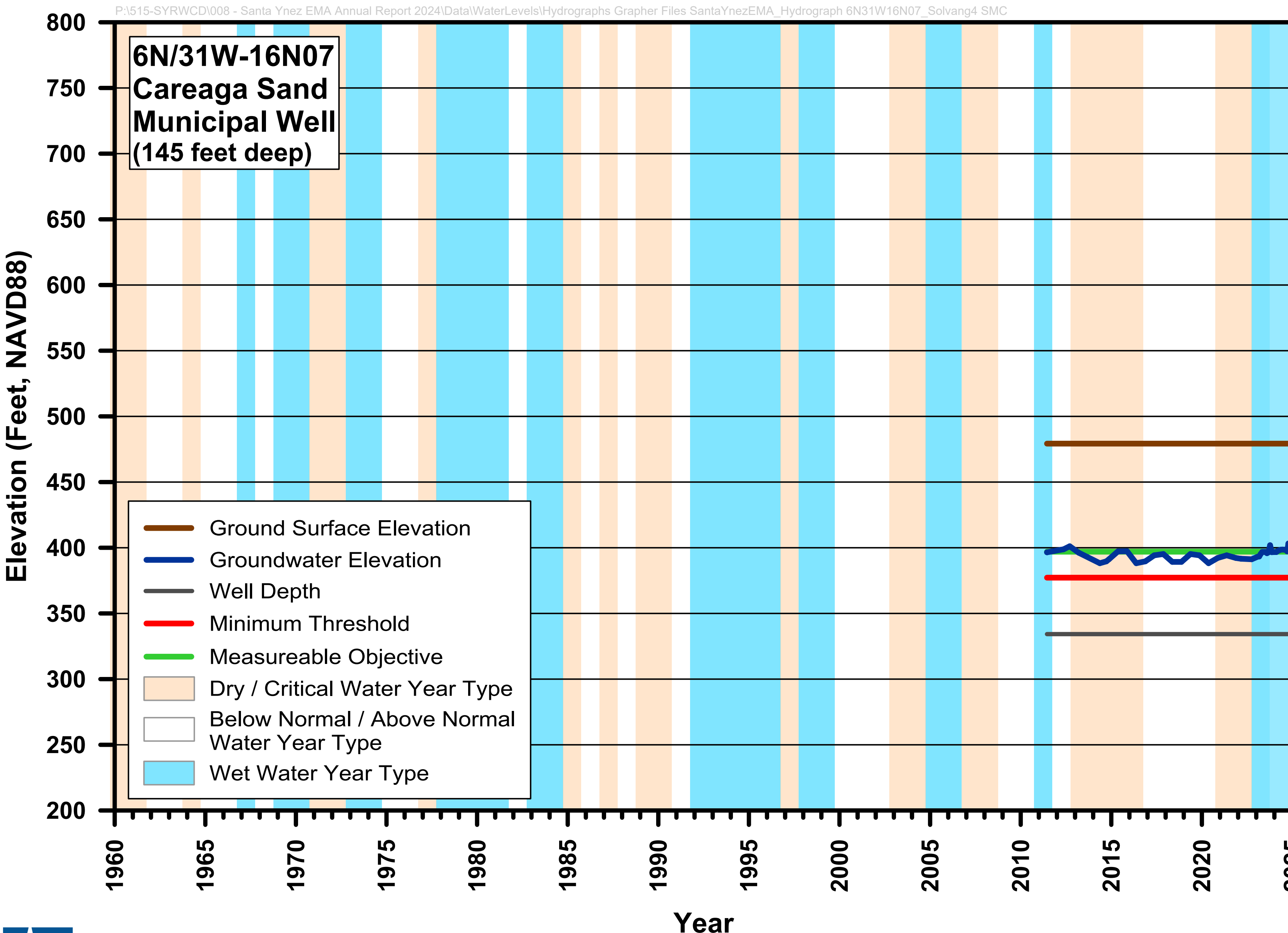

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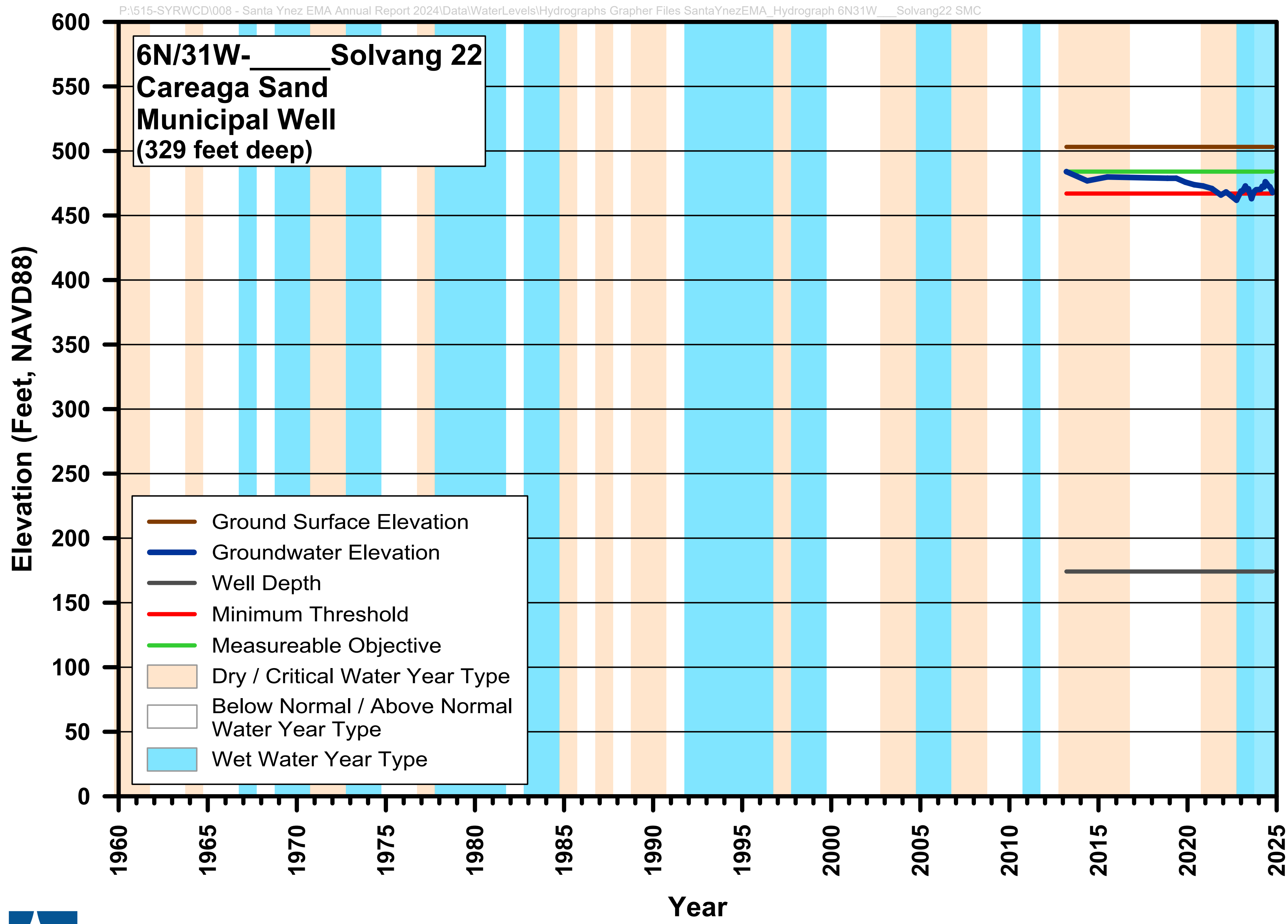

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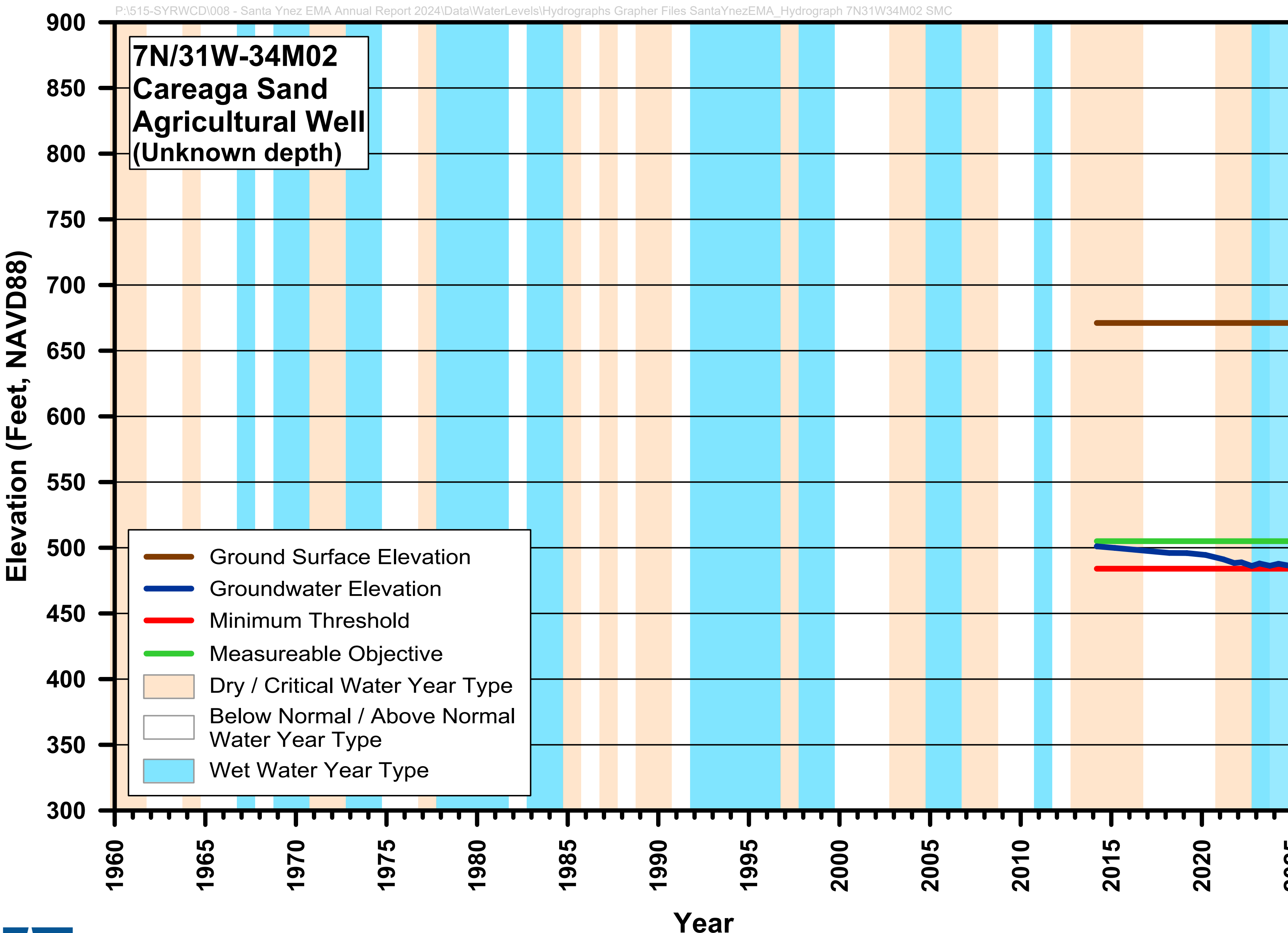

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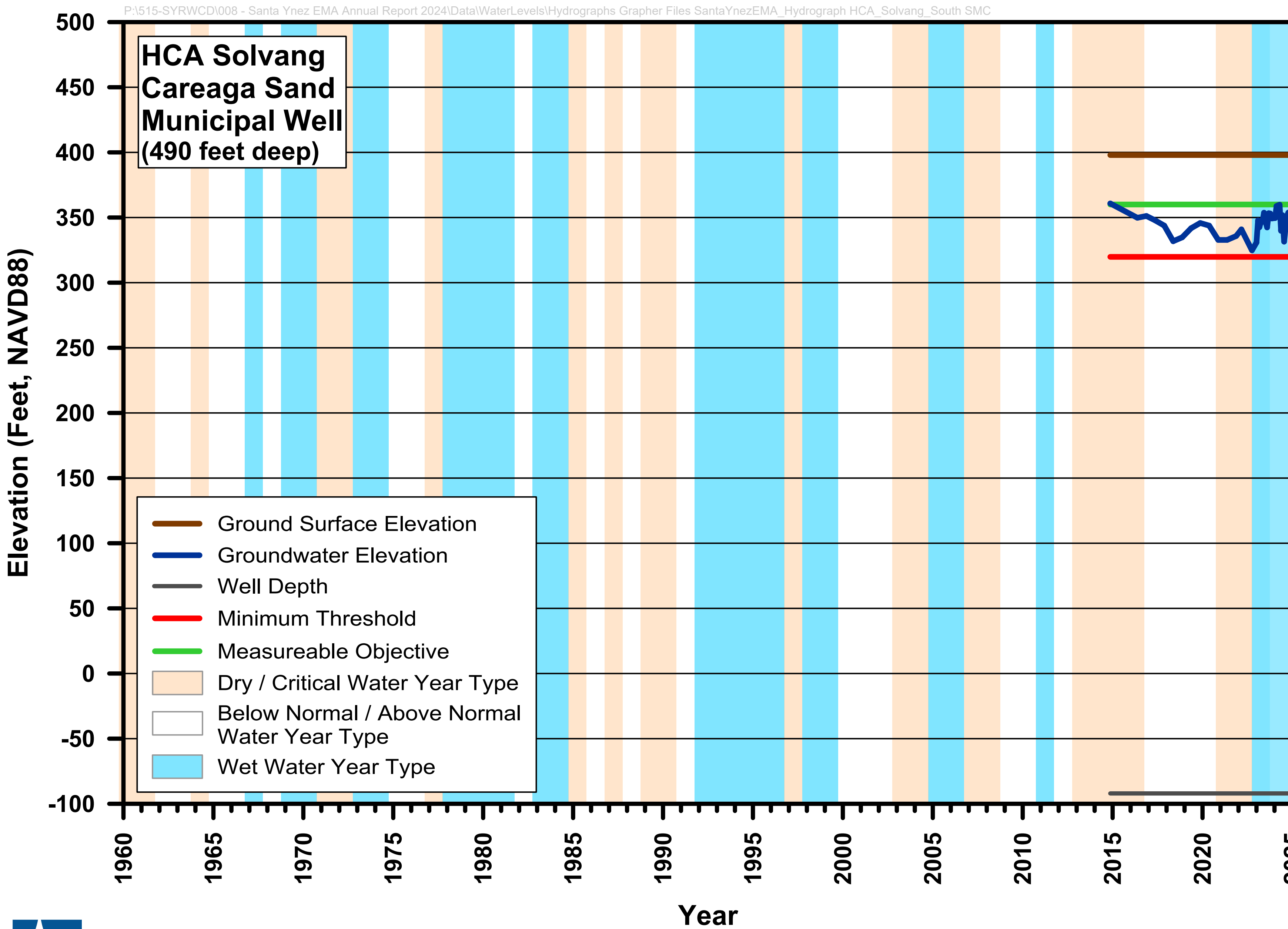

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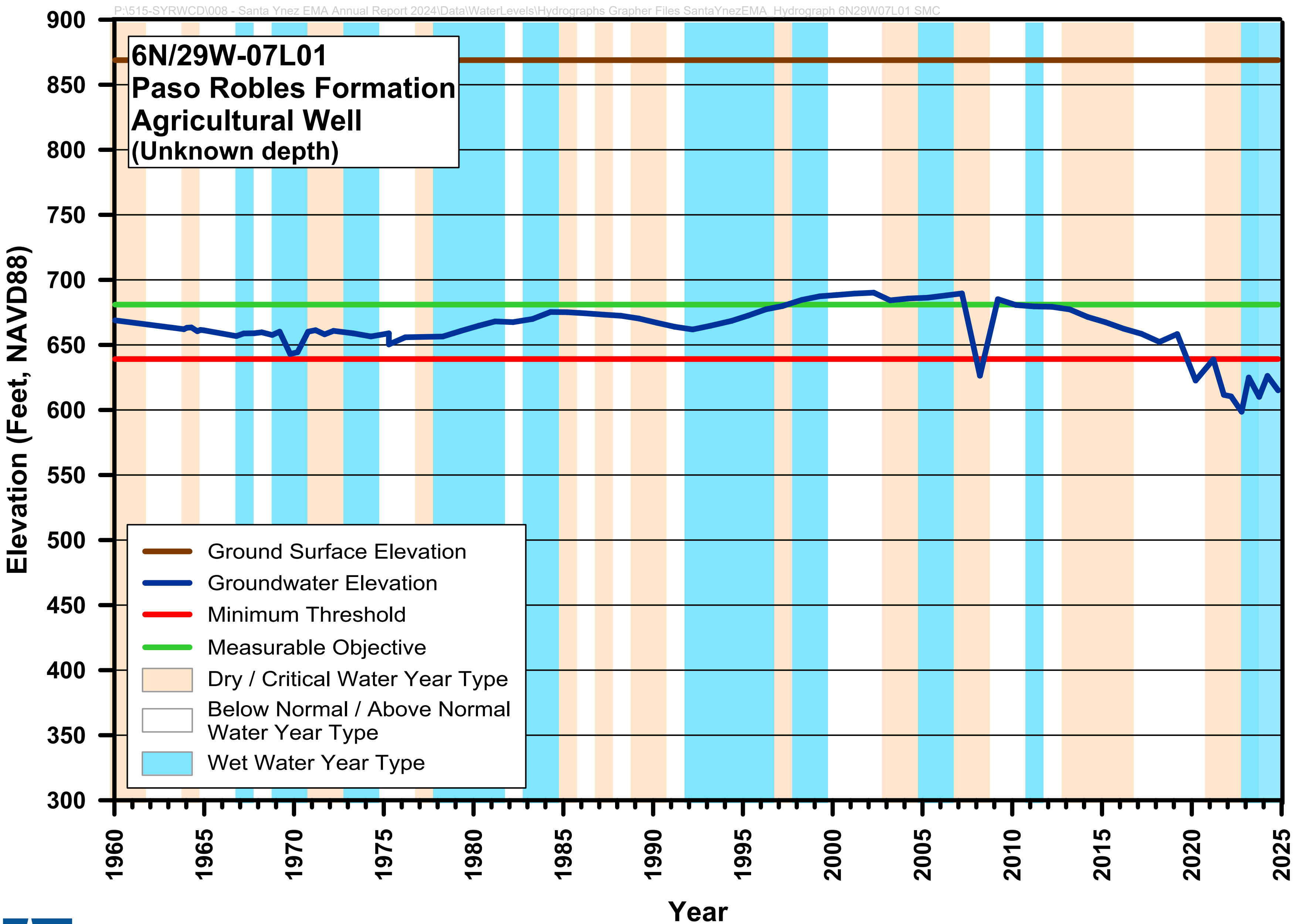

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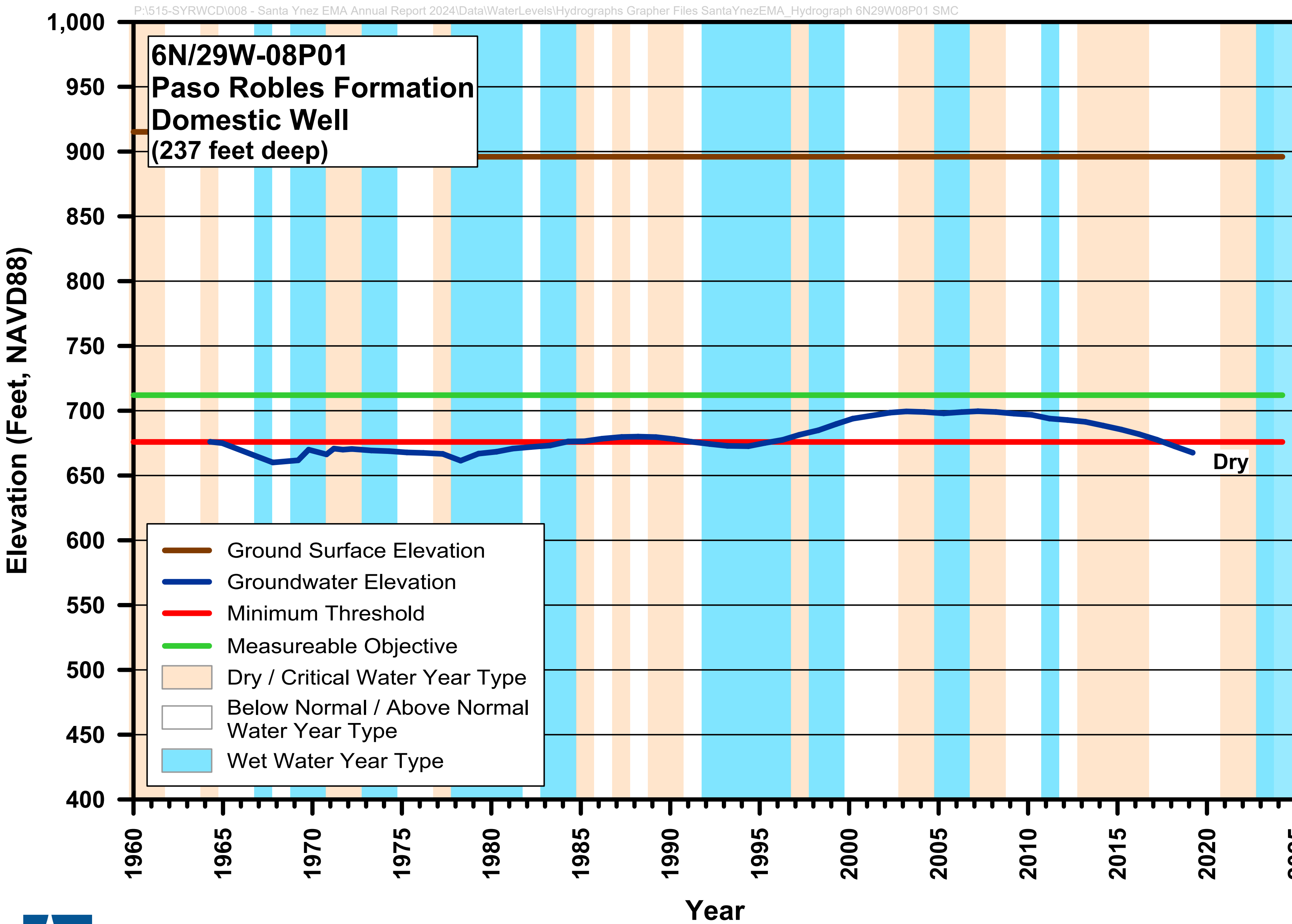

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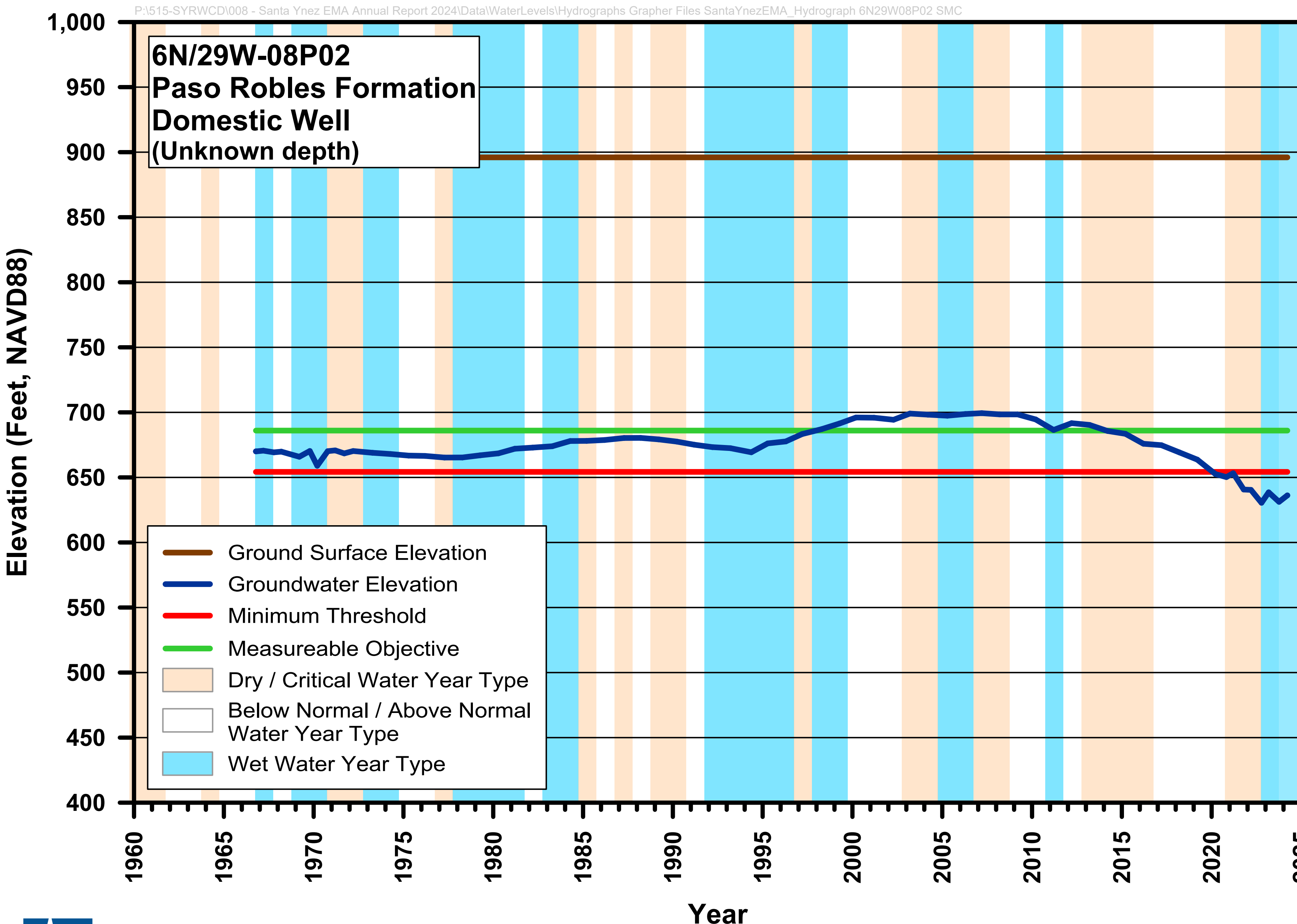

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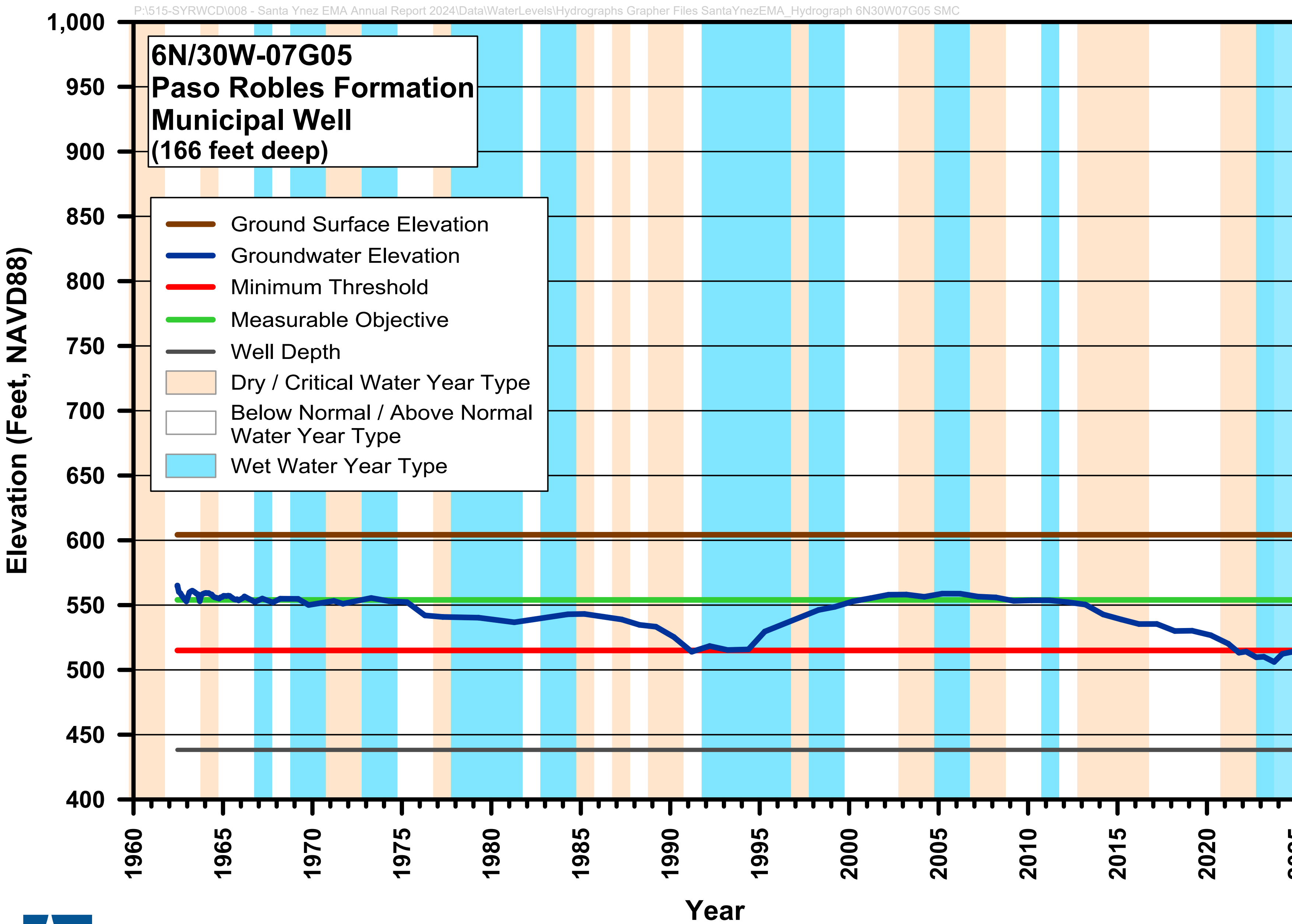

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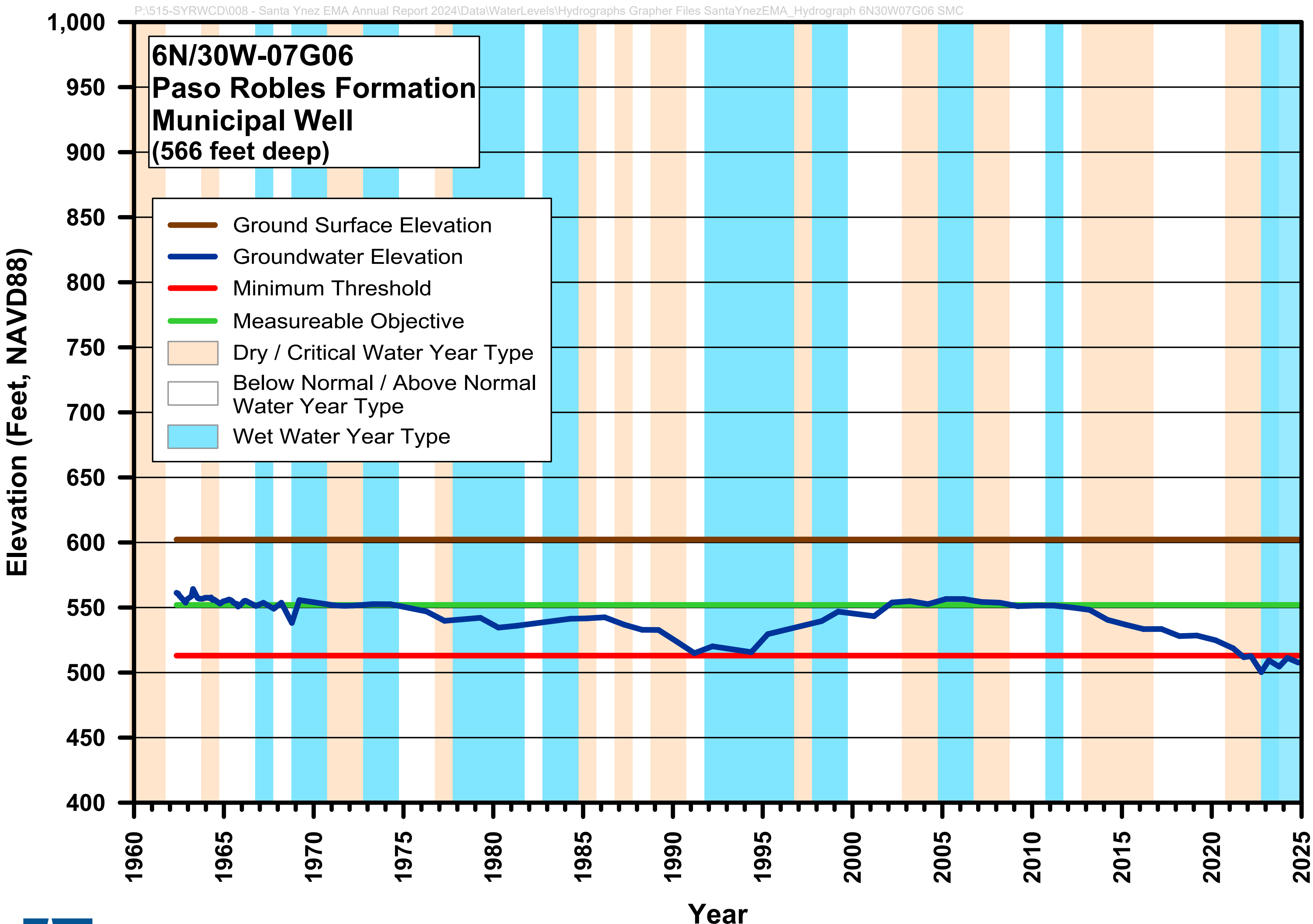

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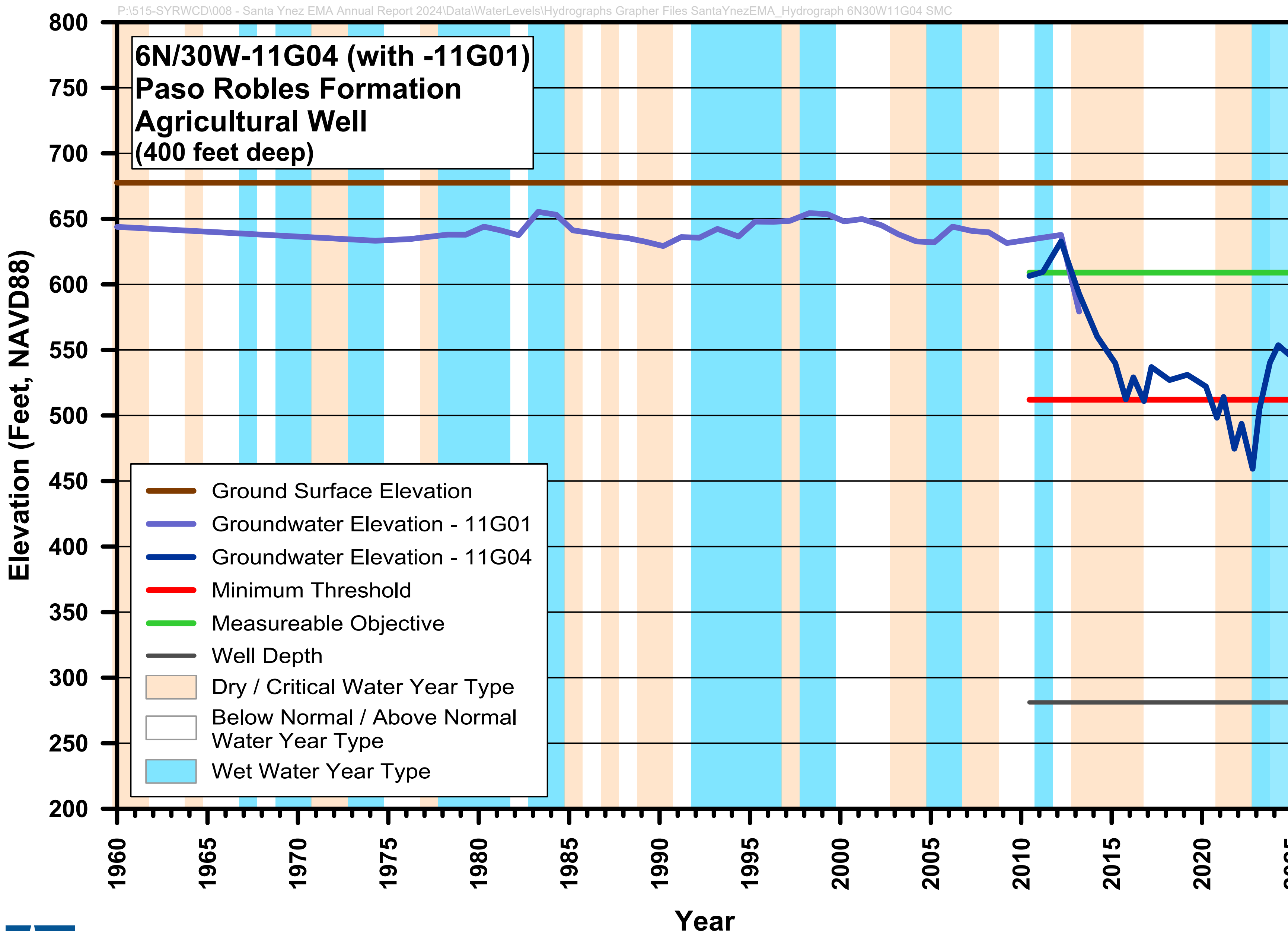

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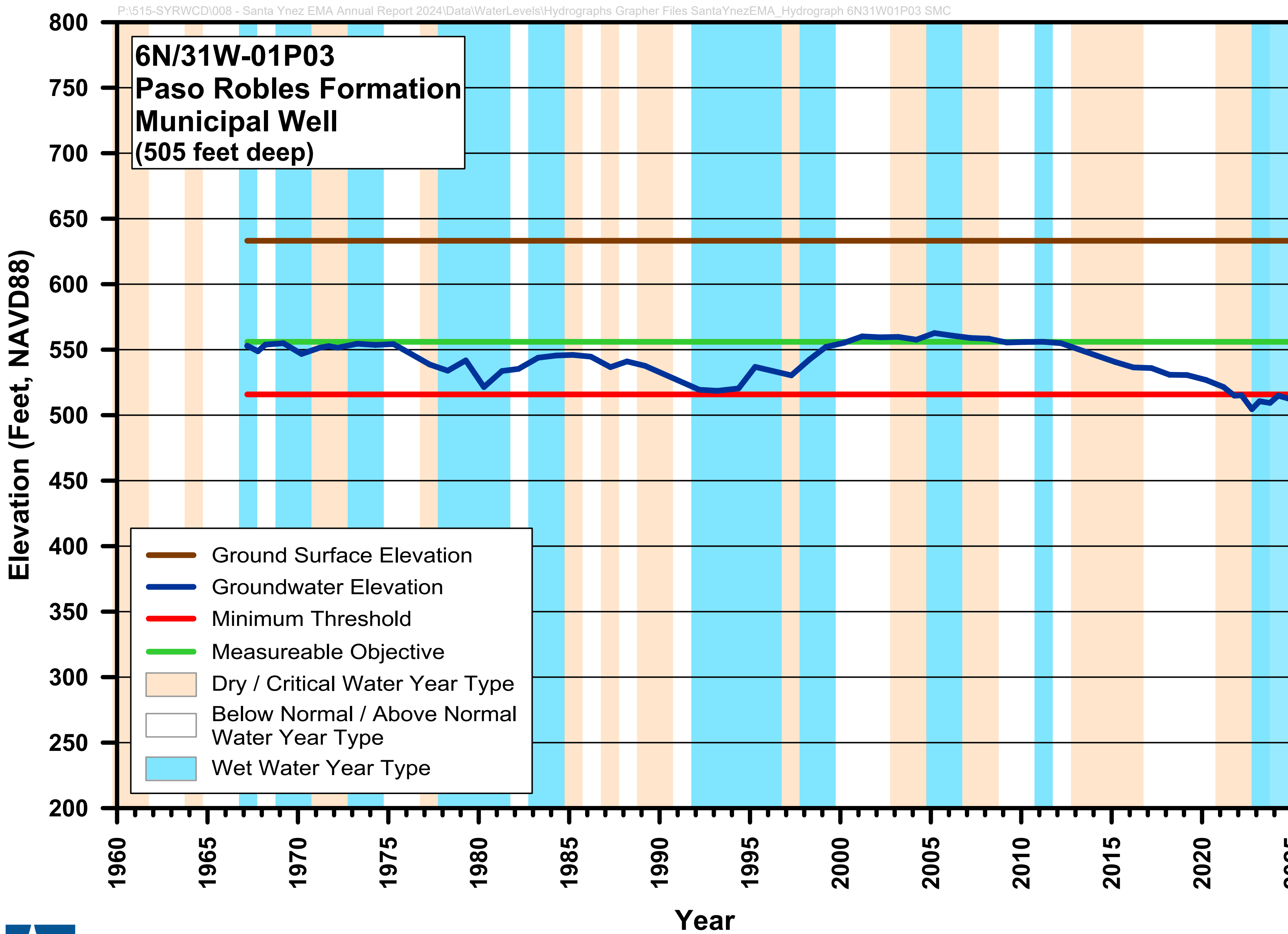

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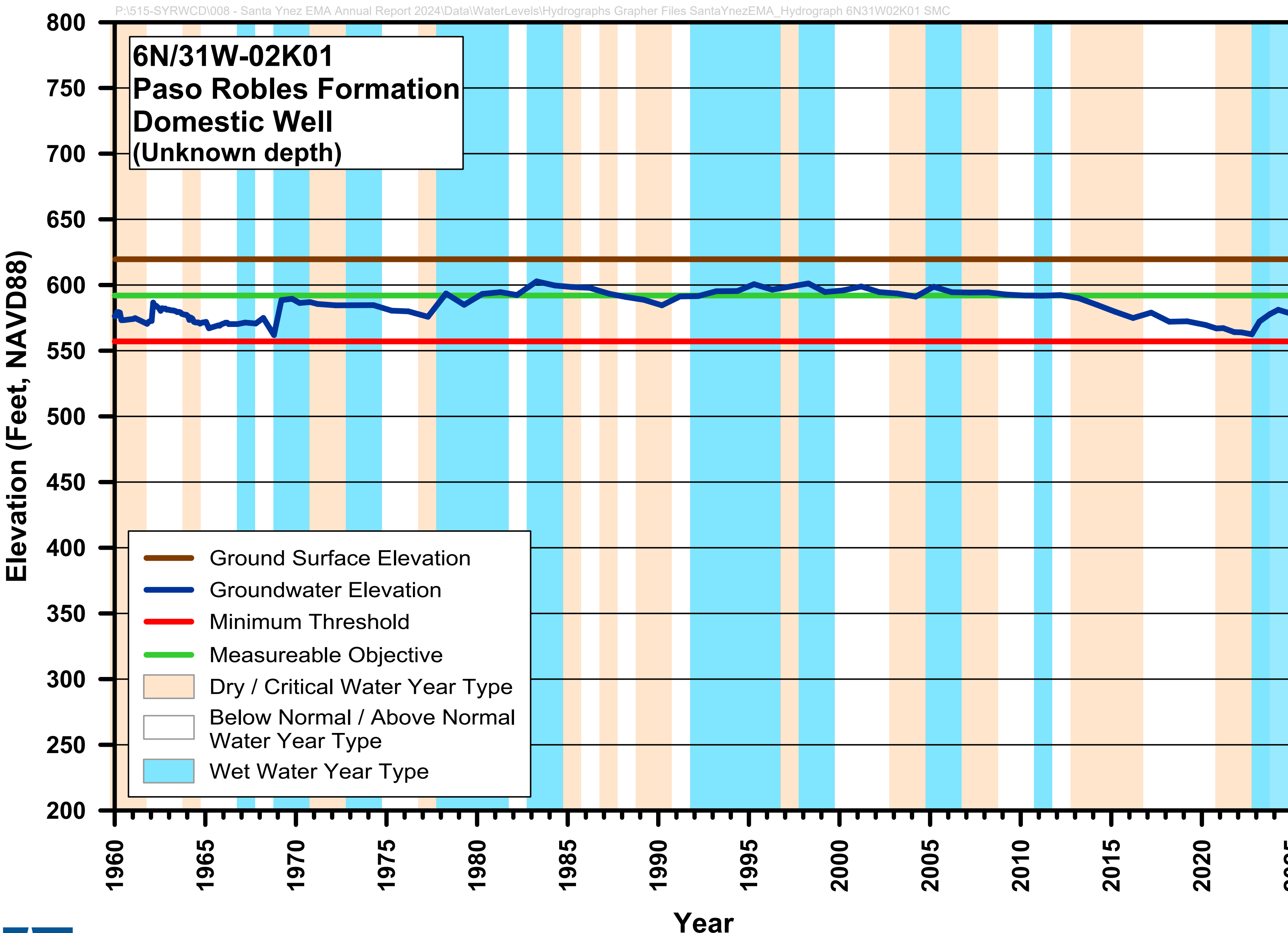

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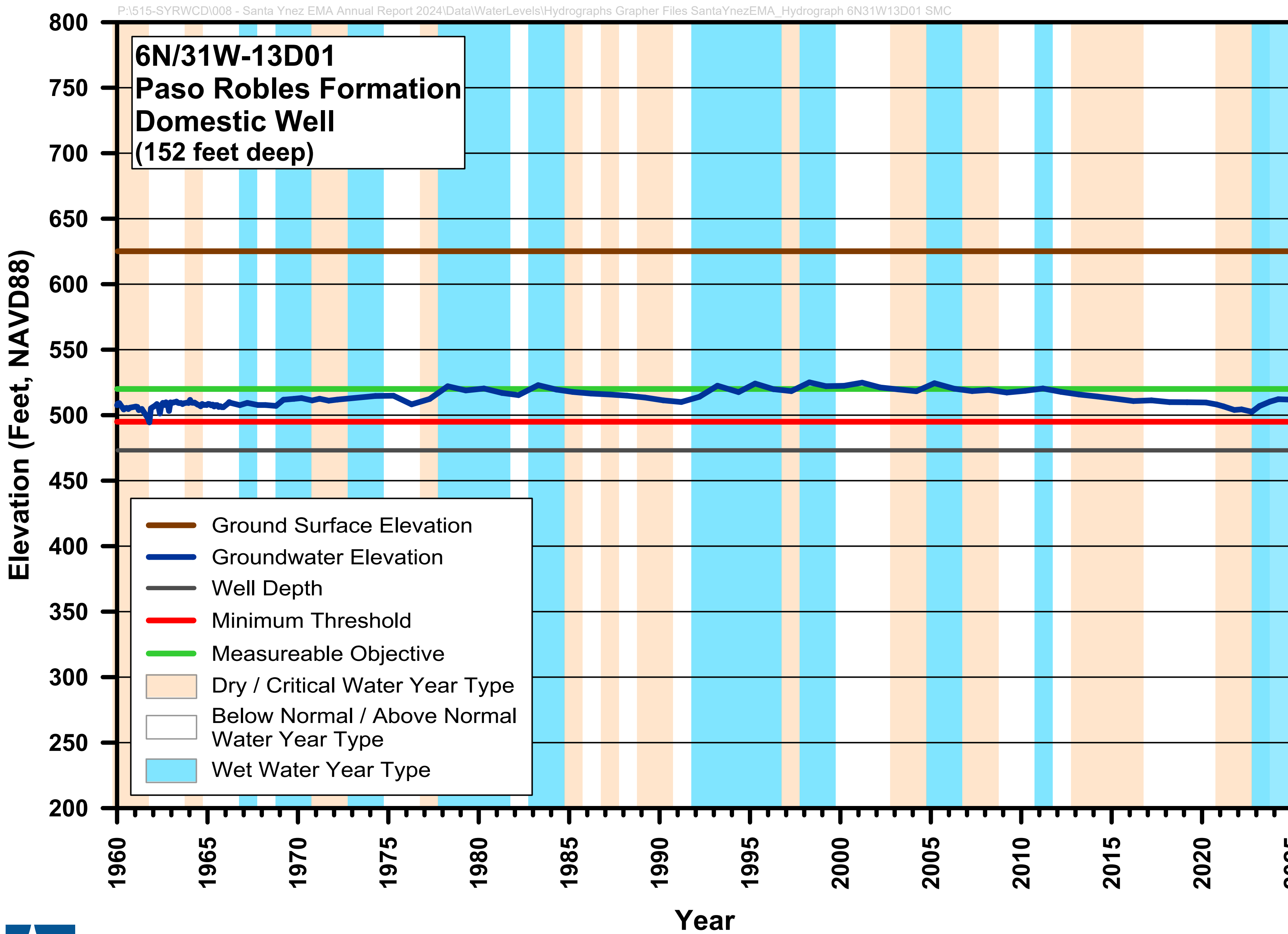

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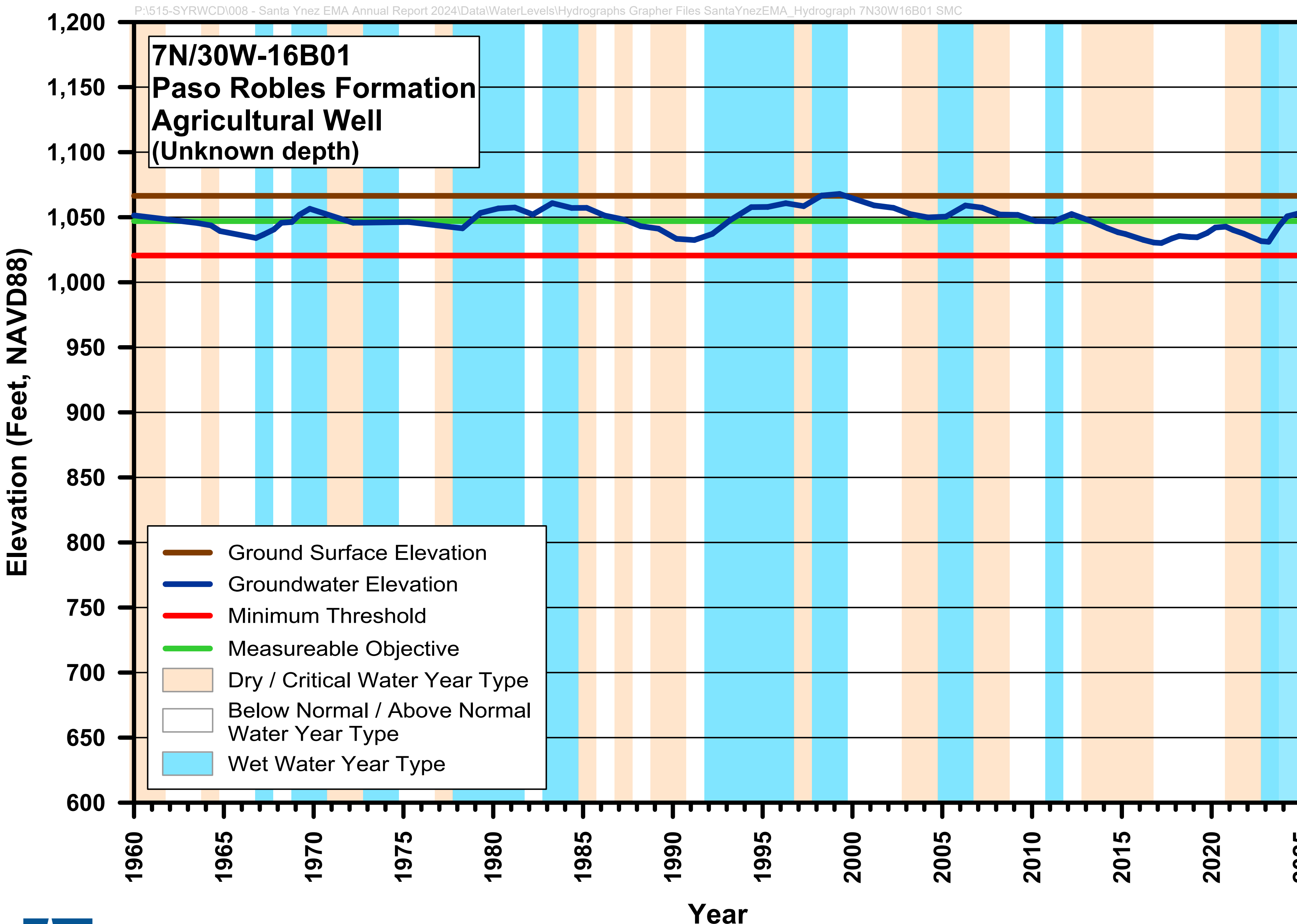

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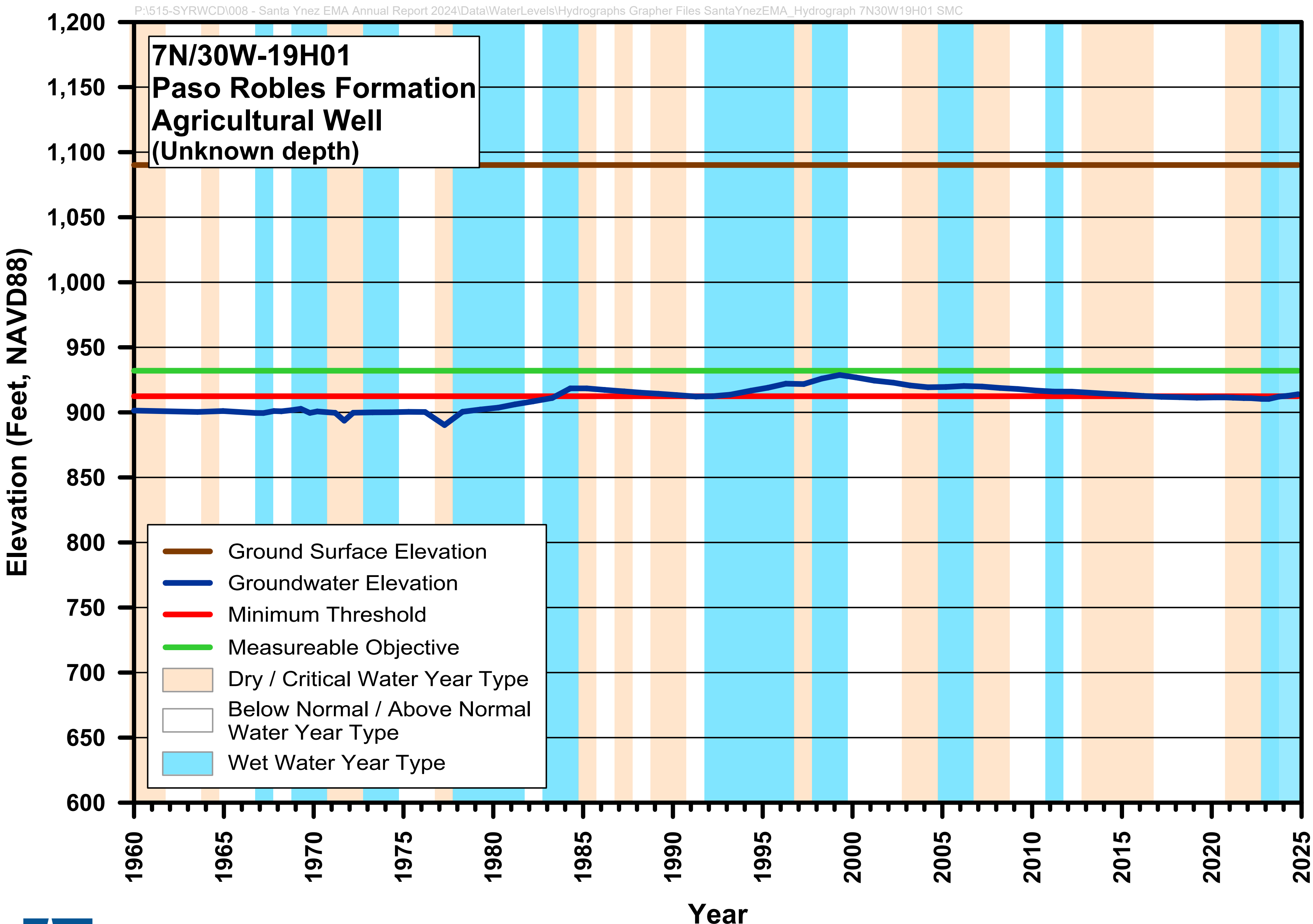

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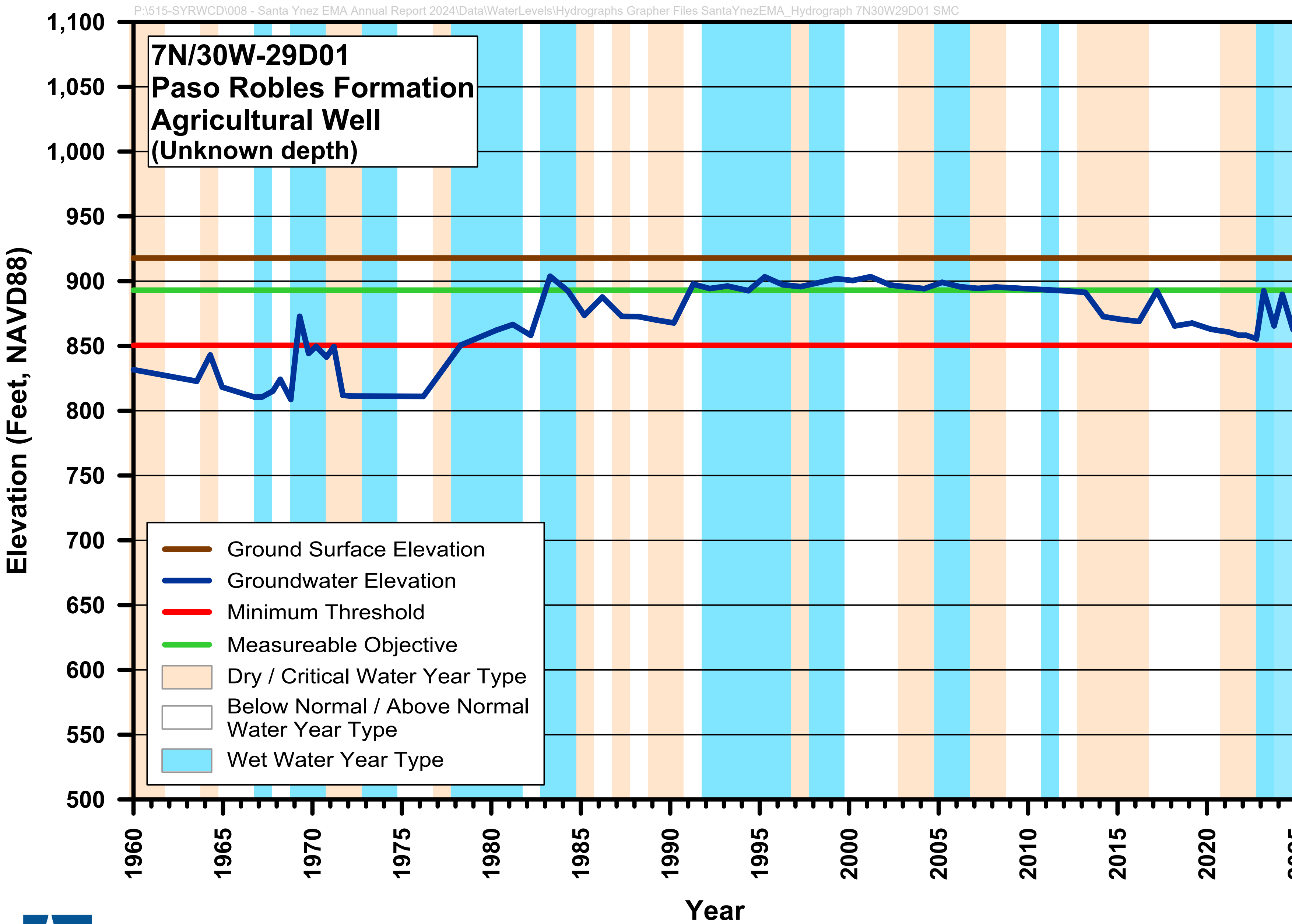

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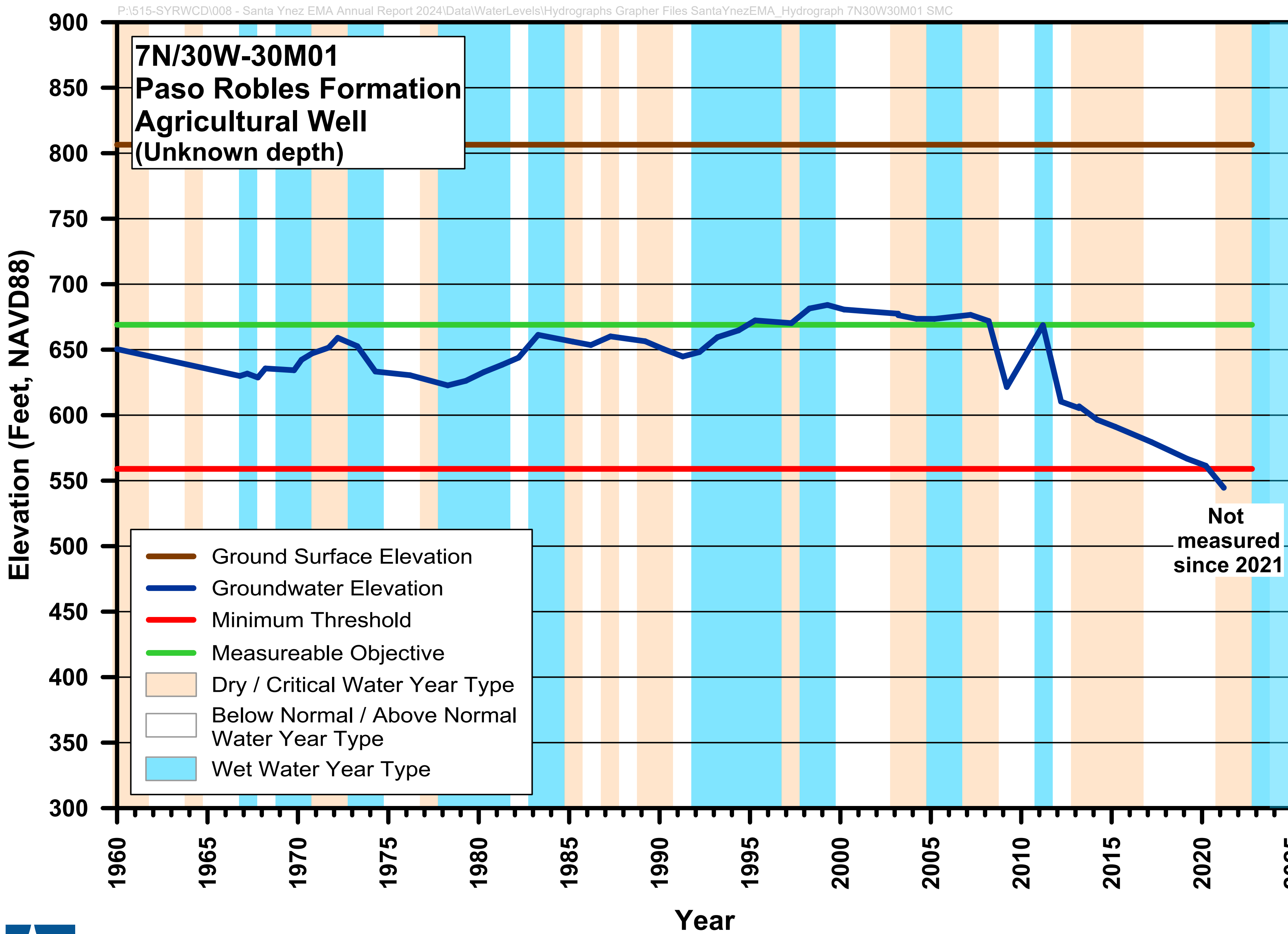

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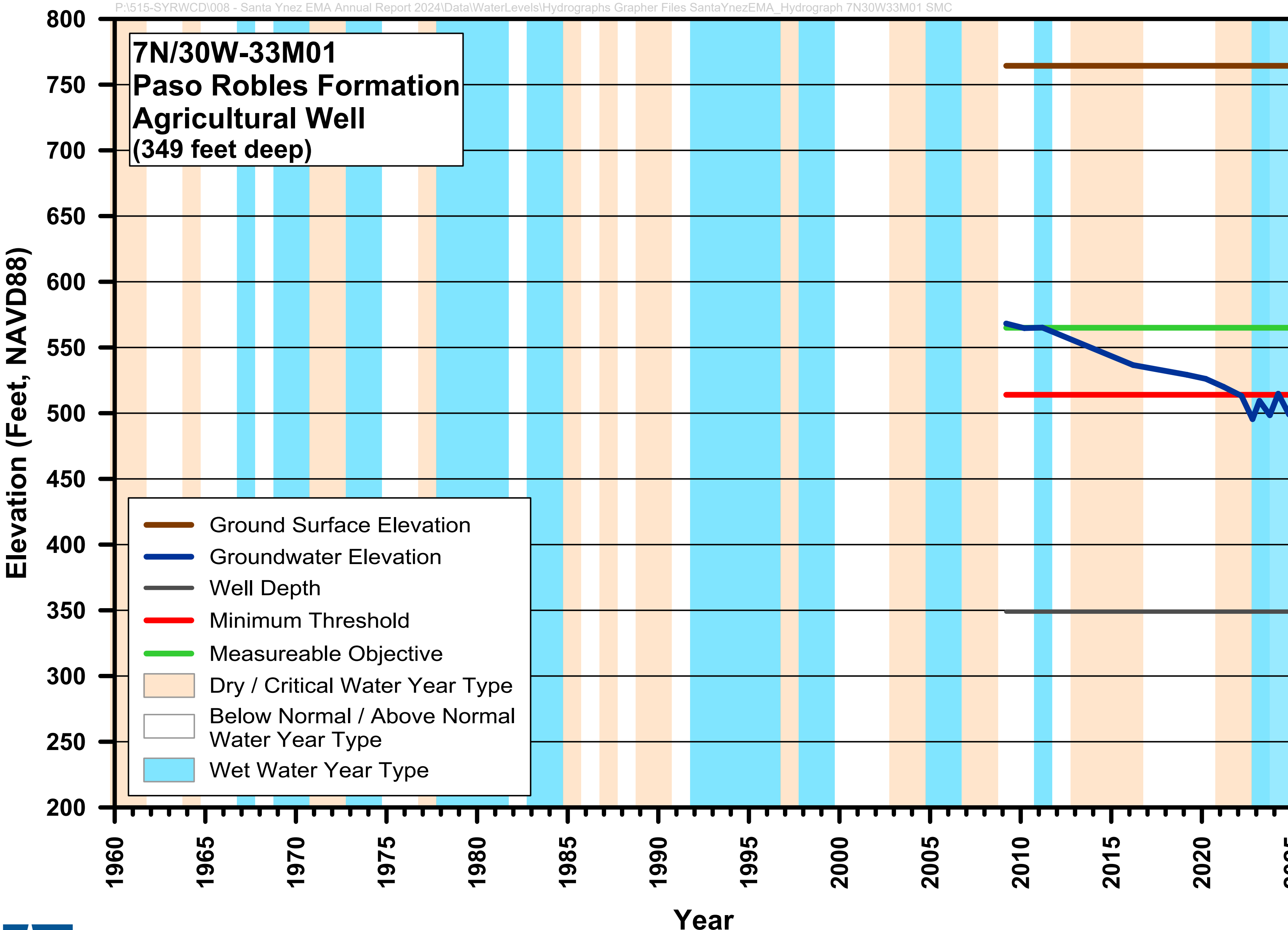

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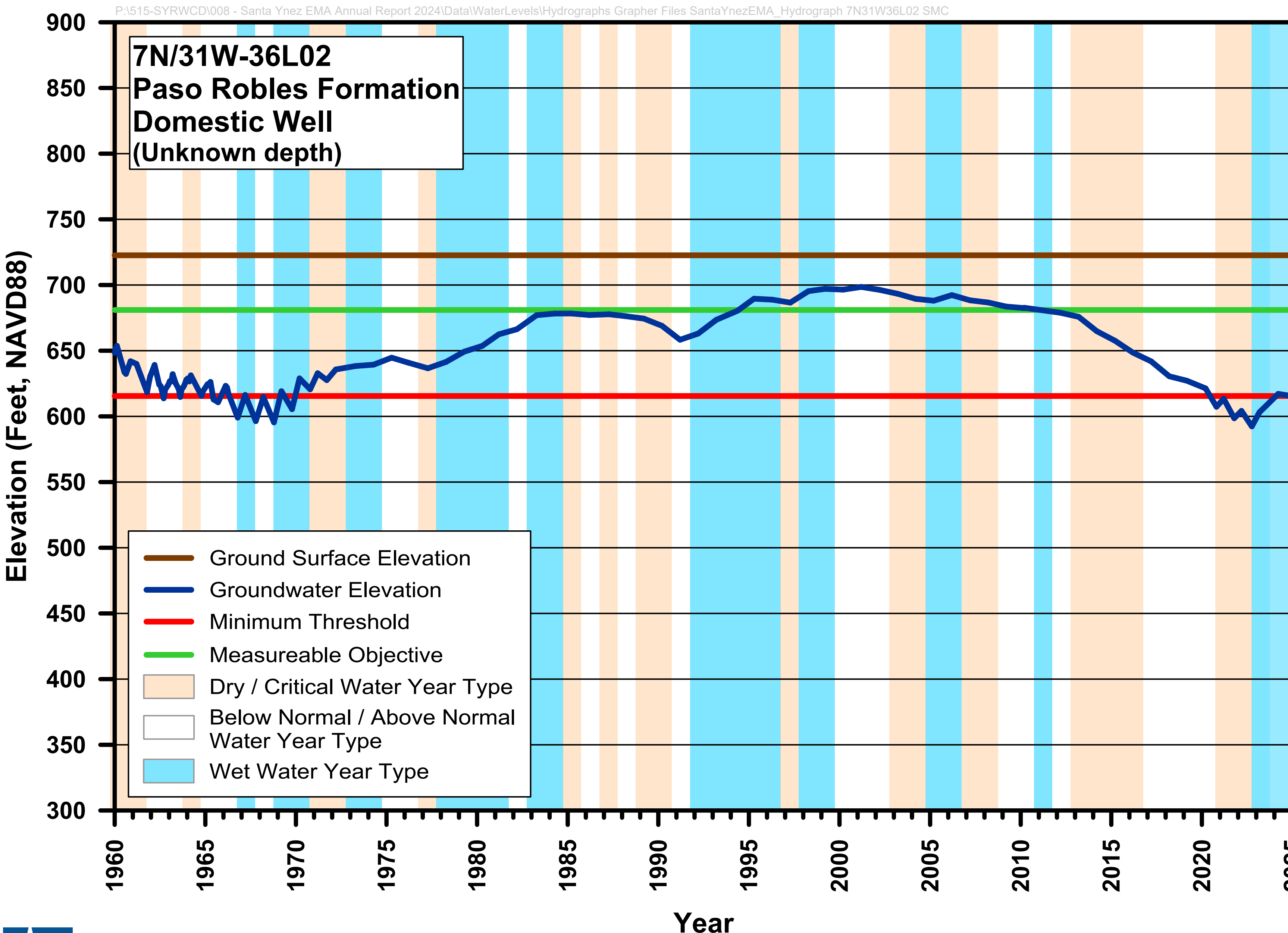

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Groundwater Elevation Hydrograph

Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin, Eastern Management Area

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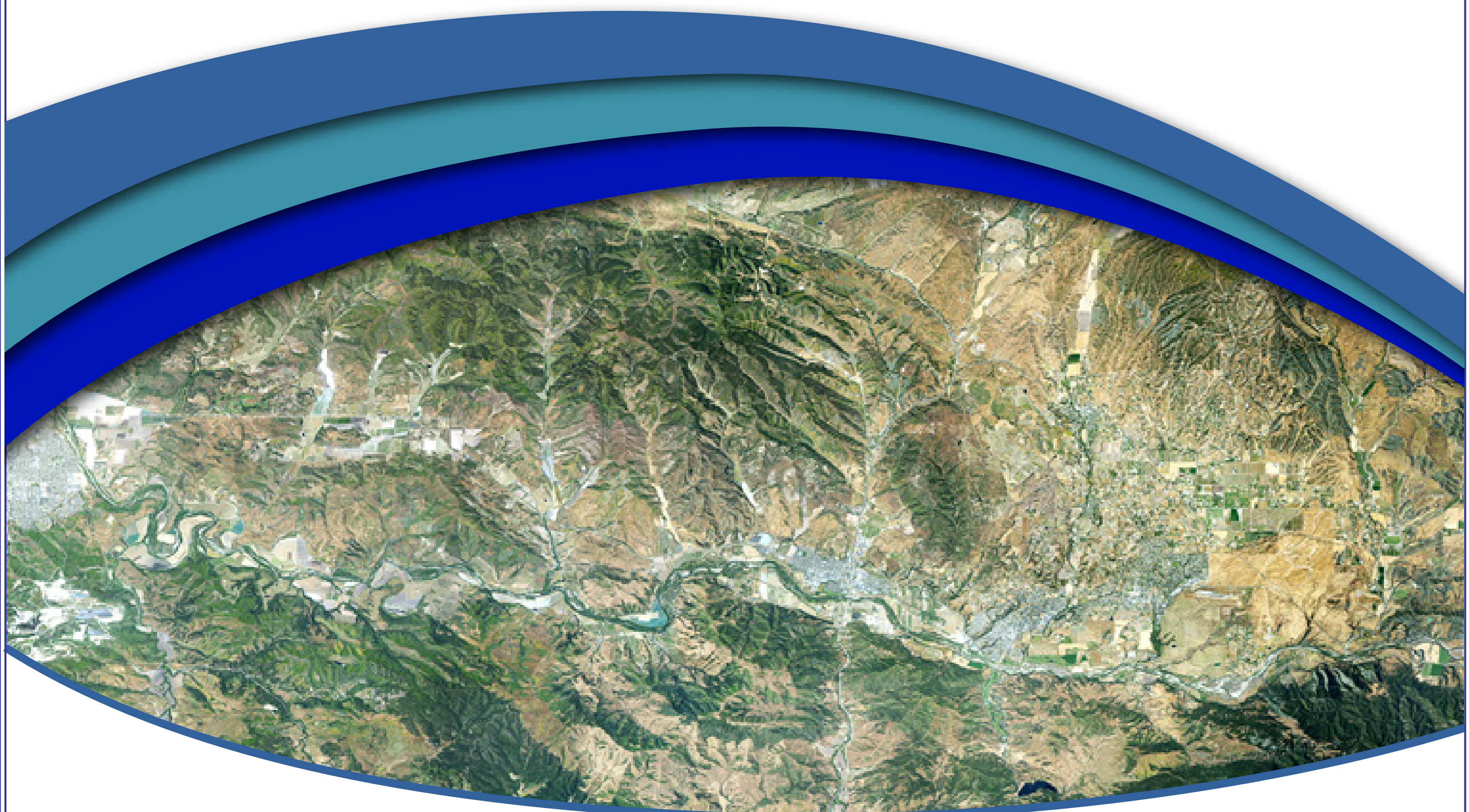
Fourth Annual Report Water Year 2024
Joint Report



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