MADERA SUBBASIN JOINT GSP ANNUAL REPORT

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Prepared By
Davids Engineering, Inc.
Luhdorff & Scalmanini

Madera Subbasin Joint Groundwater Sustainability Plan (GSP)

Joint GSP Annual Report

For Water Year 2025
(October 2024 – September 2025)

April 2026

Prepared For

City of Madera GSA
Madera County GSA – Madera
Madera Irrigation District GSA
Madera Water District GSA

Prepared By

Davids Engineering, Inc
Luhdorff & Scalmanini

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List of Abbreviations

AF	acre-feet
AMSL	above mean sea level
AN	above normal
BN	below normal
C	critical
CASGEM	California State Groundwater Elevation Monitoring
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CM	City of Madera
CVP	Central Valley Project
D	dry
DWR	California Department of Water Resources
ETAW	ET of applied water
Flood-MAR	Flood Managed Aquifer Recharge
GFWD	Gravelly Ford Water District
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWEL	Groundwater Elevation
GWS	Groundwater system
IM	interim milestone
ISW	interconnected surface water
MC	Madera County
mg/L	milligrams per liter
MID	Madera Irrigation District
MO	measurable objective
MT	minimum threshold
MWD	Madera Water District
NRCS	Natural Resources Conservation Service
NSWD	New Stone Water District
PMAs	projects and management actions
RCWD	Root Creek Water District
RMS	Representative monitoring sites
SCADA	Supervisory Control and Data Acquisition
SEBAL	Surface Energy Balance Algorithm for Land
SGM	Sustainable Groundwater Management
SGMA	Sustainable Groundwater Management Act of 2014
SWS	surface water system
ug/L	micrograms per liter
USBR	United States Bureau of Reclamation
USDA	U.S. Department of Agriculture
USGS	United States Geological Survey
W	wet

Executive Summary (§356.2.a)

The California Code of Regulations Title 23 (23 CCR) §356.2 requires that Annual Reports be submitted to the California Department of Water Resources (DWR) by April 1 of each year following the adoption of a Groundwater Sustainability Plan (GSP).

The Madera Subbasin (Subbasin[1]) is a critically overdrafted subbasin subject to the requirements of the Sustainable Groundwater Management Act of 2014 (SGMA). The Subbasin is cooperatively managed by seven Groundwater Sustainability Agencies (GSAs) under four GSPs and one Coordination Agreement, collectively referred to as the Subbasin Plan.

In reflection of ongoing coordination across the Subbasin and consistent with DWR's guidance, the Subbasin GSAs have developed one coordinated Annual Report for the Subbasin Plan with the following organizational structure:

- **One cohesive Subbasin-wide document (the Subbasin Annual Report)** that provides a summary of Subbasin conditions and Annual Report content pertinent to the entire Subbasin and all four GSPs.
- **Four GSP-specific attachments (the Annual Report GSP Attachments)** that each review and evaluate content and amendments specific to each GSP.

This document is the Annual Report GSP Attachment for the Madera Subbasin Joint GSP (Joint GSP) and has been developed in compliance with the requirements of 23 CCR §356.2. The Joint GSP covers the extent of the Subbasin that is managed by the four Joint GSP GSAs: the City of Madera (CM) GSA, the Madera County (MC) GSA – Madera, the Madera Irrigation District (MID) GSA, and the Madera Water District (MWD) GSA (**Table ES-1** and **Figure ES-1**).

This document describes efforts made toward implementation of the Joint GSP through April 2026 as well as conditions in the Subbasin within the area managed pursuant to this Joint GSP. Approximately 94% of the Subbasin area is managed by the Joint GSP GSAs, while the remaining 6% of the Subbasin area is managed by the Gravelly Ford Water District (GFWD) GSA, the New Stone Water District (NSWD) GSA, and the Root Creek Water District (RCWD) GSA. Implementation of the Subbasin Plan will collectively result in sustainable operation of the Subbasin by 2040.

This document does not specifically summarize GSP implementation activities or conditions within the areas managed by the other GSAs in the Subbasin that have developed and are implementing individual GSPs. Please refer to the Annual Report GSP Attachments prepared by the Gravelly Ford Water District (GFWD) GSA, the New Stone Water District (NSWD) GSA, and the Root Creek Water District (RCWD) GSA for a description of the conditions and GSP implementation efforts within each of their jurisdictional areas.

Additionally, please refer to the Subbasin Annual Report for the Executive Summary describing conditions across the entire Subbasin.

[1] Groundwater basin number 5-022.06, part of the San Joaquin Valley Groundwater Basin, as defined by DWR Bulletin 118 (DWR, 2003) and updated in 2016.

Table ES-1. Organization of GSAs, GSPs, and Coordination Agreement in the Subbasin.

GSA	GSA Abbreviation	GSP	Coordination Agreement	GSA Area (Acres)
City of Madera GSA	CM GSA	Joint GSP	Madera Subbasin Coordination Agreement	10,100
County of Madera GSA – Madera Subbasin	MC GSA			177,000
Madera Irrigation District GSA	MID GSA			134,500
Madera Water District GSA	MWD GSA			3,700
Gravelly Ford Water District GSA	GFWD GSA	GFWD GSP		8,400
New Stone Water District GSA	NSWD GSA	NSWD GSP		4,200
Root Creek Water District GSA	RCWD GSA	RCWD GSP		9,700
			Total	347,600

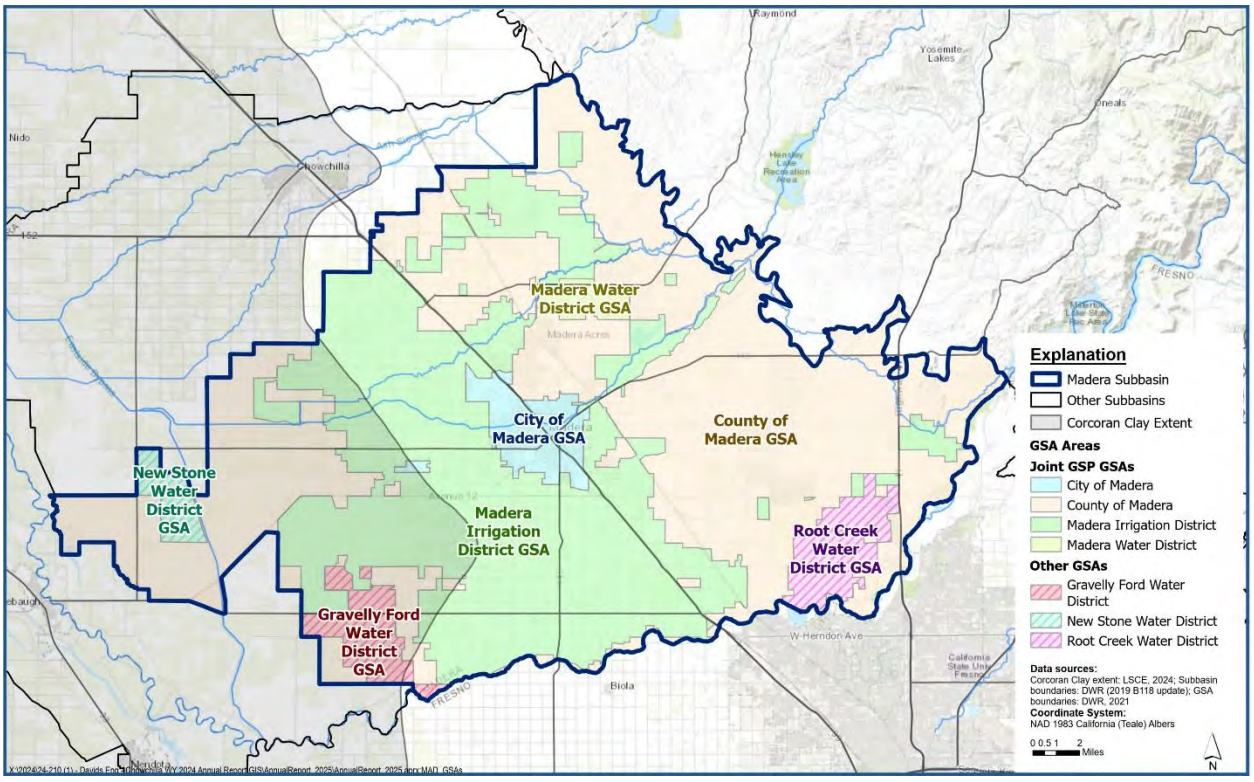


Figure ES-1. Map of the Subbasin and the Joint GSP GSAs.

Groundwater Elevations (§356.2.b.1)

Groundwater level monitoring and groundwater elevations are described in **Section 1.1** of this Annual Report. Groundwater level monitoring data was assembled from publicly available and GSA-related sources for the historical period through water year 2025 and for Fall 2025. Data was collected from various entities, including: MID, MC, CM, MWD, DWR, USBR, GeoTracker, and the California State Groundwater Elevation Monitoring (CASGEM) program (the Madera-Chowchilla Groundwater Monitoring Group).

The GSAs conducted groundwater level monitoring for representative monitoring site (RMS) wells in Spring 2025 and Fall 2025 to evaluate seasonal high and low groundwater level conditions, respectively. During Spring 2025, groundwater elevations at available RMS wells in the Madera Subbasin ranged from -106.2 ft AMSL to 133.5 ft AMSL (mean groundwater elevation of 10.5 ft AMSL). During Fall 2025, groundwater elevations at available RMS wells in the Madera Subbasin ranged from -128.8 ft AMSL to 117.5 ft AMSL (mean groundwater elevation of -4.3 ft AMSL). Additional information on groundwater monitoring activities is provided in **Appendix E** of this Annual Report.

Groundwater Elevation Contour Maps (§356.2.b.1.A)

Groundwater elevation contour maps are described in **Section 1.2** and shown in **Appendix A** of this Annual Report. Spring and fall groundwater elevation contour maps were prepared for 2025. Spring contours are intended to generally represent seasonal high groundwater levels, while fall contours are intended to represent seasonal low groundwater levels. Data was assembled from all known and available groundwater level information in the Joint GSP area, including from public sources, local GSAs, and other local entities.

In summary, general patterns seen in the Spring 2025 and Fall 2025 groundwater elevation contour maps are similar to patterns observed in earlier spring and fall time periods. In the Upper Aquifer and undifferentiated unconfined groundwater zone, spring and fall contours generally show higher groundwater elevations near the San Joaquin River with groundwater flow to the north to a broad depression located in the north-central portion of Madera Subbasin. In the Lower Aquifer (within the extent of the Corcoran Clay), spring and fall contours generally show higher groundwater elevations in the southeast and lower groundwater elevations in the northwest. In the Lower Aquifer, the fall groundwater level elevations are generally lower than those observed in the spring.

Groundwater Hydrographs (§356.2.b.1.B)

Groundwater hydrographs are described in **Section 1.3** and shown in **Appendix B** of this Annual Report. All available groundwater level monitoring data was used to prepare groundwater hydrographs through the end of 2025. The hydrographs for RMS wells show generally stable water levels in recent years, with slightly declining trends observed in some wells.

Groundwater Extraction (§356.2.b.2)

Groundwater extraction is summarized in **Section 3** of this Annual Report. Groundwater extraction in the Joint GSP area was either measured directly from flowmeters or was estimated from a water budget developed using the Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim[2]) (sources and methods are summarized in **Section 3**). It is noted that the use of MCSim is a refinement of the approach in earlier Annual Reports (prior to water year 2024), in which unmeasured groundwater extraction was estimated using a surface water system and root zone water budget separate from MCSim (see **Section 2**).

In total, an estimated 518,000 acre-feet (AF) of groundwater was extracted for use within the Joint GSP area during water year 2025. Of this total, approximately 94% was extracted for agricultural use (approximately 489,200 AF), and the remaining groundwater was extracted for urban use (including urban, domestic, semi-agricultural, and industrial water use). Total groundwater recharge from the surface water system in the Joint GSP area (combined infiltration of applied water, precipitation, and surface water) was estimated to be approximately 243,700 AF in water year 2025.

Surface Water Supplies (§356.2.b.3)

Surface water supplies used or available for use are summarized in **Section 4** of this Annual Report. Surface water supplies available to certain Joint GSP GSAs include contract surface water deliveries (CVP supplies from Millerton Reservoir and other supplies from Hidden Dam releases), riparian and water rights diversions, and diversions of natural flows crossing the Joint GSP GSAs' boundaries. In this Annual Report, surface water supplies used or available for use are assumed to be the volume of surface water diverted by or supplied to agencies and water rights users in the Joint GSP area (i.e., diversions or supplies received during the water year, not total contract surface water supplies). It is noted that this is a refinement of the approach in earlier Annual Reports (prior to water year 2024), in which surface water supplies used or available for use were reported as the difference between surface water inflows and surface water outflows through the Joint GSP area.

During water year 2025, approximately 189,000 AF of surface water supplies were used or available for use in the Joint GSP area (combined diversions, irrigation deliveries, recharge, and infiltration of diversions).

Total Water Use (§356.2.b.4)

Total water use is summarized in **Section 5** of this Annual Report. In this Annual Report, total water use is assumed to equal the total combined groundwater extraction and surface water used or available for use in the Joint GSP area (i.e., the sum of water supplies reported in **Sections 3 and 4**). It is noted that this is a refinement of the approach in earlier Annual Reports (prior to water year 2024), in which total water use was reported as the applied water and precipitation from all

[2] Prior to the water year 2024 Annual Report, MCSim was updated, refined, and re-calibrated using the best available data sources and approaches. Updates, refinements, and re-calibration may have resulted in some changes to values in the Subbasin water budget compared to prior water budgets, although the general magnitudes and trends remain generally the same as prior Subbasin water budget results. See **Section 2** for additional information.

sources in the Joint GSP area, including all consumptive water use (evapotranspiration) and non-consumptive water use (other water uses, e.g., deep percolation and runoff).

During water year 2025, total water use in the Joint GSP area is estimated to be approximately 707,000 AF from all sources. Of this total, approximately 27% was from surface water and approximately 73% was from groundwater.

Change in Groundwater Storage (§356.2.b.5)

Change in groundwater storage is described in **Section 6** and shown in **Appendix C** of this Annual Report. Consistent with §354.18.b, annual changes in groundwater elevation were calculated for each of the principal aquifers between Spring 2024 and Spring 2025 based on the difference in annual spring groundwater elevation contours (representing seasonal high groundwater conditions). Outside of the delineated confined area, changes in groundwater elevation (in both the Upper and Lower Aquifers) were multiplied by representative specific yield values to estimate change in groundwater storage. Within the delineated confined area in the Lower Aquifer, groundwater potentiometric surface changes in the Lower Aquifer were multiplied by a much smaller storage coefficient value to calculate annual changes in groundwater storage in the Lower Aquifer. The specific yield and storage coefficient values used in the analysis are derived from values in the calibrated integrated groundwater flow model (MCSim) updated and recalibrated during the preparation of the first periodic evaluation of the Joint GSP.

In summary, the combined change in groundwater storage for the entire Joint GSP area was approximately -70,000 AF from Spring 2024 to 2025. A positive change in groundwater storage means that the volume of groundwater in storage increased, a negative change in groundwater storage means that the volume of groundwater in storage decreased. Notably, there is uncertainty in this estimate, and there are also other processes that contribute to the net change in groundwater storage besides groundwater pumping (e.g., recharge, subsurface inflows, and outflows). These contributing factors were considered in the MCSim groundwater model used in development of the Joint GSP, and will be further evaluated in future MCSim updates.

Interim Milestone Status (§356.2.c)

The status of groundwater conditions relative to interim milestones (IMs) established in the Joint GSP 2025 Plan Amendment is described in **Section 7.1** of this Annual Report. In the Joint GSP 2025 Plan Amendment, IMs for sustainability indicators were established at five-year intervals over the Implementation Period from 2020 to 2040 – at years 2025, 2030, and 2035.

Review of the Fall 2025 groundwater level measurements that are available for 30 RMS wells indicates that groundwater elevations are generally below MTs; however, a majority of the Fall 2025 RMS groundwater elevations were above the 2030 IMs. Review of land subsidence data indicates that all RMS stations had an observed cumulative subsidence total that is less than the 2030 cumulative IM. Review of land subsidence data indicates that all RMS stations had an observed cumulative subsidence total that is less than the 2030 cumulative IM. However, this groundwater quality data comparison to 2030 IMs is incomplete because there are not yet enough data to compare the three-year averages to the IM, so this comparison to the 2030 IM should be considered a snapshot look at groundwater quality concentrations in the Subbasin. Insufficient data was available to evaluate the interconnected surface water (ISW) sustainability indicator.

Projects and Management Actions (§356.2.c)

GSP implementation activities, including projects and management actions (PMAs), are described in **Section 7** of this Annual Report. In the year since the last Annual Report submittal, updates were reported for nearly 30 PMAs developed by the Joint GSP GSAs (not including the many subcomponents of larger project initiatives). The total combined benefits quantified for these projects in 2025 are approximately 26,000 AF. This does not include demand reduction benefits of the MC GSA demand management program (**Section 7.2.6.4**), which are not directly quantified at this time, or benefits from other infiltration of applied water, precipitation, and surface water accounted for in the water budget (described in **Sections 2-3**). Wet and above normal conditions in 2023-2025 have also allowed the GSAs to achieve substantial recharge benefits in the Subbasin The GSAs have continued to make significant progress in implementing existing PMAs, as well as developing and implementing new PMAs. Details regarding each GSA's PMAs are summarized in **Section 7.2**.

Other updates on SGMA implementation, including progress made to address recommended corrective actions, are described in the Subbasin Annual Report document.

1 Groundwater Elevations (§356.2.b.1)

This section describes groundwater elevations across the Joint GSP area. Additional details regarding groundwater elevations across the Subbasin are provided in the Subbasin Annual Report document.

1.1 GROUNDWATER LEVEL MONITORING

The groundwater level monitoring information presented in this Annual Report includes historical and recent monitoring conducted in the Subbasin by various entities, including local GSA-coordinated monitoring conducted as part of the Joint GSP monitoring program and additional monitoring by non-GSA entities that provide useful information for interpreting groundwater conditions. Groundwater level data collected as part of Joint GSP monitoring and additional groundwater level monitoring data available for the period through water year 2025 (plus Fall 2025) are summarized and presented in this Annual Report (**Table 1-1 and Appendices A and B)**. Formal Joint GSP groundwater level monitoring conducted by the Joint GSP GSAs was initiated upon adoption and submittal of the initial Joint GSP in January 2020.

Historically, groundwater level monitoring in the Joint GSP area of the Madera Subbasin has been conducted by a variety of entities including MID, MC, CM, MWD, DWR, USBR, and GeoTracker. The California State Groundwater Elevation Monitoring Program (CASGEM) was initiated in 2011, with the Madera-Chowchilla Groundwater Monitoring Group as the local monitoring entity. This Group includes MID, MC, MWD, GFWD, and RCWD along with entities in the Chowchilla Subbasin. Groundwater levels have been collected and submitted each fall and spring as part of the CASGEM program. Additionally, the Joint GSP GSAs conducted groundwater level monitoring in selected wells prior to adoption and submittal of the initial Joint GSP. Additional groundwater level data collection from newly installed nested monitoring wells (installed as part of a DWR grant) began in water year 2020. Groundwater level monitoring data available from the entities listed above, and all GSAs party to the Joint GSP, were assembled for the period through the end of water year 2025 (plus Fall 2025) and are presented in this Annual Report. **Figure 1-1** includes a map presenting the well locations and most recent monitoring date for historical groundwater level monitoring conducted in the Joint GSP area. Semi-annual groundwater level measurements acquired for groundwater level RMS wells identified in the Joint GSP are submitted through the Monitoring Network Module on the SGMA Portal twice a year. **Figure 1-2** illustrates the groundwater level RMS well network included in the Joint GSP. A summary of RMS well information and recent groundwater level measurements is presented in **Table 1-1**. An update to the water level RMS network was completed as part of the First Plan Amendment and is presented in Appendix 3.K of the Amended GSP. Additional information on the monitoring network is provided in **Appendix E** of this Annual Report.

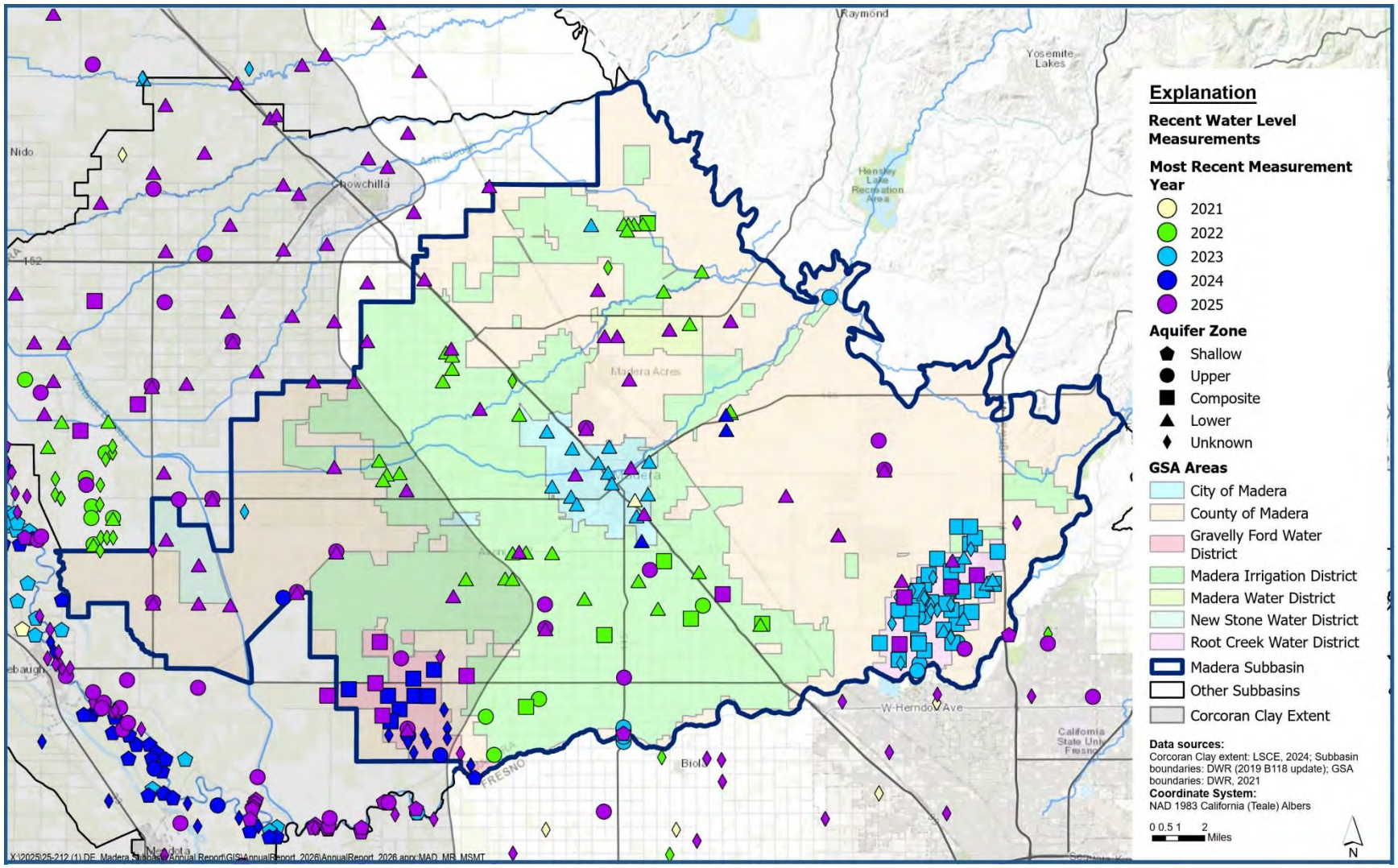


Figure 1-1. Most Recent Groundwater Level Measurement by Well. [1]

[1] *Map includes all available groundwater level measurements, including both publicly available and locally provided data sources, and is not limited to RMS wells.*

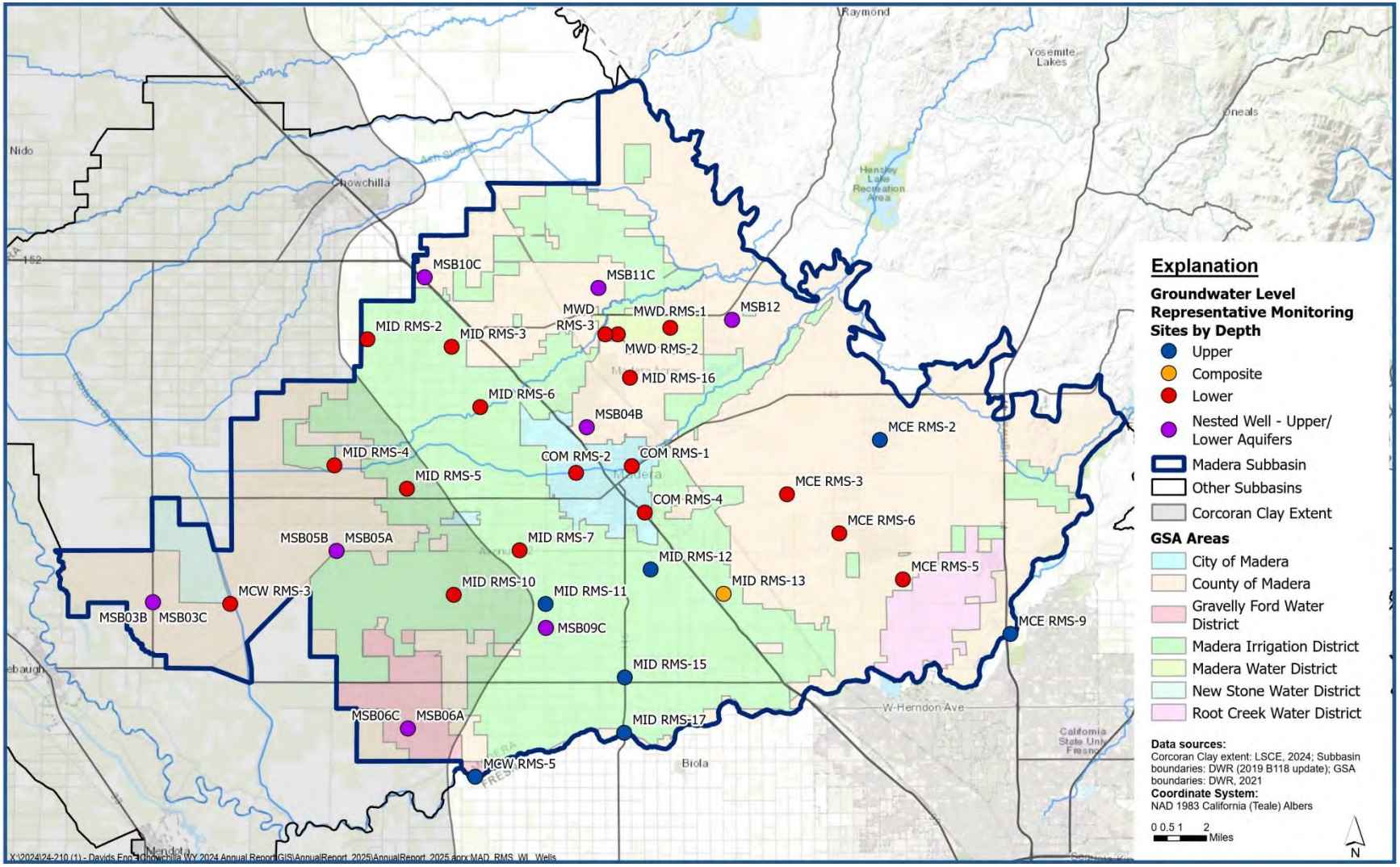


Figure 1-2. Groundwater Levels Sustainable Indicator Wells.

Table 1-1. Summary of Groundwater Level RMS Well Information and Measurements During Report Year (2025).

RMS Well I.D.	Estimated Surface Elevation (msl, feet)	Well Depth	Screen Top-Bottom	Aquifer Designation	Spring 2025 GWEL	Date of Spring 2025 GWEL	Fall 2025 GWEL	Date of Fall 2025 GWEL	GSA
COM RMS-1	278	520	210-510	Lower[2]	27.1	3/6/2025	27.1	10/24/2025	CM
COM RMS-2	262	590	370-590	Lower[2]	15.0	3/14/2025	18.0	10/30/2025	CM
COM RMS-4	268	588	433-568	Lower[2]	38.9	3/11/2025	11.9	10/23/2025	CM
MCE RMS-2	378	Unknown	Unknown	Upper	71.9	4/15/2025	QM[4]	10/31/2025	MC - East
MCE RMS-3	325	Unknown	Unknown	Lower[2]	QM[4]	4/15/2025	3.1	10/31/2025	MC - East
MCE RMS-5	340	Unknown	Unknown	Lower[2]	55.8	4/15/2025	35.1	10/31/2025	MC - East
MCE RMS-6	328	550	450-550	Lower[2]	10.5	3/17/2025	NM[3a]	10/30/2025	MC - East
MCE RMS-9	271	37	17-37	Shallow	NM[3a]	3/15/2025	NM[3a]	10/15/2025	MC - East
MCW RMS-3	162	Unknown	Unknown	Lower[1]	NM[3a]	4/15/2025	NM[3a]	10/31/2025	MC - West
MCW RMS-5	202	28.4	7.9-27.9	Shallow	NM[3b]	-	NM[3b]	-	MC - West
MSB03B	148	295	215-285	Upper	62.8	4/17/2025	56.2	10/28/2025	MC - West
MSB03C	148	430	355-420	Lower[1]	20.6	4/17/2025	2.7	10/28/2025	MC - West
MSB04B	271	695	530-685	Lower[2]	-17.1	4/18/2025	-24.4	10/27/2025	MC - East
MSB05A	177	210	140-200	Upper	44.9	4/17/2025	43.5	10/28/2025	MC - West
MSB05B	177	375	240-365	Lower[1]	13.1	4/17/2025	10.3	10/28/2025	MC - West
MSB06A	192	350	135-340	Upper	66.4	4/15/2025	50.4	10/28/2025	MC - West
MSB06C	192	715	630-705	Lower[1]	60.5	4/15/2025	41.7	10/28/2025	MC - West
MSB09C	233	955	880-945	Lower[2]	64.9	4/18/2025	60.4	10/27/2025	MC - West
MSB10C	251	880	790-870	Lower[2]	-106.2	4/18/2025	-96.8	10/28/2025	MC - East
MSB11C	306	880	775-870	Lower[2]	-105.6	4/17/2025	-128.8	10/27/2025	MC - East
MSB12	350	465	355-465	Lower[2]	8.7	4/17/2025	-4.7	10/27/2025	MC - East
MID RMS-2	218	563	298-509	Lower[2]	-71.4	3/12/2025	-90.0	10/7/2025	MID
MID RMS-3	241	516	260-507	Lower[2]	-14.8	3/12/2025	-9.8	10/7/2025	MID
MID RMS-4	190	698	320-667	Lower[1]	-69.4	3/12/2025	-94.5	10/7/2025	MID
MID RMS-5	204	570	270-570	Lower[1]	-37.4	3/12/2025	-65.1	10/7/2025	MID

RMS Well I.D.	Estimated Surface Elevation (msl, feet)	Well Depth	Screen Top-Bottom	Aquifer Designation	Spring 2025 GWEL	Date of Spring 2025 GWEL	Fall 2025 GWEL	Date of Fall 2025 GWEL	GSA
MID RMS-6	237	680	320-680	Lower[2]	-40.1	3/12/2025	-48.6	10/14/2025	MID
MID RMS-7	237	656	290-635	Lower[2]	40.7	3/12/2025	22.9	10/7/2025	MID
MID RMS-10	213	615	315-615	Lower[1]	47.0	3/18/2025	25.1	10/7/2025	MID
MID RMS-11	232	315	Unknown	Upper	77.3	3/18/2025	66.2	10/14/2025	MID
MID RMS-12	262	176	Unknown	Upper	NM[3a]	3/14/2025	NM[3a]	10/6/2025	MID
MID RMS-13	271	600	228-552	Composite	104.5	3/18/2025	76.4	10/9/2025	MID
MID RMS-15	247	502	160-200	Upper	133.5	3/17/2025	117.5	10/30/2025	MC - West
MID RMS-16	308	452	348-388	Lower[2]	-33.5	3/19/2025	-45.2	10/13/2025	MID
MID RMS-17	224	47	26-46	Shallow	NM[3b]	-	NM[3b]	-	MC - West
MWD RMS-1	330	504	200-500	Lower[2]	-18.2	3/20/2025	-53.2	11/6/2025	MWD
MWD RMS-2	310	537	200-537	Lower[2]	-54.4	3/20/2025	-60.0	11/6/2025	MWD
MWD RMS-3	295	800	380-800	Lower[2]	-71.1	3/20/2025	-77.0	11/6/2025	MWD

[1] Lower Aquifer wells within Corcoran Clay

[2] Lower Aquifer wells outside Corcoran Clay; considered representative of undifferentiated unconfined groundwater zone

[3a] NM = no measurement. Measurement attempted on date listed but was unsuccessful. Measurement attempted on date listed but was unsuccessful. See Appendix E for more information.

[3b] NM = no measurement. No 2025 measurements reported. See Appendix E for more information.

[4] QM = questionable measurement. Measurement reported but flagged as questionable. See Appendix E for more information.

1.2 GROUNDWATER ELEVATION CONTOUR MAPS (§356.2.B.1.A)

Groundwater elevation contours for Spring and Fall 2025 were prepared for this Annual Report. These contours were developed from all known and available groundwater level information in the Joint GSP area, including data from public sources and from local GSAs and other local entities. Annual spring and fall contour maps were prepared for each year and for each of the principal aquifers in the Madera Subbasin: Upper Aquifer and Lower Aquifer. Annual spring contours are intended to generally represent seasonal high groundwater levels, while fall contours are intended to generally represent seasonal low groundwater levels. For the purpose of mapping groundwater elevations, the aquifer system in areas outside the Corcoran Clay was treated as a single undifferentiated unconfined aquifer system and interpretation of groundwater levels in these areas utilized data from wells assigned to both the Upper and Lower depth zones. In areas within the Corcoran Clay, the aquifer system was separated into an Upper Aquifer unconfined system above the Corcoran Clay and a Lower Aquifer below the Corcoran Clay. To evaluate recent groundwater level conditions in the Madera Subbasin, separate groundwater elevation contour maps were prepared for spring and fall of each year for the combined Upper Aquifer and undifferentiated unconfined groundwater zone and also for the Lower Aquifer within the extent of the Corcoran Clay. The groundwater elevation contour maps for the Lower Aquifer represent a combination of potentiometric elevations where the aquifer is under confined conditions and water table surface elevations where the Lower Aquifer is unconfined. Contour maps of the different aquifer units are presented in **Figure 1-3 through 1-6** and are discussed below. For comparison, contour maps for Spring 2016-2024 and Fall 2015-2024, prepared for previous Joint GSP Annual Reports, are included in **Appendix A.**

1.2.1 Upper Aquifer and Undifferentiated Unconfined Groundwater Zone

Seasonal high groundwater elevation contour maps for the Upper Aquifer and undifferentiated unconfined groundwater zone were generated for Spring 2025 (**Figure 1-3**). The Spring 2025 Groundwater Elevation Contour Map (**Figure 1-3**) generally shows higher groundwater elevations near the San Joaquin River with groundwater flow to the north to a broad depression located in the north-central portion of Madera Subbasin.

Seasonal low groundwater elevation contour maps for the Upper Aquifer and undifferentiated unconfined groundwater zone were generated for Fall 2025 (**Figure 1-4**). Similar to the spring contour maps, the Fall 2025 Groundwater Elevation Contour Map (**Figure 1-4**) generally shows higher groundwater elevations near the San Joaquin River with groundwater flow to the north-northwest towards a broad depression located in the north-central portion of Madera Subbasin.

1.2.2 Lower Aquifer

Seasonal high groundwater elevation contour maps for the Lower Aquifer (within the extent of the Corcoran Clay) were generated for Spring 2025 (**Figure 1-5)**. The Spring 2025 Groundwater Elevation Contour Map for the Lower Aquifer beneath the Corcoran Clay (**Figure 1-5**) included very limited data, but generally shows higher groundwater elevations in the southeast and lower groundwater elevations in the northwestern portion of the Lower Aquifer.

Seasonal low groundwater elevation contour maps for the Lower Aquifer were generated for Fall 2025 (**Figure 1-6**). Similar to the spring contour maps, the Fall 2025 Groundwater Elevation

Contour Map (**Figure 1-6**) included very limited data, but generally shows higher groundwater elevations in the southeast and lower groundwater elevations in the northwestern portions of the Lower Aquifer. As would be expected, the fall groundwater elevations are generally lower than for spring.

1.3 GROUNDWATER HYDROGRAPHS (§356.2.B.1.B)

Hydrographs of time-series groundwater level data for groundwater level RMS wells were prepared with all available groundwater level monitoring data through water year 2025 (plus Fall 2025) and are contained in **Appendix B**. The three City of Madera RMS wells (designated COM) have generally shown stable to slightly decreasing trends from 2020 through 2025, with stable water levels in 2025. Madera County – East (designated MCE) and Madera County – West (designated MCW) RMS wells showed variable trends in groundwater elevations over the 2020 to 2025 time period for those wells with measurements, with stable water levels in 2025. The dedicated nested monitoring wells (designated MSB) showed slightly decreasing trends in groundwater elevation between 2020 and 2025. Madera Irrigation District RMS wells (designated MID) have generally shown stable to slightly decreasing trends in groundwater elevations between 2020 and 2025. The three Madera Water District wells (designated MWD) showed stable to slightly decreasing groundwater elevation trends from 2020 to 2025.

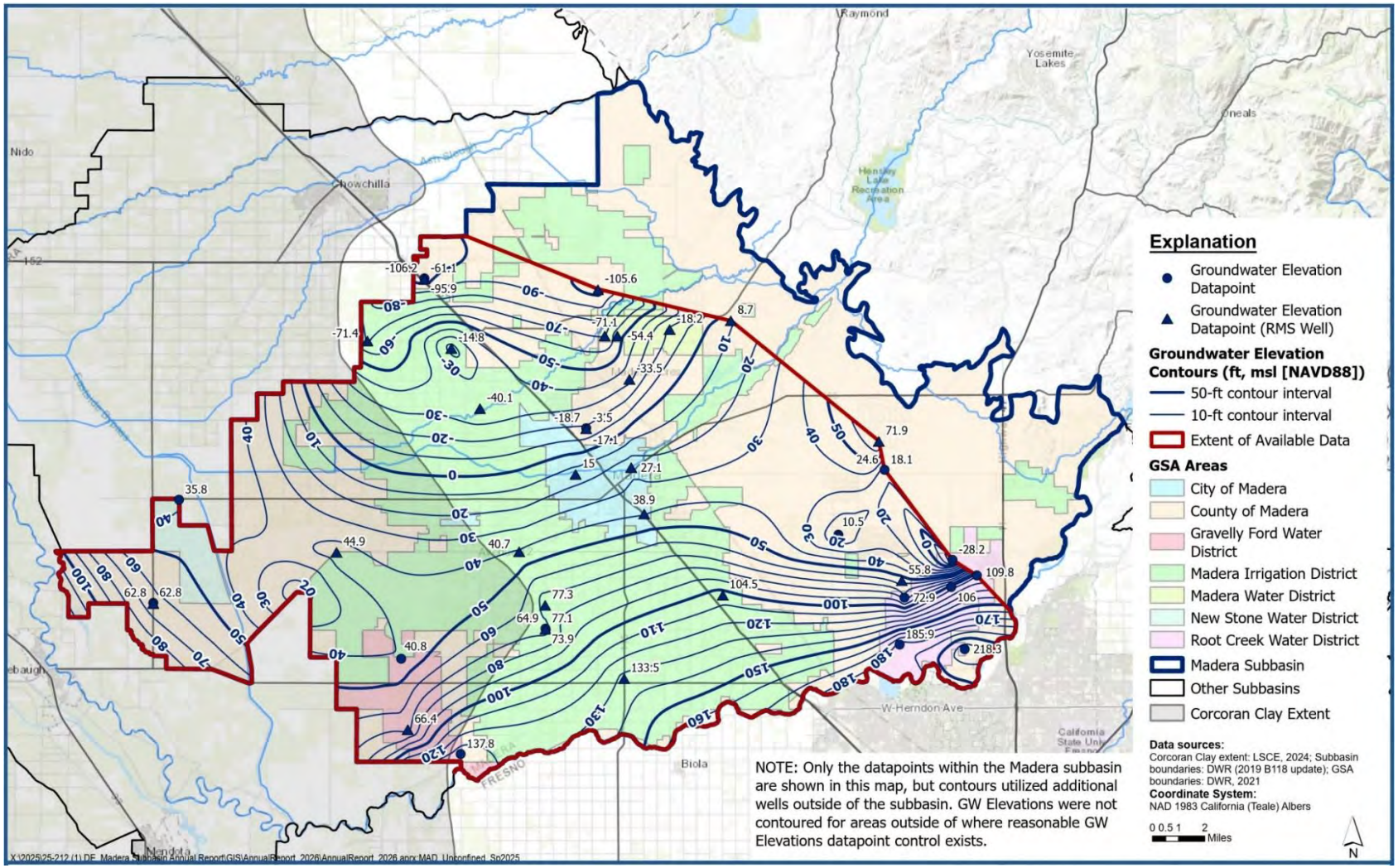


Figure 1-3. Contours of Equal Groundwater Elevation Upper Aquifer/Undifferentiated Unconfined Zone – Spring 2025.

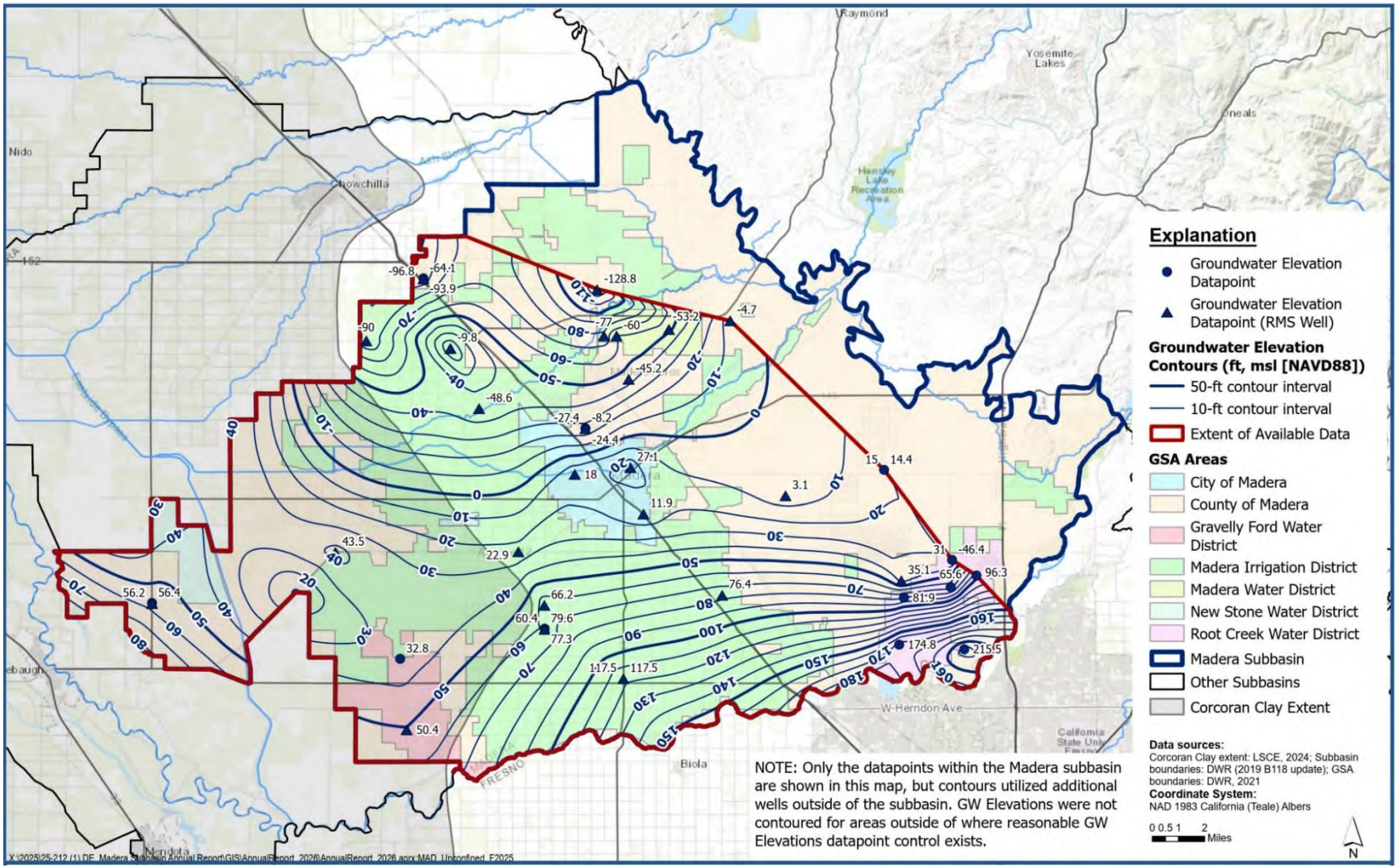


Figure 1-4. Contours of Equal Groundwater Elevation Upper Aquifer/Undifferentiated Unconfined Zone – Fall 2025.

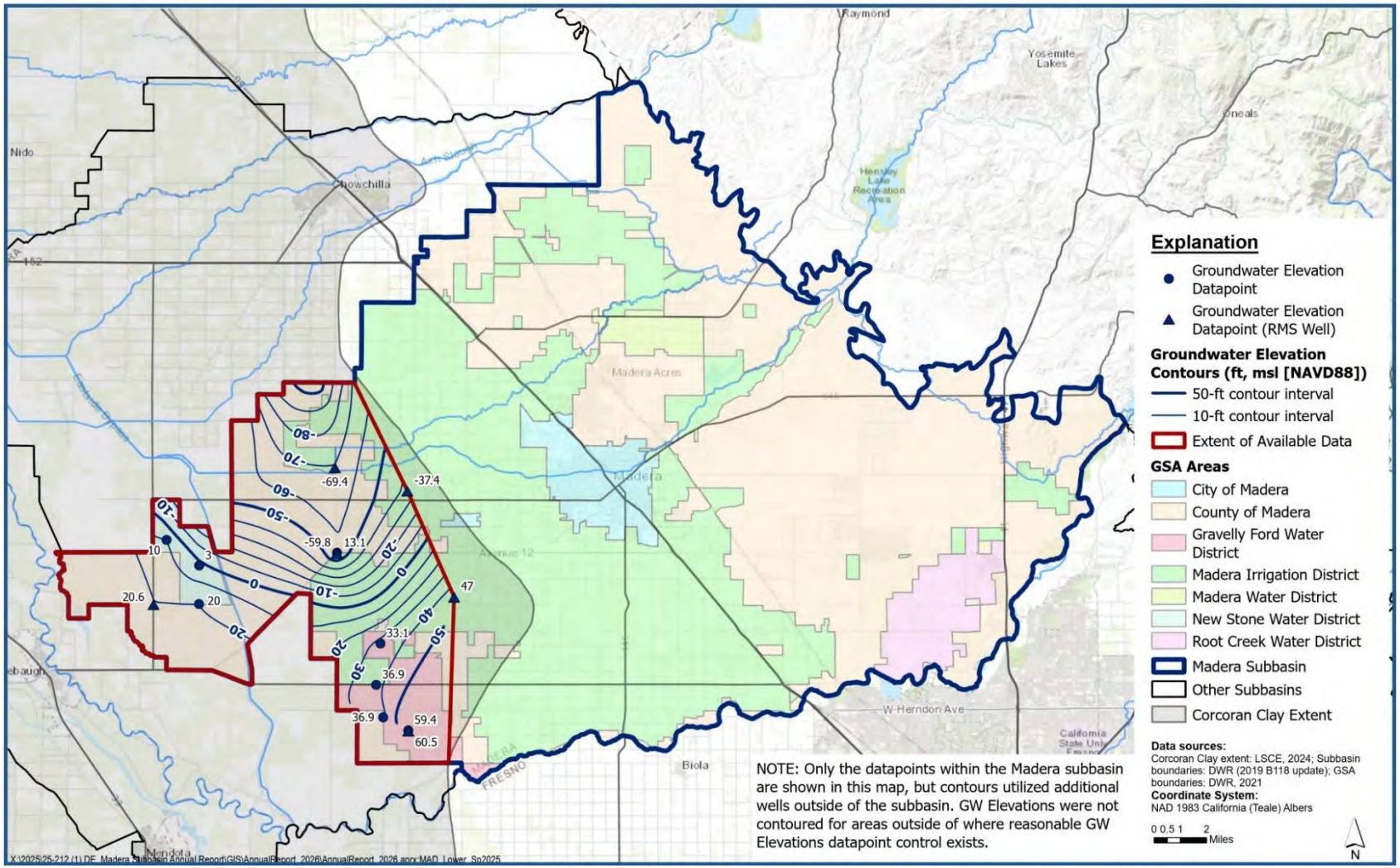


Figure 1-5. Contours of Equal Groundwater Elevation Lower Aquifer – Spring 2025.

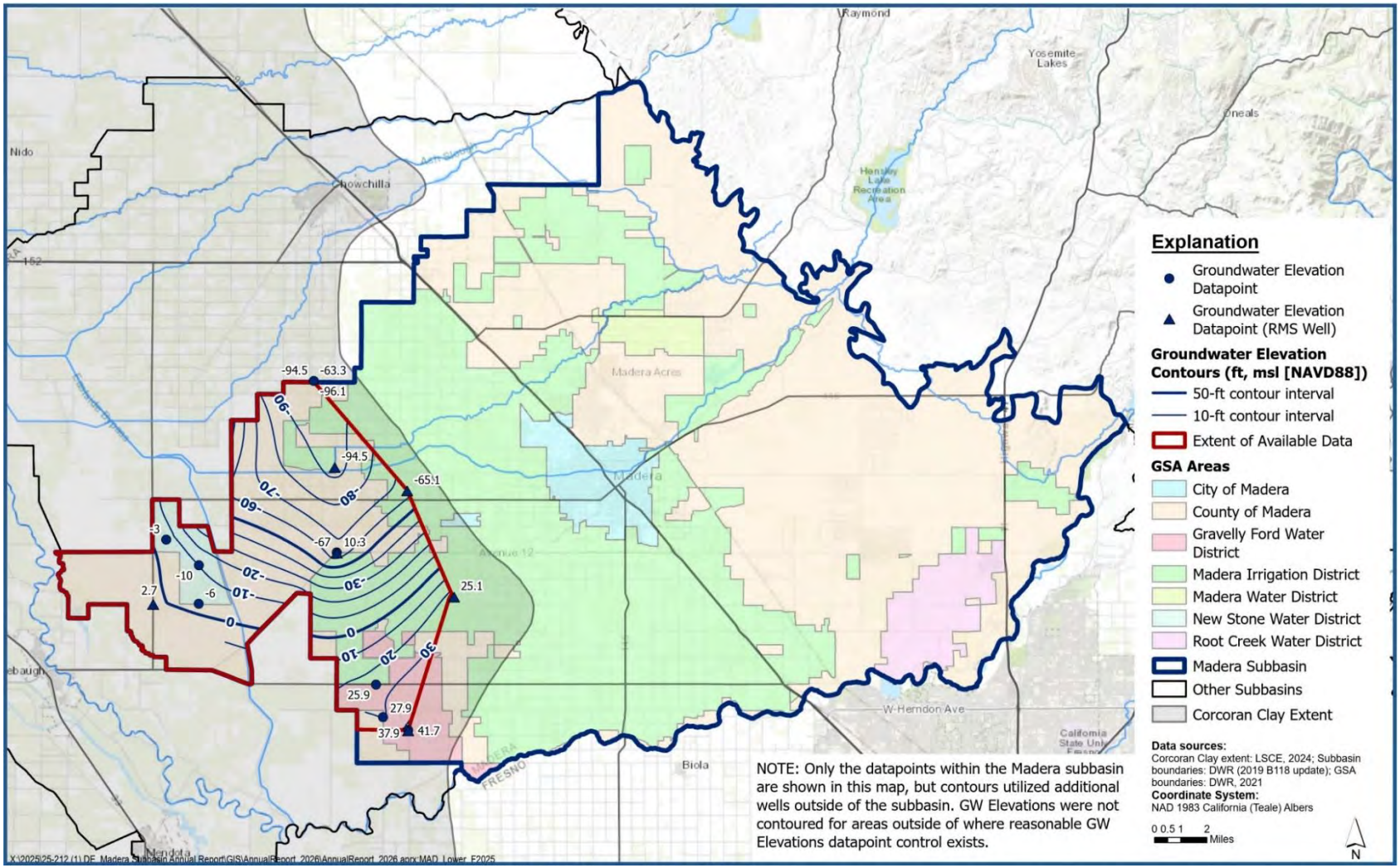


Figure 1-6. Contours of Equal Groundwater Elevation Lower Aquifer – Fall 2025.

2 Water Budget Approach for Quantifying Groundwater Extraction, Surface Water Supplies, and Total Water Use

In fulfillment of the Annual Report requirements, a water budget approach using MCSim has been used to quantify groundwater extraction, surface water supply availability, and total water use in the Joint GSP area. MCSim inputs are informed by actual data collected by the GSAs, and will continue to be reviewed and updated with data from the GSAs as it becomes available. This approach is a change from the approach used in earlier Annual Reports (prior to water year 2024), which utilized a surface water system and root zone water budget separate from MCSim. Details about the previous approach are provided in previous Annual Reports.

A water budget is defined as a complete accounting of all water flowing into and out of a defined volume[3] over a specified period of time. A schematic of the general water budget accounting structure is provided in **Figure 2-1**.

Water budgets presented in the Joint GSP were prepared for the Surface Water System (SWS) and Groundwater System (GWS). The SWS represents the land surface down to the bottom of the plant root zone, within the lateral boundaries of the Joint GSP area. The GWS extends from the bottom of the root zone to the definable bottom of the Subbasin, within the lateral boundaries of the Joint GSP area. These systems are referred to as accounting centers. Flows between accounting centers and storage within each accounting center are water budget components. During initial GSP development, MCSim was used to develop water budgets for both the Subbasin and the Joint GSP area and to quantify water budget components for each accounting center.

The SWS water budget accounting center was further subdivided into detailed accounting centers to estimate the water budget components required by the GSP regulations. The detailed accounting centers in MCSim include water use sectors, which are identified in the GSP regulations as "categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation" (23 CCR §351(al)). Across the Joint GSP area and within each subregion, the water use sector accounting centers include Agricultural, Urban (urban, domestic, semi-agricultural, industrial[4]), Native Vegetation, and Managed Recharge.

During GSP development, MCSim simulations were developed to prepare historical, current, and projected water budgets for all accounting centers in the Subbasin.

In 2024 – during the Joint GSP 2025 Plan Amendment process – the GSAs improved MCSim by updating, refining, and re-calibrating the model using the best available data sources and approaches. These changes were made to ensure closer consistency between simulated and observed groundwater levels, to simulate land subsidence, to extend the historical simulation

[3] Where "volume" refers to a space with length, width, and depth properties, which for purposes of the GSP means the defined aquifer and associated surface water system.

[4] Industrial land covers only a small area of the Subbasin, so industrial water uses have been combined with urban, domestic, and semi-agricultural uses in the Urban water use sector.

through the most recent water year, and to incorporate improved data sources (e.g., OpenET spatial ET results) made available since initial GSP development. For this Annual Report, the revised historical MCSim simulation has been extended through the current reporting year (water year 2024). Updates, refinements, and re-calibration may have resulted in some changes to the MCSim water budget results compared to prior water budgets, although the general magnitudes and trends remain generally the same as prior Subbasin and Joint GSP water budget results. Additional information about the historical water budget development process and MCSim updates in 2024 are available in the Joint GSP 2025 Plan Amendment (see Appendix 6.D of the Joint GSP 2025 Plan Amendment).

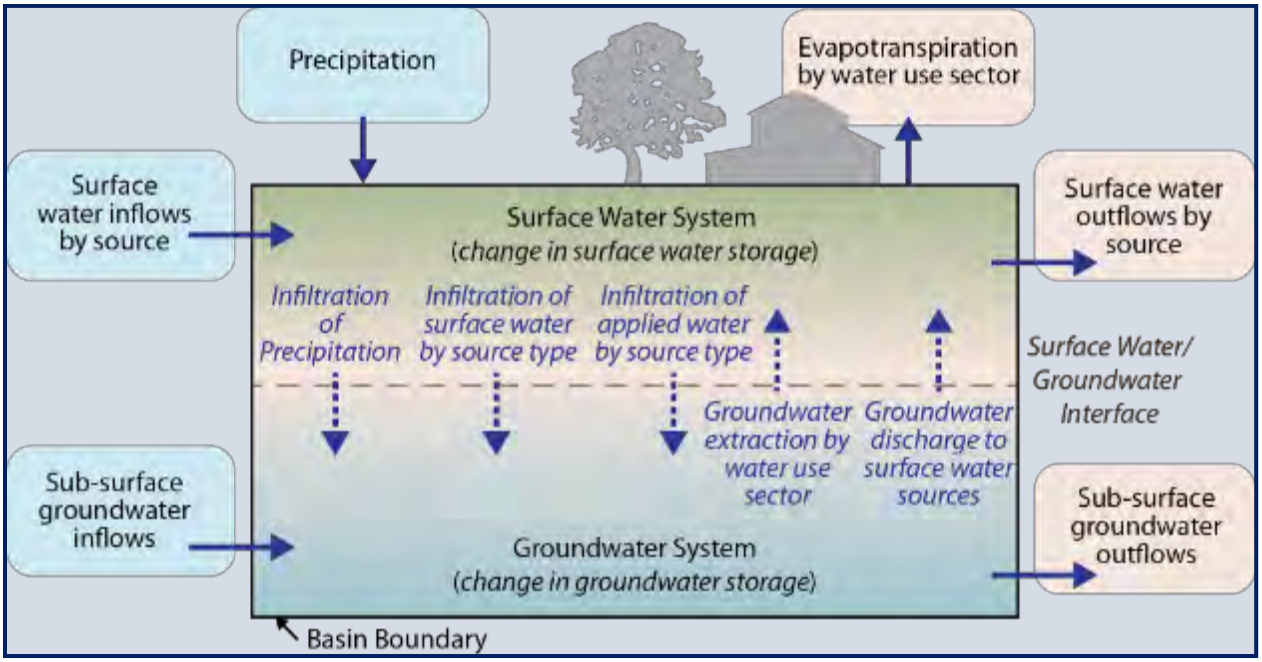


Figure 2-1. Water Budget Accounting Structure (Source: DWR, 2016).

To fulfill the Annual Report requirements, groundwater extraction, surface water supplies, and total water use have been quantified by water use sector and/or water source type as follows:

- **Groundwater Extraction (Section 3)**: Equal to the sum of measured and estimated groundwater extraction.
- **Surface Water Supplies Used or Available for Use (Section 4)**: Equal to the volume of surface water diverted by agencies and water rights users in the Joint GSP area.
- **Total Water Use (Section 5)**: Equal to the total combined groundwater and surface water used or available for use in the Joint GSP area (i.e., the sum of water supplies reported in **Sections 3 and 4**).

The data sources, calculation procedures, and results pertaining to these key water budget components are described in the sections below for the Joint GSP area.

3 Groundwater Extraction (§356.2.b.2)

This section summarizes the measurement methods, accuracy, and volumes of groundwater extraction in the Joint GSP area for the current reporting year (water year 2025). Additional details regarding groundwater extraction across the Subbasin are provided in the Subbasin Annual Report document.

3.1 QUANTIFICATION AND ACCURACY

Groundwater extraction in the Joint GSP area was either measured directly from flowmeters or estimated through the MCSim water budget approach for each water use sector. Flowmeter records were used when available (MWD GSA agricultural water use sector and CM GSA urban water use sector); otherwise, groundwater extraction was estimated. **Table 3-1** summarizes groundwater extraction in water year 2025 and the associated measurement methods by water use sector.

Figure 3-1 provides a map of the 2025 agricultural groundwater extraction volumes and average depths across irrigated areas in the Joint GSP area based on the best available data to represent conditions in water year 2025.

Table 3-2 further summarizes the total groundwater extraction by water use sector in the Joint GSP area during the historical water budget period in the initial Joint GSP (water year 1989 through 2014) and subsequent years through water year 2025 (the current reporting year).

3.2 DATA SOURCES

3.2.1 Measured Groundwater Extraction

Direct groundwater pumping data is available from:

- Flowmeter records available from MWD (for agricultural groundwater extraction). MWD pumping records were available from the MWD Groundwater Management Plan for 1993-2014, and MWD metered pumping data was available for 2015-2025.
- Flowmeter records available from CM (for urban groundwater extraction). CM SCADA records were available for 2013-2025.

3.2.2 Estimated Groundwater Extraction

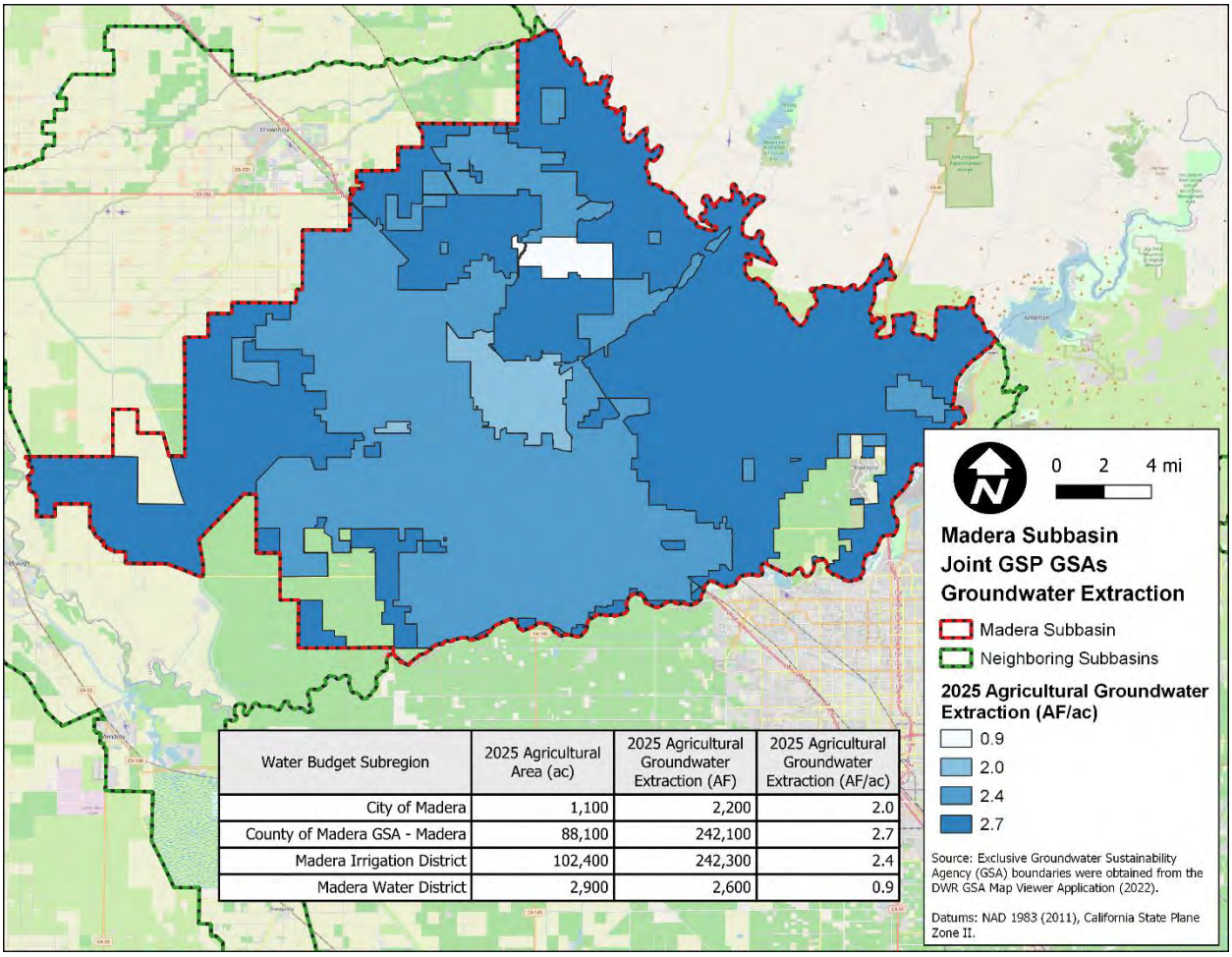
Estimated groundwater extraction was calculated in the MCSim water budget as the amount of water required to meet water use requirements (e.g., irrigation demand) after accounting for available surface water supplies. Groundwater extraction was calculated following this process for each water use sector. MCSim was developed based on DWR's fine-grid California Central Valley Groundwater-Surface Water Simulation Model (C2VSim-FG), and thus follows the same fundamental approaches described in DWR's C2VSim-FG technical documentation. Further details about the MCSim model are provided in the Joint GSP 2025 Plan Amendment (see Appendix 6.D of the Joint GSP 2025 Plan Amendment).

Table 3-1. Joint GSP GSAs Groundwater Extraction Volumes and Measurement Methods by Water Use Sector, and Uncertainty (2025).

GSA	Water Use Sector	Groundwater Extraction, 2025 (acre-feet)[1]	Measurement Method	Description
All (except MWD GSA)	Agricultural	486,600	Estimate	MCSim results
MWD GSA	Agricultural	2,600	Direct	Flowmeter records
All	Managed Recharge	0	Estimate	MCSim results (No groundwater extraction for managed recharge)
All	Native Vegetation	0	Estimate	MCSim results (No noted groundwater extraction for native vegetation)
All (except CM GSA)	Urban[2]	19,400	Estimate	MCSim results
CM GSA	Urban[2]	9,370	Direct	Flowmeter records
Joint GSP Area		**Groundwater Extraction, 2024 (acre-feet)**	**Average Uncertainty**	**Uncertainty Source**
Total		518,000	20%	Typical uncertainty of groundwater extraction estimates from an integrated hydrologic model approach, combined with uncertainty of measurement devices for MWD GSA and CM urban sector

[1] Estimated volumes rounded to nearest 100 AF. Measured volumes rounded to nearest 10 AF.

[2] The urban water use sector includes urban, domestic, semi-agricultural, and industrial water use.



Water Budget Subregion	2025 Agricultural Area (ac)	2025 Agricultural Groundwater Extraction (AF)	2025 Agricultural Groundwater Extraction (AF/ac)
City of Madera	1,100	2,200	2.0
County of Madera GSA - Madera	88,100	242,100	2.7
Madera Irrigation District	102,400	242,300	2.4
Madera Water District	2,900	2,600	0.9

Figure 3-1. Agricultural Groundwater Extraction, by Joint GSP GSA.*

**Area and volumes rounded. Agricultural groundwater extraction represents total groundwater use across all agricultural acreage, including irrigated, non-irrigated, and fallow lands. Data presented in Figure 3-1 is limited to the surface water system and excludes inputs to the groundwater system associated with infiltration of surface water and boundary seepage.*

Table 3-2. Joint GSP GSAs Groundwater Extraction, by Water Use Sector (acre-feet, rounded).

Water Use Sector	Groundwater Extraction, 2025[1] (acre-feet, rounded)	Average Groundwater Extraction, 1989-2025[1] (acre-feet, rounded)	Average Groundwater Extraction, 1989-2014[1] (acre-feet, rounded)
Agricultural	489,200	426,600	403,100
Managed Recharge[2]	0	0	0
Native Vegetation[2]	0	0	0
Urban[3]	28,800	24,900	25,500
Total	518,000	451,500	428,600

[1] Volumes are summarized using updated, refined, and re-calibrated MCSim results (see Section 2). Updates, refinements, and re-calibration may have resulted in some changes to values in the Joint GSP area water budget compared to prior water budgets, although the general magnitudes and trends remain generally the same as prior Joint GSP water budget results.

[2] No known groundwater extraction occurs for managed recharge or native vegetation, per available data and GSP analyses.

[3] The urban water use sector includes urban, domestic, semi-agricultural, and industrial water use.

3.2.3 Groundwater Recharge

As required by 23 CCR §354.24, the Subbasin GSAs have established a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline (see Section 3 of the 2025 Joint GSP Plan Amendment). To track the GSAs' progress toward meeting this sustainability goal, both the GWS inflows and outflows must be quantified.

As shown in **Figure 2-1**, GWS outflows to the SWS include groundwater extraction (quantified above) and groundwater discharge (assumed to be negligible in the Subbasin, given the substantial depth to groundwater). GWS inflows from the SWS include infiltration of precipitation, infiltration of applied water, and infiltration of surface water. While these inflows are not required to be reported in this Annual Report, the Subbasin GSAs feel that they are necessary for understanding the total contribution of the SWS to groundwater sustainability.

Based on the water budget results from MCSim, total groundwater recharge from the surface water system in the Joint GSP area (combined infiltration of applied water, precipitation, and surface water) was estimated to be approximately 243,700 AF in water year 2025. This volume is representative of infiltration of applied water, infiltration of precipitation, and infiltration of surface water within the entirety of the Joint GSP area. Individual contributions from each GSA are not equal and vary based on the spatial extent and operational characteristics of each GSA.

4 Surface Water Supplies (§356.2.b.3)

This section summarizes the annual volumes and data sources for surface water supplies used or available for use within the Joint GSP area for the current reporting year (water year 2025). Additional details regarding surface water supplies used or available for use across the Subbasin are provided in the Subbasin Annual Report document.

4.1 QUANTIFICATION BY WATER SOURCE TYPE

In this Annual Report, surface water supplies used or available for use in the Joint GSP area are assumed to be the volume of surface water supplies diverted by or supplied to agencies and water rights users within the Joint GSP area (i.e., diversions or supplies received during the water year, not total contract surface water supplies). It is noted that this is a refinement of the approach in earlier Annual Reports (prior to water year 2024), in which surface water supplies used or available for use were reported as the difference between surface water inflows and surface water outflows through the Joint GSP area. This change was made as part of efforts to bring consistency across the Subbasin water budget in the coordinated Subbasin Annual Report document.

Per the GSP regulations, surface water supplies must be reported by water source type. According to the regulations:

> *"Water source type" represents the source from which water is derived to meet the applied beneficial uses, including groundwater, recycled water, reused water, and surface water sources identified as Central Valley Project, the State Water Project, the Colorado River Project, local supplies, and local imported supplies.*

Table 4-1 summarizes the total surface water supplies used or available for use in the Joint GSP area, by water source type. The supplies included in these totals are described below.

4.1.1 Local Supplies

Local supplies historically available to the Joint GSP GSAs include diversions of natural surface water flows from rivers and streams in the Joint GSP area, including pre-1914 water rights and riparian diversions, and supplies received from Hidden Dam (which in most years are intermingled with CVP supplies from Madera Canal released to the Fresno River).

4.1.2 CVP Supplies

Agencies with CVP contracts can receive CVP supplies in the Joint GSP area. CVP supplies include Millerton irrigation releases and flood releases.

4.1.3 Local Imported Supplies

The Joint GSP GSAs do not currently receive local imported supplies, though the Joint GSP GSAs are working on projects to import supplies in the future (see **Section 7.2**).

4.1.4 Recycling and Reuse

Recycling and reuse are not currently a significant source of supply within the Joint GSP area. However, urban wastewater treated by the CM, as well as water associated with private septic systems, generally returns to the GWS within the Joint GSP area.

4.2 DATA SOURCES

The surface water supplies available to each GSA are summarized below.

4.2.1 City of Madera GSA

The majority of irrigated agricultural lands in CM GSA are located within the boundaries of MID and have the ability to receive surface water in accordance with MID's normal operating practices. Some owners have utilized surface water from MID to meet a portion of their agricultural water needs, while others have chosen to rely solely on groundwater. The CM GSA jointly operates multiple recharge basins together with MID GSA (including Berry Basin, Golf Course Basin, and additional City Basins). In total, nearly 1,080 AF of surface water was delivered across the jointly operated recharge basins for recharge during water year 2025 (benefits are split equally between MID GSA and CM GSA).

4.2.2 Madera County GSA

Surface water supplies available for agriculture in MC GSA primarily include: riparian deliveries to water rights users along the San Joaquin River, the Fresno River, and other minor streams; surface water purchased by irrigators from surface water purveyors; and (since 2023) surface water diverted for recharge under Executive Order (EO) N-4-23, which was subsequently codified through California Water Code Section 1242.1. Additionally, the MC GSA jointly operates the Ellis Basin with the MID GSA, although no surface water was delivered for recharge in water year 2025.

4.2.3 Madera Irrigation District GSA

The MID GSA receives substantial surface water supplies to support agriculture. MID receives CVP supplies under contract with USBR from the Madera Canal. MID's Friant Class 1 maximum contract amount is 85,000 AF and Class 2 maximum contract amount is 186,000 AF. MID also has access to Hidden Dam contract supplies, Pre-1914 water rights supplies, and other types of surface water made available to the MID. Additionally, certain water rights holders within MID are also able to divert surface water under their water rights permits.

4.2.4 Madera Water District GSA

To support agriculture, the MWD GSA receives surface water supplies from MID via Dry Creek. In water year 2025, the MWD GSA diverted approximately 3,580 AF of surface water at their turnout along Dry Creek.

4.2.5 Other Subbasin GSAs

Please see the Subbasin Annual Report and the other Annual Report GSP Attachments for a summary of surface water supplies available to other Subbasin GSAs.

Table 4-1. Joint GSP GSAs Surface Water Supplies Used or Available for Use, by Water Source Type (acre-feet, rounded).

Surface Water Source Type	Water Budget Subregion	Surface Water Supplies Used or Available for Use[1], 2025 (AF)	Source Information
Local Supplies	Total	69,000	Riparian and water rights diversions, Hidden Dam releases
	MC GSA	1,000	Riparian and water rights diversions
	MID GSA	68,000	Riparian and water rights diversions, Hidden Dam releases
CVP Supplies	Total	120,000	Millerton irrigation releases and flood releases
	MID GSA	120,000	CVP contract diversions
Total		189,000	

[1] Surface water supplies used or available for use represent the diversions or supplies received during the water year, not total contract surface water supplies. Totals are rounded to the nearest 1,000 AF.

5 Total Water Use (§356.2.b.4)

This section summarizes the annual volumes and data sources for total water use in the Joint GSP area for the current reporting year (water year 2025). Additional details regarding total water use across the Subbasin are provided in the Subbasin Annual Report document.

5.1 QUANTIFICATION BY WATER USE SECTOR AND WATER SOURCE TYPE

In this Annual Report, total water use is assumed to equal the total combined groundwater extraction and surface water used or available for use in the Joint GSP area (i.e., the sum of water supplies reported in **Sections 3 and 4**). It is noted that this is a refinement of the approach in earlier Annual Reports (prior to water year 2024), in which total water use was reported as the applied water and precipitation from all sources in the Joint GSP area, including all consumptive water use (evapotranspiration) and non-consumptive water use (other water uses, e.g., deep percolation and runoff). This change was made as part of efforts to bring consistency across the Subbasin water budget in the coordinated Subbasin Annual Report document.

Tables 5-1 and 5-2 summarize the total water use in the Joint GSP area by water use sector and water source type in 2025 (the current reporting year).

Table 5-1. Joint GSP GSAs Total Water Use, by Water Source Type (acre-feet, rounded).

Water Source Type	Water Use, 2025 (acre-feet)	Methods Used to Determine
Groundwater[1]	518,000	Combined measured and estimated groundwater extraction (see Section 3).
Surface Water	189,000	Measured surface water supplies diverted by or supplied to agencies and water rights users within the Subbasin (see Section 4).
Recycled Water	0	No quantified recycled water use in the Joint GSP area.
Reused Water	0	No quantified reused water use in the Joint GSP area.
Total	707,000	

[1] Volumes are summarized using updated, refined, and re-calibrated MCSim results (see Section 2). Updates, refinements, and re-calibration may have resulted in some changes to values in the Joint GSP water budget compared to prior water budgets, although the general magnitudes and trends remain generally the same as prior Joint GSP water budget results.

Table 5-2. Joint GSP GSAs Total Water Use, by Water Use Sector (acre-feet, rounded).

Water Use Sector	Water Use[1], 2025 (acre-feet)	Methods Used to Determine
Agricultural	661,500	Combined groundwater extraction and surface water diversions for agricultural use (see Sections 3-4), excluding managed recharge.
Urban[2]	28,800	Groundwater for urban use (see Section 3).
Managed Recharge[3]	16,700	Direct recharge benefits of projects and management actions (Section 7)
Native Vegetation	0	No noted groundwater extraction or surface water diversions for native vegetation, per GSP analyses.
Total	707,000	

[1] Volumes are summarized using updated, refined, and re-calibrated MCSim results (see Section 2). Updates, refinements, and re-calibration may have resulted in some changes to values in the Joint GSP water budget compared to prior water budgets, although the general magnitudes and trends remain generally the same as prior Joint GSP water budget results.
[2] The urban water use sector includes urban, domestic, semi-agricultural, and industrial water use in the Joint GSP area.
[3] Managed recharge in each GSA is summarized in the projects and management actions summaries (Section 7) of each corresponding Annual Report GSP Attachment (Appendix E).

5.2 DATA SOURCES

Total water use in **Tables 5-1 and 5-2** are summarized from the data sources used to quantify groundwater extraction and surface water supplies used or available for use, as described in **Sections 3 and 4** of this Annual Report.

6 Change in Groundwater Storage (§356.2.b.5)

This section describes the change in groundwater storage across the Joint GSP area. Additional details regarding the change in groundwater storage across the Subbasin are provided in the Subbasin Annual Report document.

6.1 CHANGE IN GROUNDWATER STORAGE MAPS

Consistent with §354.18.b, based on a comparison of the annual spring groundwater elevation contour maps representing seasonal high groundwater conditions, changes in groundwater elevation were calculated for individual aquifers between Spring 2024 and Spring 2025. To calculate annual change in groundwater storage from the groundwater level contour maps, the difference in groundwater elevation between annual spring contour maps was calculated for each of the principal aquifers (Upper and Lower Aquifers). Both confined and unconfined groundwater conditions occur within the Madera Subbasin. To accurately estimate the change in groundwater storage from changes in groundwater levels, it is important to differentiate areas of confined groundwater conditions from unconfined conditions. Accordingly, the groundwater elevation data were reviewed to estimate an area over which the Lower Aquifer exhibits confined conditions and where the groundwater levels are representative of a potentiometric surface. This was done by comparing groundwater elevations to the elevation of the bottom of the Corcoran Clay confining geologic unit. The extent of the area where groundwater elevations in the Lower Aquifer occur above the bottom of the Corcoran Clay was delineated as the area of confined groundwater conditions for the purpose of calculating change in groundwater storage.

Outside of the delineated confined area, changes in groundwater elevations (in both the Upper and Lower Aquifers) were multiplied by representative specific yield values to estimate change in groundwater storage. Within the delineated area of confinement in the Lower Aquifer, groundwater potentiometric surface changes in the Lower Aquifer were multiplied by a much smaller storage coefficient value to calculate annual changes in groundwater storage in the Lower Aquifer. The specific yield and storage coefficient values used in the analysis (shown in **Tables 6-1 and 6-2**) are derived from values in the calibrated integrated groundwater flow model (MCSim) updated and recalibrated during the preparation of the first periodic evaluation of the Joint GSP. The specific yield values in MCSim are lower than previous values estimated for the Madera Subbasin; however, recent test hole drilling and associated subsurface geologic and geophysical logging conducted at nine monitoring well sites across the Madera Subbasin indicate a high fraction of fine-grained sediments in many parts of the Madera Subbasin, which is consistent with the relatively low specific yield values in MCSim. The revised specific yield values used in the analysis are generally lower than, though in the range of, the specific yield values reported in the GSP, as compiled from various sources including the AB3030 Madera County Groundwater Management Plan (Todd Engineers, 2002) and DWR Bulletin 118 (DWR, 2003, 2016).

Figures 6-1 and 6-2 show the spatial distribution of calculated annual change in groundwater level for the most recent reporting year between Spring 2024 and Spring 2025 for the Upper Aquifer/undifferentiated unconfined groundwater zone and the Lower Aquifer. Maps of change in groundwater levels for each of the years between Spring 2016 and 2024, separated by principal aquifer, are presented in **Appendix C**. Because there was incomplete spatial coverage of groundwater elevation data within the Joint GSP area, it was not deemed appropriate to extend groundwater elevation contours into some parts of the Joint GSP area. In these areas without

contour data, the average change in groundwater elevation value calculated for the area with data was applied to areas without data to estimate change in storage amounts for the entire Joint GSP area. **Tables 6-1 through 6-3** summarize the calculated annual change in groundwater storage volumes for 2025 by principal aquifer for the Joint GSP area. The discussion of estimated change in storage values presented below is based on the aquifer parameter values derived from MCSim as presented in **Tables 6-1 through 6-3**. The change in storage value in the Upper Aquifer/undifferentiated unconfined groundwater zone is presented in **Table 6-1**. Maps of the spatial distribution of change in storage in the principal aquifers for the most recent period from Spring 2024 to Spring 2025 are presented in **Figures 6-3 and 6-4**. All maps of change in groundwater storage utilize specific yield and storage coefficient values derived from MCSim. Maps of change in groundwater storage for each of the years between Spring 2016 and 2024, separated by aquifer, are presented in **Appendix C**.

Using representative aquifer parameter values derived from the calibrated groundwater flow model MCSim, the calculated changes in groundwater levels in the combined Upper Aquifer and undifferentiated unconfined zone translate to an annual change in groundwater storage of approximately -63,500 AF from Spring 2024 to 2025 (**Table 6-1**). Negative change in storage values indicate depletion of groundwater storage, whereas positive change in storage values represent accretion of groundwater in storage. In the Lower Aquifer, changes in groundwater levels translated to substantially smaller changes in groundwater storage where confined conditions exist due to the smaller overall area and application of a storage coefficient value in these areas. The portion of the Lower Aquifer treated as unconfined, while smaller in overall areal extent, can result in greater storage changes due to application of a specific yield value. Between Spring 2024 and Spring 2025, the change in groundwater storage in the Lower Aquifer was about -6,500 AF (**Table 6-2**), with the majority of that decrease occurring in the unconfined portion of the Lower Aquifer. The combined change in groundwater storage for the entire Joint GSP area was a decrease of about -70,000 AF from Spring 2024 to 2025, indicating a net depletion of groundwater storage (**Table 6-3**). Notably, there is uncertainty in this estimate, and there are also other processes that contribute to the net change in groundwater storage besides groundwater pumping (e.g., recharge, subsurface inflows, and outflows). These contributing factors were considered in the MCSim groundwater model used in development of the Joint GSP, and will be further evaluated in future updates to the MCSim model.

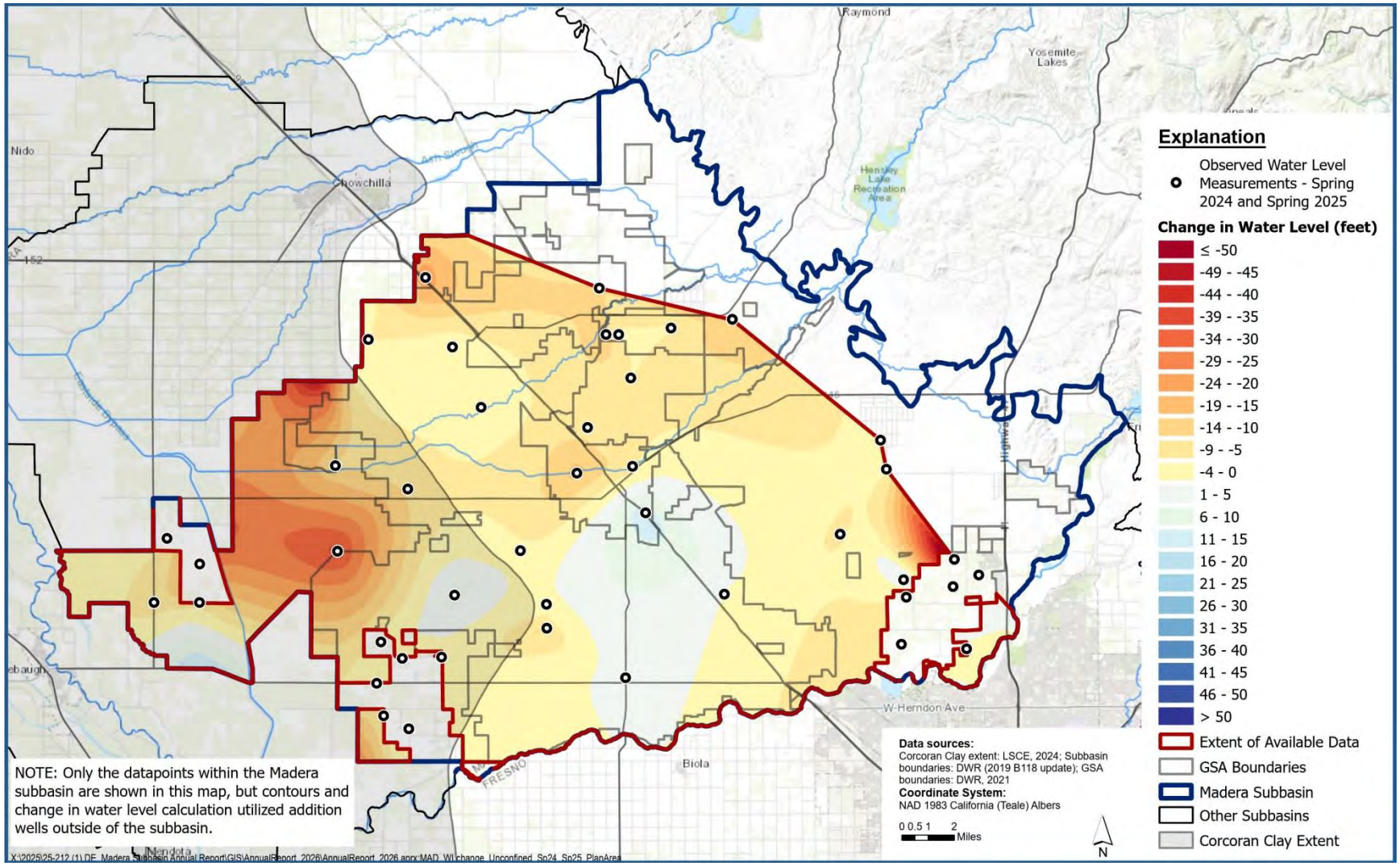


Figure 6-1. Change in Groundwater Level in the Upper Aquifer/Undifferentiated Unconfined Zone – Spring 2024 through Spring 2025.

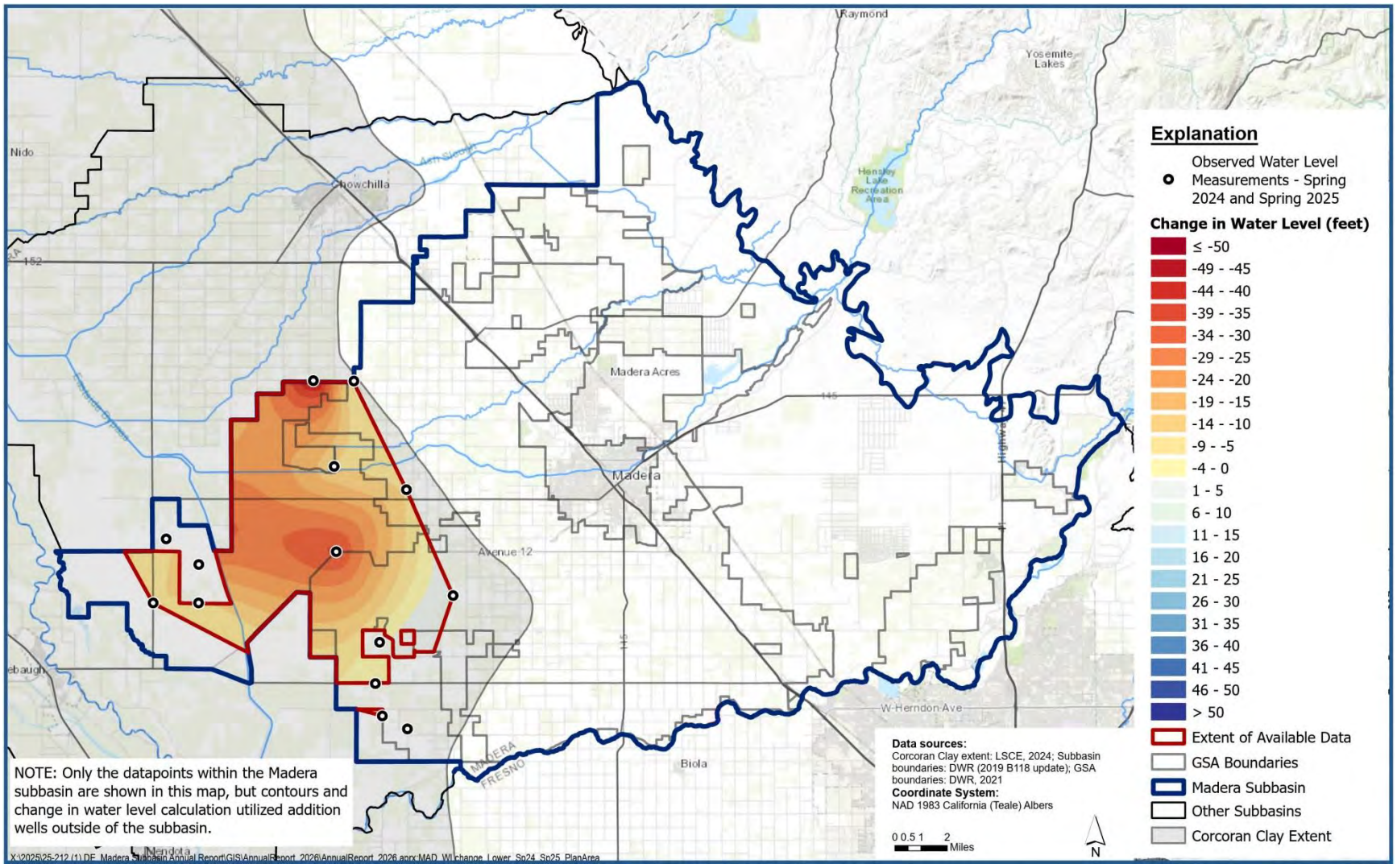


Figure 6-2. Change in Groundwater Level in the Lower Aquifer – Spring 2024 through Spring 2025.

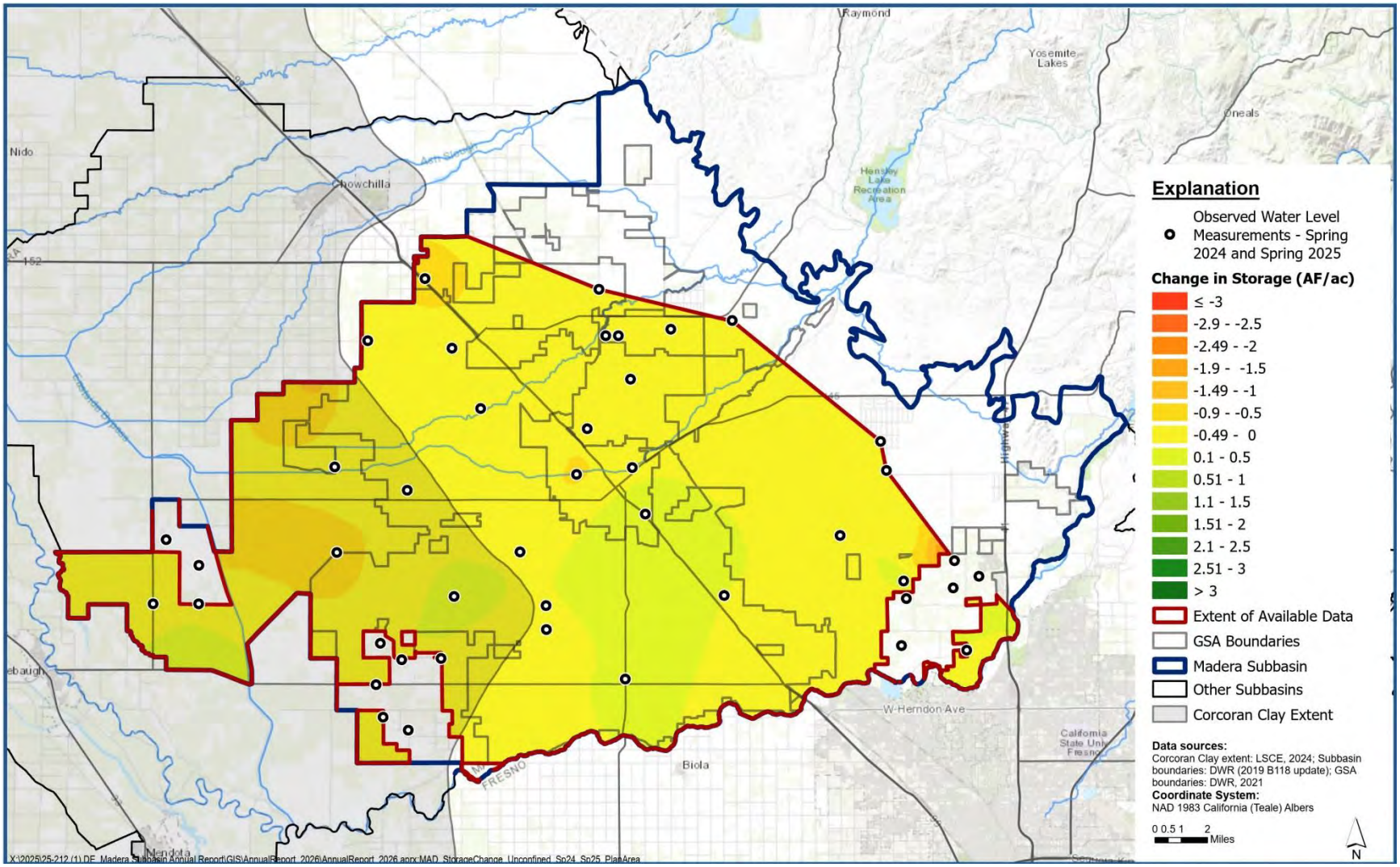


Figure 6-3. Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone – Spring 2024 through Spring 2025.

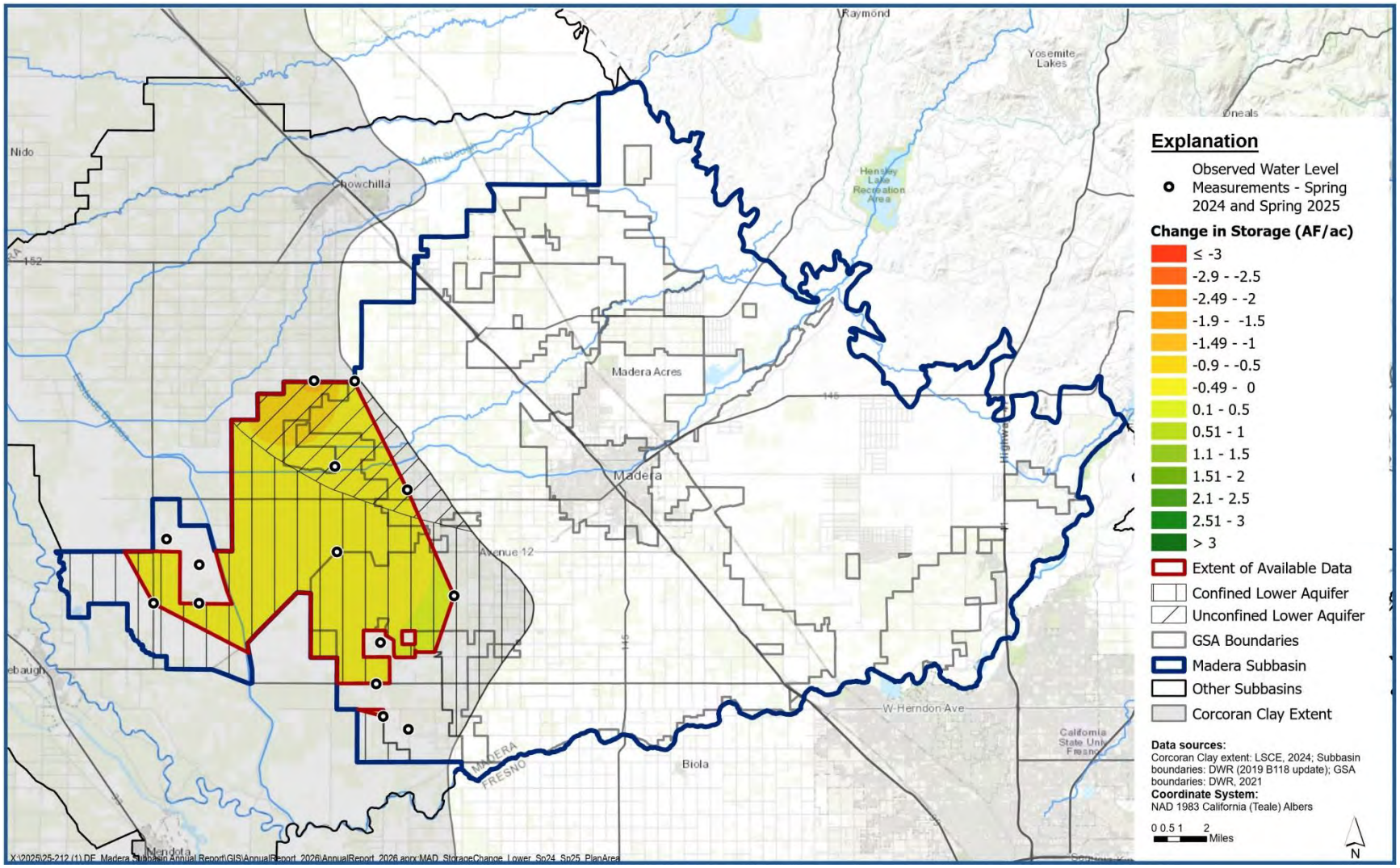


Figure 6-4. Change in Groundwater Storage in the Lower Aquifer – Spring 2024 through Spring 2025.

Table 6-1. Calculated Change in Groundwater Storage in the Combined Upper Aquifer and Undifferentiated Unconfined Zone in the Joint GSP Area.

Analysis Time Period	Specific Yield	Average Groundwater Elevation Change (ft)	Average Groundwater Storage Change Per Acre (AF/acre)	Area Used for Estimating Groundwater Storage Change (acres)	Total Groundwater Storage Change in Joint GSP Area (AF)[1]	Notes on Specific Yield Basis
Spring 2024-2025	0.03	-6.36	-0.20	325,431	-63,549	Representative value from MCSim model

[1] Total Upper Aquifer and Undifferentiated Unconfined Zone within Joint GSP area is 325,431 acres and includes only those areas of the Madera Subbasin outside of RCWD GSA, GFWD GSA, and NSWD GSA.

Table 6-2. Calculated Change in Groundwater Storage in the Lower Aquifer Zone in the Joint GSP Area.

Analysis Time Period	Lower Aquifer Zone	Storage Coefficient[1]	Specific Yield[2]	Average Change in Groundwater Elevation Surface (ft)	Average Groundwater Storage Change Per Acre (AF/acre)	Area Used for Estimating Groundwater Storage Change (acres)	Total Groundwater Storage Change in Joint GSP Area (AF)[3]	Notes on Storage Coefficient Basis
Spring 2024-2025	Confined	1.08E-06		-16.54	0.00	56,910	-1	Representative value from MCSim model
	Unconfined		0.024	-17.43	-0.42	15,548	-6,460	
	TOTAL				-0.09	72,458	-6,461	

[1] Storage Coefficient value applies to those areas under the Corcoran Clay considered to be confined (56,910 acres).
[2] Specific Yield value applies to those areas under the Corcoran Clay considered to be unconfined (15,548 acres).
[3] Total Lower Aquifer within Joint GSP area is 72,458 acres and includes only those areas of the Madera Subbasin outside of RCWD GSA, GFWD GSA, and NSWD GSA.

Table 6-3. Total Calculated Change in Groundwater Storage in the Joint GSP Area.

Analysis Time Period	Average Groundwater Storage Change Per Acre (AF/acre)	Total Joint GSP Area (acres)	Total Groundwater Storage Change in Joint GSP Area (AF)[1]
Spring 2024-2025	-0.22	325,431	-70,011

[1] Total Joint GSP area is 325,431 acres and includes only those areas of the Madera Subbasin outside of RCWD GSA, GFWD GSA, and NSWD GSA.

6.2 GROUNDWATER USE AND CHANGE IN GROUNDWATER STORAGE

Annual groundwater extraction and change in groundwater storage in the Joint GSP area are shown in **Figure 6-5** for water years 2015 to 2025. Groundwater extraction is estimated or directly measured following the procedures described in **Section 3**. Change in groundwater storage is estimated based on an annual comparison of spring groundwater elevations following the procedure described in **Section 6.1**. Change in groundwater storage is not provided for water years 2015 and 2016, as there was insufficient historical data to accurately calculate change in storage those years. Historical groundwater extraction in water years 1989 through 2014 are shown in Section 2.2.3.4 of the Joint GSP 2025 Plan Amendment. Historical annual changes in groundwater storage and cumulative changes in storage are also shown in the Joint GSP (Joint GSP 2025 Plan Amendment Appendix D.1.b). Historical changes in groundwater storage between 1989 and 2014 were calculated based on a water balance using the MCSim numerical groundwater flow model (described in the Joint GSP). Total annual groundwater extraction decreases in wet years and increases in dry years, while the annual change in groundwater storage has fluctuated between approximately -186,000 AF and 75,000 AF since water year 2017 (**Figure 6-5**).

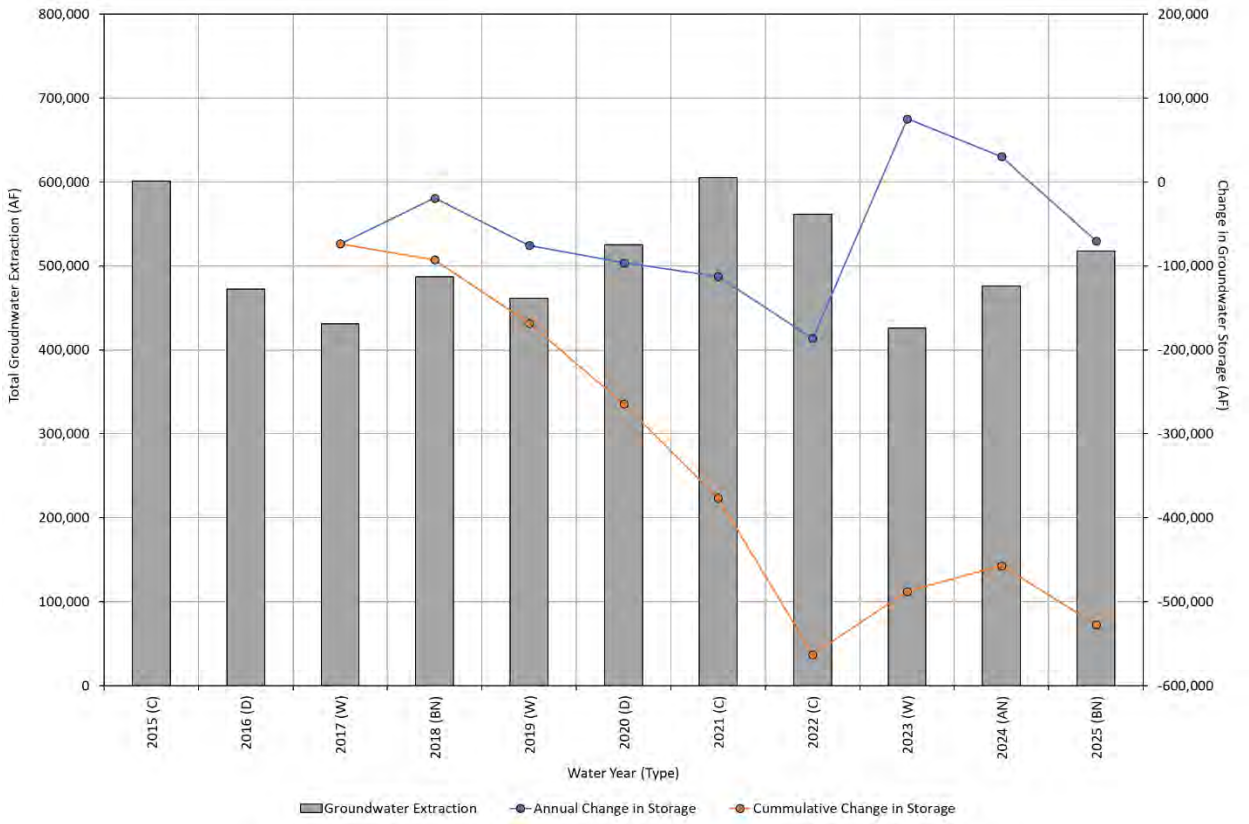


Figure 6-5. Annual Change in Groundwater Storage and Total Groundwater Extraction in the Joint GSP Area*.

**Information in 2025 is summarized from Table 6-3 (Total Groundwater Storage Change in Joint GSP Area) and Table 3-2 (Total Groundwater Extraction, with updated MCSim results). Cumulative change in storage is calculated from 2025 data and information from earlier years, documented in prior Annual Reports.*

6.3 SUBSIDENCE DATA AND MAPS

The GSP notes that while SJRRP benchmark survey points will be used to evaluate land subsidence SMC, additional subsidence data will be reviewed annually to assess subsidence within the Subbasin. The amount and rate of subsidence in the Subbasin and surrounding areas is being tracked by various agencies using different methods. Interferometric synthetic aperture radar (InSAR) measurements from satellite data and released by DWR have been collected for the time period from 2015 to 2025. Maps of annual subsidence for the most recent nine years and cumulative for 2015 to 2024 are included in **Appendix D**.

During the development of this Annual Report, numerous issues regarding the availability of subsidence data became apparent.

Through a February 6, 2026 communication with a representative of the SJRRP, the Madera Subbasin Joint GSP GSAs were notified that monitoring of the SJRRP benchmark network had been discontinued following the July 2025 survey. The Joint GSP GSAs, along with numerous other GSAs throughout the San Joaquin Valley that rely on this network, are currently exploring options for the continued monitoring of this network in the future Together, a broad cohort of GSAs in the San Joaquin Valley has formally requested that DWR assume responsibility for continued monitoring of the SJRRP benchmark network to support ongoing SGMA implementation throughout the region (**Appendix E**). To date, the GSAs have met with DWR and are exploring opportunities to backfill this critically important data.

Review of the cumulative subsidence map over the ten-year period from 2015 through 2025 indicates a range of total subsidence from approximately 0 to 5.5 feet in the Madera Subbasin. The InSAR maps indicate the area of greatest subsidence occurs in the northwestern portion of the Subbasin. However, subsidence rates have slowed since December 2022.

Additional subsidence data is also available for ongoing benchmark surveys performed for the San Joaquin River Restoration Project, with data now available through December 2024 (**Appendix D**).

Appendix D Figure D-24 shows a comparison of water levels and subsidence rates throughout the Subbasin. In a number of locations, particularly in the northwestern portion of the subbasin, groundwater levels have begun to stabilize in recent years, but subsidence continues to occur. This indicates that some residual subsidence has continued to occur after water levels have stopped decreasing.

7 Progress Toward Groundwater Sustainability Plan Implementation (§356.2.c)

This section describes progress that the Joint GSP GSAs have made toward Plan implementation as of early 2026. Additional details regarding Plan implementation across the Subbasin are provided in the Subbasin Annual Report document.

7.1 CURRENT CONDITIONS FOR EACH SUSTAINABILITY INDICATOR (INTERIM MILESTONE STATUS) (§356.2.C)

7.1.1 Chronic Lowering of Groundwater Levels

Groundwater level SMC were refined as part of the 2025 Plan Amendment. In the Joint GSP 2025 Plan Amendment, interim milestones (IMs) for chronic lowering of groundwater levels were established at five-year intervals over the Implementation Period from 2020 to 2040, at years 2025, 2030, and 2035. IMs for groundwater levels were established through review and evaluation of measured groundwater level data and future projected fluctuations in groundwater levels during the GSP implementation period utilizing the numerical groundwater flow model, which simulated implementation of PMAs. IMs were set at the Fall 2024, 2029, and 2034 simulated water levels for 2025, 2030, and 2035, respectively. Offsets between historically observed and modeled data were accounted for, as needed, based on Fall observed and modeled groundwater levels.

MOs for groundwater levels were established in accordance with the sustainability goal through review and evaluation of measured groundwater level data, to the extent available, and simulated historical groundwater levels derived from the MCSim. MOs for groundwater levels were set at Fall 2010 groundwater levels based on observed data when available. If observed data were not available, the Fall 2010 groundwater level was based on modeled results, modified if necessary, to account for offset between historically observed and modeled groundwater levels.

The regulations define undesirable results as occurring when significant and unreasonable effects are caused by groundwater conditions occurring throughout the Plan area for a given sustainability indicator during the sustainability period (after 2040), not the GSP implementation period (i.e., 2020-2040). The GSP Regulations provide that the “minimum thresholds for chronic lowering of groundwater levels shall be the groundwater level indicating a depletion of supply at a given location that may lead to undesirable results” (354.28.c.1). The cause of Subbasin groundwater conditions that would result in significant and unreasonable lowering of groundwater levels is excessive overall average annual groundwater pumping and other outflows from the Plan Area that continue to exceed average annual inflows.

Table 7-1 and **Figures 7-1 and 7-2** present the status of groundwater level RMS wells in relation to the 2030 IMs, MOs, and MTs defined in the GSP. Note that there are some RMS wells that do not have Fall 2025 measurements to compare with IMs, MOs, and MTs (see **Appendix E)**. Review of the Fall 2025 groundwater level measurements that are available for 30 RMS wells (measurements were available for 35 RMS wells, but one was flagged as questionable and four were attempted but unsuccessful measurements) indicates that a majority of groundwater elevations are below MTs, but a majority of groundwater elevations are above the 2030 IMs. It is notable that 2020 through 2022, the first three years of the Joint GSP implementation period,

were very dry years in the Madera Subbasin, while 2023 was a very wet year. Dry conditions have limited the implementation of PMAs and as a result, impacted groundwater levels relative to IMs in some areas.

The IMs developed in the Joint GSP 2025 Plan Amendment are dependent on the future assumed climatic and surface water hydrology conditions that started with the 2024 water year. **Figure 7-3** presents a comparison between the simulated and observed water year types in MCSim. Leading up to the 2025 IM, only one year of a predicted hydrology was used to determine future water levels. Groundwater levels are a function of the sequence and magnitude of wet and dry years applied as part of the projected/future hydrology leading up to each IM interval as well as the gradual implementation of PMAs. Thus, it is important to understand that groundwater elevations are anticipated to fluctuate above and below the IMs in the years leading up to each IM interval; and interpretation of water levels related to the IMs should take into consideration the differences between predicted (simulated) and observed water year types.

Table 7-1. Summary of RMS Well Groundwater Levels Relative to Interim Milestones, Minimum Thresholds, and Measurable Objectives.

RMS Well I.D.	Estimated Surface Elevation[1] (msl, feet)	Aquifer Desig-nation	MO GWEL[1] (feet, AMSL)	MT GWEL[1] (feet, AMSL)	2030 Interim Milestone GWEL[1] (feet, AMSL)	Date of Fall 2025 Measure-ment	Fall 2025 GWEL[1] (feet, AMSL)	Diff. , Fall 2025 GWEL – 2030 IM (feet)	Diff. , Fall 2025 GWEL – MT (feet)
COM RMS-1	278	Lower	68	50	2	10/24/2025	27.1	+25.1	-22.9
COM RMS-2	262	Lower	50	43	-4	10/30/2025	18.0	+22	-25.0
COM RMS-4	268	Lower	47	24	3	10/23/2025	11.9	+8.9	-12.1
MCE RMS-2	378	Upper	117	115	80	10/31/2025	QM[2]		
MCE RMS-3	325	Lower	67	38	-17	10/31/2025	3.1	+20.1	-34.9
MCE RMS-5	340	Lower	81	69	32	10/31/2025	35.1	+3.1	-33.9
MCE RMS-6	328	Lower	40	19	-23	10/30/2025	NM[3a]		
MCE RMS-9	271	Shallow	259	258	258	10/15/2025	NM[3a]		
MCW RMS-3	162	Lower	74	65	43	10/31/2025	NM[3a]		
MCW RMS-5	202	Shallow	184	182	184	-	NM[3b]		
MSB03B	148	Upper	69	52	43	10/28/2025	56.2	+13.2	+4.2
MSB03C	148	Lower	16	5	-7	10/28/2025	2.7	+9.7	-2.3
MSB04B	271	Lower	58	29	-36	10/27/2025	-24.4	+11.6	-53.4
MSB05A	177	Upper	77	63	37	10/28/2025	43.5	+6.5	-19.5
MSB05B	177	Lower	43	26	1	10/28/2025	10.3	+9.3	-15.7
MSB06A	192	Upper	68	51	38	10/28/2025	50.4	+12.4	-0.6
MSB06C	192	Lower	63	48	31	10/28/2025	41.7	+10.7	-6.3
MSB09C	233	Lower	103	79	54	10/27/2025	60.4	+6.4	-18.6
MSB10C	251	Lower	-4	-62	-125	10/28/2025	-96.8	+28.2	-34.8

RMS Well I.D.	Estimated Surface Elevation[1] (msl, feet)	Aquifer Desig-nation	MO GWEL[1] (feet, AMSL)	MT GWEL[1] (feet, AMSL)	2030 Interim Milestone GWEL[1] (feet, AMSL)	Date of Fall 2025 Measure-ment	Fall 2025 GWEL[1] (feet, AMSL)	Diff. , Fall 2025 GWEL – 2030 IM (feet)	Diff. , Fall 2025 GWEL – MT (feet)
MSB11C	306	Lower	-30	-79	-156	10/27/2025	-128.8	+27.2	-49.8
MSB12	350	Lower	64	37	18	10/27/2025	-4.7	-22.7	-41.7
MID RMS-2	218	Lower	-14	-65	-111	10/7/2025	-90.0	+21	-25.0
MID RMS-3	241	Lower	15	-32	-102	10/7/2025	-9.8	+92.2	+22.2
MID RMS-4	190	Lower	-34	-64	-104	10/7/2025	-94.5	+9.5	-30.5
MID RMS-5	204	Lower	19	-26	-68	10/7/2025	-65.1	+2.9	-39.1
MID RMS-6	237	Lower	19	-27	-71	10/14/2025	-48.6	+22.4	-21.6
MID RMS-7	237	Lower	80	49	23	10/7/2025	22.9	-0.1	-26.1
MID RMS-10	213	Lower	64	42	23	10/7/2025	25.1	+2.1	-16.9
MID RMS-11	232	Upper	112	89	65	10/14/2025	66.2	+1.2	-22.8
MID RMS-12	262	Upper	128	98	63	10/6/2025	NM[3a]		
MID RMS-13	271	Composite	112	93	75	10/9/2025	76.4	+1.4	-16.6
MID RMS-15	247	Upper	151	130	121	10/30/2025	117.5	-3.5	-12.5
MID RMS-16	308	Lower	28	-8	-70	10/13/2025	-45.2	+24.8	-37.2
MID RMS-17	224	Shallow	200	198	200	-	NM[3b]		
MWD RMS-1	330	Lower	24	-14	-89	11/6/2025	-53.2	+35.8	-39.2
MWD RMS-2	310	Lower	7	-37	-87	11/6/2025	-60.0	+27	-23.0
MWD RMS-3	295	Lower	-6	-56	-105	11/6/2025	-77.0	+28	-21.0

[1] Estimated surface elevation and groundwater elevations (GWEL) are expressed in feet above mean sea level (msl).

[2] QM = questionable measurement. Measurement reported but flagged as questionable.

[3a] NM = no measurement. Measurement attempted but was unsuccessful.

[3b] NM = no measurement. No 2025 measurements reported.

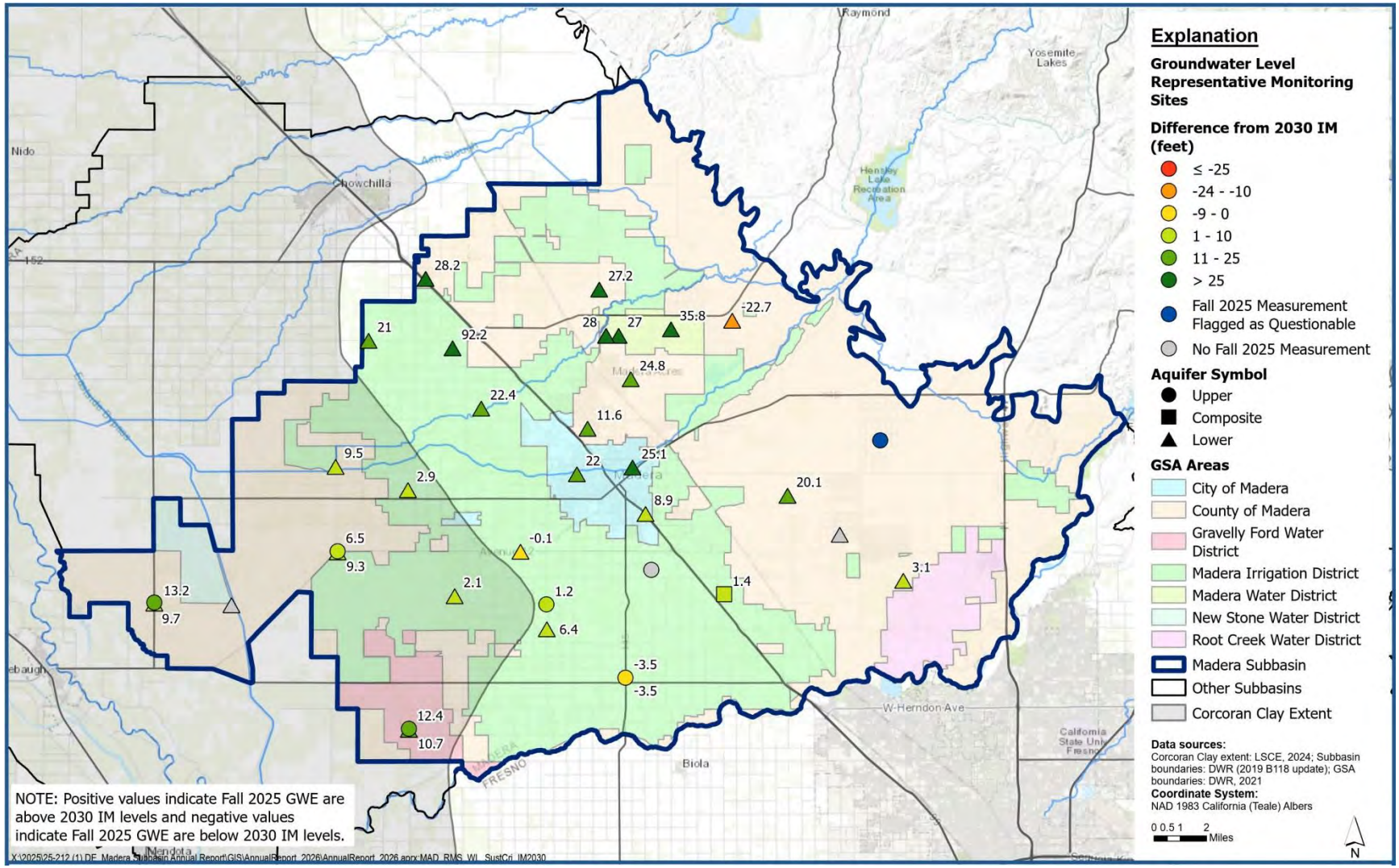


Figure 7-1. Fall 2025 Groundwater Level Measurements at RMS Wells Compared to 2030 Interim Milestone.

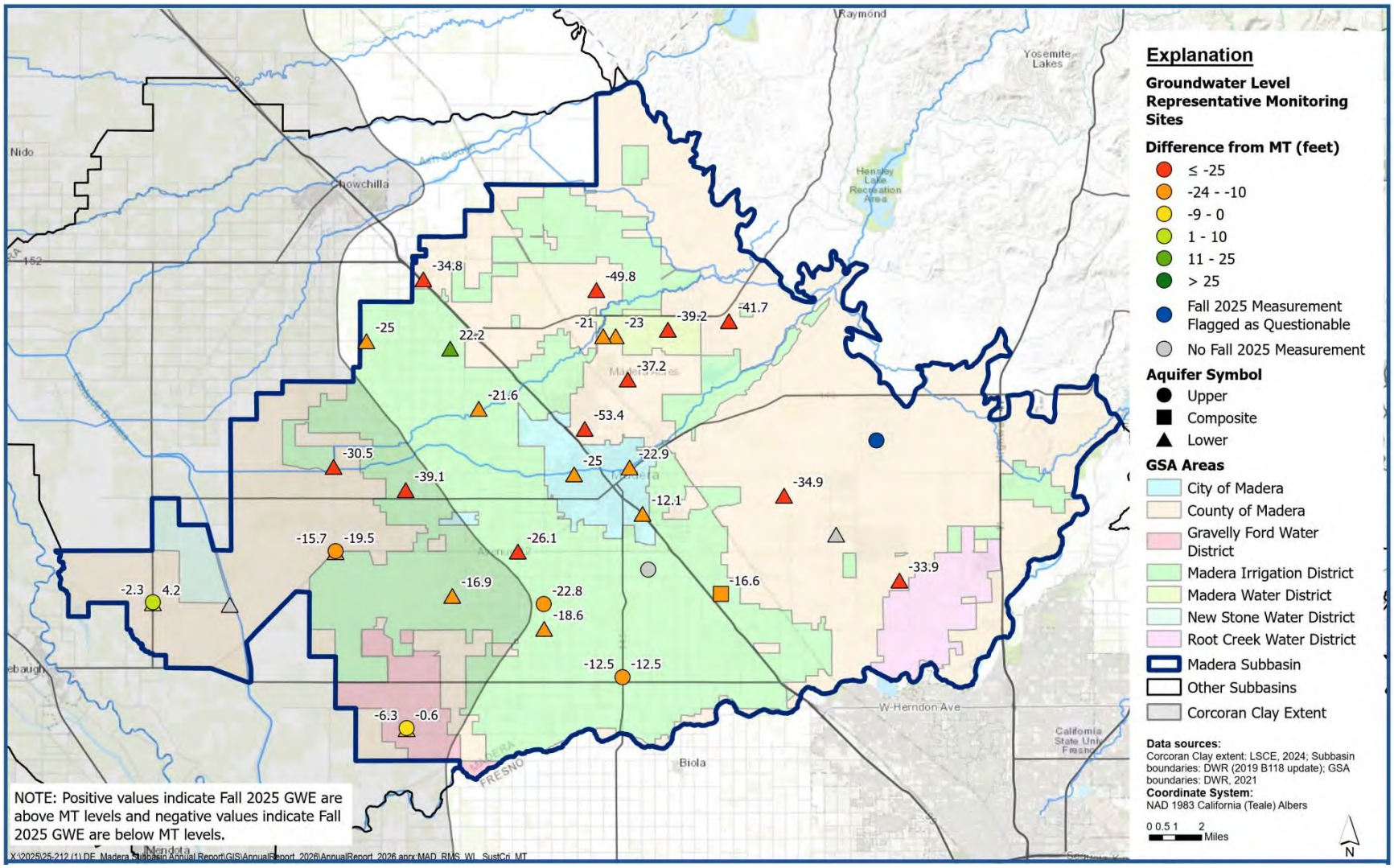


Figure 7-2. Fall 2025 Groundwater Level Measurements at RMS Wells Compared to Minimum Threshold.

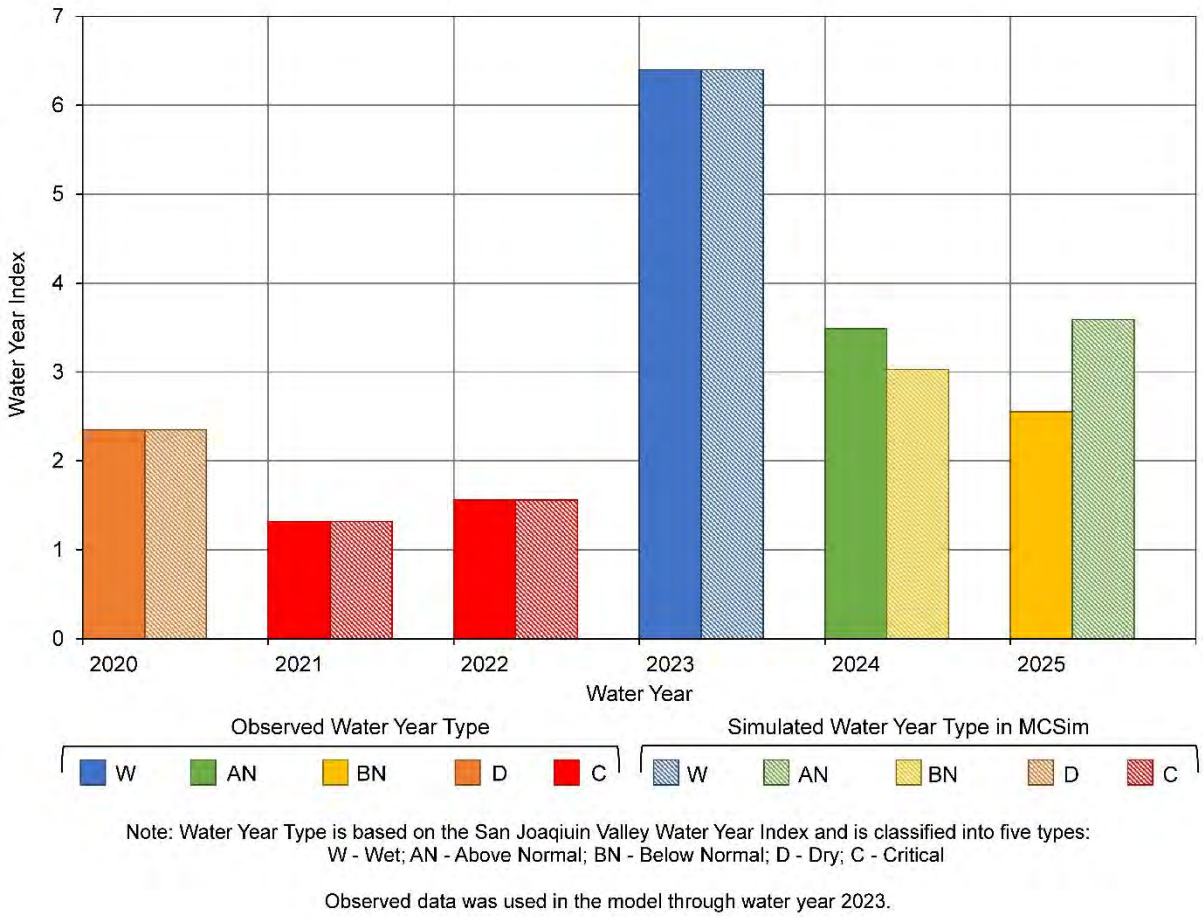


Figure 7-3. Comparison of Observed and Simulated Water Year Types.

7.1.2 Land Subsidence

In the Joint GSP 2025 Plan Amendment, interim milestones (IMs) for land subsidence were established at five-year intervals over the Implementation Period from 2020 to 2040, at years 2025, 2030, and 2035. IMs were informed by a detailed infrastructure sensitivity assessment and recent interviews with critical infrastructure owners and operators. The established IMs may also have the capacity to accommodate some residual subsidence that may continue to occur due to historical cycles of lower groundwater levels and subsidence, while providing time for GSAs to implement PMAs.

Measurable objectives (MOs) for land subsidence were established to avoid significant and unreasonable impacts from occurring in the future. A MO for subsidence of 0.00 feet/year was established with the goal of long-term avoidance of land subsidence.

The cause of Subbasin groundwater conditions that would result in significant and unreasonable land subsidence is excessive overall average annual groundwater pumping and other outflows from the Plan Area that exceed average annual inflows and results in groundwater levels that

decline to a level that, combined with clay layers having certain properties conducive to compaction, result in significant land subsidence. Consistent with SGMA, implementation of the GSP is designed to avoid undesirable results during the sustainability period (i.e., the "planning and implementation horizon," per CWC §10721(v)), after 2040. Undesirable results for land subsidence are significant and unreasonable adverse impacts from land subsidence on critical surface infrastructure that impair the operation and function of the infrastructure.

Table 7-2 and **Figure 7-4** present the status of land subsidence RMS stations in relation to the 2030 IMs, MOs, and MTs defined in the GSP. All RMS stations had an observed cumulative subsidence total that is less than the 2030 cumulative IM. Additional annual and cumulative subsidence maps are presented in **Appendix D**.

Table 7-2. Summary of RMS Stations Land Subsidence Rates Relative to Interim Milestones, Minimum Thresholds, and Measurable Objectives.

RMS ID	Dataset	MO (feet/year)	2025 to 2030 IM - Annual Rate of Subsidence (feet/year)	2025 to 2030 IM - Cumulative Subsidence (feet)	Observed Annual Rate (feet/year)	Observed Cumulative Total (feet)	2025 to 2030 IM - Cumulative Subsidence Status (feet)[2]
SJRRP_29	SJRRP	0.0	-0.2	-1.0	-0.19[1]	-0.19[1]	0.81
SJRRP_127	SJRRP	0.0	-0.2	-1.0	-0.19[1]	-0.19[1]	0.81
SJRRP_1007R	SJRRP	0.0	-0.2	-1.0	-0.21[1]	-0.21[1]	0.79
SJRRP_141	SJRRP	0.0	-0.2	-1.0	-0.10[1]	-0.10[1]	0.90
SJRRP_142	SJRRP	0.0	-0.2	-1.0	-0.01[1]	-0.01[1]	0.99
SJRRP_160R	SJRRP	0.0	-0.2	-1.0	-0.06[1]	-0.06[1]	0.94
SJRRP_165	SJRRP	0.0	-0.2	-1.0	-0.05[1]	-0.05[1]	0.95
SJRRP_201R	SJRRP	0.0	-0.2	-1.0	-0.22[1]	-0.22[1]	0.78
P307	PBO	0.0	-0.2	-1.0	-0.21	-0.21	0.79

[1] Monitoring of the SJRRP Benchmark network was terminated following the July 2025 monitoring event. Data shown in this table is InSAR data provided by DWR extracted at each RMS station.

[2] A positive value in the IM Status column indicates the RMS station has not exceeded the cumulative subsidence IM.

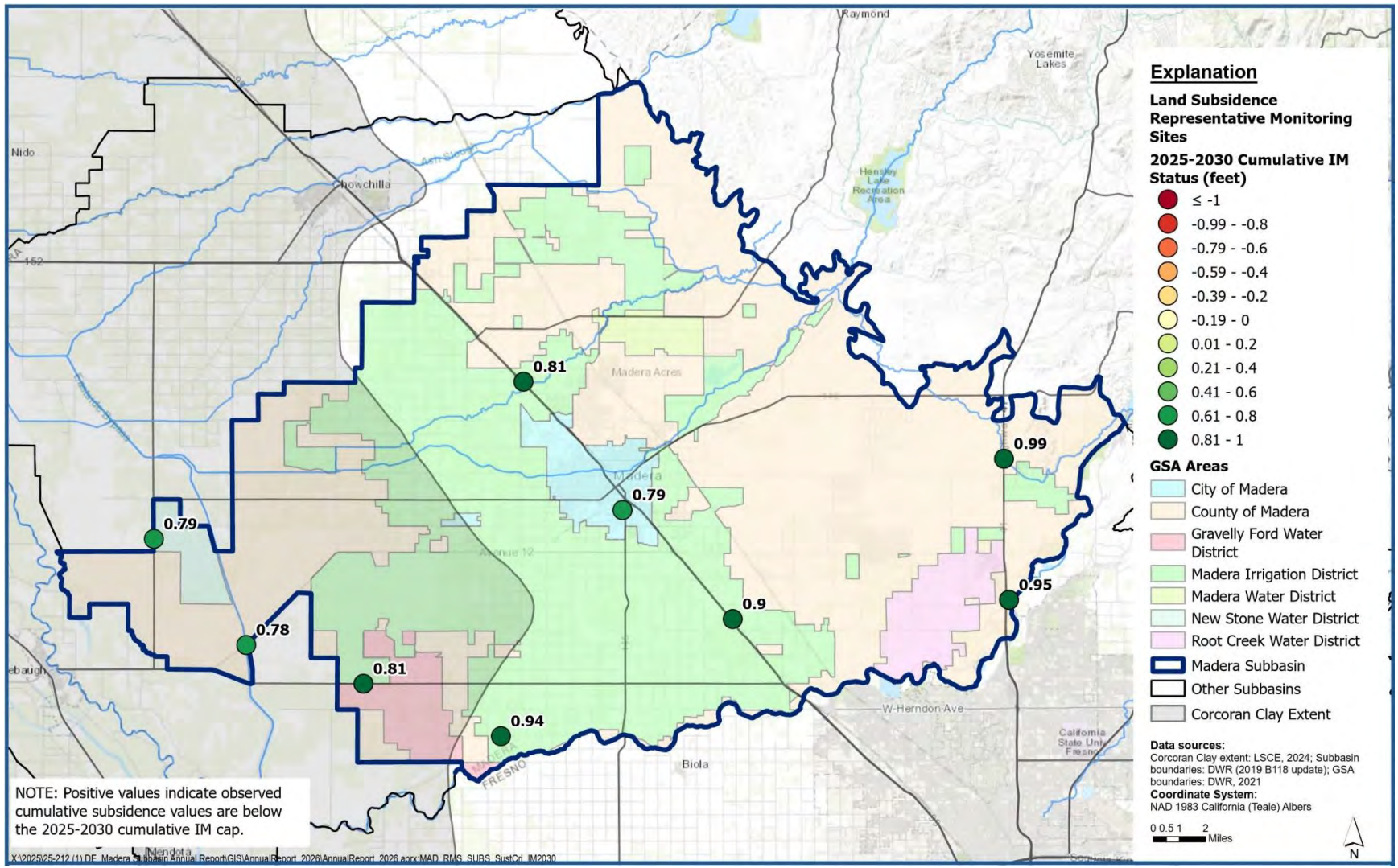


Figure 7-4. Observed Cumulative Subsidence Rates at Land Subsidence RMS Stations compared to 2030 Cumulative Interim Milestone Cap.

7.1.3 Degraded Groundwater Quality

In the Joint GSP 2025 Plan Amendment, interim milestones (IMs) for degraded groundwater quality were established at five-year intervals over the Implementation Period from 2020 to 2040, at years 2025, 2030, and 2035, and are the same as the MOs. IMs and MOs for groundwater quality were established to not lead to degradation of existing groundwater quality conditions that would make groundwater unsuitable for the most restrictive beneficial use of municipal and domestic supply. The groundwater quality IMs and MOs are defined for individual representative groundwater quality indicator wells (RMS) for the key water quality constituents arsenic (As), nitrate (NO3-N), and total dissolved solids (TDS) based on consideration of existing or historical groundwater quality conditions and the drinking water MCLs for each of the key constituents. These key constituents were selected because they currently exist at elevated concentrations in the Subbasin or reflect a range of potential groundwater quality impacts related to implementation of GSP PMAs. Groundwater quality IMs and MOs also include maintaining existing or historical groundwater quality conditions over the implementation period for wells in which the existing or historical conditions already exceed the MCL. The GSP does not include any plan or milestones specifically intended to improve groundwater quality conditions in wells with existing or historical MCL exceedances.

Degraded water quality is significant and unreasonable if the magnitude of degradation precludes the use of groundwater for existing beneficial use(s). Therefore, an undesirable result for degraded groundwater quality occurs when groundwater quality exceeds an established MCL and MT for arsenic, nitrate, or TDS for a significant duration of time and at a significant number of representative monitoring sites and is the direct result of projects or management actions undertaken as part of the GSP implementation and/or overall groundwater basin extraction. An exceedance of a MT at a given representative monitoring site is defined based on the average concentration for a given key constituent over a three-year monitoring period. An undesirable result for degraded groundwater quality is greater than 10 percent of representative groundwater quality monitoring wells exceeding a MT for a given constituent related to GSP actions. As part of the first Periodic Evaluation of the Joint GSP, groundwater quality SMC was confirmed or adjusted as needed based on historical sampling (see Section 2.3.2 of the Periodic Evaluation).

Table 7-3 presents a summary of the 2025 As measurements at the groundwater quality RMS wells and their status in relation to the 2030 IMs, MOs, and MTs defined for As in the Joint GSP. Review of the 2025 As measurements that are available for 22 RMS wells indicates that As concentrations are generally below the 2030 IMs (59% of RMS are below). It should be noted that evaluation of As concentrations relative to the SMC is based on the average concentration over a three-year monitoring period. There is insufficient data at this time to determine this average concentration, so the comparison to the 2030 IM presented in **Table 7-3** and **Figure 7-5** should be considered a snapshot look at As concentrations in the Subbasin.

Table 7-3. Summary of RMS Well Groundwater Quality Relative to Interim Milestones, Minimum Thresholds, and Measurable Objectives for Arsenic.

RMS Well ID	Aquifer Designation	Baseline Conc. (ug/L)[1]	MO Conc. (ug/L)	MT Conc. (ug/L)	2030 IM Conc. (ug/L)	Date of 2025 Measurement	2025 Conc. (ug/L)	Diff., 2025 Conc. – 2030 IM (ug/L)
MCE RMS-3	Lower	155	155	186	155	-	NM[2]	
MID RMS-4	Lower	n/a†	8†	10†	8†	-	NM[2]	
MID RMS-5B*	Lower	n/a†	8†	10†	8†	9/11/2025	ND[3]	-8.0
MID RMS-6	Lower	n/a†	8†	10†	8†	-	NM[2]	
MID RMS-7	Lower	n/a†	8†	10†	8†	-	NM[2]	
MID RMS-13	Composite	n/a†	8†	10†	8†	9/10/2025	ND[3]	-8.0
MWD RMS-1	Lower	3	3	10	3	8/25/2025	3	0.0
MSB03A	Upper	3	4	10	4	8/28/2025	2.5	-1.5
MSB03B	Upper	5	5	10	5	8/28/2025	5.1	0.1
MSB03C	Lower	5	6	10	6	8/28/2025	4.4	-1.6
MSB04A	Upper	3	3	10	3	-	NM[2]	-
MSB04B	Lower	47	47	56	47	9/3/2025	82	35.0
MSB04C	Lower	53	54	65	54	-	NM[2]	-
MSB05A	Upper	4	5	10	5	8/29/2025	5	0.0
MSB05B	Lower	34	34	41	34	8/29/2025	37	3.0
MSB05C	Lower	8	8	10	8	-	NM[2]	-
MSB06A	Upper	2	3	10	3	9/9/2025	ND[3]	-3.0
MSB06B	Lower	34	35	42	35	8/29/2025	41	6.0
MSB06C	Lower	12	13	15	13	8/29/2025	14	1.0
MSB09A	Upper	2	2	10	2	8/29/2025	ND[3]	-2.0
MSB09B	Lower	3	3	10	3	8/29/2025	ND[3]	-3.0
MSB09C	Lower	113	113	135	113	8/29/2025	110	-3.0
MSB10B	Lower	2	3	10	3	8/27/2025	3.7	0.7
MSB10C	Lower	3	3	10	3	8/27/2025	ND[3]	-3.0
MSB11C	Lower	6	6	10	6	9/4/2025	5.2	-0.8
MSB13A	Upper	n/a†	8†	10†	8†	-	NM[2]	-
MSB13B	Lower	n/a†	8†	10†	8†	9/4/2025	4	-4.0
MSB13C	Lower	n/a†	8†	10†	8†	9/4/2025	3.7	-4.3
2000507-001	Lower	4	4	10	4	-	NM[2]	-
2000553-001	Lower	2	3	10	3	-	NM[2]	-

RMS Well ID	Aquifer Designation	Baseline Conc. (ug/L)[1]	MO Conc. (ug/L)	MT Conc. (ug/L)	2030 IM Conc. (ug/L)	Date of 2025 Measurement	2025 Conc. (ug/L)	Diff., 2025 Conc. – 2030 IM (ug/L)
2000682-002	Lower	3	3	10	3	-	NM[2]	-
2000727-001	Lower	2	2	10	2	-	NM[2]	-
2000938-001	Lower	2	2	10	2	-	NM[2]	-
2010002-014	Lower	11	12	14	12	-	NM[2]	-
2010002-032	Lower	4	4	10	4	-	NM[2]	-
2010008-005	Composite	3	4	10	4	-	NM[2]	-
2010009-002	Composite	6	6	10	6	-	NM[2]	-
2010010-007	Lower	2	3	10	3	5/6/2025	3.3	0.3
2010801-001	Lower	15	15	18	15	6/5/2025	14	-1.0
2801077-001	Composite	n/a†	8†	10†	8†	-	NM[2]	-
ESJ12	Upper	n/a‡	n/a‡	n/a‡	n/a‡	-	n/a‡	-
ESJ17	Unknown	n/a‡	n/a‡	n/a‡	n/a‡	-	n/a‡	-

[1] Baseline concentration calculated as average of all measurement pre-2024 (minimum of three years required to determine).
[2] NM = no measurement.
[3] ND = non-detect.
† Insufficient data available to calculate baseline value. SMC values will be confirmed and/or adjusted as needed after a baseline has been calculated.
‡ Monitoring for the Irrigated Lands Regulatory Program does not include testing for arsenic.
*Due to monitoring challenges, MID RMS-5B could not be sampled. A well located 0.5-mile away, MID RMS-5C, was sampled instead. Perforation intervals: MID RMS-5B (245-496 feet bgs); MID RMS-5C (220-800 feet bgs).

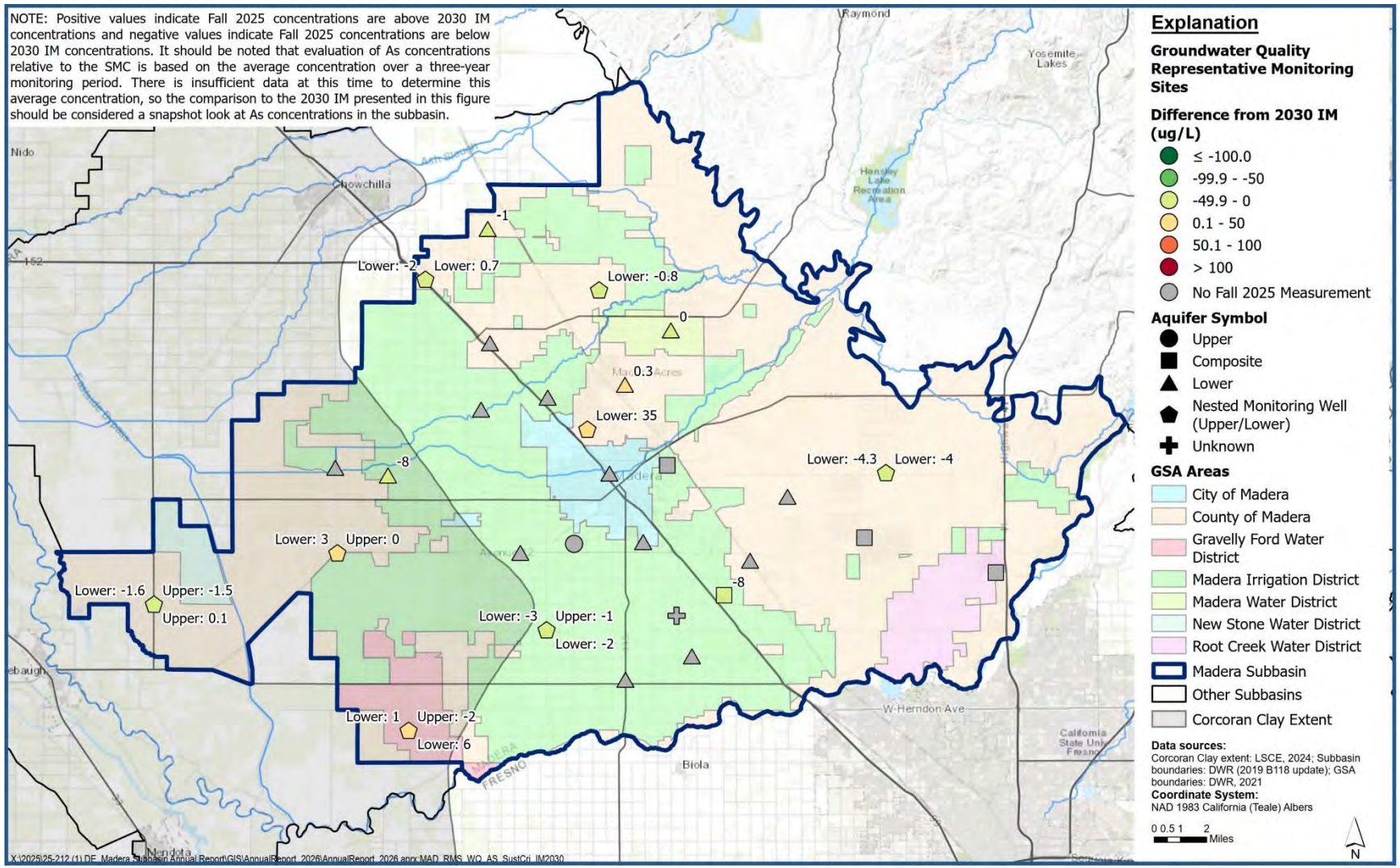


Figure 7-5. 2025 Arsenic Measurements at Groundwater Quality RMS Wells compared to 2030 Interim Milestones.[1]

[1] For wells with insufficient data available to calculate a baseline value, SMC values will be confirmed and/or adjusted as needed after a baseline has been calculated.

Table 7-4 presents a summary of the 2025 NO3-N measurements at the groundwater quality RMS wells and their status in relation to the 2030 IMs, MOs, and MTs defined for NO3-N in the Joint GSP 2025 Plan Amendment. Review of the Fall 2025 NO3-N measurements that are available for 29 RMS wells indicates that NO3-N concentrations are primarily below 2025 IMs (86% of RMS wells). It should be noted that evaluation of NO3-N concentrations relative to the SMC is based on the average concentration over a three-year monitoring period. There is insufficient data at this time to determine this average concentration, so the comparison to the 2030 IM presented in **Table 7-4** and **Figure 7-6** should be considered a snapshot look at As concentrations in the Subbasin.

Table 7-4. Summary of RMS Well Groundwater Quality Relative to Interim Milestones, Minimum Thresholds, and Measurable Objectives for Nitrate (as N).

RMS Well ID	Aquifer Designation	Baseline Conc. (mg/L)[1]	MO Conc. (mg/L)	MT Conc. (mg/L)	2030 IM Conc. (mg/L)	Date of 2025 Measurement	2025 Conc. (mg/L)	Diff., 2025 Conc. – 2030 IM (mg/L)
MCE RMS-3	Lower	1	1	10	1	-	NM[2]	-
MID RMS-4	Lower	n/a†	8†	10†	8†	-	NM[2]	-
MID RMS-5B*	Lower	n/a†	8†	10†	8†	9/11/2025	4.7	-3.3
MID RMS-6	Lower	n/a†	8†	10†	8†	-	NM[2]	-
MID RMS-7	Lower	n/a†	8†	10†	8†	-	NM[2]	-
MID RMS-13	Composite	n/a†	8†	10†	8†	9/10/2025	2	-6.0
MWD RMS-1	Lower	2	3	10	3	8/25/2025	1	-2.0
MSB03A	Upper	8	8	10	8	8/28/2025	6.2	-1.8
MSB03B	Upper	0	1	10	1	8/28/2025	0.56	-0.4
MSB03C	Lower	ND[3]	1	10	1	8/28/2025	ND[3]	-1.0
MSB04A	Upper	6	6	10	6	-	NM[2]	-
MSB04B	Lower	ND[3]	1	10	1	9/3/2025	ND[3]	-1.0
MSB04C	Lower	ND[3]	1	10	1	-	NM[2]	-
MSB05A	Upper	12	13	15	13	8/29/2025	13	0.0
MSB05B	Lower	0	1	10	1	8/29/2025	1.1	0.1
MSB05C	Lower	1	1	10	1	-	NM[2]	-
MSB06A	Upper	9	10	12	10	9/9/2025	10	0.0
MSB06B	Lower	2	2	10	2	8/29/2025	ND[3]	-2.0
MSB06C	Lower	1	1	10	1	8/29/2025	ND[3]	-1.0
MSB09A	Upper	7	8	10	8	8/29/2025	10	2.0
MSB09B	Lower	2	2	10	2	8/29/2025	0.91	-1.1

RMS Well ID	Aquifer Designation	Baseline Conc. (mg/L)[1]	MO Conc. (mg/L)	MT Conc. (mg/L)	2030 IM Conc. (mg/L)	Date of 2025 Measurement	2025 Conc. (mg/L)	Diff., 2025 Conc. – 2030 IM (mg/L)
MSB09C	Lower	ND[3]	1	10	1	8/29/2025	ND[3]	-1.0
MSB10B	Lower	2	2	10	2	8/27/2025	1.6	-0.4
MSB10C	Lower	2	2	10	2	8/27/2025	ND[3]	-2.0
MSB11C	Lower	n/a†	8†	10†	8†	9/4/2025	ND[3]	-8.0
MSB13A	Upper	n/a†	8†	10†	8†	-	NM[2]	-
MSB13B	Lower	n/a†	8†	10†	8†	9/4/2025	3	-5.0
MSB13C	Lower	n/a†	8†	10†	8†	9/4/2025	ND[3]	-8.0
2000507-001	Lower	6	6	10	6	6/13/2025	2.8	-3.2
2000553-001	Lower	8	9	10	9	7/8/2025	5.1	-3.9
2000682-002	Lower	7	7	10	7	3/19/2025	2.2	-4.8
2000727-001	Lower	5	6	10	6	4/1/2025	1.8	-4.2
2000938-001	Lower	3	4	10	4	-	NM[2]	-
2010002-014	Lower	5	5	10	5	6/23/2025	1.7	-3.3
2010002-032	Lower	6	7	10	7	-	NM[2]	-
2010008-005	Composite	12	13	15	13	5/5/2025	2.9	-10.1
2010009-002	Composite	6	7	10	7	-	NM[2]	-
2010010-007	Lower	9	9	11	9	5/6/2025	0.91	-8.1
2010801-001	Lower	2	3	10	3	8/26/2025	0.4	-2.6
2801077-001	Composite	26	27	32	27	4/29/2025	0.1	-26.9
ESJ12	Upper	7	7	11	7	-	NM[2]	-
ESJ17	Unknown	n/a†	8†	10†	8†	-	NM[2]	-

[1] Baseline concentration calculated as average of all measurement pre-2024 (minimum of three years required to determine)
[2] NM = no measurement.
[3] ND = non-detect.
† Insufficient data available to calculate baseline value. SMC values will be confirmed and/or adjusted as needed after a baseline has been calculated.
*Due to monitoring challenges, MID RMS-5B could not be sampled. A well located 0.5-mile away, MID RMS-5C, was sampled instead. Perforation intervals: MID RMS-5B (245-496 feet bgs); MID RMS-5C (220-800 feet bgs).

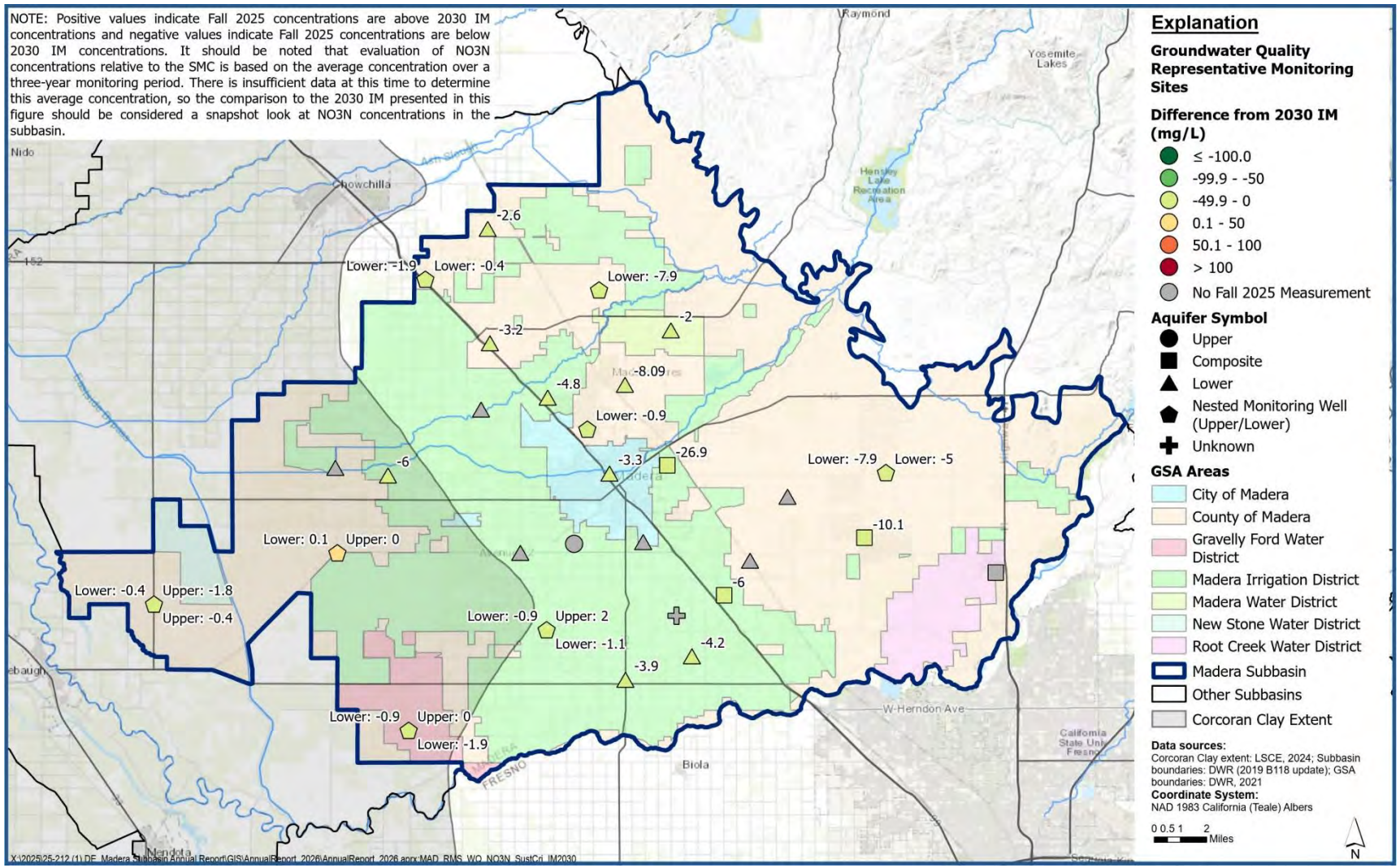


Figure 7-6. 2025 Nitrate (as N) Measurements at Groundwater Quality RMS Wells compared to 2030 Interim Milestones.[1]

[1] For wells with insufficient data available to calculate a baseline value, SMC values will be confirmed and/or adjusted as needed after a baseline has been calculated.

Table 7-5 presents a summary of the 2025 TDS measurements at the groundwater quality RMS wells and their status in relation to the 2030 IMs, MOs, and MTs defined for TDS in the Joint GSP 2025 Plan Amendment. Review of the 2025 TDS measurements that are available for 21 RMS wells indicates that TDS concentrations are below 2030 IMs in about half of the RMS wells (52% of RMS wells). It should be noted that evaluation of TDS concentrations relative to the SMC is based on the average concentration over a three-year monitoring period. There is insufficient data at this time to determine this average concentration, so the comparison to the 2030 IM presented in **Table 7-5** and **Figure 7-7** should be considered a snapshot look at As concentrations in the Subbasin.

Table 7-5. Summary of RMS Well Groundwater Quality Relative to Interim Milestones, Minimum Thresholds, and Measurable Objectives for Total Dissolved Solids.

RMS Well ID	Aquifer Designation	Baseline Conc. (mg/L)[1]	MO Conc. (mg/L)	MT Conc. (mg/L)	2030 IM Conc. (mg/L)	Date of 2025 Measurement	2025 Conc. (mg/L)	Diff., 2025 Conc. – 2030 IM (mg/L)
MCE RMS-3	Lower	643	650	772	650	-	NM[2]	-
MID RMS-4	Lower	n/a†	400†	500†	400†	-	NM[2]	-
MID RMS-5B*	Lower	n/a†	400†	500†	400†	9/11/2025	320	-80
MID RMS-6	Lower	n/a†	400†	500†	400†	-	NM[2]	-
MID RMS-7	Lower	n/a†	400†	500†	400†	-	NM[2]	-
MID RMS-13	Composite	n/a†	400†	500†	400†	9/10/2025	210	-190
MWD RMS-1	Lower	205	250	500	250	8/25/2025	206	-44
MSB03A	Upper	828	850	994	850	8/28/2025	770	-80
MSB03B	Upper	345	350	500	350	8/28/2025	370	20
MSB03C	Lower	963	1,000	1,155	1,000	8/28/2025	1,200	200
MSB04A	Upper	218	250	500	250	-	NM[2]	-
MSB04B	Lower	380	400	500	400	9/3/2025	420	20
MSB04C	Lower	355	400	500	400	-	NM[2]	-
MSB05A	Upper	568	600	682	600	8/29/2025	610	10
MSB05B	Lower	240	250	500	250	8/29/2025	300	50
MSB05C	Lower	247	250	500	250	-	NM[2]	-
MSB06A	Upper	424	450	510	450	9/9/2025	490	40
MSB06B	Lower	404	450	500	450	8/29/2025	390	-60
MSB06C	Lower	422	450	507	450	8/29/2025	520	70
MSB09A	Upper	500	550	600	550	8/29/2025	550	0
MSB09B	Lower	203	250	500	250	8/29/2025	210	-40

RMS Well ID	Aquifer Designation	Baseline Conc. (mg/L)[1]	MO Conc. (mg/L)	MT Conc. (mg/L)	2030 IM Conc. (mg/L)	Date of 2025 Measurement	2025 Conc. (mg/L)	Diff., 2025 Conc. – 2030 IM (mg/L)
MSB09C	Lower	278	300	500	300	8/29/2025	310	10
MSB10B	Lower	206	250	500	250	8/27/2025	200	-50
MSB10C	Lower	273	300	500	300	8/27/2025	260	-40
MSB11C	Lower	490	500	588	500	9/4/2025	470	-30
MSB13A	Upper	n/a†	400†	500†	400†	-	NM[2]	-
MSB13B	Lower	n/a†	400†	500†	400†	9/4/2025	250	-150
MSB13C	Lower	n/a†	400†	500†	400†	9/4/2025	810	410
2000507-001	Lower	n/a†	400†	500†	400†	-	NM[2]	-
2000553-001	Lower	261	300	500	300	-	NM[2]	-
2000682-002	Lower	n/a†	400†	500†	400†	-	NM[2]	-
2000727-001	Lower	207	250	500	250	-	NM[2]	-
2000938-001	Lower	145	150	500	150	-	NM[2]	-
2010002-014	Lower	181	200	500	200	-	NM[2]	-
2010002-032	Lower	212	250	500	250	-	NM[2]	-
2010008-005	Composite	318	350	500	350	-	NM[2]	-
2010009-002	Composite	138	150	500	150	-	NM[2]	-
2010010-007	Lower	204	250	500	250	5/6/2025	230	-20
2010801-001	Lower	242	250	500	250	-	NM[2]	-
2801077-001	Composite	n/a†	400†	500†	400†	-	NM[2]	-
ESJ12	Upper	493	500	592	500	-	NM[2]	-
ESJ17	Unknown	n/a†	400†	500†	400†	-	NM[2]	-

[1] Baseline concentration calculated as average of all measurement pre-2024 (minimum of three years required to determine)
[2] NM = no measurement.
† Insufficient data available to calculate baseline value. SMC values will be confirmed and/or adjusted as needed after a baseline has been calculated.
*Due to monitoring challenges, MID RMS-5B could not be sampled. A well located 0.5-mile away, MID RMS-5C, was sampled instead. Perforation intervals: MID RMS-5B (245-496 feet bgs); MID RMS-5C (220-800 feet bgs).

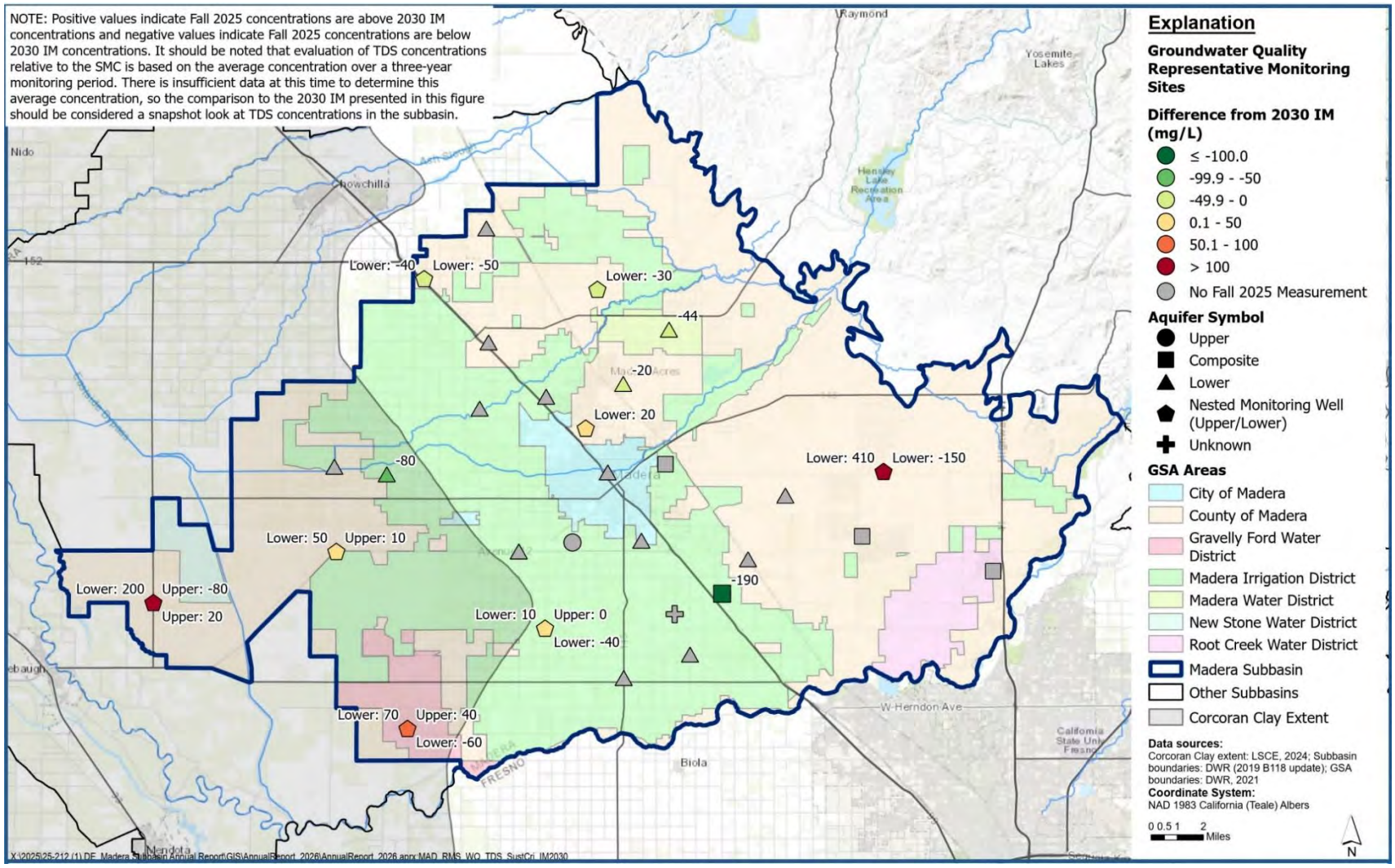


Figure 7-7. 2025 Total Dissolved Solids Measurements at Groundwater Quality RMS Wells compared to 2030 Interim Milestones. [1]

[1] For wells with insufficient data available to calculate a baseline value, SMC values will be confirmed and/or adjusted as needed after a baseline has been calculated.

7.1.4 Depletion of Interconnected Surface Water

In the Joint GSP 2025 Plan Amendment, interim SMC for the depletion of interconnected surface water (ISW) were established due to limited data available to quantify the relationship between groundwater and the San Joaquin River. A workplan was developed to improve understanding of ISW in the Subbasin (Joint GSP 2025 Plan Amendment Appendix 3.I), but in the meantime the interim SMC will be used to evaluate this sustainability indicator.

For the purposes of establishing interim SMC for ISW along the San Joaquin River, three groundwater level RMS wells screened in the Upper Aquifer in close proximity to the San Joaquin River were evaluated by comparing modeled groundwater elevations to adjacent stream thalweg elevations in order to calculate the percent of time over the historical time period from 1989 to 2015 that ISW exists at that given location. The IMs and MOs for ISW along the San Joaquin River are the same, and are to maintain the percent of time the San Joaquin River is connected to shallow groundwater levels equal to or greater than existing and historical conditions at RMS wells screened in the Upper Aquifer in close proximity to the San Joaquin River. In order to create SMC that can be evaluated using this metric on an annual basis, a rolling average for the past five years will be used as the current conditions for percent of time connected. The five-year current rolling average will be compared to the historical base period percent of time connected to determine if MOs are being achieved.

Due to monitoring challenges at the selected RMS wells, there is not enough data currently available to evaluate the ISW SMC at this time.

7.2 PROJECTS AND MANAGEMENT ACTIONS (§356.2.C)

Implementation of projects and management actions (PMAs) is critical for achieving and maintaining groundwater sustainability, as described in the Joint GSP. PMAs are scheduled for implementation throughout the 2020 through 2040 GSP implementation period, with different timelines anticipated for each PMA. The estimated annual costs and benefits (i.e., increased groundwater recharge or reduced groundwater use) of PMAs also vary across the GSP implementation period, as described in the Joint GSP 2025 Plan Amendment.

This section describes progress that has been made toward implementation of the Joint GSP and specific PMAs since the previous Annual Report. This includes:

- Updates related to the Joint GSP GSAs' efforts to implement the Domestic Well Mitigation Program (**Section 7.2.1**), and
- Updates for each of the Joint GSP GSAs' individual PMAs (**Section 7.2.2**).

Updates on other SGMA-related efforts are summarized in Section 7 of the Subbasin Annual Report document.

7.2.1 Domestic Well Mitigation

Throughout 2025, the seven Subbasin GSAs continued coordinating and met regularly to discuss the design and implementation of a Domestic Well Mitigation Program (or Programs) within the Subbasin. The discussions were supported by facilitation services funded through a grant awarded by DWR to MC GSA. These discussions provided a helpful, open, and transparent venue for the GSAs to discuss practical implementation items such as: potential cost allocation structures, per-occurrence financial mitigation awards, conditions to be mitigated and not to be mitigated, potential program governance, and reporting, among other topics.

In October 2025, the GSAs remained firmly committed to mitigating impacts to domestic wells within their respective GSAs resulting from declining groundwater levels. However, each GSA (or group of GSAs) elected to move forward with developing and implementing separate Domestic Well Mitigation Programs within their individual (or collective) boundaries. Thus, the decision was to not have a single Domestic Well Mitigation Program for the Subbasin. This outcome was communicated to DWR in a letter sent in November 2025.

Since that decision, the Joint GSP GSAs have diligently worked to develop and begin implementing their own Domestic Well Mitigation Programs. Two Domestic Well Mitigation Programs are now being implemented within the Joint GSP area, as discussed below.

7.2.1.1 Domestic Well Mitigation Program (MID GSA, CM GSA, MWD GSA)

MID GSA, CM GSA, and MWD GSA have agreed to develop and implement a coordinated Domestic Well Mitigation Program that provides financial assistance to well owners impacted by declining groundwater levels in the Madera Subbasin within their collective jurisdictional boundaries. This program helps fund the drilling of a new domestic well to replace those that have gone dry or been otherwise impacted by groundwater level decline (subject to program eligibility criteria).

In January 2026, the program was preparing to receive applications and released a request for qualifications (RFQ) for well drillers to serve as the program's pre-approved drillers. The GSAs

received seven responses, and contracts have since been awarded to four well drillers. The GSAs have also contracted with qualified professionals to support program administration and to conduct on-site assessments after initial applications are received to confirm eligibility.

MID GSA has created a webpage that will provide information about the Domestic Well Mitigation Program being implemented by MID GSA, CM GSA, and MWD GSA (https://www.madera-id.org/domestic-well-mitigation-program-9aa7cce). This website will include information for applicants to understand the program, application process, and eligibility criteria.

Current program funding limits are up to $35,000 per well, subject to certain conditions (e.g., ownership) communicated with well owners. Program funding is provided through existing, approved rates and resulting fees collected by each of the three GSAs.

7.2.1.2 Madera County GSA Dry Well Program (MC GSA)

The MC GSA's Dry Well Program was launched and began receiving applications by January 1, 2026. Under this program, the MC GSA provides financial assistance to well owners impacted by declining groundwater levels in the Madera Subbasin within the MC GSA boundaries. This program helps fund the drilling of a new domestic well or connection to an existing community water system to replace those that have gone dry or been damaged by subsidence.

The MC GSA has developed a dedicated website for the Dry Well Program that includes information about the program, eligibility, and process (https://maderadrywell.com/rules-regulations/). Well owners can initiate and submit an initial application directly through the website, which then initiates a review process and on-site assessment to verify application eligibility.

To be eligible for the MC GSA Dry Well Program, the applicant must be a landowner with a domestic well located within the Madera Subbasin and within the MC GSA boundaries. The property owner must have owned the property for a minimum of one year, and the dwelling unit must be considered "habitable." Additionally, the property must have a domestic well (up to 30 years in age) that went dry after 1/1/2026 or is on the Self-Help Enterprises (SHE) interim water assistance list (with a dry well due to declining groundwater levels that occurred after 1/1/2020 cutoff). The domestic well must have gone dry due to declining groundwater levels; domestic wells impacted by subsidence (collapsed casing) may also qualify. All eligibility requirements are stated on the MC GSA Dry Well Program website.

MC GSA has contracted with qualified professionals to support program administration and to conduct on-site assessments after initial applications are received to confirm eligibility. MC GSA also released an RFQ for well drillers, and subsequently selected two parties that will serve as the program's pre-approved drillers.

As of early March 2026, the MC GSA Dry Well Program has received seven initial applications, of which four were verified for continued evaluation through the program. The remaining three were denied, as they did not meet the program eligibility requirements. MC GSA is continuing to work with the verified applicants to provide appropriate well mitigation services.

Current program funding limits are up to $35,000 per well, subject to certain conditions stated on the MC GSA Dry Well Program website. Program funding is provided primarily by the MC GSA

revised fee approved in July 2025 (Resolution 2025-067), which provides for initial funding in 2026-2030. The annual revised fee ranges from a high of $69 per enrolled acre in 2028, to a low of $43 per enrolled acre in 2030, with the ability to further amend the fee in the future as conditions require. As discussed in **Section 7.2.6.1**, the revised fee was developed and approved by the MC GSA following the dissolution of the injunction that prevented the MC GSA from collecting their initially approved rate, after which the MC GSA chose to instead revise the approved fees downward to prioritize funding sufficient to cover only the costs of implementing a portion of the MC GSA Dry Well Program. Funding for the MC GSA Dry Well Program is expected to be supplemented by penalties collected by MC GSA as part of the MC GSA demand management program (**Section 7.2.6.4**).

7.2.2 Summary of Projects and Management Actions

PMAs that are being implemented by each Joint GSP GSA are listed and described in **Tables 7-6 through 7-9**, followed by a more detailed description of individual PMAs being implemented by each Joint GSP GSA. **Tables 7-6 and 7-7** provide an overview of each PMA from the Joint GSP, its implementation status, planned activities, and updates regarding actual activities and actual benefits since implementation. The status of PMAs is generally defined as follows:

- **Implemented**: Active efforts to operate the PMA have begun, though benefits may or may not have been achieved to date.
- **In Progress**: Active efforts needed to initiate the PMA have begun (e.g., permitting), though development has not reached the point of operability.
- **Planned**: Early conceptual development is still in progress, though active efforts to initiate or operate the PMA have not begun.

The GSAs have continued to make significant progress in implementing existing PMAs, as well as developing and implementing new PMAs. In the year since the last Annual Report submittal, updates were reported for nearly 30 PMAs developed by the Joint GSP GSAs (not including the many subcomponents of larger project initiatives). The total combined benefits quantified for these projects in 2025 are approximately 26,000 AF. This does not include demand reduction benefits of the MC GSA demand management program (**Section 7.2.6.4**), which are not directly quantified at this time, or benefits from other infiltration of applied water, precipitation, and surface water accounted for in the water budget (described in **Sections 2-3**). Wet and above normal conditions in 2023-2025 have also allowed the GSAs to achieve substantial recharge benefits in the Subbasin.

Tables 7-8 and 7-9 summarize the actual PMA costs incurred through the current reporting year (water year 2025) and the estimated overall PMA costs from the initial Joint GSP. All estimated benefits and costs are summarized from the Joint GSP, while actual benefits and costs are presented only for those PMAs already in implementation. These tables provide a comparison of the actual and estimated costs and benefits of PMAs, as well as a measure of the degree of implementation for PMAs that will take multiple years to fully implement. It is noted that the estimated benefits and costs were developed for full project implementation, not partial implementation.

Since initial GSP adoption, the GSAs have considered additional PMAs that may be implemented during the GSP implementation period. All additional PMAs will support the GSP sustainability

goal and align with other GSP implementation efforts. Additional PMAs that are not described in the GSP or previous Annual Reports – or that are not considered an extension of PMAs described in the GSP or previous Annual Reports – will be described in **Section 7.2.7** as they are identified.

The Subbasin GSAs remain committed to adaptive management of groundwater resources through these PMAs. As PMAs are implemented and monitored, the project timelines and volume of demand management necessary will be reviewed. If adjustments are needed to meet the sustainability goal for the Subbasin, PMA timelines will be evaluated and adjusted. In addition to continuous monitoring and review of PMA implementation, each Annual Report represents an important milestone and opportunity to review the status of Joint GSP implementation efforts.

Table 7-6. Projects and Management Actions: Summary.

GSA	Project / Management Action Name	Mechanism	First Year Implemented	Status	General Description
MID	Rehab Recharge Basins	Increase Recharge	2016	Implemented	Rehabilitate and upgrade recharge facilities, including metering.
MID/MC	Ellis Basin	Increase Recharge	2016	Implemented	Cooperatively operate Ellis Basin for recharge.
MID/CM	Berry Basin	Increase Recharge	2018	Implemented	Cooperatively operate Berry Basin for recharge.
MID	Allende Basin	Increase Recharge	2019	Implemented	Operate Allende Basin for recharge.
MID/CM	Additional Recharge Basins with City of Madera[1]	Increase Recharge	2021	Implemented	Cooperatively operate additional basins for recharge, including Golf Course Basin and Airport Basin.
MID	Additional Recharge Basins Phase 1	Increase Recharge	2021	Implemented	Construct and operate additional recharge basins.
MID	Additional Recharge Basins Phase 2	Increase Recharge	2023	In Progress	Construct and operate 260 acres of additional recharge basins.
MID	On-Farm Recharge	Increase Recharge	2015	Implemented	Deliver available flood water to agricultural or other suitable land for recharge.
MID	Phase 2 On-Farm Recharge	Increase Recharge	2023	Implemented	Expand delivery of available flood water to agricultural or other suitable land for recharge.
MID	MID Pipeline	Reduce evaporation and GW Pumping	2016	Implemented	Rehabilitate aging pipelines to reduce losses.
MID	WaterSMART Pipeline	Reduce evaporation and GW Pumping	2019	Implemented	Rehabilitate additional pipelines to reduce losses and allow MID to deliver water later in the irrigation season.
MID	WaterSMART SCADA	Reduce evaporation and GW Pumping	2019	Implemented	Expand SCADA to improve MID water management, reduce losses, and allow MID to deliver water later in the irrigation season.
MID	Water Supply Partnerships	Purchase water from willing partners outside of the basin to increase recharge or reduce GW pumping	2022	In Progress	Identify and purchase or exchange additional water supplies from partnering districts.
MID	Incentive Program	Encourage more use of district SW; Reduce GW pumping	2022	Implemented	Develop incentive structures to encourage more MID growers to utilize surface water supplies instead of groundwater.
MID	Demand Reduction[1]	Reduce demand	2019	Implemented	Detach from MID or remove agricultural land from production.
MID	Grazing Land Annexation[1]	Increase Sustainable Yield	2020	Implemented	Annexation of grazing land to increase sustainable yield for the MID GSA.
MID	Water User Software Platform (UI)[1]	Education / Outreach	2020	Implemented	Software platform for MID landowners that provides information on current and historical water use.
MID	Intensive Groundwater Use Policy[1]	Reduce GW Pumping	2019	Implemented	Policy related to intensive groundwater use for a purpose other than agriculture.
MID	Domestic Well Benefits[1]	Benefits to domestic wells and/or disadvantaged communities (DACs)	2021	Implemented	Acquire, construct, and operate additional recharge basins, prioritized near domestic well locations and/or DACs.
MWD	Expanded Surface Water Purchase	Purchase water from willing partners in the basin to reduce GW pumping	2023	In Progress	Expand ability to purchase additional surface water supply, including upgrades to conveyance infrastructure.
CM	Meters and Volumetric Pricing	Reduce evaporation and GW Pumping	2015	Implemented	Install water meters and implement a volumetric billing process for single-family users to promote water conservation.
CM/MID	Berry Basin	Increase Recharge	2018	Implemented	Cooperatively operate Berry Basin for recharge.
CM/MID	Additional Recharge Basins[1]	Increase Recharge	2021	Implemented	Operate additional recharge basins in coordination with MID, including Golf Course Basin and Airport Basin. *This PMA was added to CM since adoption of the Joint GSP, although it is part of MID's planned PMAs.*
MC/MID	Ellis Basin	Increase Recharge	2016	Implemented	Cooperatively operate Ellis Basin for recharge.
MC	Water Imports Purchase	Purchase water from willing partners outside of the basin to increase recharge or reduce GW pumping	2025	In Progress	Develop partnerships and import additional water into Madera County for direct or in-lieu recharge.
MC	Millerton Flood Release Imports	Purchase water from willing partners outside of the basin to increase recharge or reduce GW pumping	2025	In Progress	Request CVP Section 215 flood water when available for recharge.
MC	Chowchilla Bypass Flood Flow Recharge Phase 1	Increase Recharge	2025	In Progress	Construct and operate diversion and conveyance facilities and basins.
MC	Chowchilla Bypass Flood Flow Recharge Phase 2	Increase Recharge	2040	In Progress	Construct and operate additional diversion and conveyance facilities and basins.
MC	Demand Management	Reduce demand by limiting groundwater pumping	2020	In Progress	Reduce consumptive water use through actions such as water-stressing crops, shifting to lower water-using crops, reducing evaporation losses, and reducing irrigated acreage.
GFWD	*See GFWD GSA GSP Annual Report Elements for information on GFWD PMAs.*				
NSWD	*See NSWD GSA GSP Annual Report Elements for information on NSWD PMAs.*				
RCWD	*See RCWD GSA GSP Annual Report Elements for information on RCWD PMAs.*				

Notes: 1. This PMA was added since adoption of the Joint GSP.

Table 7-7. Projects and Management Actions: Implementation Updates and Benefits (2025).

GSA	Project / Management Action Name	First Year Implemented	Updates	2025 Annual Benefit (acre-feet/year)	Average Annual Benefit in Years with Benefits (acre-feet/year)	Estimated Average Annual Benefit at 2040[1] (acre-feet/year)
MID	Rehab Recharge Basins	2016	Recharged more than 8,900 AF of water in 2025.	8,902	3,610	5,030
MID/MC	Ellis Basin	2016	Recent site improvements were completed in spring 2024. No recharge occurred in 2025.	0	80	120
MID/CM	Berry Basin	2018	Recharged nearly 290 AF of water in 2025 (benefits are split between MID GSA and CM GSA).	144	230	20
MID	Allende Basin	2019	Recharged nearly 2,800 AF of water in 2025.	2,797	2,430	1,050
MID/CM	Additional Recharge Basins with City of Madera	2021	Recharged nearly 800 AF of water in 2025 in additional recharge basins jointly operated by MID GSA and CM GSA (Berry Basin is accounted separately; benefits are split between MID GSA and CM GSA).	396	390	632
MID	Additional Recharge Basins Phase 1	2021	Recharged more than 3,800 AF of water in 2025 using new recharge basins developed in 2022.	3,869	4,070	5,470
MID	Additional Recharge Basins Phase 2	2023 *(In Progress)*	MID acquired a 60-acre parcel in 2024, constructed the Lilles Basin on the parcel in 2024-2025, and recharged nearly 100 AF in the basin in 2025.	92	90	21,890
MID	On-Farm Recharge	2015	MID continues to offer landowners on-farm recharge opportunities throughout the year when conditions allow and water is available.	0	11,080	510
MID	Phase 2 On-Farm Recharge	2023	MID has expanded the on-farm recharge program. Many more MID landowners are taking advantage of this opportunity when it is available. MID has also partnered with the NRCS for funding of projects related to on-farm recharge (benefits are split between Phase 1/2).	0	19,160	1,690
MID	MID Pipeline	2016	Ongoing implementation.	420	420	420
MID	WaterSMART Pipeline	2019	Ongoing implementation.	880	880	880
MID	WaterSMART SCADA	2019	Ongoing implementation.	1,230	1,230	1,230
MID	Water Supply Partnerships	2022 *(In Progress)*	MID is currently working with other districts with Friant contracts to develop water supply partnerships.	0	50	3,990
MID	Incentive Program	2022	MID has continued implementing the Incentive Program as part of the On-Farm Recharge Program. In 2025, MID continued outreach and education to encourage use of available surface water. MID has also continued the pilot program with the NRCS and U.S. Department of Interior's WaterSMART Initiative. Funding has been made available to MID landowners through the program for projects that conserve water and promote the use of surface water, including $1.5 million in 2022, $2.4 million in fall 2023, $2.9 million in 2024, and $1.3 million in 2025. MID has also offered an additional financial incentive of 15% of the project costs for basins as a future water purchase offset to incentivize landowners to recharge water. More than 25 parcels in MID have participated in recharge activities.	0	22,900	5,010
MID	Demand Reduction[2]	2019	Demand reduction benefits related to the detachment of 320 acres from MID GSA and of conversion of more than 230 acres of irrigated parcels to recharge basins are ongoing.	1,380	1,200	1,020
MID	Grazing Land Annexation[2]	2020	Benefits are ongoing.	206	210	206
MID	Water User Software Platform (UI)[2]	2020	Ongoing implementation.	-	-	-
MID	Intensive Groundwater Use Policy[2]	2019	Ongoing implementation.	-	-	-
MID	Domestic Well Benefits[2]	2021	MID is expanding existing recharge facilities and building new recharge facilities in areas near domestic wells and/or DACs. Domestic well benefits include both taking the land out of production and actively recharging.	-	-	-
MWD	Expanded Surface Water Purchase	2023	MWD purchased approximately 3,580 AF of surface water in 2025, or approximately 1,420 AF in excess of the 1989-2015 average. The contract for the construction of the Madera Lake project was issued in July 2025. Construction commenced in September 2025 and is anticipated to be completed in fall 2026.	1,420	2,250	2,810
CM	Meters and Volumetric Pricing	2015	In 2025, CM proceeded with installation of 46 automatic meter reading (AMR) meters ranging from 3 to 10 inches. Of the 15,200 water accounts the CM currently has in place, approximately 40 (0.25%) remaining unmetered accounts as of December 2025. The CM has two projects that will install remaining meters in the near future.	3,350	3,350	3,350

GSA	Project / Management Action Name	First Year Implemented	Updates	2025 Annual Benefit (acre-feet/year)	Average Annual Benefit in Years with Benefits (acre-feet/year)	Estimated Average Annual Benefit at 2040[1] (acre-feet/year)
CM/MID	Berry Basin	2018	Recharged nearly 290 AF of water in 2025 (benefits are split between MID GSA and CM GSA).	144	230	20
CM/MID	Additional Recharge Basins[2]	2021	Recharged nearly 800 AF of water in 2025 in additional recharge basins jointly operated by MID GSA and CM GSA (Berry Basin is accounted separately; benefits are split between MID GSA and CM GSA).	396	390	632
MC/MID	Ellis Basin	2016	Recent site improvements were completed in spring 2024. For various reasons, no recharge occurred in 2025.	0	80	120
MC	Water Imports Purchase	2025	MC requested a change in place of use in 2019 and has had multiple meetings with USBR. Discussions are ongoing.	-	-	3,610
MC	Millerton Flood Release Imports	2025	MC requested a change in place of use in 2019 and has had multiple meetings with USBR. Discussions are ongoing. MC has written a separate letter requesting Section 215 water to be available.	-	-	7,060
MC	Chowchilla Bypass Flood Flow Recharge Phase 1[3]	2025	Grant-funded work continued in 2025 to support planning and design of infrastructure for diversions, deliveries, and recharge of flood water from Millerton Reservoir and purchased water, although delays occurred in coordination efforts. As of early 2026, MC GSA is coordinating with USBR to continue with project development. CEQA and NEPA documents are expected to be submitted in early 2026 for public review, followed by completion of 100% design documents and initiation of the construction bid process. The MC GSA has begun discussions with DWR to request a grant agreement extension to support project completion.	-	42,100[4]	3,900
MC	Chowchilla Bypass Flood Flow Recharge Phase 2[3]	2040	Grant-funded work continued in 2025 to support planning and design of infrastructure for diversions, deliveries, and recharge of flood water from the Chowchilla Bypass. As of early 2026, conceptual plans have been developed for a new project location that will include 1.6 miles of earthen channel and infrastructure to support Flood-MAR. The MC GSA is proceeding with preparation of 30%, 60%, and 100% designs in 2026, and will also complete CEQA within that timeframe. No permits are required for this project. The MC GSA is requesting a grant agreement extension for this project to accommodate changes for the new project location.	-	-	17,400
MC	Demand Management	2020	MC GSA completed numerous actions toward implementation of demand management in 2025, including: continued tracking and enforcement of groundwater allocations and penalties; adoption of a resolution defining allocation amounts in 2026-2040; implementation of a demand measurement program, including updates to measurement method policies and contracts; implementation of a recharge policy to credit water users for recharge of surface water under certain circumstances; and adoption of a formal policy for allocation of carryover credits and penalties during Farm Unit reorganization. MC GSA has also continued development of land repurposing strategies, rules, and criteria through LandFlex funding and the Multibenefit Land Repurposing Program (MLRP). Initial data continues to show promising reductions in ETAW from demand management actions in 2025. However, the precise costs and benefits of these demand management efforts are still being quantified and will be given in future reports.	*Not quantified directly at this time, but accounted in water budget.*	*Not quantified directly at this time, but accounted in water budget.*	113,000
			Total	25,624	116,430	201,070

Notes:

1. Estimates developed for full project implementation. For PMAs described in the Joint GSP, the estimated average annual benefit at 2040 is summarized from the Joint GSP. Some PMAs have been modified since the Joint GSP was adopted, so these totals may not equal the totals reported in the GSP.
2. This PMA was added since adoption of the Joint GSP.
3. Since the Joint GSP was adopted, the Chowchilla Bypass Flood Flow Recharge Phase 1 and 2 projects have been further refined into a series of five recharge projects that are expected to undergo planning/design and construction between 2021 and 2030. Phase 1 now corresponds to Project 1 (Option C), with a revised estimated average annual benefit at 2040 of approximately 3,900 AF per year (11,200 AF in years water is available). Phase 2 now corresponds to Projects 2 through 5 (Option C), with a revised combined estimated average annual benefit at 2040 of 17,400 AF per year (49,600 AF in years water is available). These anticipated benefits are for full project implementation and have been refined from the initial benefits identified during GSP development.
4. Benefits in 2023 from MC GSA-reported diversions and recharge under EO N-4-23. Benefits were reported in the Joint GSP water budget in water year 2023.

Table 7-8. Projects and Management Actions: Cost Summary (2025).

Groundwater Sustainability Agency (GSA)	Project	First Year Implemented	Status	2025 Capital Cost ($)	Capital Cost to Date ($)	2025 Annual Operating Cost ($)
MID	Rehab Recharge Basins	2016	Implemented		$450,390	
MID/MC	Ellis Basin	2016	Implemented		$20,000	
MID/CM	Berry Basin	2018	Implemented		$28,965	
MID	Allende Basin	2019	Implemented		$339,590	
MID/CM	Additional Recharge Basins with City of Madera[1]	2021	Implemented			
MID	Additional Recharge Basins Phase 1	2021	Implemented		$2,331,360	
MID	Additional Recharge Basins Phase 2	2023	In Progress		$3,000,000	
MID	On-Farm Recharge	2015	Implemented			
MID	Phase 2 On-Farm Recharge	2023	Implemented			
MID	MID Pipeline	2016	Implemented		$640,000	
MID	WaterSMART Pipeline	2019	Implemented			
MID	WaterSMART SCADA	2019	Implemented			
MID	Water Supply Partnerships	2022	In Progress			
MID	Incentive Program	2022	Implemented		$151,000	
MID	Demand Reduction[1]	2019	Implemented		$12,000	
MID	Grazing Land Annexation[1]	2020	Implemented			
MID	Water User Software Platform (UI)[1]	2020	Implemented			
MID	Intensive Groundwater Use Policy[1]	2019	Implemented			
MID	Domestic Well Benefits[1]	2021	Implemented			
MWD	Expanded Surface Water Purchase	2023	In Progress			
CM	Meters and Volumetric Pricing	2015	Implemented	$828,000	$2,081,906	
CM/MID	Berry Basin	2018	Implemented			
CM/MID	Additional Recharge Basins[1]	2021	Implemented		$50,000	
MC/MID	Ellis Basin	2016	Implemented		$227,455	$26,943
MC	Water Imports Purchase	2025	In Progress			
MC	Millerton Flood Release Imports	2025	In Progress			
MC	Chowchilla Bypass Flood Flow Recharge Phase 1	2025	In Progress	$92,000	$507,000	
MC	Chowchilla Bypass Flood Flow Recharge Phase 2	2040	In Progress			
MC	Demand Management	2020	In Progress	$837,285	$2,451,267	$542,939

Notes:

1. This PMA was added since adoption of the Joint GSP.
2. Capital costs reported by MID. CM maintains the Golf Course Basin.

Table 7-9. Projects and Management Actions: Cost Summary, Estimated Total.

Groundwater Sustainability Agency (GSA)	Project	First Year Implemented	Status	Estimated Capital Cost[1] ($)	Estimated Average Annual Operating Cost[1] ($/year)
MID	Rehab Recharge Basins	2016	Implemented	$60,000	$430,000
MID/MC	Ellis Basin	2016	Implemented	$20,000	$20,000
MID/CM	Berry Basin	2018	Implemented	$20,000	$0
MID	Allende Basin	2019	Implemented	$200,000	$70,000
MID/CM	Additional Recharge Basins with City of Madera[2]	2021	Implemented	-	-
MID	Additional Recharge Basins Phase 1	2021	Implemented	$1,000,000	$240,000
MID	Additional Recharge Basins Phase 2	2023	In Progress	$14,200,000	$3,750,000
MID	On-Farm Recharge	2015	Implemented	$0	$50,000
MID	Phase 2 On-Farm Recharge	2023	Implemented	$0	$190,000
MID	MID Pipeline	2016	Implemented	$560,000	$0
MID	WaterSMART Pipeline	2019	Implemented	$1,300,000	$0
MID	WaterSMART SCADA	2019	Implemented	$1,200,000	$0
MID	Water Supply Partnerships	2022	In Progress	$0	$2,500,000
MID	Incentive Program	2022	Implemented	$0	$3,080,000
MID	Demand Reduction[2]	2019	Implemented	$12,000	$110,000
MID	Grazing Land Annexation[2]	2020	Implemented	-	-
MID	Water User Software Platform (UI)[2]	2020	Implemented	-	-
MID	Intensive Groundwater Use Policy[2]	2019	Implemented	-	-
MID	Domestic Well Benefits	2021	Implemented	-	-
MWD	Expanded Surface Water Purchase	2023	In Progress	$14,900,000	$900,000
CM	Meters and Volumetric Pricing	2015	Implemented	$11,000,000	$0
CM/MID	Berry Basin	2018	Implemented	$20,000	$0
CM/MID	Additional Recharge Basins[2]	2021	Implemented	$50,000	-
MC/MID	Ellis Basin	2016	Implemented	$20,000	$20,000
MC	Water Imports Purchase	2025	In Progress	$300,000	$2,490,000
MC	Millerton Flood Release Imports	2025	In Progress	$31,900,000	$450,000
MC	Chowchilla Bypass Flood Flow Recharge Phase 1[3]	2025	In Progress	$6,600,000[3]	$600,000[3]
MC	Chowchilla Bypass Flood Flow Recharge Phase 2[3]	2040	In Progress	$101,700,000[3]	$1,500,000[3]
MC	Demand Management	2020	In Progress	$0	$53,900,000[4]
			Total	$185,062,000	$70,300,000

Notes:

1. Estimates developed for full project implementation. These totals may not equal the totals reported in the Joint GSP, as certain projects have been added or revised since initial GSP development. The Joint GSP GSAs remain committed to adaptive management of PMAs to ensure long-term sustainable management of the Subbasin. The estimated costs of new PMAs are estimated to be equal to the costs in the Annual Report, if specified.
2. This PMA was added since adoption of the Joint GSP.
3. Since the Joint GSP was adopted, the Chowchilla Bypass Flood Flow Recharge Project Phases 1 and 2 have been reconfigured into a series of five recharge projects that are expected to undergo planning/design and construction between 2021 and 2030. Phase 1 now corresponds to Project 1 (Option C). Phase 2 now corresponds to Projects 2 through 5 (Option C). These costs have been refined from the initial costs identified during GSP development.
4. Costs represent the estimated average annual direct economic costs of demand management, based on the economic impact analysis of the demand management program (see Section 4.4.4.5 of the 2020 Joint GSP).

7.2.3 Madera Irrigation District GSA Projects and Management Actions

MID GSA has implemented the majority of the PMAs it planned in the Joint GSP since January 2020, and has begun implementing additional PMAs identified since initial GSP adoption to support groundwater sustainability. The average annual benefits of PMAs currently implemented by MID are shown in **Table 7-7** for water year 2025. In total, MID's PMAs resulted in approximately 20,300 AF of benefits to the Subbasin in 2025.

7.2.3.1 Recharge Basins and On-Farm Recharge

Seventeen dedicated recharge basins continue to be utilized by MID, including those operated in partnership with other GSAs. Of this total, six are operated together with the CM GSA (Berry Basin, Golf Course Basin, and four additional City Basins) and one is operated together with the MC GSA (Ellis Basin). MID operates the remaining basins, including the Allende Basin, Madera Lake, and other dedicated recharge facilities developed since GSP adoption.

Since 2021, MID has acquired more than 230 acres of land to develop new recharge basins, simultaneously reducing demand by taking those acquired parcels out of agricultural production. Most recently, MID acquired a 60-acre former almond orchard in 2024 and the project is under development. MID also developed a new recharge basin (the Lilles Basin) on another recently acquired parcel in 2024-2025, and used the basin for recharge in 2025. The Lilles Basin is a component of MID's "Additional Recharge Basins Phase 2" project, which MID is implementing ahead of schedule (implementation was expected by 2040 in the initial Joint GSP). MID's total capital investments in the Phase 2 project total approximately $3 million.

In total, approximately 16,700 AF of surface water was delivered across all active recharge basins in 2025, including nearly 1,080 AF of surface water in CM GSA-partner basins (benefits are split equally between MID GSA and CM GSA). MID pays for the water recharged as well as the O&M of the MID-owned and operated recharge facilities. MID plans to continue operating recharge basins in future years when surface water is available.

MID continues to offer landowners on-farm recharge opportunities throughout the year when conditions allow and water is available. In recent years, MID has offered low-cost water ($0/AF to $10/AF) to promote on-farm recharge. MID has continued efforts to implement phase 2 of the on-farm recharge program. Many more MID landowners are taking advantage of on-farm recharge opportunities when they are available.

MID has also partnered with the Natural Resources Conservation Service (NRCS), which has made pilot program funds available in MID for recharge projects such as on-farm recharge, recharge basins, or other supporting practices (described further below, see Incentive Program). These efforts are ahead of schedule.

7.2.3.2 Infrastructure Upgrades

MID's WaterSMART SCADA and WaterSMART pipeline projects continued to be implemented in 2025. Both projects are helping to improve MID's water management, reduce system losses, and enhance flexibility of surface water deliveries to growers who would otherwise use groundwater. Since 2021, MID has also benefitted from the replacement of approximately 5,350 feet of aging pipelines within MID's system. Infrastructure improvements have resulted in collective average annual benefits to date of more than 2,500 AF per year.

MID has also continued its partnership with the NRCS and U.S. Department of Interior's WaterSMART Initiative, which designated MID as a priority area in the western U.S. Funding has been made available to MID landowners through the program for projects that conserve water and promote the use of surface water, including $1.5 million in 2022, $2.4 million in fall 2023, $2.9 million in 2024, and $1.3 million in 2025. Landowners in MID can apply for these funds through the NRCS to support conservation practices and infrastructure improvements such as irrigation water management, irrigation pipelines, structures for water control, pumps, micro irrigation systems, cover crops, and additional practices. Updates on these efforts will be reported in future Annual Reports.

7.2.3.3 Water Supply Partnerships

MID has also continued work to develop water supply partnerships with partners outside of the Madera Subbasin. Efforts to import surface water supplies are being coordinated with other districts that have contracts for supplies from Friant Dam. Updates on these efforts will be reported in future Annual Reports.

7.2.3.4 Demand Reduction

Beyond the recharge benefits of these PMAs, MID has further reduced demand by: annexing rangeland into MID; acquiring more than 170 acres of irrigated land for conversion to new recharge basins (described above), effectively removing those lands from production; and detaching 320 acres from the MID GSA.

7.2.3.5 Domestic Well Benefits

As MID is expanding and developing new groundwater recharge basins (described above), MID is also simultaneously making efforts to strategically locate those facilities near domestic wells and/or DACs. As MID acquires, constructs, and operates recharge basins in priority areas near domestic wells and/or DACs, MID is helping to protect against potential adverse groundwater conditions for those beneficial users by augmenting local groundwater supplies and reducing local irrigation demand. As described in **Section 7.1.3**, the Joint GSP GSAs are also monitoring groundwater quality to avoid undesirable results for beneficial users.

MID GSA, together with CM GSA and MWD GSA, is also implementing a domestic well mitigation program for wells within the collective GSAs' area. Updates on this program are provided in **Section 7.2.1.1**.

7.2.3.6 Incentive Program

As part of the on-farm recharge program, MID has also continued implementing an incentive program to encourage growers to use surface water when it is available. Outreach remains a major component of the incentive program. MID has encouraged landowners to continue installing and using turnouts by educating and explaining the benefits of surface water use.

As described above, MID has partnered with the NRCS and was selected as a pilot program area for investigating the benefits of implementing new recharge practices. Funding has been made available to MID landowners through the program for projects that conserve water and promote the use of surface water, including $1.5 million in 2022, $2.4 million in fall 2023, $2.9 million in 2024, and $1.3 million in 2025. MID has conducted public outreach and workshops to promote

program participation within MID. MID has also continued its support of the program by offering an additional financial incentive of 15% of the project costs for basins as a future water purchase offset to incentivize landowners to participate and utilize surface water in the future. The program has been a success, with more than 25 parcels in MID participating in recharge activities.

7.2.3.7 Other Activities

In 2025, MID continued implementing the intensive groundwater use policy that supports the overall sustainability goal established in the Joint GSP.

In 2025, MID also led the development of a coordinated Domestic Well Mitigation Program, which it is implementing together with CM GSA and MWD GSA. MID is also serving as the manager for the program. As described in **Section 7.2.1.1**, the coordinated Domestic Well Mitigation Program helps fund the drilling of a new domestic well to replace those that have gone dry or been otherwise impacted by groundwater level decline (subject to program eligibility criteria).Other tools and policies reported in previous Annual Reports, including the Water User Software Platform, are still in effect with ongoing benefits.

7.2.4 Madera Water District GSA Projects and Management Actions

MWD GSA has continued work to implement the expanded surface water purchase project proposed in the Joint GSP. In water year 2025, MWD purchased and delivered approximately 3,580 AF of surface water to its customers. This volume represents approximately 1,420 AF in excess of the 1989-2015 average of 2,159 AF, offsetting groundwater demand and providing in lieu recharge benefits. As surface water is available, MWD plans to continue purchasing additional surface water each year to facilitate in-lieu recharge and preserve groundwater supplies.

As part of the expanded surface water purchase project, MWD also continues to move forward on the Madera Lake Project. The contract for the construction of the Madera Lake project was issued in July 2025. Construction commenced in September 2025 and is anticipated to be completed in Fall 2026.

MWD GSA, together with MID GSA and CM GSA, is also implementing a domestic well mitigation program for wells within the collective GSAs' area. Updates on this program are provided in **Section 7.2.1.1**.

7.2.5 City of Madera GSA Projects and Management Actions

The CM GSA has continued efforts on a project to install water meters and implement a volumetric billing process for single-family users to promote water conservation. Following approval of Madera's Proposition 1 Round 1 Integrated Regional Water Management (IRWM) grant agreement in 2021, the CM has proceeded with actions to install meters on the remaining unmetered services and to replace failing meters on higher volume services.

In 2025, the CM proceeded with installation of 46 automatic meter reading (AMR) meters ranging from 3 to 10 inches. Of the 15,200 water accounts the CM currently has in place, approximately 40 (0.25%) remaining unmetered accounts as of December 2025. The CM has two projects that will install remaining meters in the near future. Capital costs in 2025 totaled approximately $828,000. Operating costs are built into typical rate structures.

As described above, MID and the CM have also continued working cooperatively to operate and develop several recharge basins. Six recharge basins have continued to be operated cooperatively by MID and the CM, including the Berry Basin, the Golf Course Basin, and four additional City Basins. In total, nearly 1,080 AF of surface water was delivered to the basins for recharge in water year 2025 (benefits are split equally between MID GSA and CM GSA). No capital costs or operating costs were incurred in 2025.

CM GSA, together with MID GSA and MWD GSA, is also implementing a domestic well mitigation program for wells within the collective GSAs' area. Updates on this program are provided in **Section 7.2.1.1**.

7.2.6 Madera County GSA Projects and Management Actions

Since adoption of the initial Joint GSP, MC GSA has completed multiple studies, implemented a recharge program, and implemented a substantial demand management program with penalties. Adaptive implementation of PMAs will collectively support achievement of the GSP sustainability goal over the GSP implementation period. Progress that has been made in each of these efforts is described below.

7.2.6.1 Funding for GSP Implementation

The MC GSA collects an administrative fee of $20-30 per acre for irrigated acres within the GSA that is used for SGMA-related administration and planning efforts. While the administrative fee is useful for supporting SGMA implementation, these funds cannot be used for implementation of GSP PMAs, including construction of recharge facilities, purchasing surface water for in-lieu recharge, voluntary land repurposing, or for domestic well mitigation efforts.

In 2022, a Proposition 218 process was completed that led to approval of an acreage-based rate for enrolled acres within the MC GSA in the Subbasin. The initially approved rate ($246 per enrolled acre) was intended to fund implementation of specific GSP-defined projects, including recharge facilities, water purchases, and domestic well mitigation programs. Resolution 2022-086 (adopted 06/21/2022) approved the GSP implementation-related rate for the Subbasin. However, following a lawsuit and preliminary injunction issued by the Madera County Superior Court in December 2022, Madera County was ordered to refrain from imposing and/or collecting any fees, rates, and/or GSP-related PMA fees enacted under Resolution 2022-086 against landowners in the Subbasin. The Court dissolved the injunction in March 2025, allowing the County GSA to resume collection of fees, but leaving the MC GSA in a multi-year funding shortfall for GSP PMAs. Rather than immediately collect the approved fees and back-fees, the MC GSA decided to instead revise the approved fees downward to prioritize funding sufficient to cover only the costs of implementing a portion of the MC GSA Dry Well Program (**Section 7.2.1.2**), while maintaining the ability to further amend the fee in the future if conditions require. The revised fee was approved in July 2025 (Resolution 2025-067), and provides for initial funding in 2026-2030. The annual revised fee ranges from a high of $69 per enrolled acre in 2028, to a low of $43 per enrolled acre in 2030. These funds will be used to support the MC GSA Dry Well Program. Meanwhile, the MC GSA is continuing GSP implementation and is seeking ways to reduce other implementation costs (e.g., through grants, refinements) with stakeholder input and discussion.

Continued implementation of the demand management program – with associated allocation and penalties – also provided funding for GSP implementation. In 2022, the MC GSA approved a

penalty for groundwater extraction above the allocation that is being imposed (described below). Funds generated from these penalties are available to support GSP implementation moving forward, as directed by the GSA Board, which has indicated an inclination to fund domestic well mitigation first as a top priority.

In addition to these efforts, the MC GSA continues to utilize Proposition 68 funding for PMA implementation through two grants. This funding is currently being used to support design, permitting, and construction of a portion of the Chowchilla Bypass Flood Flow Recharge Program (described below). The MC GSA in the Madera Subbasin also received a grant for $9.3 million (which later was decreased to $680,409 due to low landowner participation) from DWR for LandFlex, in coordination with the California Department of Food and Agriculture. Madera County also received state funding to support the Multibenefit Land Repurposing Program (MLRP), with total funding of $10 million available to support projects throughout any GSA within Madera County. This funding is being used to support land repurposing efforts (described below).

7.2.6.2 Recharge Projects

Since 2016, the MC GSA has operated the Ellis Basin for recharge in partnership with MID GSA. MC GSA has worked on various site improvements since 2022 to improve future operation of the Ellis Basin, with the most recent site improvements completed in 2024. For various reasons, no recharge occurred in 2025. The total cost to date for the Ellis Basin pump station installation and equipment is approximately $227,500, not including staff time and maintenance costs. MC GSA invested approximately $27,000 in 2025 to maintain equipment and monitor the project on a weekly basis. MC GSA plans to continue operation of the Ellis Basin project for recharge when water is available.

Since GSP adoption, MC GSA has also continued work on a recharge planning study to refine the costs, benefits, and schedule for recharge projects described in the GSP. The recharge planning study has refined the costs and schedule for constructing additional basins and to conduct additional flood managed aquifer recharge (Flood-MAR) of winter floodwater. This study has resulted in the development of the Chowchilla Bypass Flood Flow Recharge Program. A description of the recharge study and planned recharge efforts is available at: https://www.maderacountywater.com/recharge/. In 2024-2025, the MC GSA continued public outreach and engagement for the recharge program, including outreach related to the MC GSA recharge policies (Resolution 2024-030; described further in the groundwater allocation program discussion) and solicitation of stakeholders' interest in consideration for involvement in ongoing recharge project planning or future projects, as they arise. Planned recharge efforts are coordinated together with the emergency recharge plan (described in **Section 7.2.7**, below).

Since 2020, the MC GSA has continued design efforts, permitting, and construction for portions of the Chowchilla Bypass Flood Flow Recharge Program. These efforts are being funded by two Proposition 68 grants from DWR, which were based on work developed through the recharge planning study.

In 2021, the first grant proposal was awarded more than $4 million total from Proposition 68 funds. As of early 2024, those funds are being used toward planning, design, and construction of diversion, conveyance, and recharge infrastructure that will supply flood water for Flood-MAR activities on farmland in MC GSA. The recharge sites were surveyed in early 2022, and 60%

designs were completed and reviewed by participating landowners in mid- to late-2022. California Environmental Quality Act (CEQA) documents and permitting efforts were slated to begin in 2023, following successful completion of the necessary field work and permit preparation work. However, the project was ultimately delayed during coordination efforts between the participating GSAs. As of early 2026, MC GSA is coordinating with the USBR to continue with project development. CEQA and National Environmental Policy Act (NEPA) documents are expected to be submitted in early 2026 for public review. The MC GSA will coordinate permitting efforts with the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers, and others as necessary. Following successful completion of all required permitting, the MC GSA anticipates completing the 100% design documents and initiating the construction bid process. The MC GSA has begun discussions with DWR to request a grant agreement extension to support project completion. This project has been developed in close coordination with RCWD GSA and landowners in the MC GSA who offered their farmland for recharge. When completed, this project will utilize flood flows from Millerton Reservoir and purchased water to provide direct or in-lieu recharge benefits to the Madera Subbasin.

In 2022, the second grant proposal was awarded approximately $500,000 from Proposition 68 funds as part of Round 1 of the 2022 SGMA Implementation Grant program. Those funds are being used to plan, design, and construct additional recharge facilities along the Chowchilla Bypass, expanding on work being developed through the first grant. As of early 2026, conceptual plans have been developed for a new project location after earlier efforts to coordinate with landowners on the Chowchilla Bypass stalled and led MC GSA to pivot and re-design the recharge project downstream of the initial project location. The project approach remains the same despite the relocation, and is anticipated to include 1.6 miles of earthen channel and infrastructure to support Flood-MAR. The MC GSA is proceeding with preparation of 30%, 60%, and 100% designs in 2026, and will also complete CEQA within that timeframe. No permits are required for this project. This project has been developed in close coordination with New Stone Water District GSA and landowners in the MC GSA who offered their farmland for recharge. The MC GSA is requesting a grant agreement extension for this project to accommodate changes for the new project location.

MC GSA has also developed the Fairmead Groundwater Resilience Project to create concepts for implementing a groundwater resilience project involving groundwater recharge and/or land repurposing efforts within the severely disadvantaged community of Fairmead, with the goal of buffering this area from the water security impacts of climate-induced drought. The project has been completed in two phases through grant funding (including $180,000 for Phase 1 as part of the California Resilience Challenge). Phase 1 was completed in 2024, which led to the development of a concept report for recharge projects – including options for direct recharge, in-lieu recharge, and a multi-benefit recharge project incorporating a recharge basin into community recreational facilities – and a monitoring framework. MC GSA's Phase 1 efforts provided the foundation for Phase 2, which is moving from project concept development to supporting on-the-ground implementation. Throughout its involvement in Phase 1, the MC GSA has continued to strengthen community engagement in the design, implementation, and management of these

projects through workshops, outreach, and other direct engagement to collect feedback and to guide project development.

7.2.6.3 Water Imports

In addition to the recharge efforts described above, the MC GSA is also in the process of developing partnerships to import additional water into Madera County and to acquire CVP Section 215 flood water when it is available for recharge. MC GSA requested a change in place of use in 2019 and has since had multiple meetings with USBR. MC GSA has written a separate letter requesting Section 215 water to be available. Discussions are ongoing. No water has been purchased to date under this program due to the injunction from 2022-2025.

7.2.6.4 Demand Management

MC GSA currently administers a comprehensive demand management program – with associated allocation, penalties, recharge policies, and land fallowing as a byproduct of other policies – that will oversee a managed reduction in the volume of groundwater consumed by irrigated agriculture within the MC GSA area over the 20-year GSP implementation period. Since adoption of the groundwater allocation approach in 2020, MC GSA has proceeded with program development and implementation to incrementally reduce groundwater consumption across the MC GSA-managed portion of the Subbasin (and the Chowchilla and Delta-Mendota Subbasins). The demand management program is applicable to lands within its jurisdictional area in the Subbasin.

The demand management program is expected to support sustainable groundwater management by gradually limiting groundwater extraction within the Madera County GSA areas to the sustainable yield of the Subbasin, accomplished by gradually reducing the transitional water to 0 AF per acre by 2040. While the initial Joint GSP contemplated the MC GSA's demand management program reducing extractions by 90,000 AFY by 2040, in fact, as currently existing, the demand management program will reduce extractions by the full 111,000 AFY overdraft. Although MC GSA's progress on other PMAs has been hampered by the injunction, the demand management program is designed to meet the sustainability goal by 2040 without those projects. If projects are implemented in the future, the MC GSA can revisit the demand management program, and analyze whether extractions in addition to those planned may be appropriate.

To implement the overall demand management program, MC GSA has:

- Conducted a water market study (completed in 2021),
- Initiated work on a Voluntary Land Repurposing Program (VLRP) and a Multibenefit Land Repurposing Program (MLRP),
- Developed and implemented an allocation program, which is now being tracked and enforced with associated penalties, and
- Developed and implemented a structured demand measurement program (i.e., monitoring and reporting system) that enables accurate tracking of groundwater consumption and compliance across the MC GSA-managed areas.

The following sections briefly describe the VLRP, TLRP, MLRP, the allocation program, the demand measurement program, and the verification project.

Voluntary Land Repurposing Program (VLRP), LandFlex (TLRP), and Multibenefit Land Repurposing Program (MLRP). Since initial Joint GSP development, the MC GSA received grant funding to explore the feasibility of adopting a sustainable agricultural land conservation (SALC) easement program within the MC GSA. The SALC program has since been referred to as the VLRP with criteria also used for the Targeted Land Repurposing Program (TLRP), also known as LandFlex. The VLRP/TLRP aims to develop criteria for identifying and prioritizing agricultural land for protection, and to develop an incentive structure for agricultural landowners to rest, retire, restore, or permanently protect their land via various types of water-centric conservation easements.

MC GSA developed the VLRP/TLRP through a stakeholder-driven process in 2020-2022, involving multiple public workshops and meetings, stakeholder interviews, and outreach with conservation groups. Details about this process are documented in previous Annual Reports. Rules and criteria for implementing the VLRP were approved by the MC GSA in December 2022. The rate study that the MC GSA completed and approved in 2022 was intended to fund implementation of the VLRP, among other GSP PMAs over the GSP implementation period. However, due to the injunction from 2022-2025, further implementation has paused.

As described above, the MC GSA in the Madera Subbasin was awarded a $9.3 million grant from DWR in 2022 for the TLRP, also known as LandFlex, in coordination with the California Department of Food and Agriculture. This funding was later decreased to $680,409 due to the lack of participation from the landowners. This funding was used to support implementation of the TLRP through 2024, and resulted in removal of nearly 70 acres of irrigated orchards from production across fields owned by three selected applicants. The estimated annual crop ET savings are approximately 190 AF per year.

MC GSA has also completed and adopted a plan for land repurposing projects, with $10 million available to support projects throughout any GSA within Madera County under the California Department of Conservation's MLRP grant program. The MLRP aims to assist growers who are seeking to convert irrigated agricultural land to a less water intensive use, supporting and incentivizing projects that save water, make business sense, and create additional benefits for local communities and the environment. The Multi-Benefit Agricultural Land Repurposing Plan (MALRP) was approved by the Board of Supervisors in October 2024. Since then, a call for projects was made in November 2024, resulting in a total of 72 pre-applications for potential projects. In 2025, 70 projects moved forward to complete full applications and 28 full applications were received. After the selection process in 2025, six projects were chosen to represent a diverse portfolio and support maximum benefits for the MLRP. Those projects will begin construction and implementation in 2026. The estimated benefits to the Subbasin at total build-out are up to 1,600 AF per year, including savings and recharge benefits. Other benefits are also anticipated through stormwater and flood management, tribal/cultural space improvements, and habitat creation. Additional information about the MC GSA's land repurposing efforts is available on the Madera County website: https://www.maderacountywater.com/multibenefit-land-repurposing-program/.

The MC GSA is incorporating information from land repurposing projects into the allocation framework (described below) to ensure that participating landowners are receiving credit for land fallowing under these various programs and efforts.

Demand Management Program. Individual components of the demand management program are described below, including the allocation, penalties, and recharge policies, and demand measurement program. Through these interrelated components, the demand management program is expected to result in a large reduction in groundwater pumping, but at the cost of reduced crop production and related economic activities in Madera County. MC GSA has observed landowner responses to the demand management program thus far, and initial data shows promising reductions in ETAW from actions in 2023-2025. However, the precise costs and benefits of these demand management efforts are still being quantified and are expected to be reported in future Annual Reports, Periodic Evaluations, and Plan Amendments, as applicable.

Allocation, Penalties, and Recharge Policies. The allocation framework at the center of the demand management program was initially adopted by the MC GSA Board of Directors through resolutions in December 2020, June 2021, and August 2021 that describe "per-acre" allocations and rules for credits. The MC GSA Board of Directors approved penalties for groundwater use in excess of these allocations in 2022. Links to the resolution documents are provided in previous Annual Reports

The MC GSA has been tracking ETAW against the approved allocations since 2021-2022, with penalty enforcement beginning in 2023. In 2025, allocations remained in place and were tracked and enforced with associated penalties in the MC GSA (within the Chowchilla, Madera, and Delta-Mendota Subbasins) through measurements of groundwater use by approved measurement methods (described in the following section). In 2025, Madera County GSA adopted a resolution establishing allocation amounts for 2026-2040 due to farmer requests (Resolution No. 2025-085, summarized at: https://www.maderacountywater.com/allocations/).

The MC GSA has included certain refinements to the framework over time, allowing “farm units” (i.e., fields irrigated from the same well that are grouped and considered together in enforcement of the allocation) to be changed at the end of the calendar year, and allowing never-irrigated lands to opt-in in November of each year. A formal policy for allocation of carryover credits and penalties during farm unit reorganization was adopted in 2025 (Resolution No. 2025-114).

The MC GSA is also implementing recharge policies (approved through Resolution 2024-030) that credit recharge benefits to the allocation of areas where recharge occurred. One policy is related to recharge of surface water derived from a water right or contract, and one policy is related to recharge of surface water derived from an approved diversion during a flood event. Both policies have a “floor” of a 75% recharge credit and a "ceiling" of 90% recharge credit depending on data specific to the land on which the recharge occurred. The recharge credit is limited to the aquifer in which recharge occurred.

Per Resolution 2022-145, the penalties for exceeding the allocation are $300 per AF for water use over the allocation in 2025 (penalties started at $100 per AF in calendar year 2023, increasing by $100 per AF per calendar year to a maximum of $500 per AF for water use over the allocation). Penalties collected in the Subbasin go towards funding Madera County GSA's portion of the DWMP. Enforcement of the allocation is incorporating adjustments to account for recharge credits, land fallowing credits, and successful appeals in the future.

Additional information about the allocation enforcement process is described as part of the demand measurement program, below.

Demand Measurement Program. As described in prior Annual Reports, the MC GSA has continued to implement a demand measurement program to support implementation of the GSA's allocation program. The main objective of the demand measurement program is to use, evaluate, and establish rules and processes for demand measurement options that are permitted to track ETAW against the allocation established in the MC GSA area (described in the previous section).

Three approved demand measurement options were available to growers in the Madera County GSA for allocation enforcement in 2025:

- IrriWatch approach (remote sensing approach that quantifies ETAW from satellite imagery using the Surface Energy Balance Algorithm for Land (SEBAL) algorithm)
- Land IQ approach (remote sensing approach, similar to IrriWatch, that quantifies ETAW from land use and satellite imagery)
- Use of approved flowmeters that are installed correctly and calibrated regularly. Although Madera County GSA is not responsible for installing flowmeters, Madera County GSA has adopted pre-approval processes for the use of private meters as a means of allocation tracking and enforcement. The adopted processes are intended to ensure correct installation and maintenance of flowmeters and their accuracy. In 2025, Madera County GSA adopted a flowmeter rule refinement policy (Resolution No. 2025-044).

The MC GSA has historically allowed and developed an appeals process for growers who have selected to use the IrriWatch and Land IQ approaches. In 2023, the MC GSA revised the rules for appealing the determination of use of the allocation through Resolution 2023-150. In early 2024, Madera County GSA also approved recharge credit policies that would credit recharge benefits to the allocation of areas where recharge occurred (described above). Enforcement of the allocation is incorporating adjustments to account for recharge credits, land fallowing credits, and successful appeals in the future. In 2025, MC GSA staff conducted fallow field verifications to confirm that fields were fallowed before zeroing out field ETAW from a demand measurement and allocation enforcement perspective.

Since the previous Annual Report, Madera County GSA circulated a request for proposals for new contracts for measurement methods, as the GSA's contracts with IrriWatch and Land IQ both expired at the end of 2025. Questionnaires were also sent to growers to solicit their choice of measurement methods. As of early 2026, the MC GSA continues to allow two approved demand measurement options: IrriWatch and approved flowmeters (the Land IQ contract was not renewed in 2026).

Additional information regarding the demand measurement program is available on the Madera County website: https://www.maderacountywater.com/measurement/.

7.2.7 Additional Projects and Management Actions Identified Since GSP Adoption

Since GSP adoption, the Joint GSP GSAs have also developed additional PMAs to support GSP efforts.

7.2.7.1 Jointly Implemented Projects

In addition to the ongoing development of recharge projects proposed in the Joint GSP, the MC GSA has initiated work on an emergency recharge plan to achieve more immediate recharge benefits from flood flows available on the Chowchilla Bypass. Under this plan, MC GSA has worked collaboratively with others in the Subbasin to secure temporary water rights and develop a plan for installation of temporary infrastructure to divert flood flows off the Chowchilla Bypass to the extent they are available ahead of construction of permanent infrastructure. In winter 2021-2022, MC GSA initiated the environmental permitting for the points of diversion available for use as part of the emergency recharge plan. In 2022, Madera County continued development of the plan, including development of a draft technical memorandum to provide guidance for landowners participating in groundwater recharge through diversion of water from the Chowchilla Bypass, whether under the emergency recharge program or other efforts.

However, following the issuance of EO N-4-23 in March 2023 (subsequently codified through California Water Code Section 1242.1), certain restrictions for diverting flood flows were waived, which opened the door to implementing recharge of flood waters in certain circumstances in absence of an approved water right.

In addition to these GSA-led efforts, multiple recharge efforts are being led in the Subbasin by private entities. The GSAs will continue collaborating and working with locals in the Subbasin, and will continue to seek and exercise opportunities for diversion of surface water for groundwater recharge through available pathways in the future.

7.2.7.2 Other Projects and Management Actions

Additional information about other PMAs will be added to future Annual Reports as they are identified.

7.2.8 Projects and Management Actions Implemented by Other GSAs in the Madera Subbasin

GFWD, NWSD, and RCWD are implementing PMAs in the Madera Subbasin with aggregated gross average annual benefits estimated in their respective GSP Annual Reports. More information about the costs and implementation status of these PMAs can be found in their Annual Report GSP Attachments.

7.3 OTHER INFORMATION ON IMPLEMENTATION PROGRESS

Other efforts the Subbasin GSAs have engaged in over the past year to advance Plan implementation in the Subbasin include, but are not limited to:

- Regular coordination between the Subbasin GSAs to ensure consistency across Plan implementation.
- Ongoing development of a domestic well mitigation program (**Section 7.2.1**).
- Coordination on interconnected surface water topics with USBR, Friant Water Authority (FWA), and GSAs in the Kings Subbasin
- Coordination on subsidence topics with critical infrastructure owners and operators

These topics and others are discussed in Section 7.3 of the Subbasin Annual Report document.

7.4 IMPLEMENTATION OF MONITORING AND ADDRESSING DATA GAPS

During the period of GSP development and since the GSP adoption and submittal in January 2020, the GSAs have been conducting monitoring of RMS wells, including coordination with well owners and other monitoring entities. Loss of access to certain RMS sites has persisted for a variety of reasons, such as owners' unwillingness to participate in monitoring, or replacement of a site with another well having slightly different characteristics. A comprehensive review and update of the RMS network was conducted as part of the first Plan Amendment of the Joint GSP and is presented in Appendix 3.K of the Amended GSP. Status of monitoring activities will continue to be tracked to evaluate the success of the monitoring networks (see **Appendix E**).

8 References

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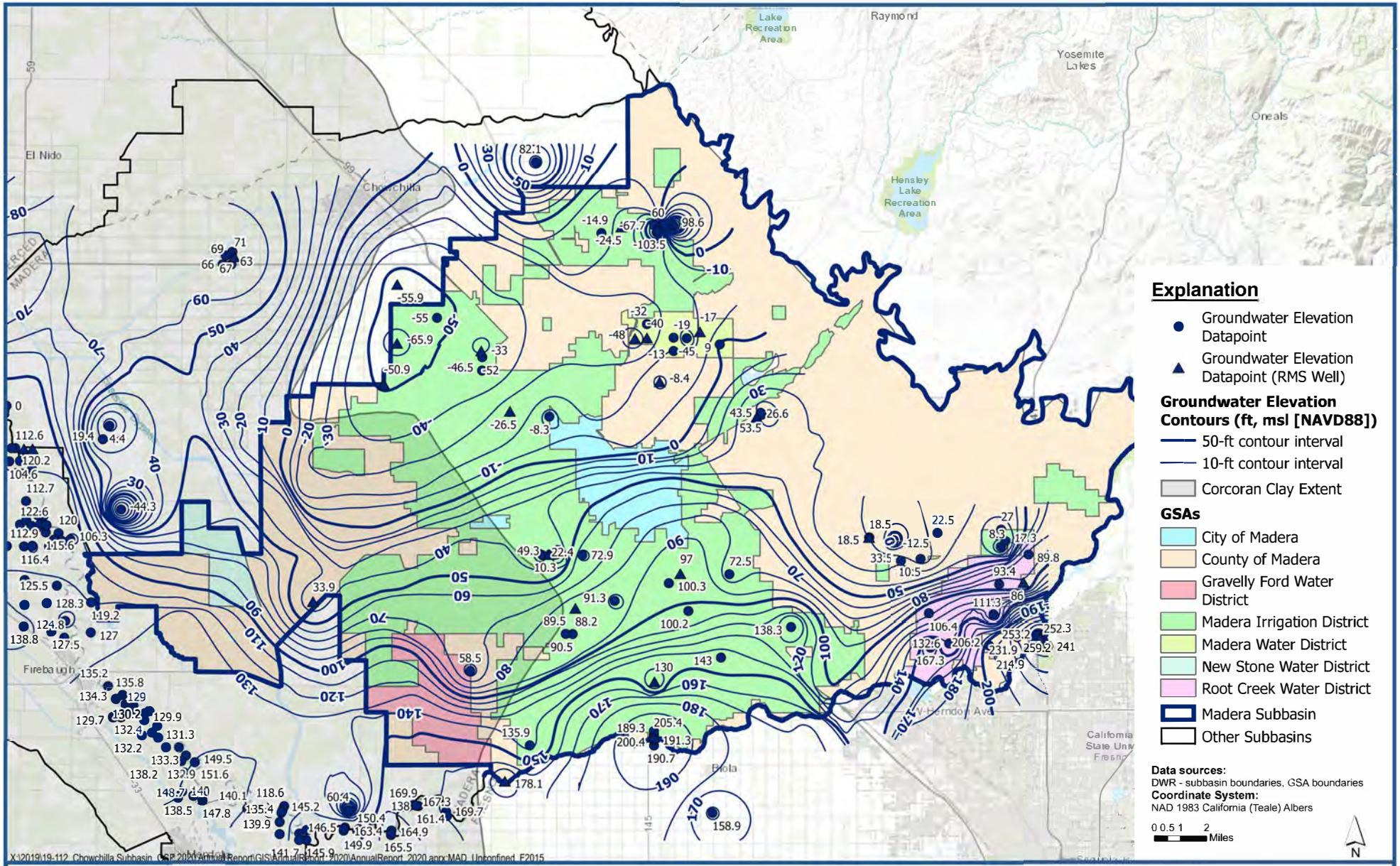
DWR. 2016. California's Groundwater, Bulletin 118 Interim Update 2016.

DWR. 2016. Best Management Practices for Sustainable Management of Groundwater, Water Budget, BMP.

Todd Engineers. 2002. AB3030 Groundwater Management Plan, Madera County, Final Draft, prepared for County of Madera Engineering and General Services. Cited in Provost & Pritchard, Wood Rodgers, and KDSA. 2014. Madera Regional Groundwater Management Plan, prepared for City of Chowchilla, Chowchilla Water District, City of Madera, Madera County, Madera Irrigation District, and South-East Madera County United.

Appendix A. Contour Maps of the Different Aquifer Units.



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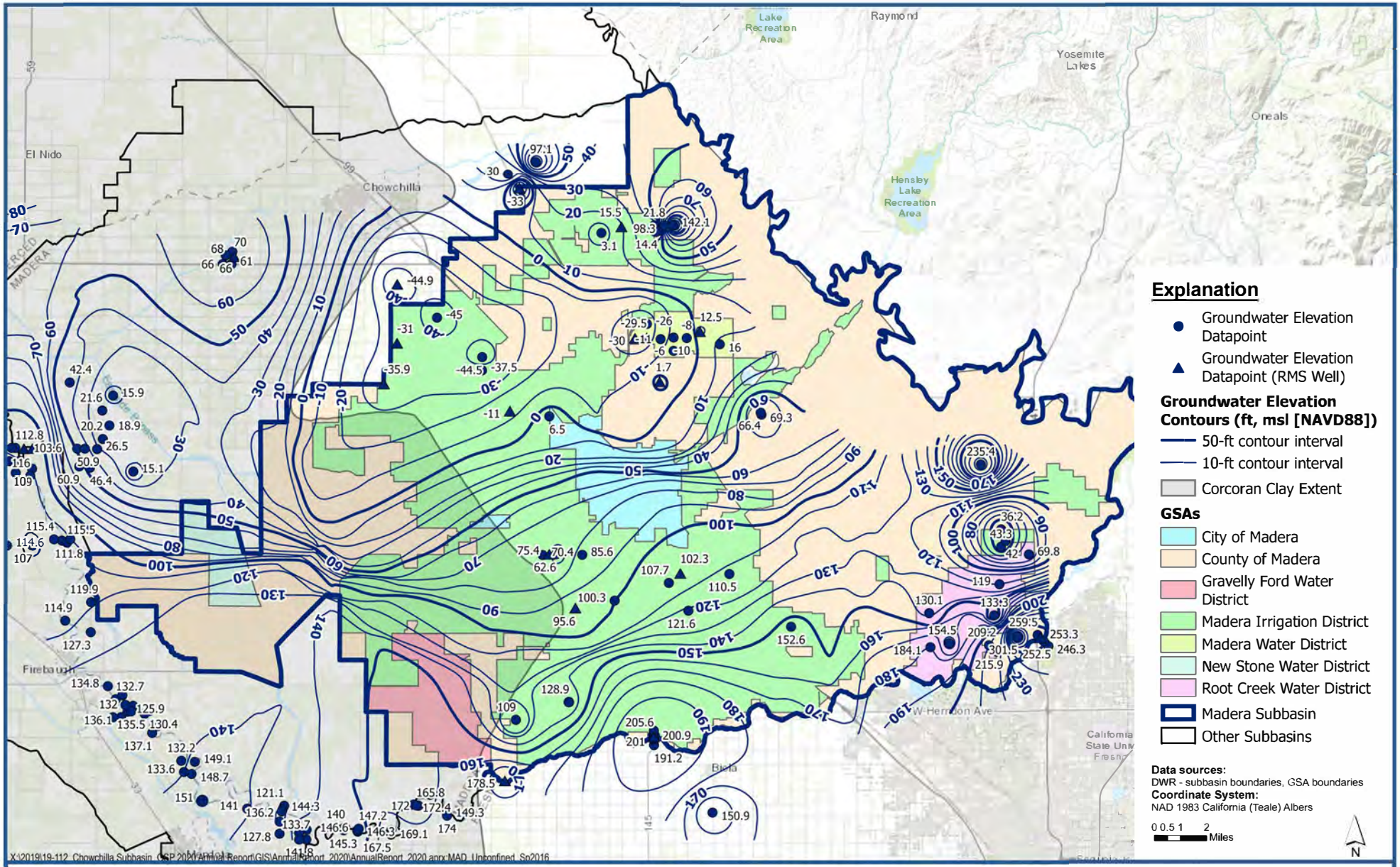
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2015

Figure A-1

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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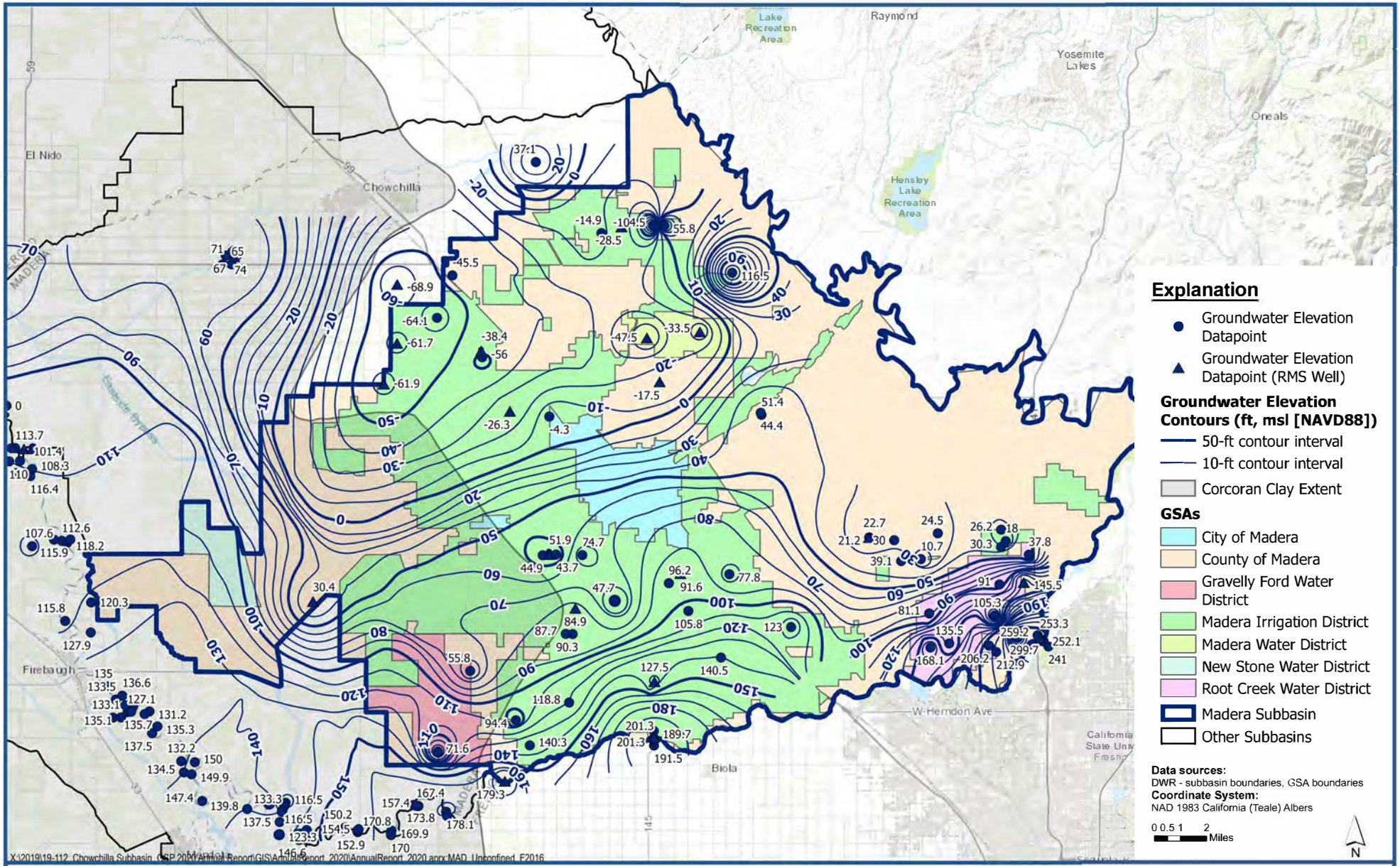
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2016

Figure A-2

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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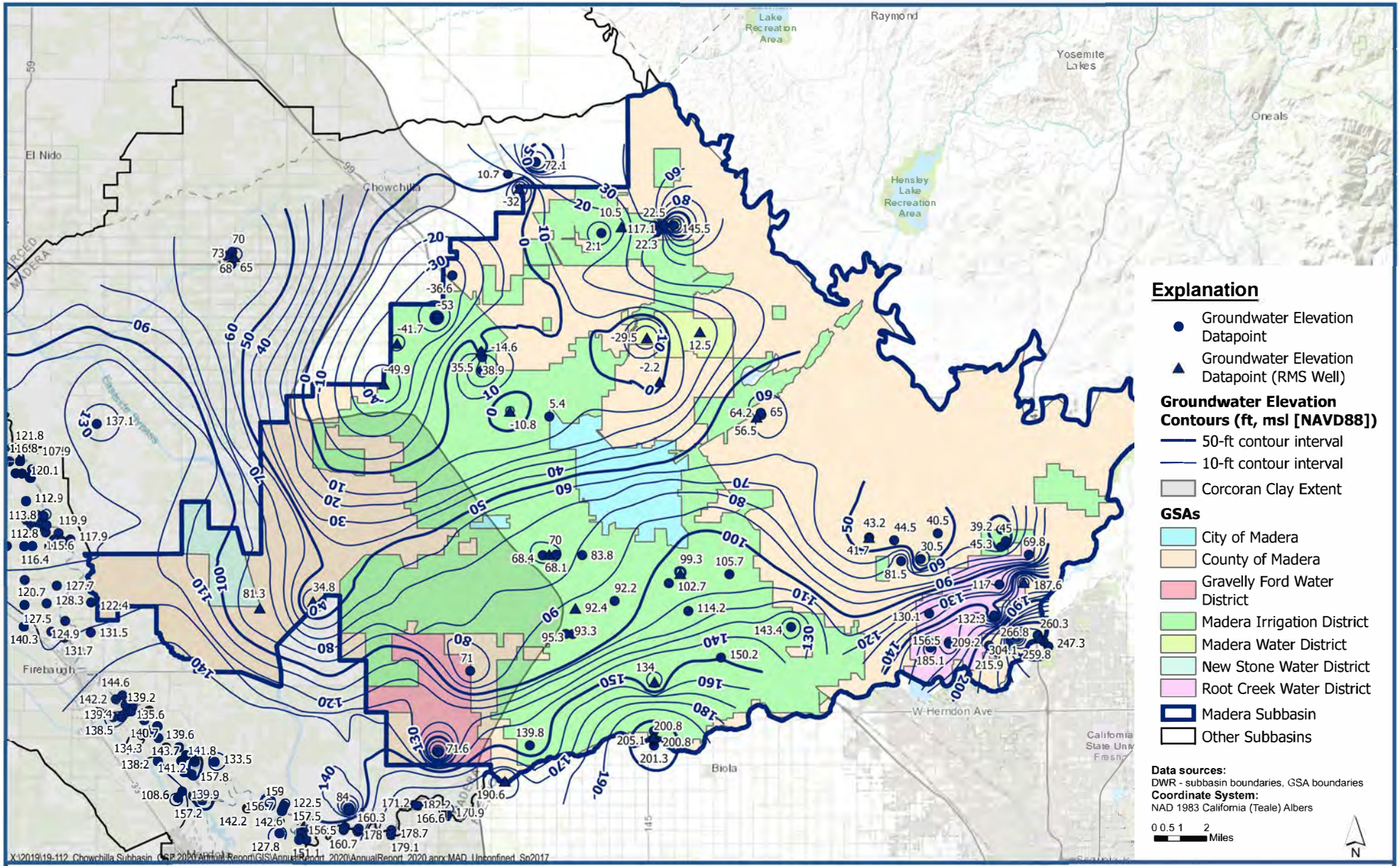
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2016

Figure A-3

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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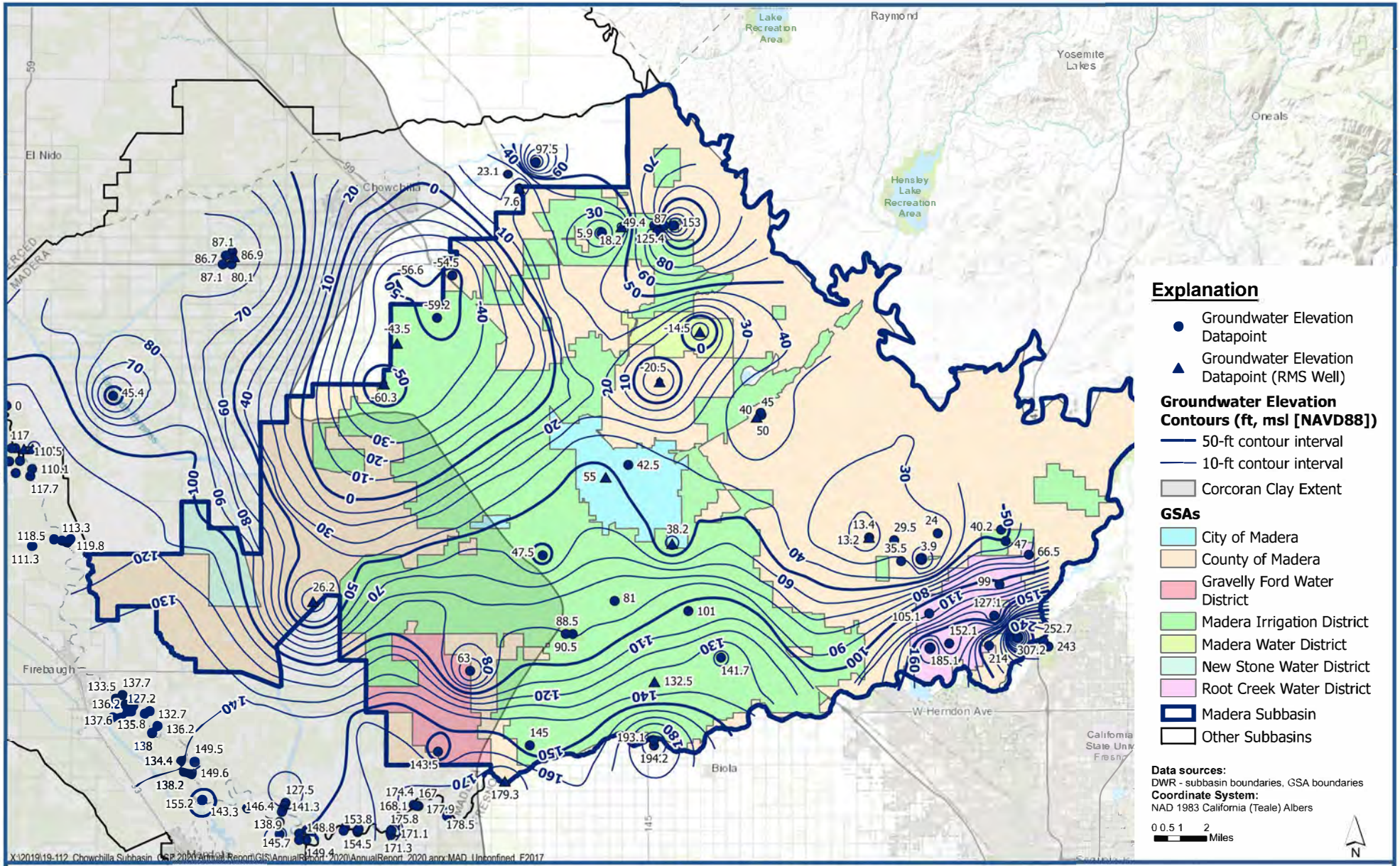
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2017

Figure A-4

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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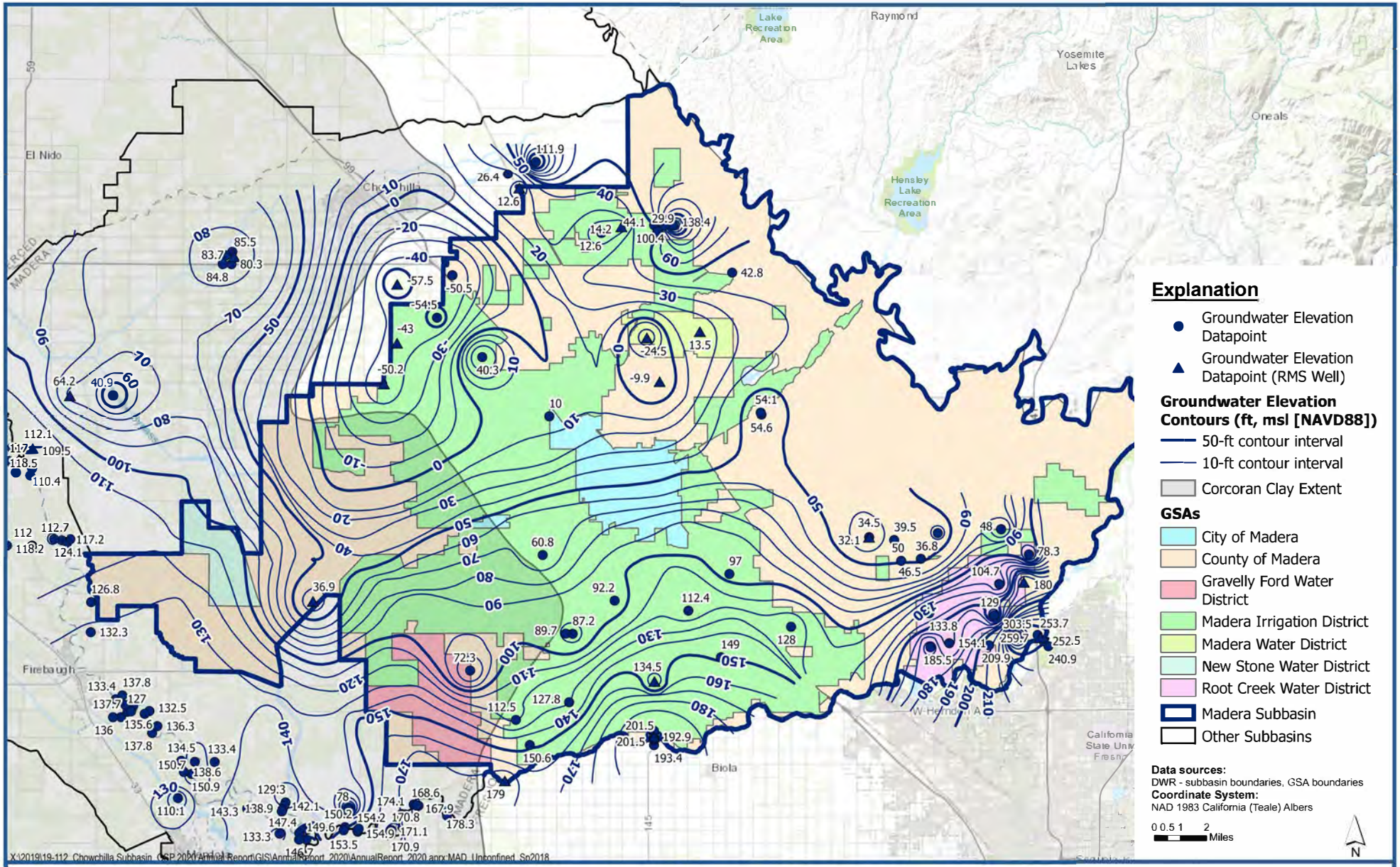
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2017

Figure A-5

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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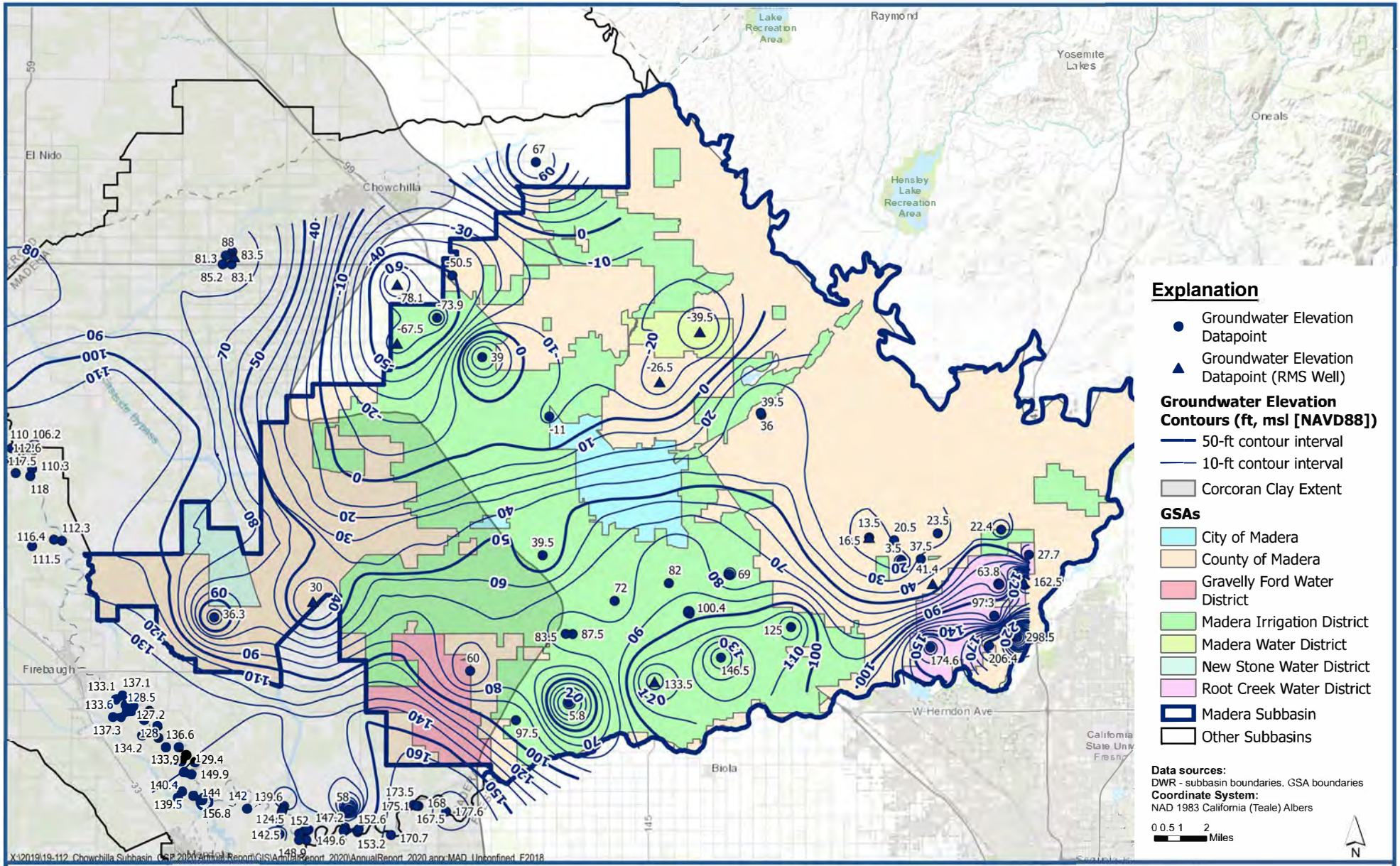
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2018

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report

Figure A-6



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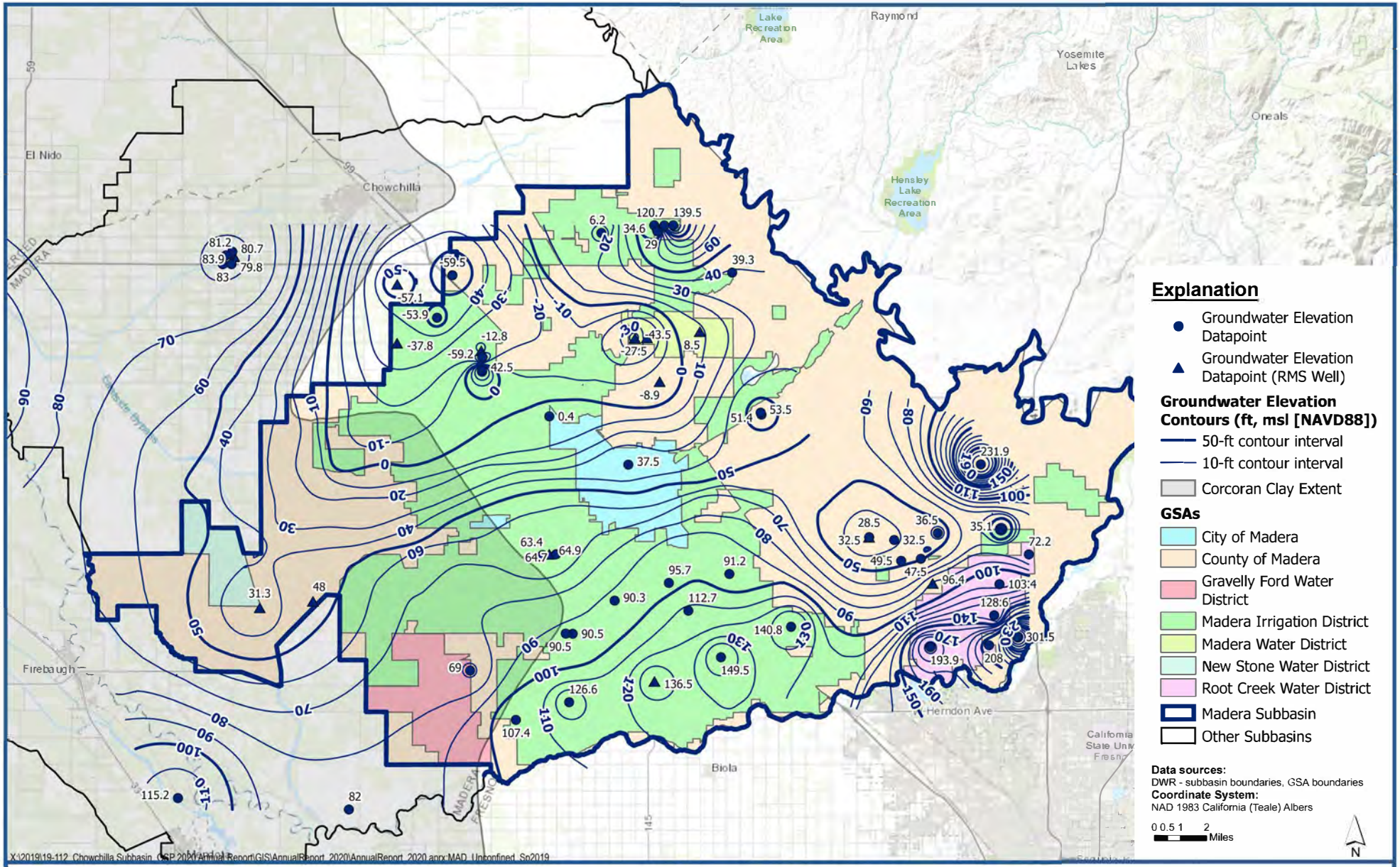
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2018

Figure A-7

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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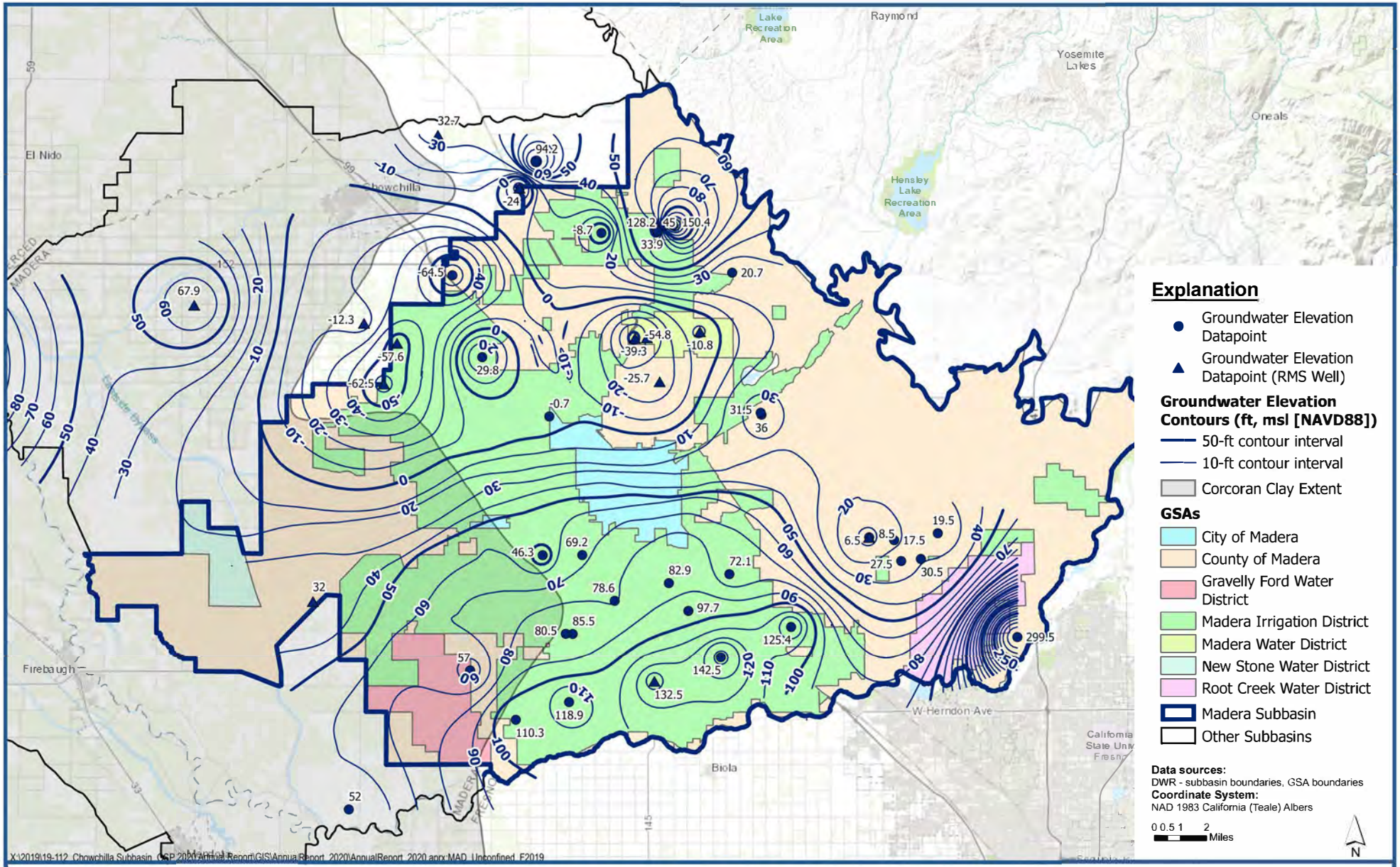
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2019

Figure A-8

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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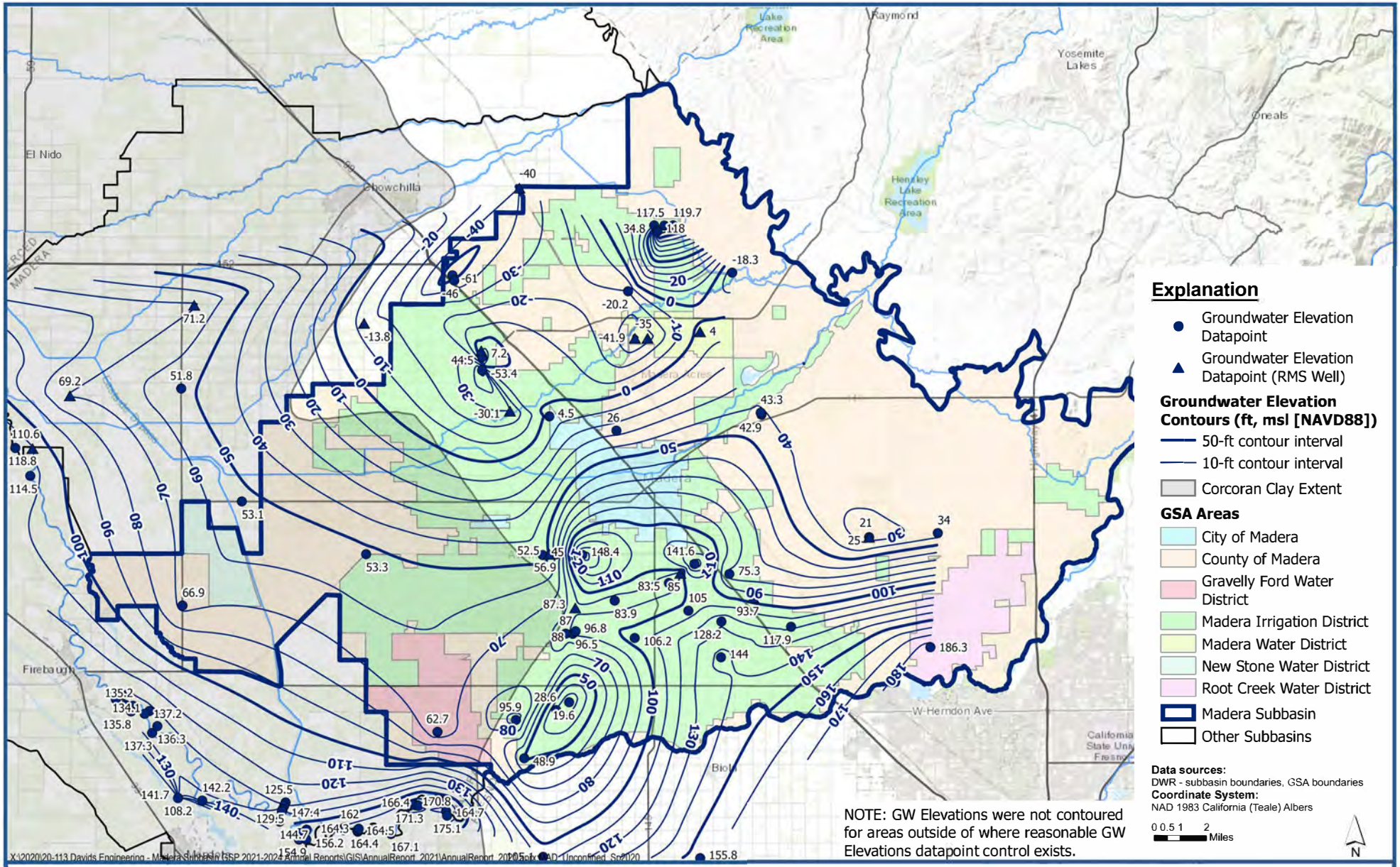
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2019

Figure A-9

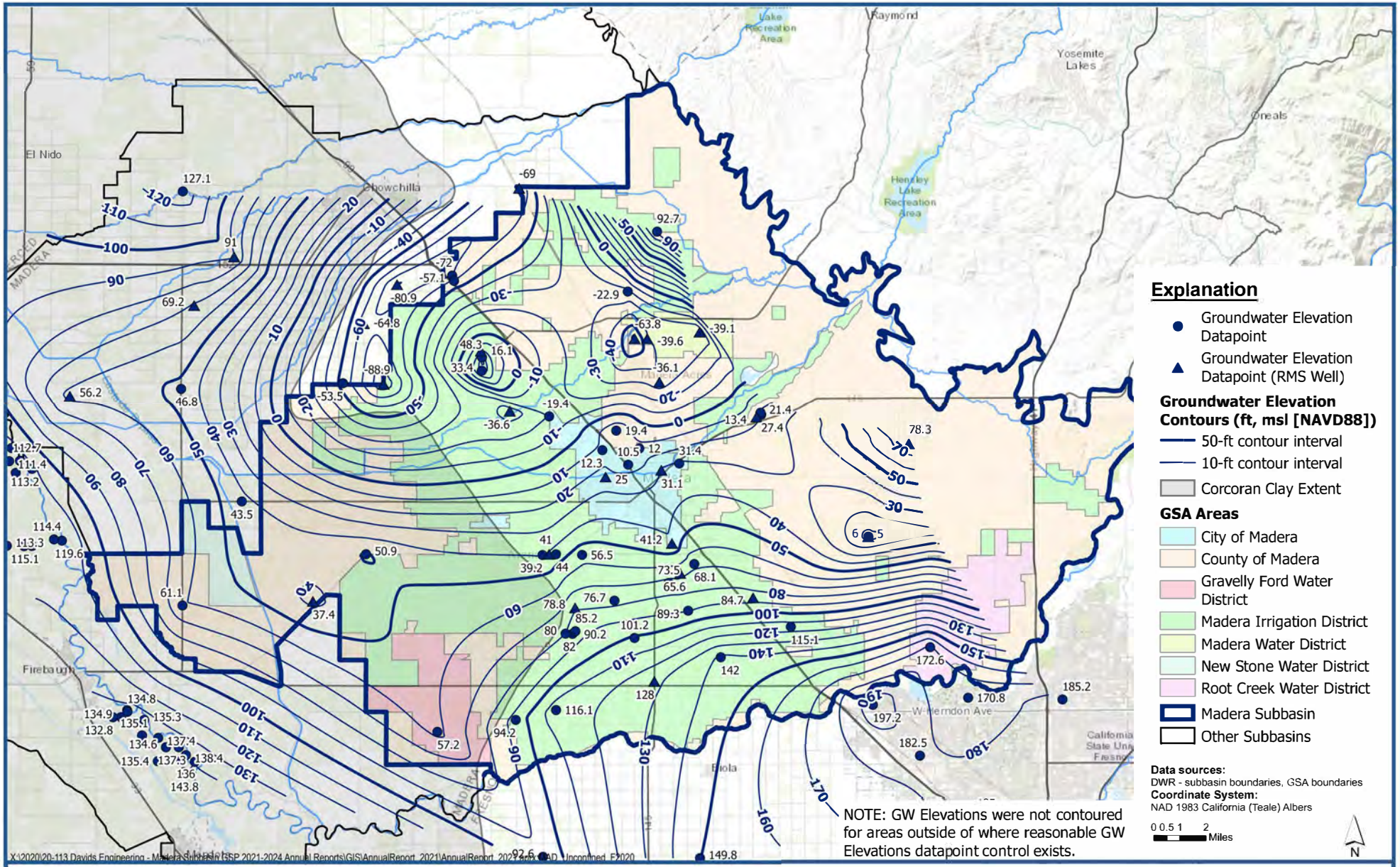
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2020

Figure A-10

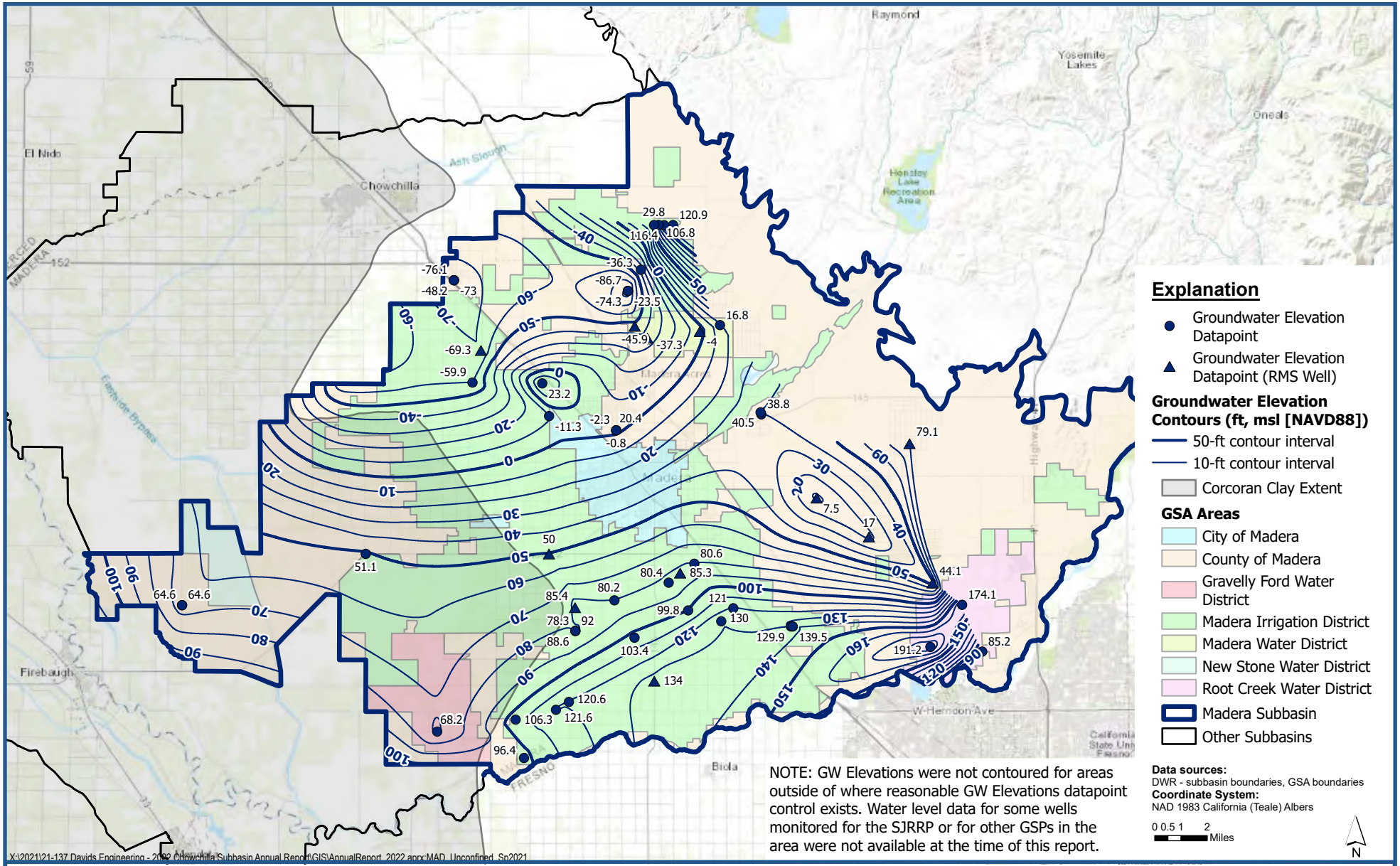
Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report



Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2020

Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report

Figure A-11



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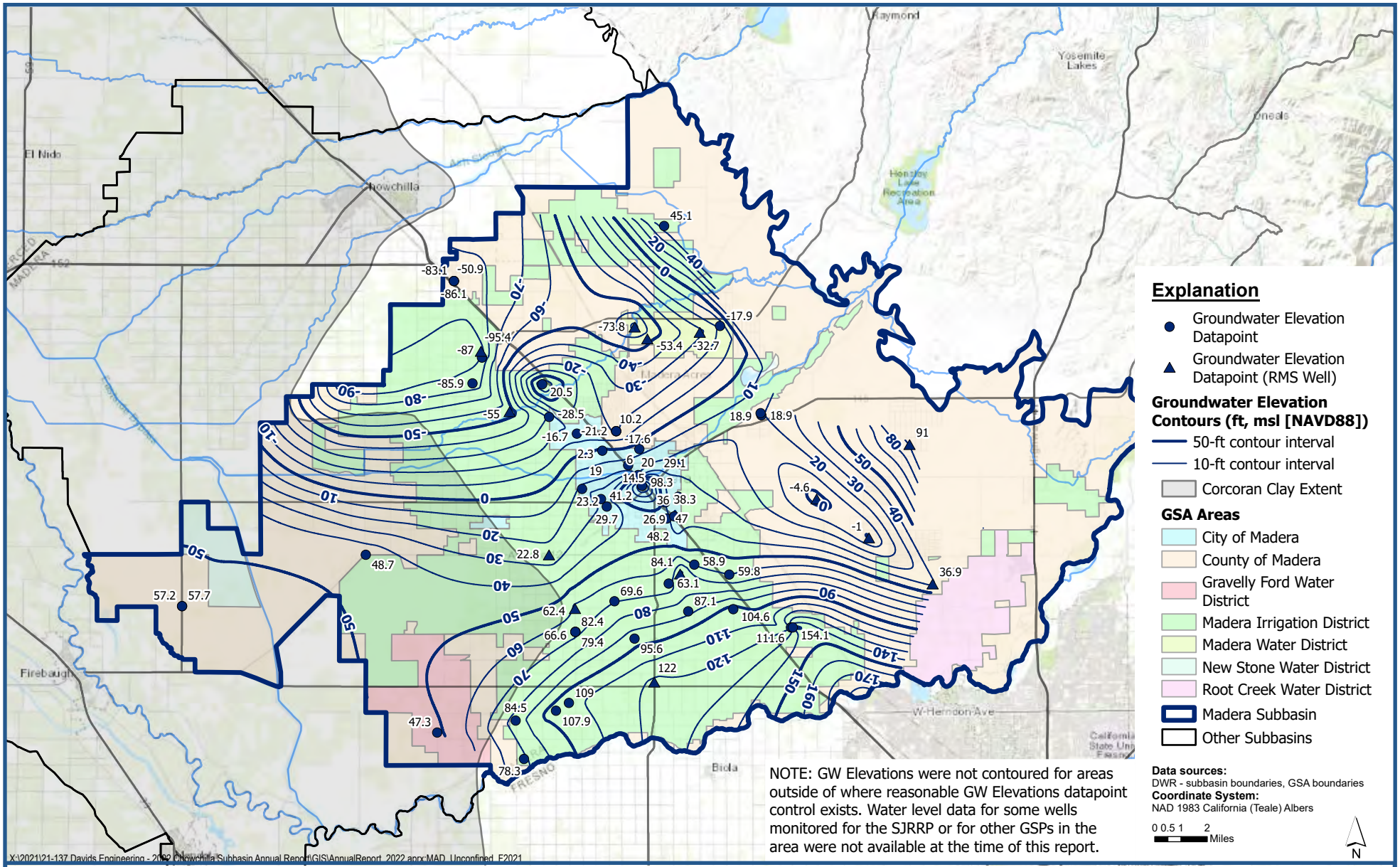
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2021

Figure A-12

Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



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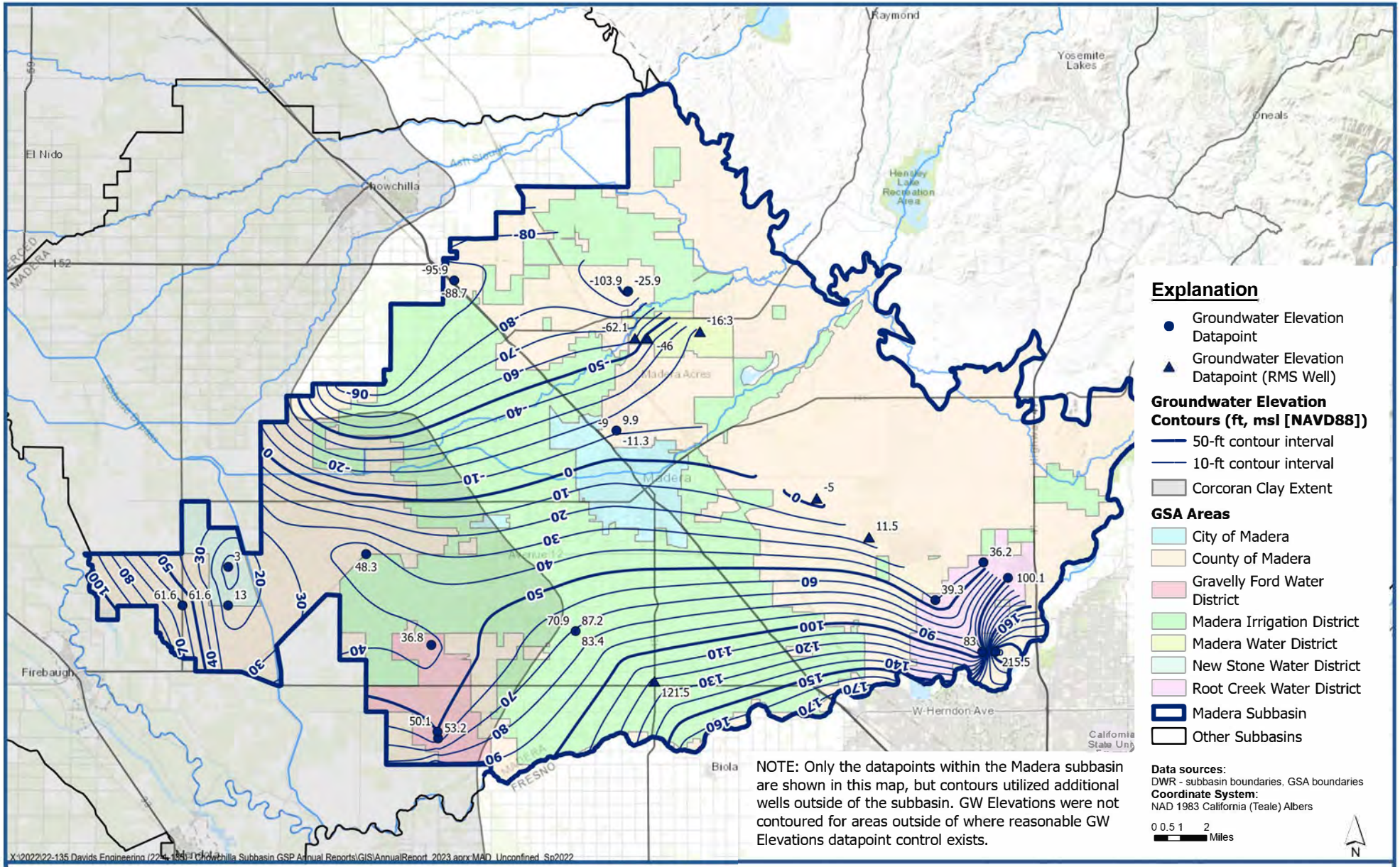
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2021

Figure A-13

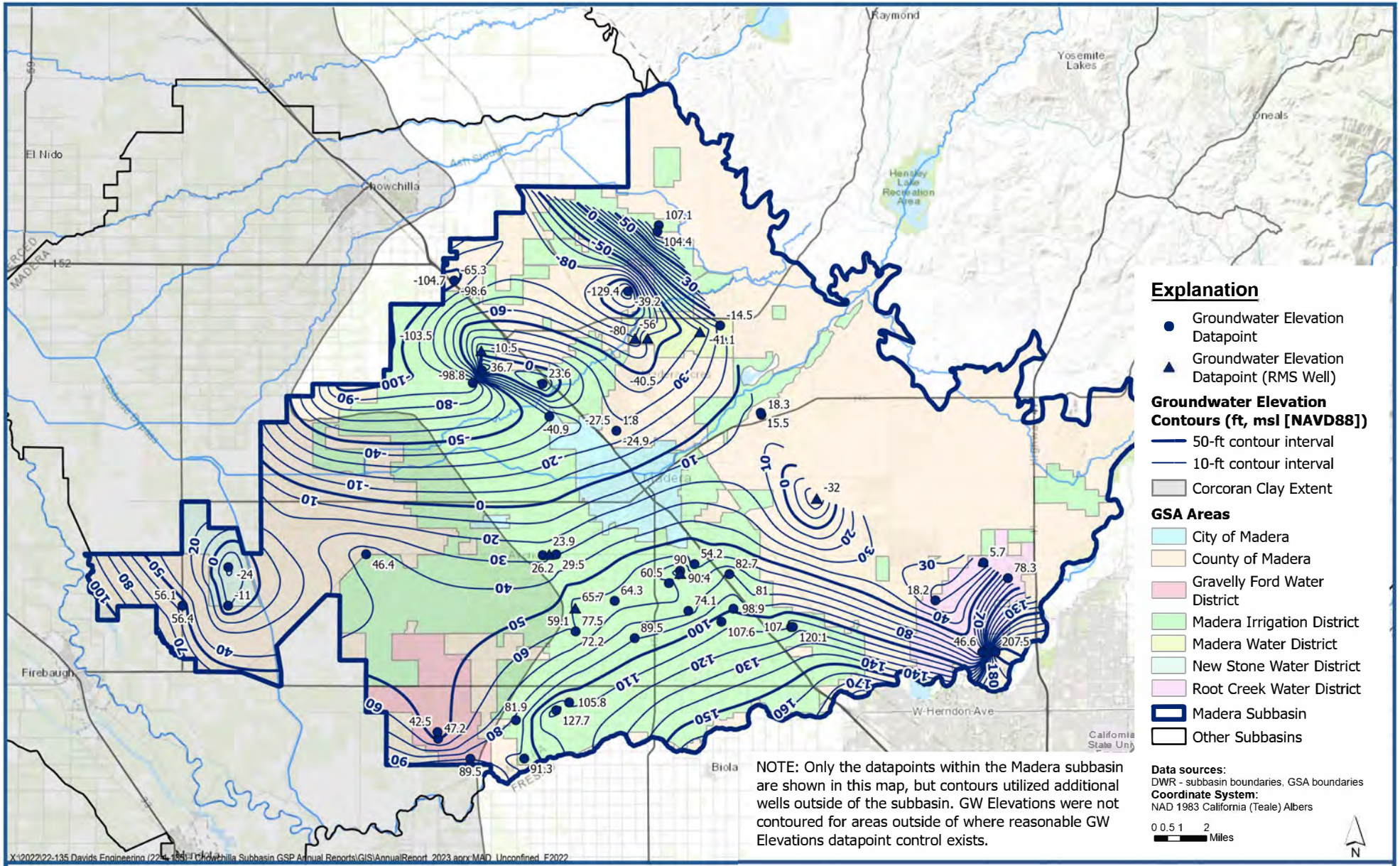
Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2022

Figure A-14

Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



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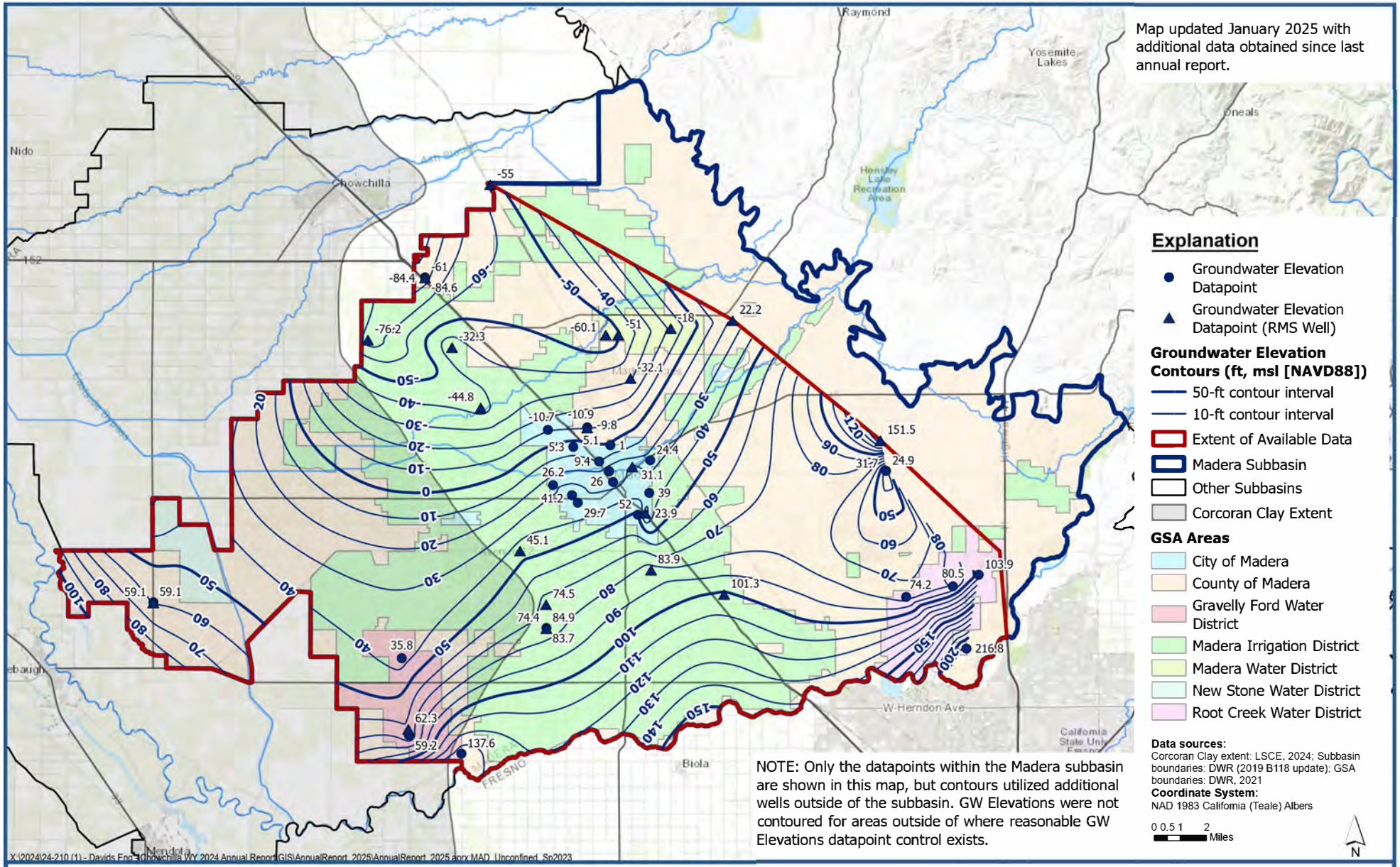
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2022

Figure A-15

Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



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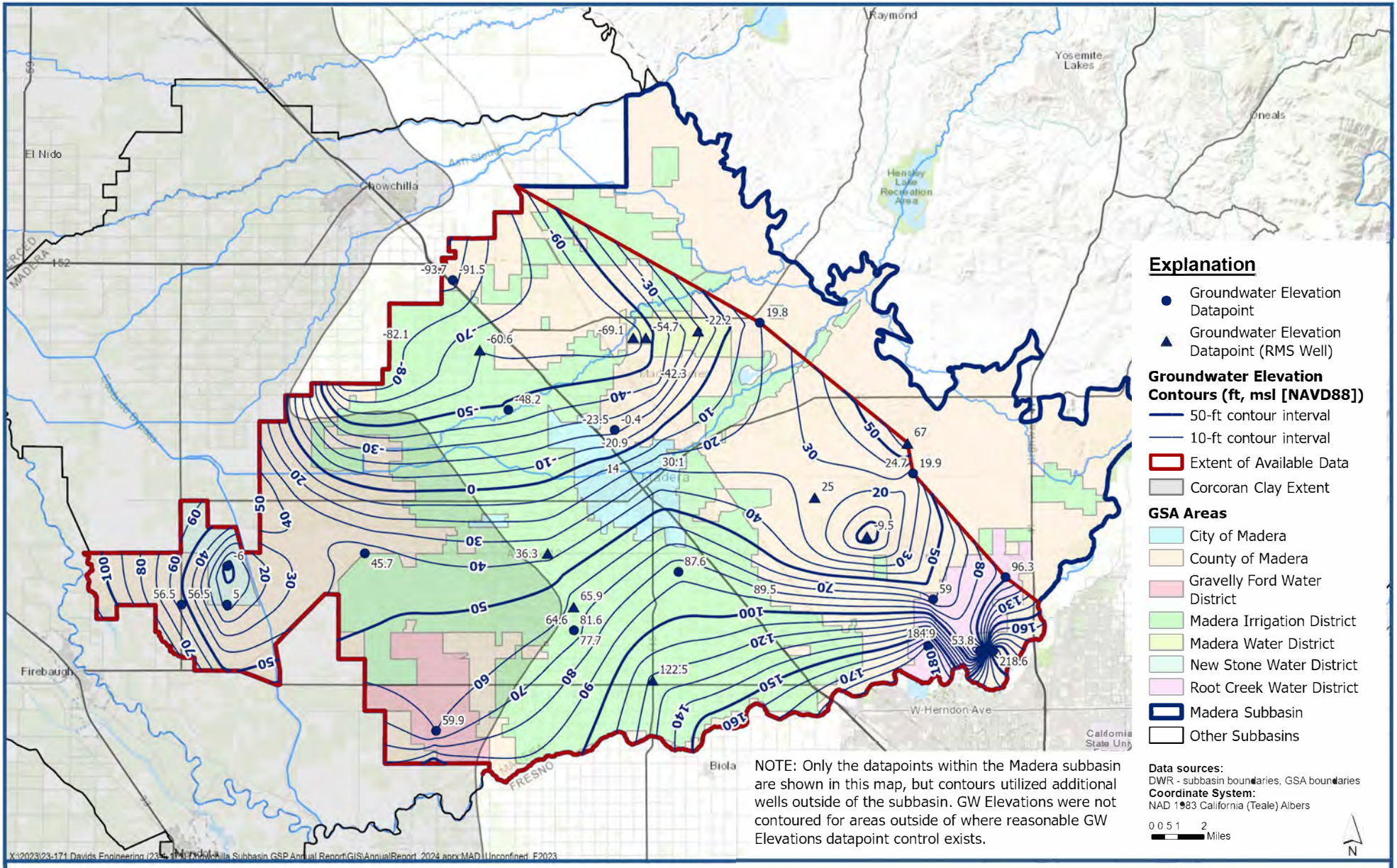
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2023

Figure A-16

Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report



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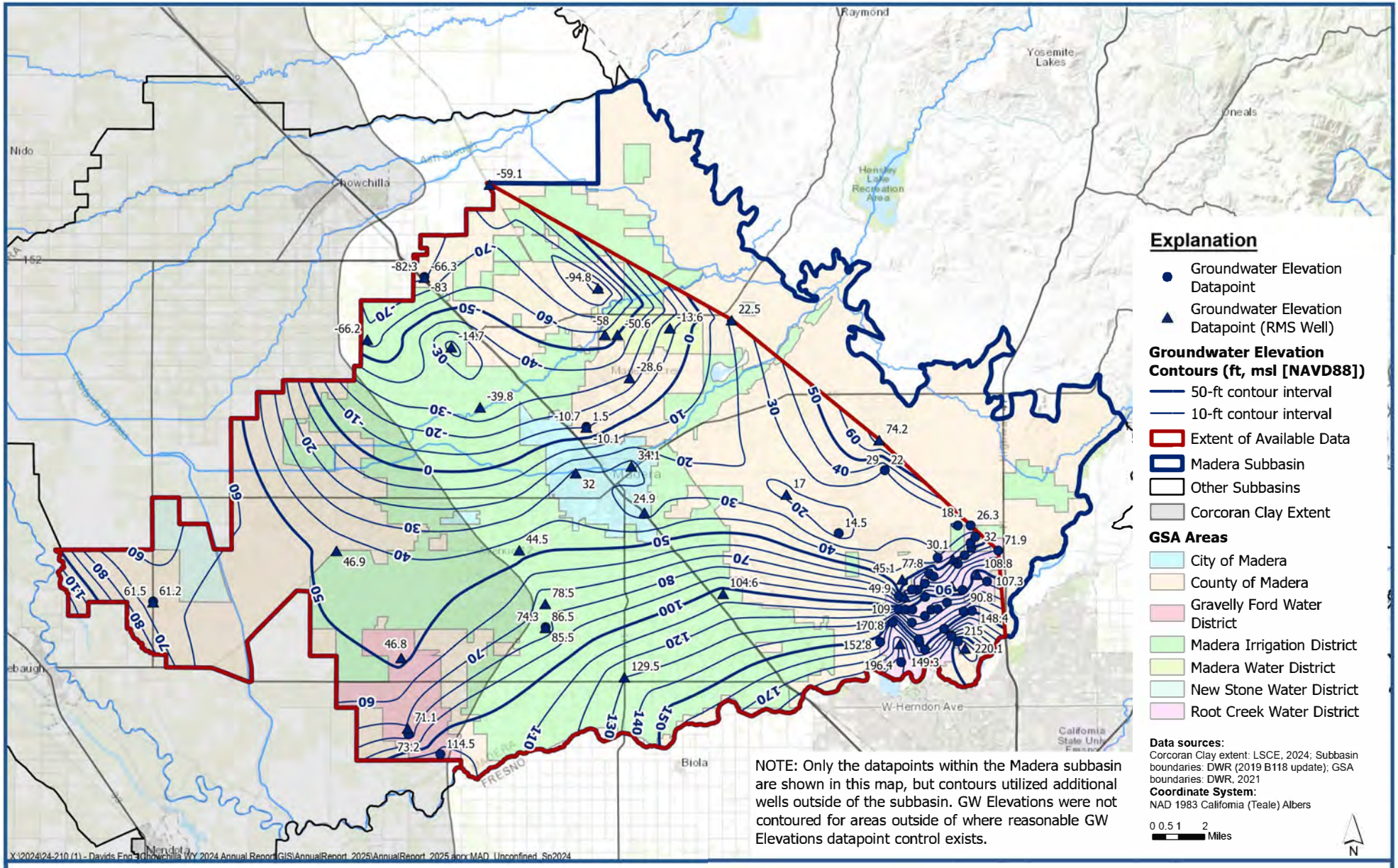
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2023

Figure A-17

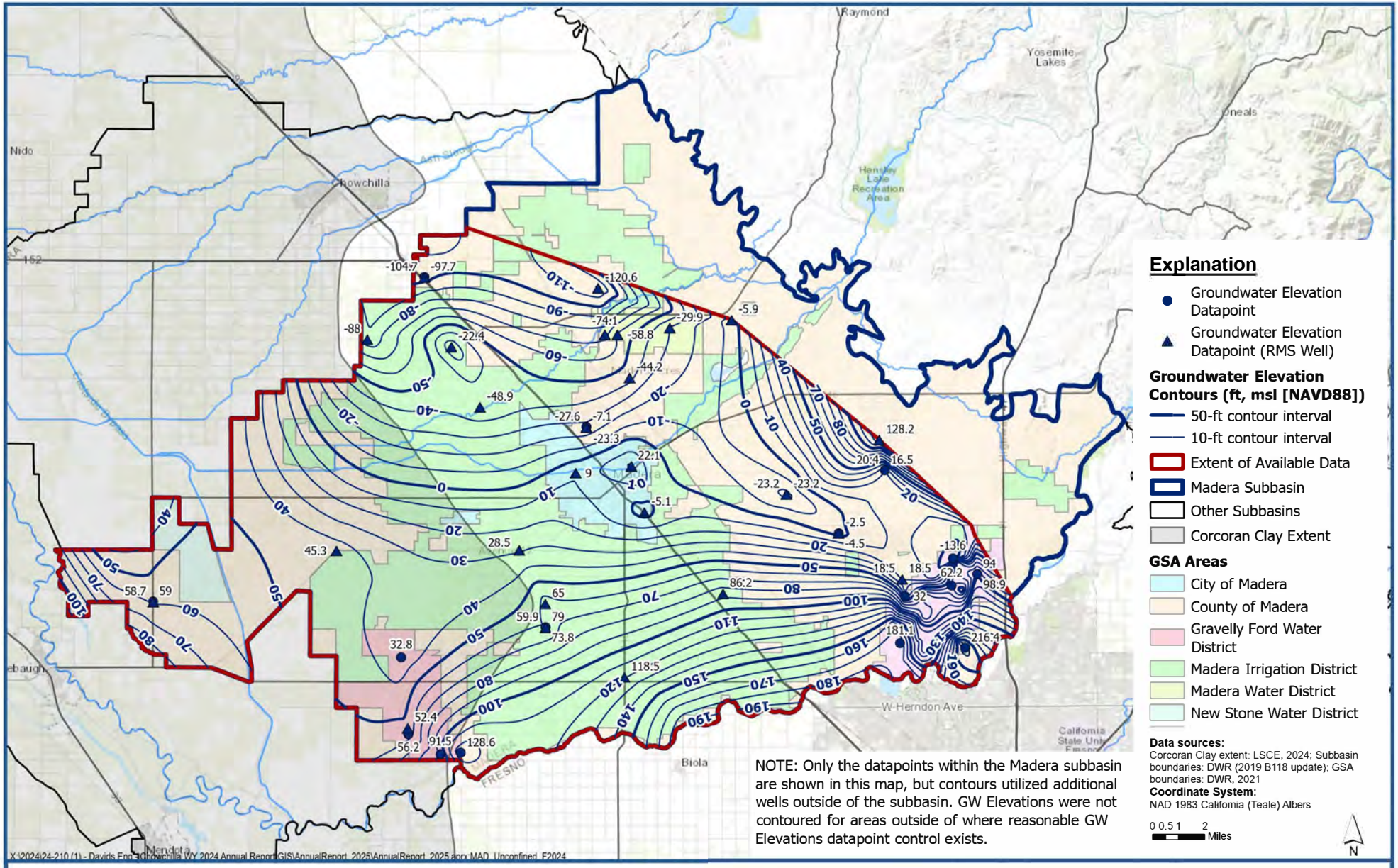
Madera Subbasin
Groundwater Sustainability Plan 2024 Annual Report



Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2024

Figure A-18

Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report



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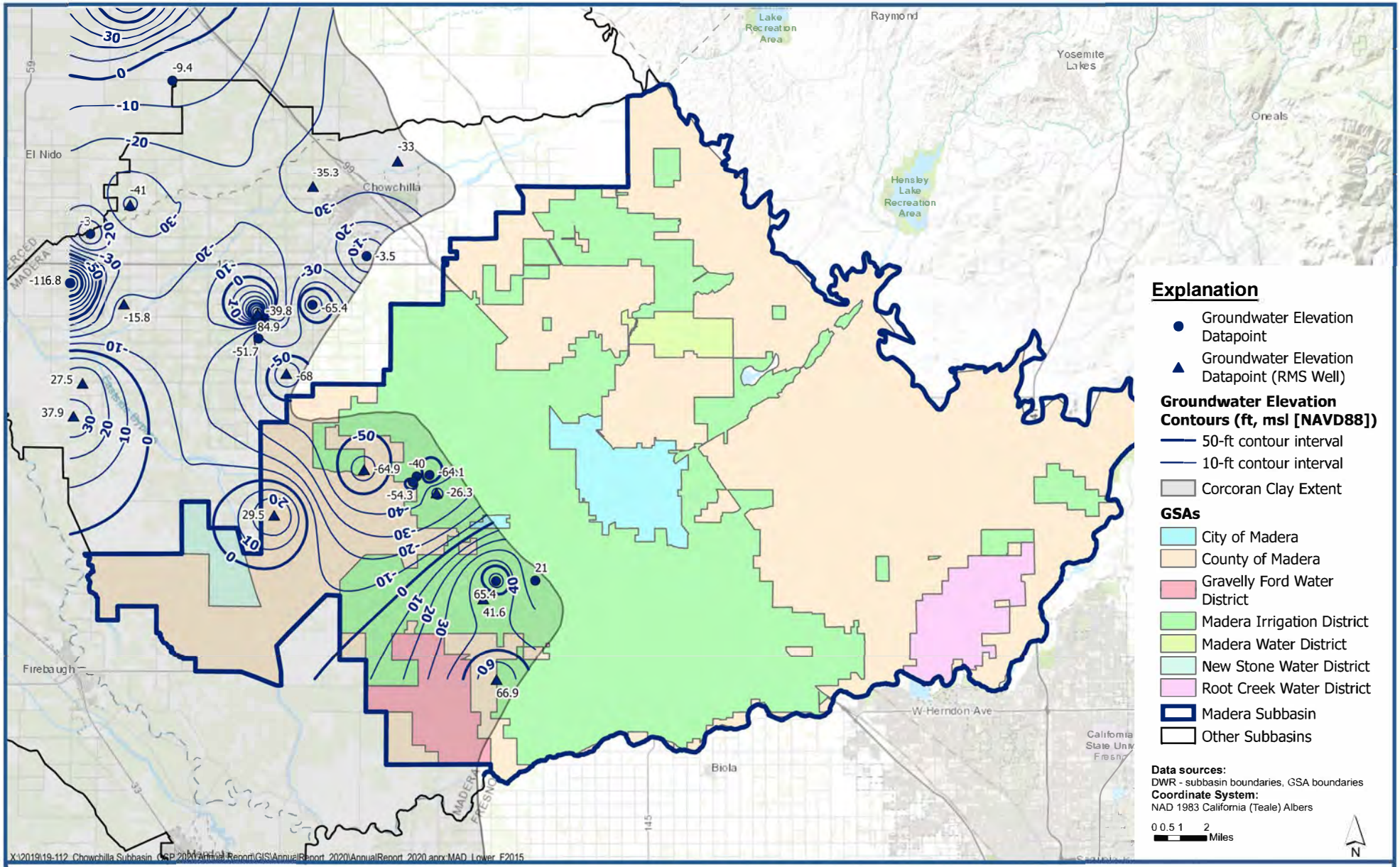
Contours of Equal Groundwater Elevation
Upper Aquifer/Undifferentiated Unconfined Zone - Fall 2024

Figure A-19

Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report



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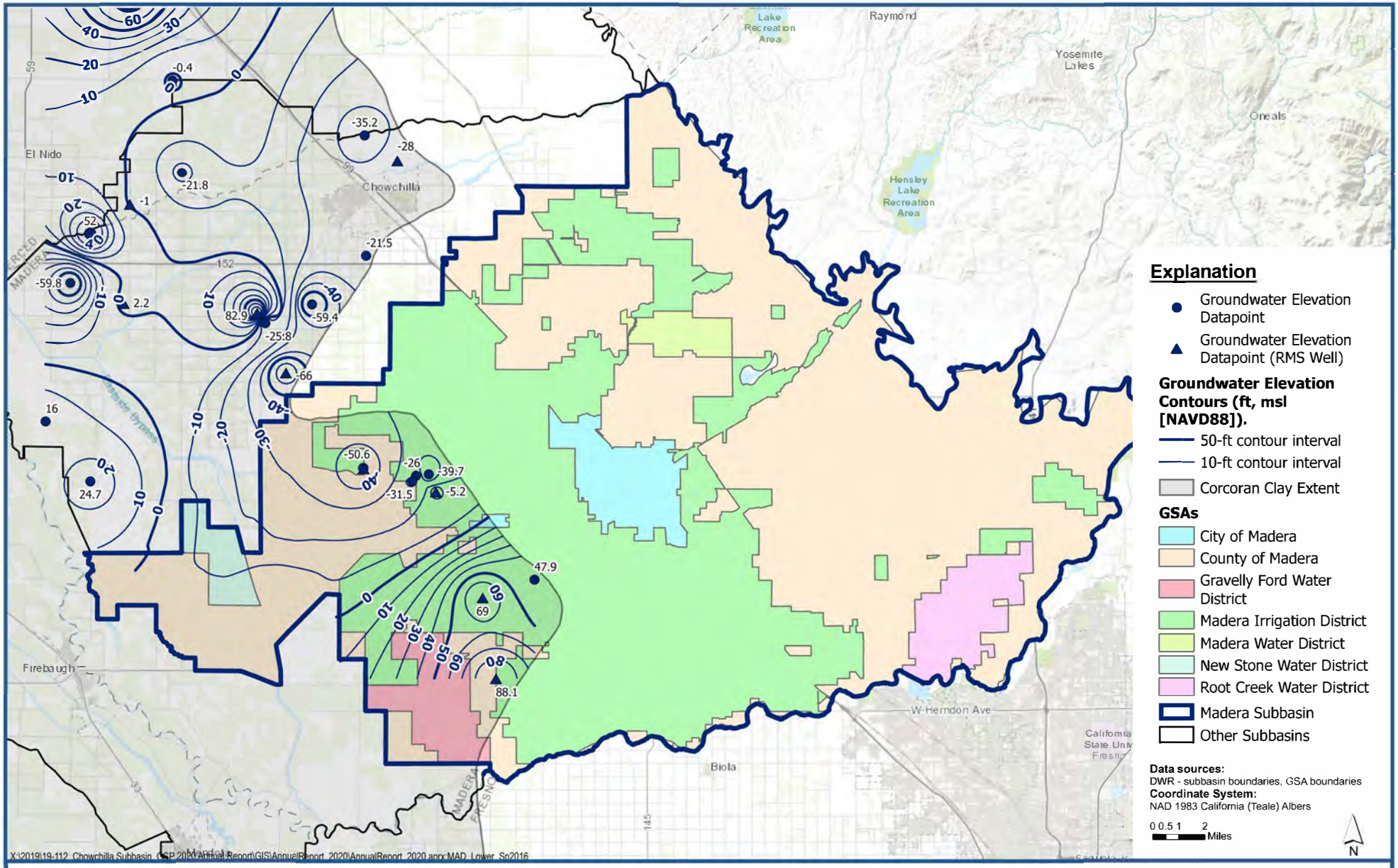
Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2015

Figure A-20

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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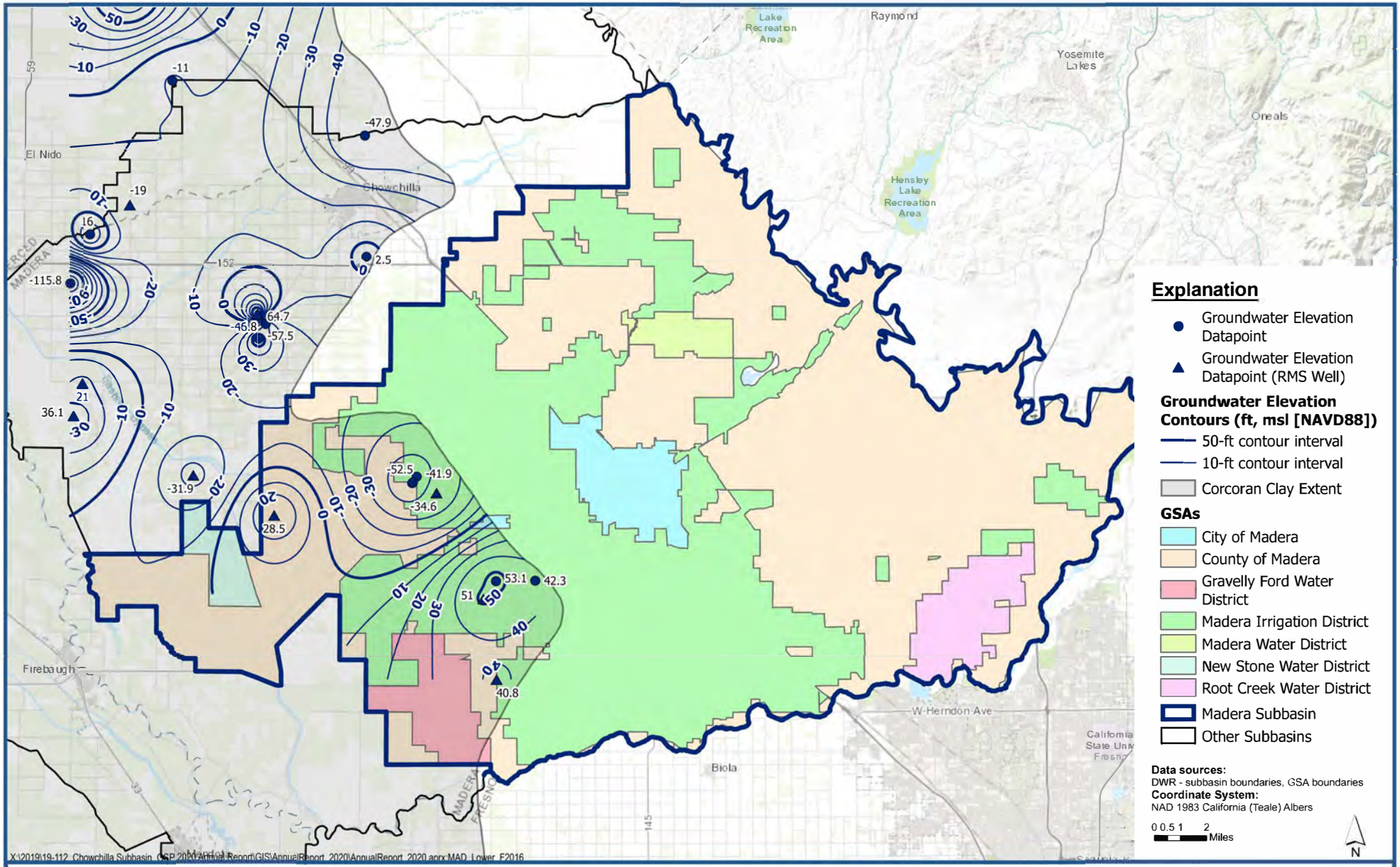
Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2016

Figure A-21

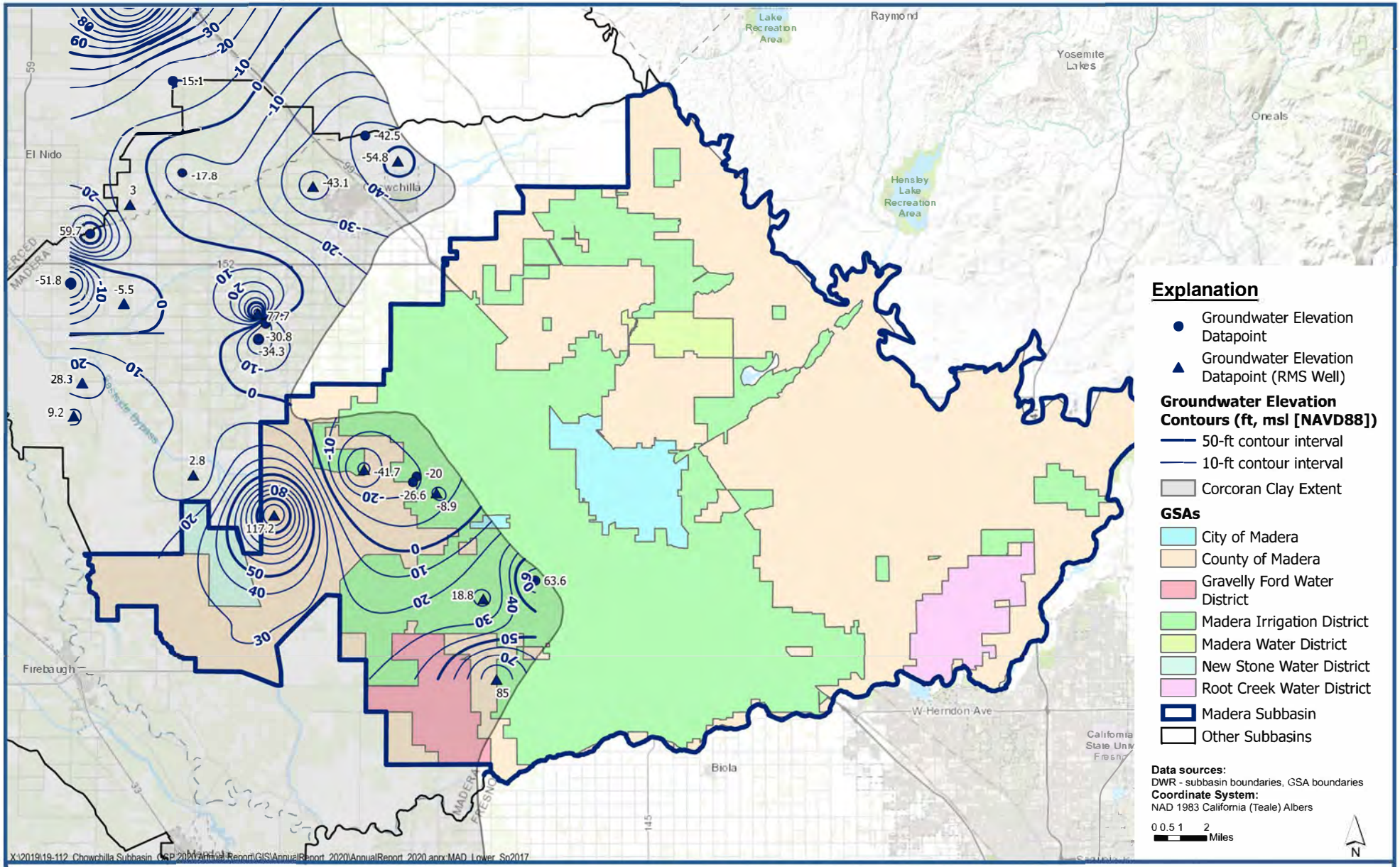
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2016

Figure A-22

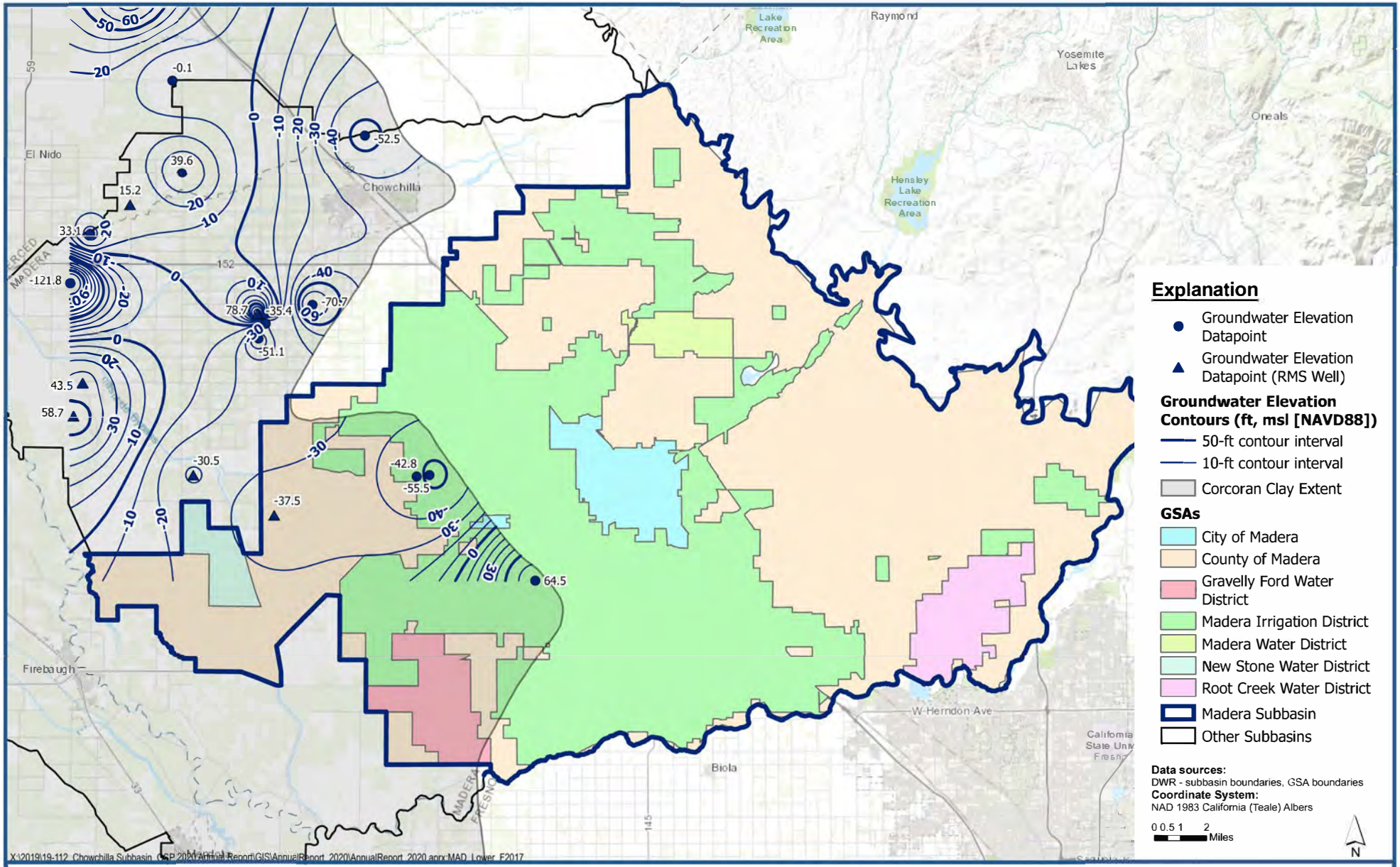
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2017

Figure A-23

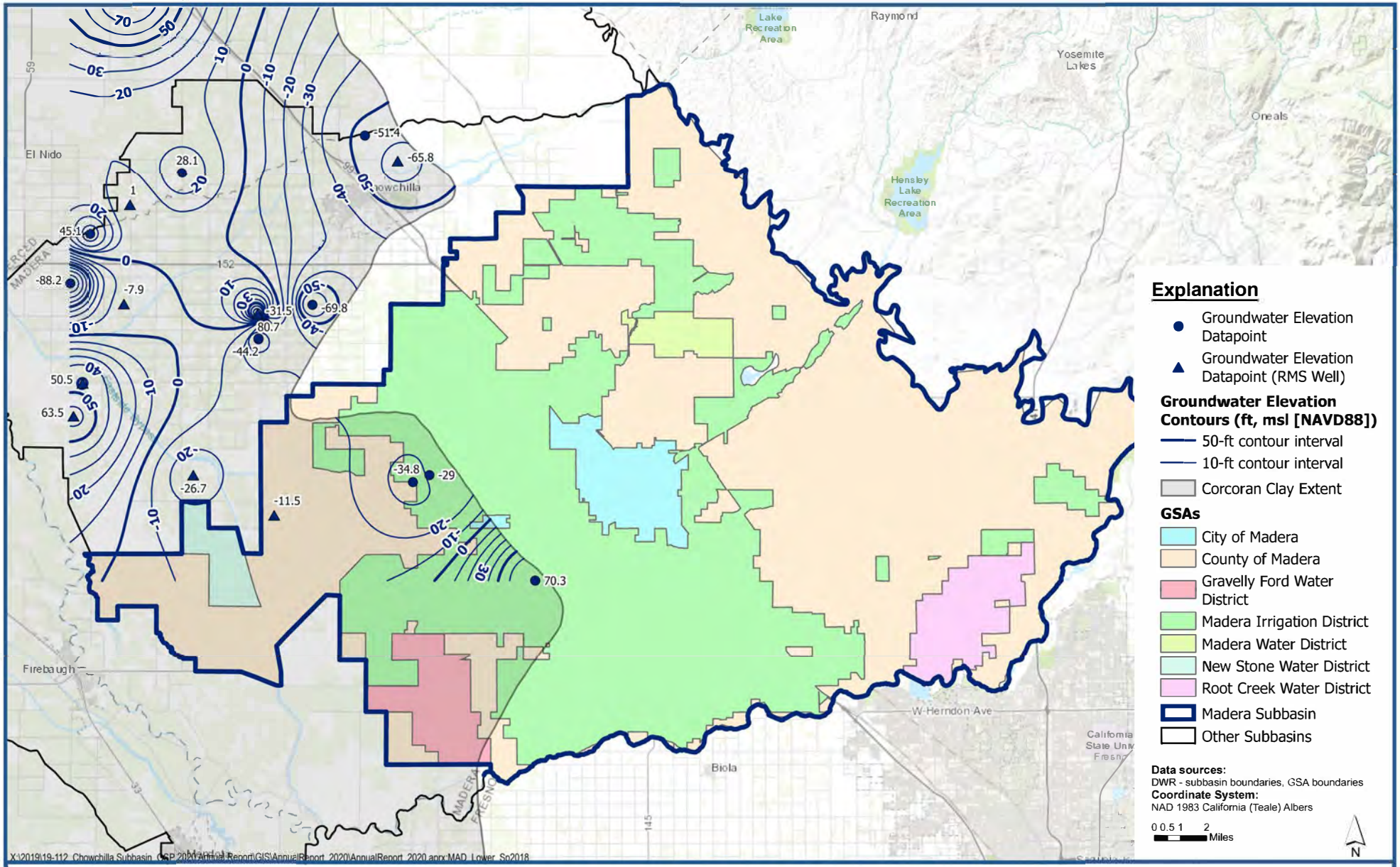
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2017

Figure A-24

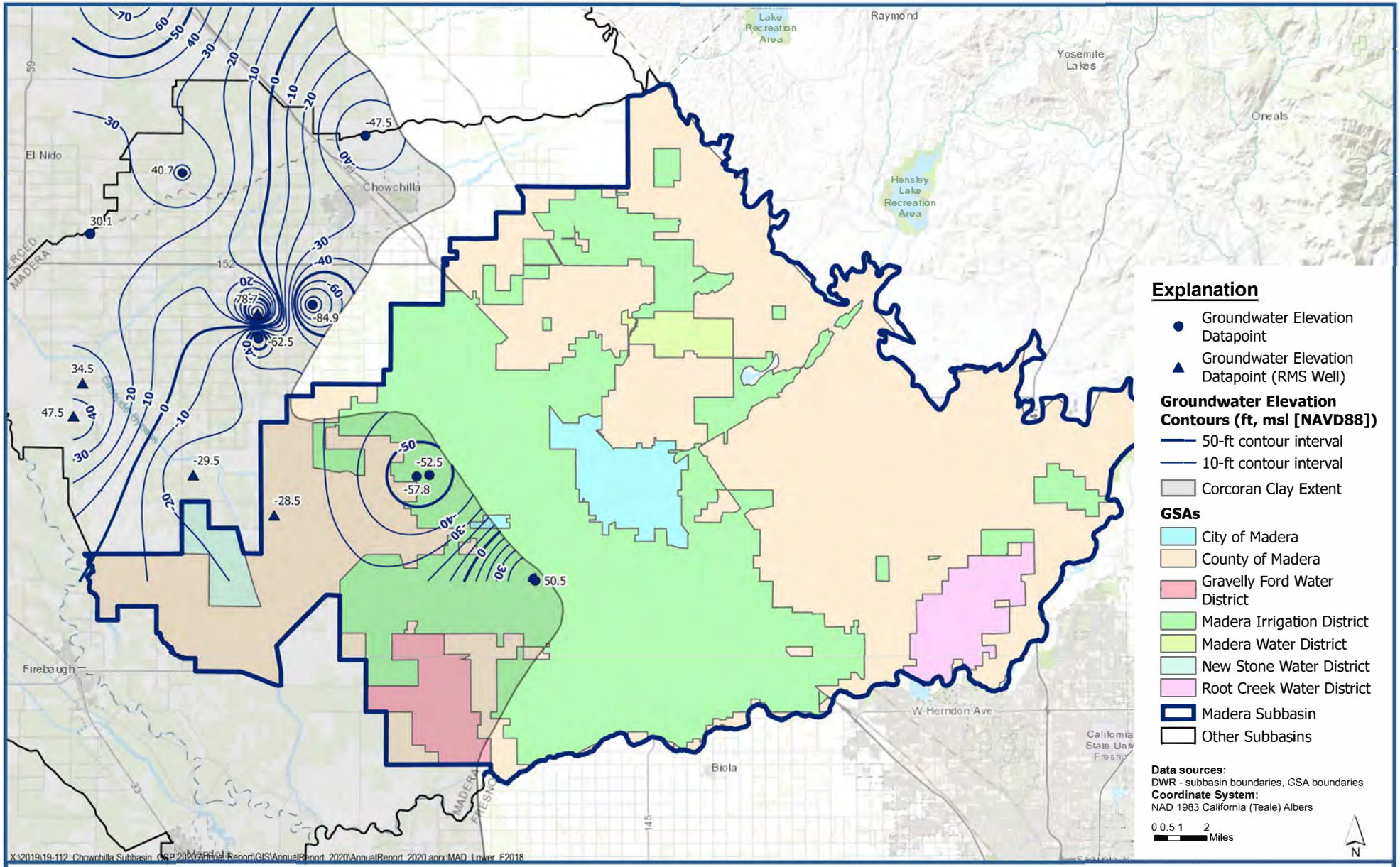
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2018

Figure A-25

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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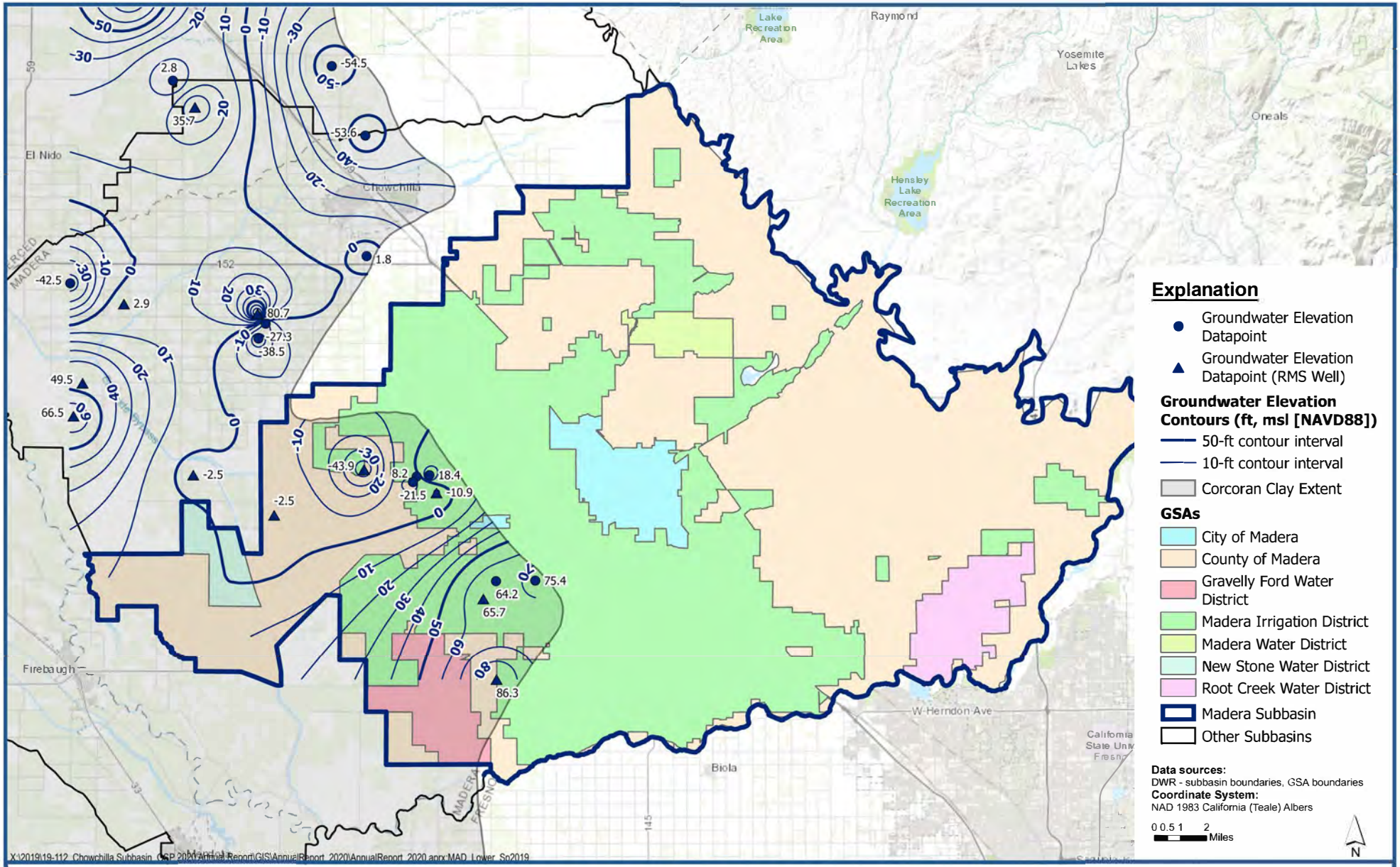
Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2018

Figure A-26

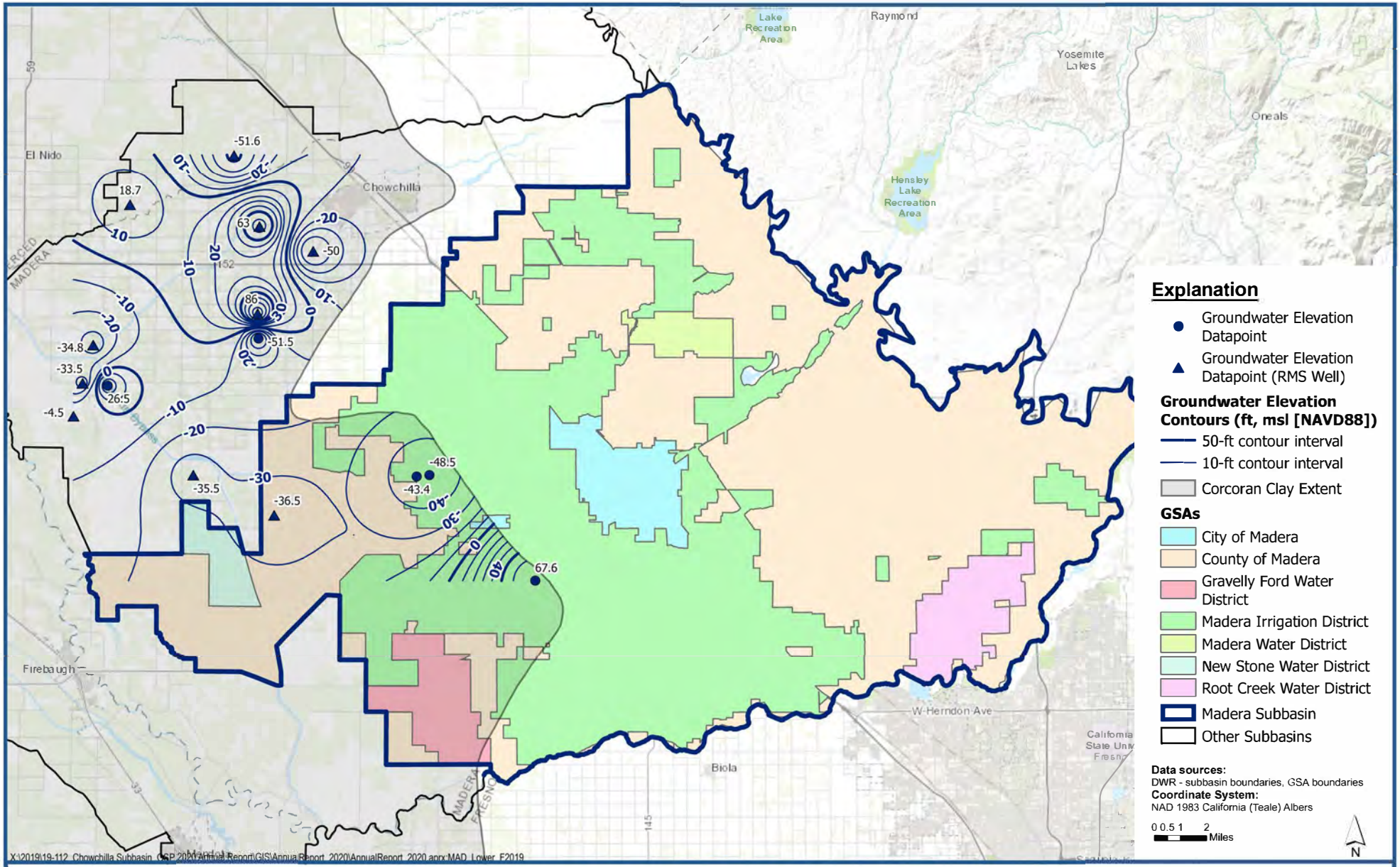
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2019

Figure A-27

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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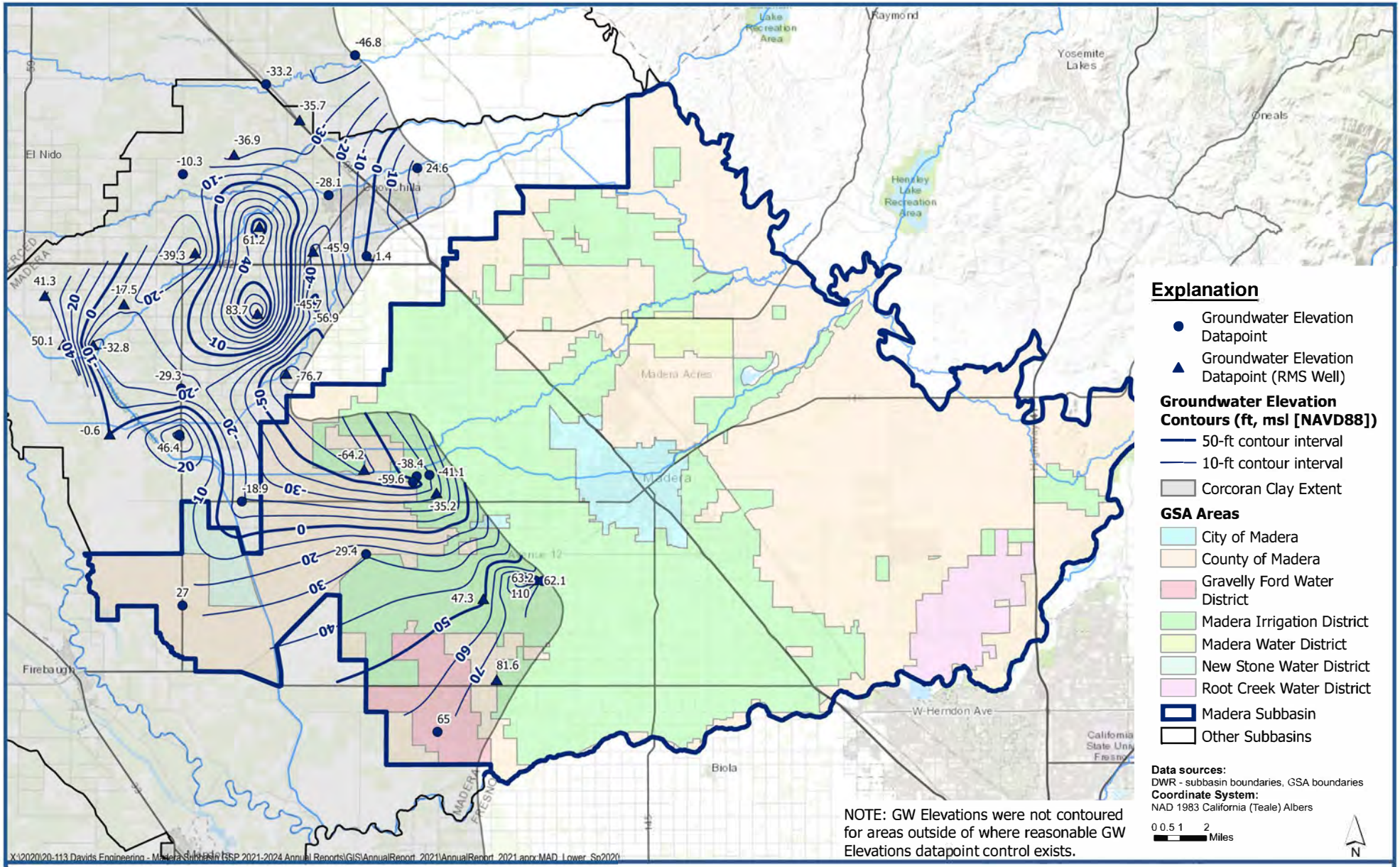
Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2019

Figure A-28

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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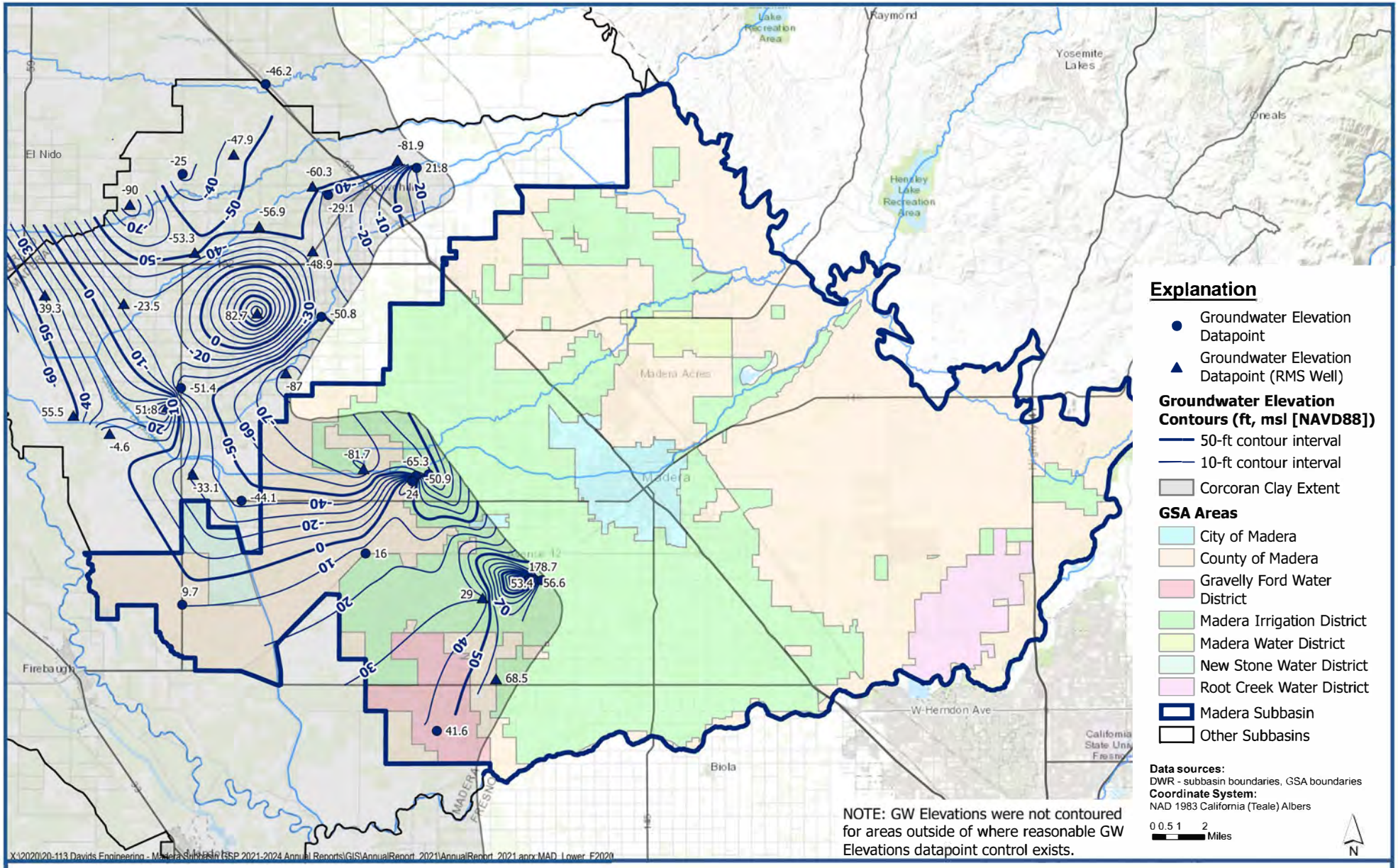
Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2020

Figure A-29

Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report



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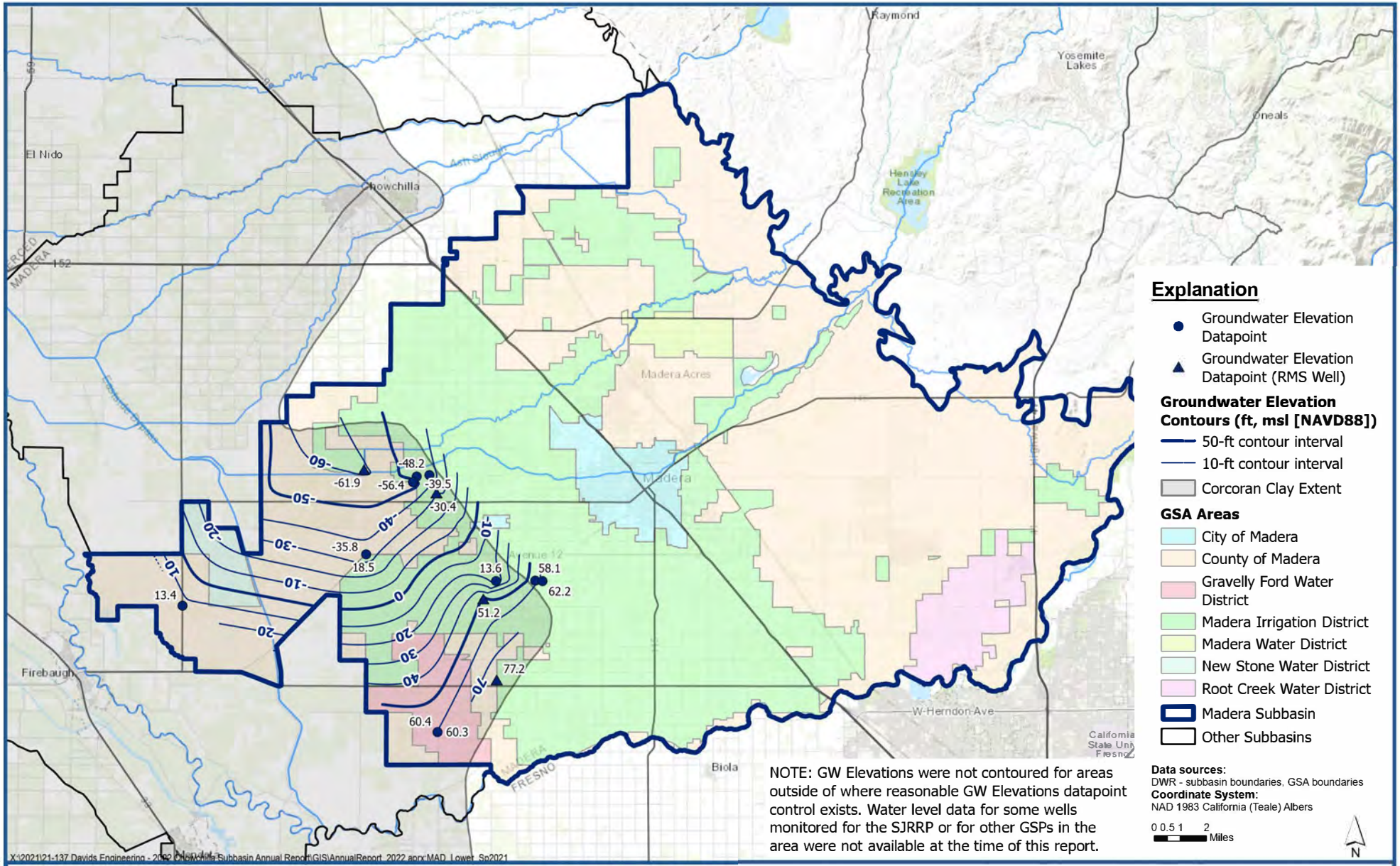
Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2020

Figure A-30

Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report



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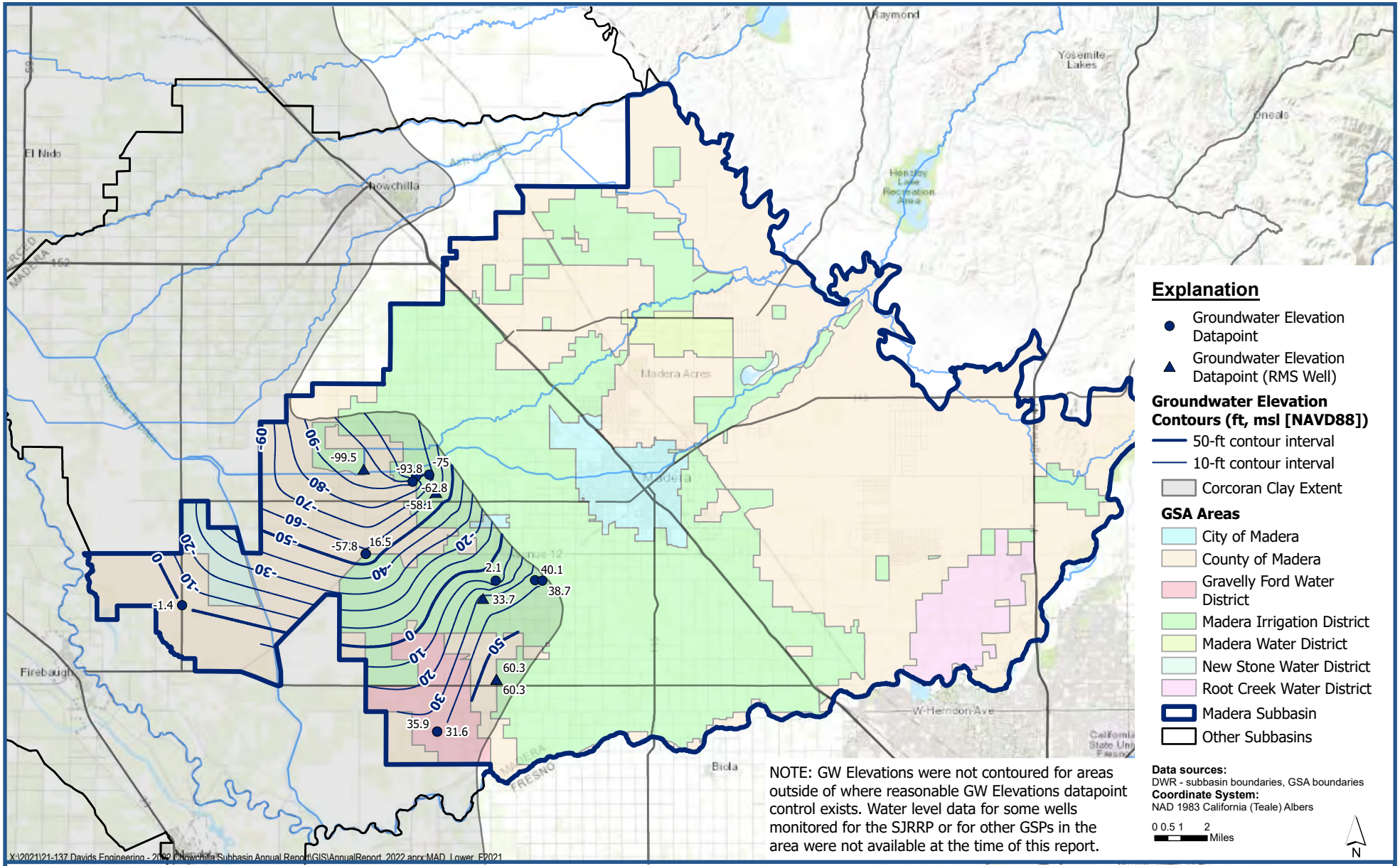
Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2021

Figure A-31

Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



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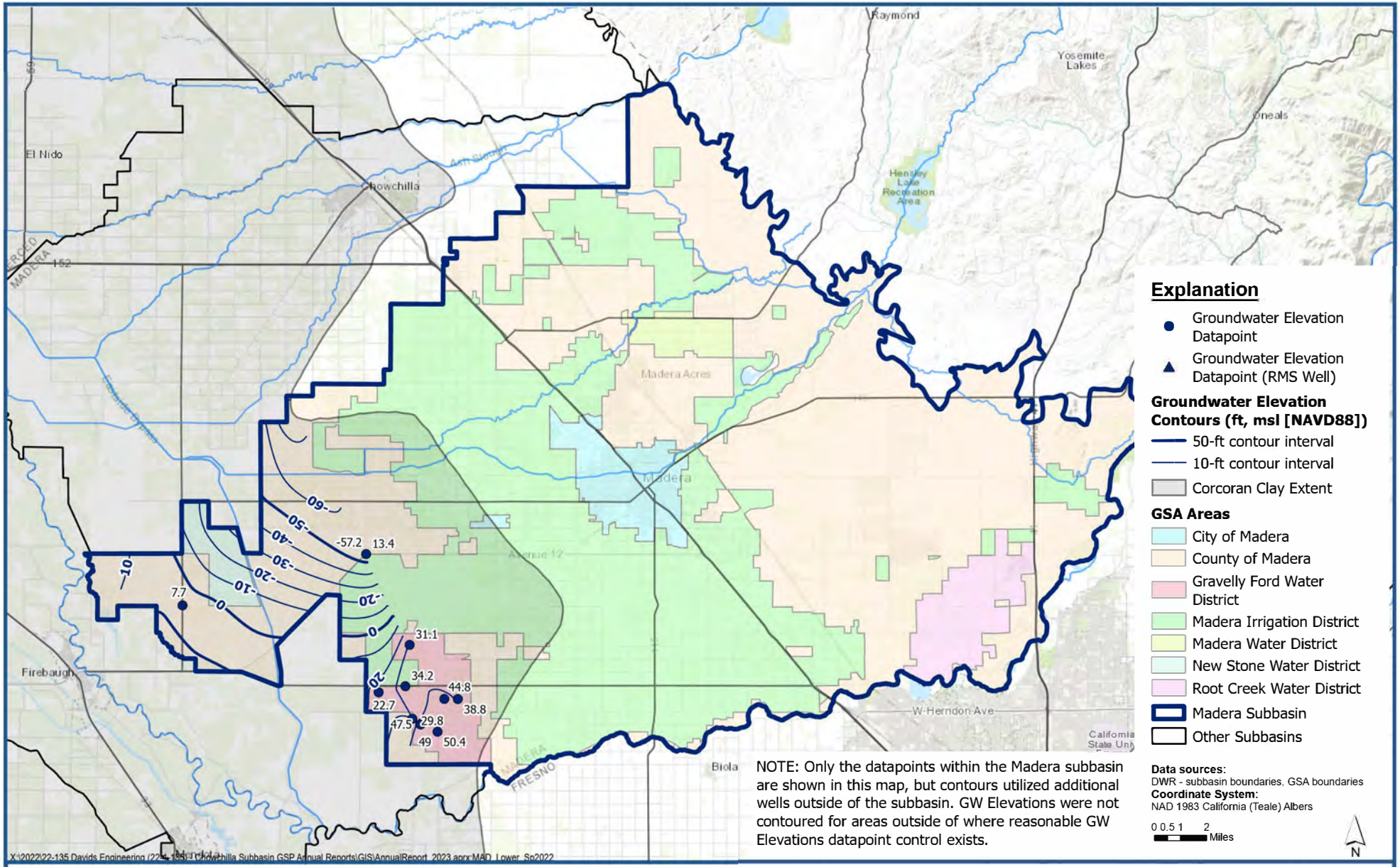
Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2021

Figure A-32

Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



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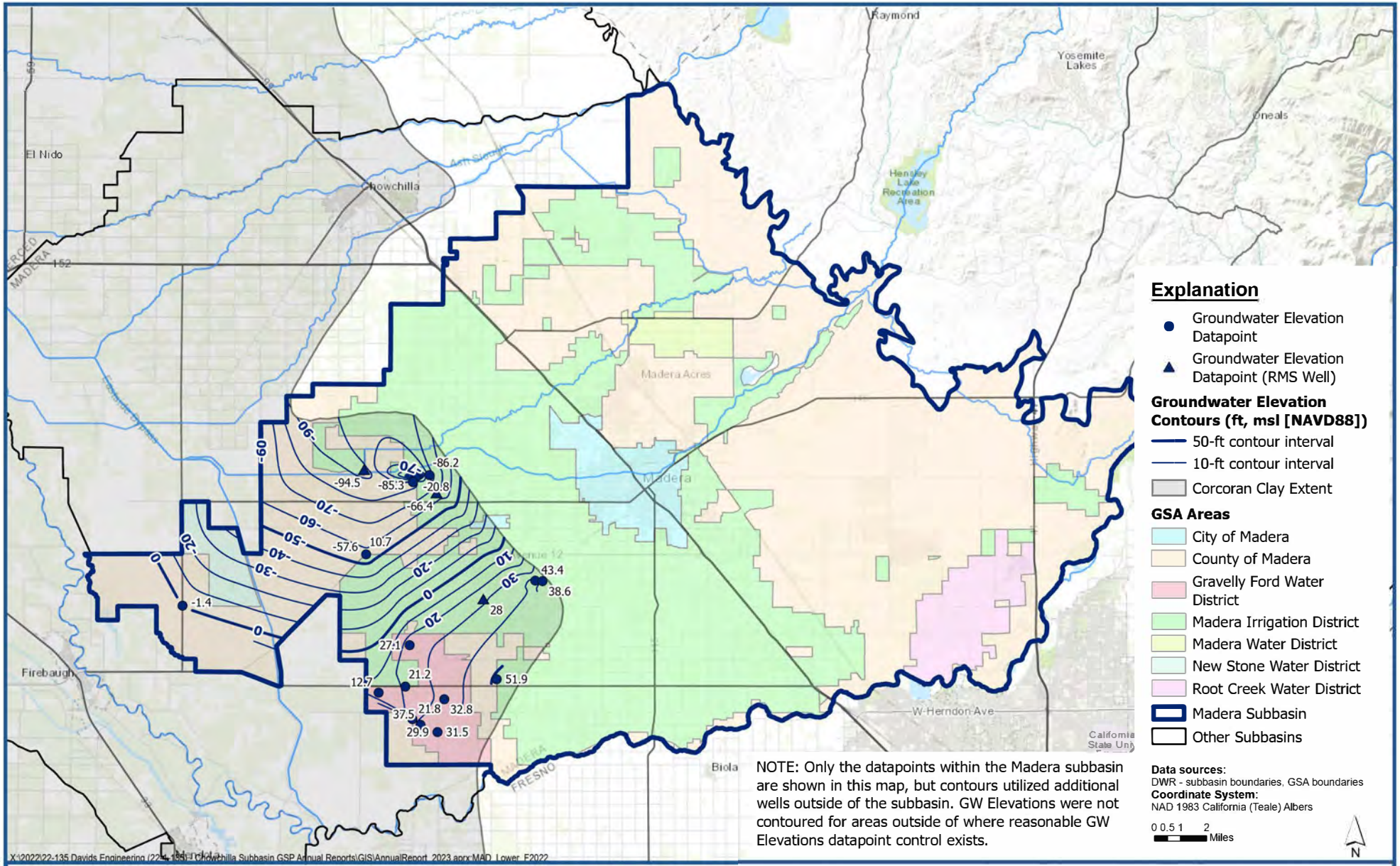
Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2022

Figure A-33

Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



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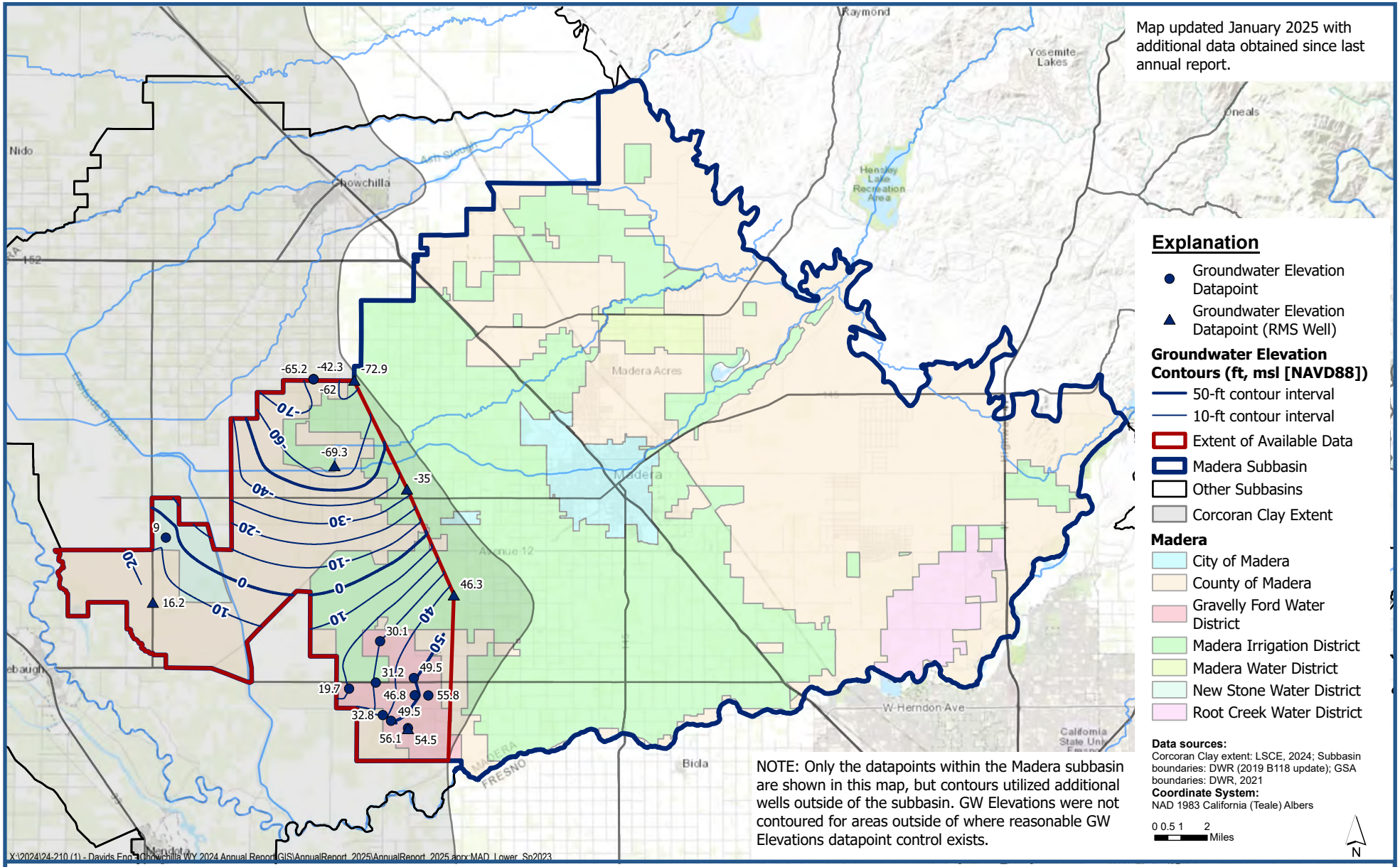
Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2022

Figure A-34

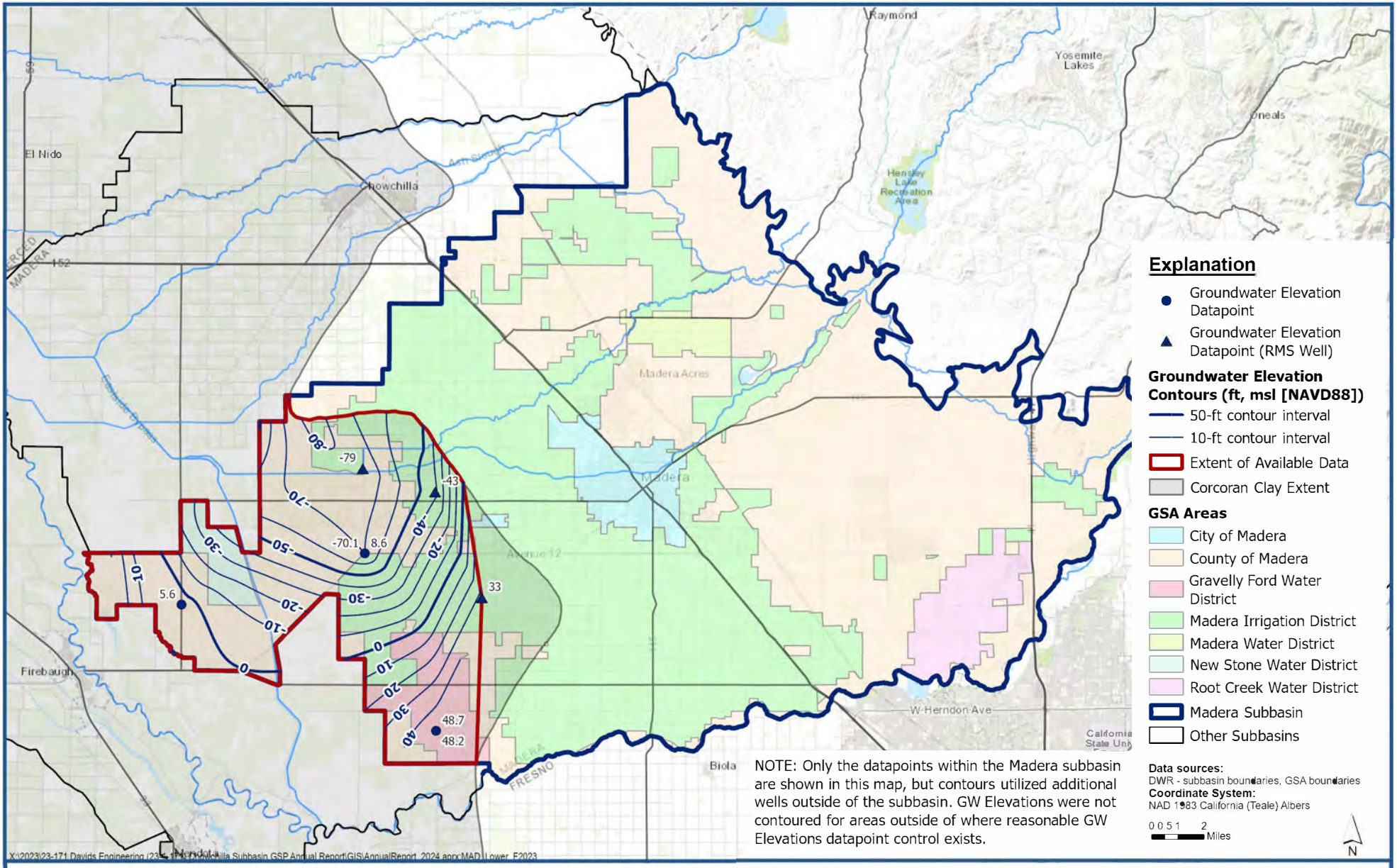
Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2023

Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report

Figure A-35



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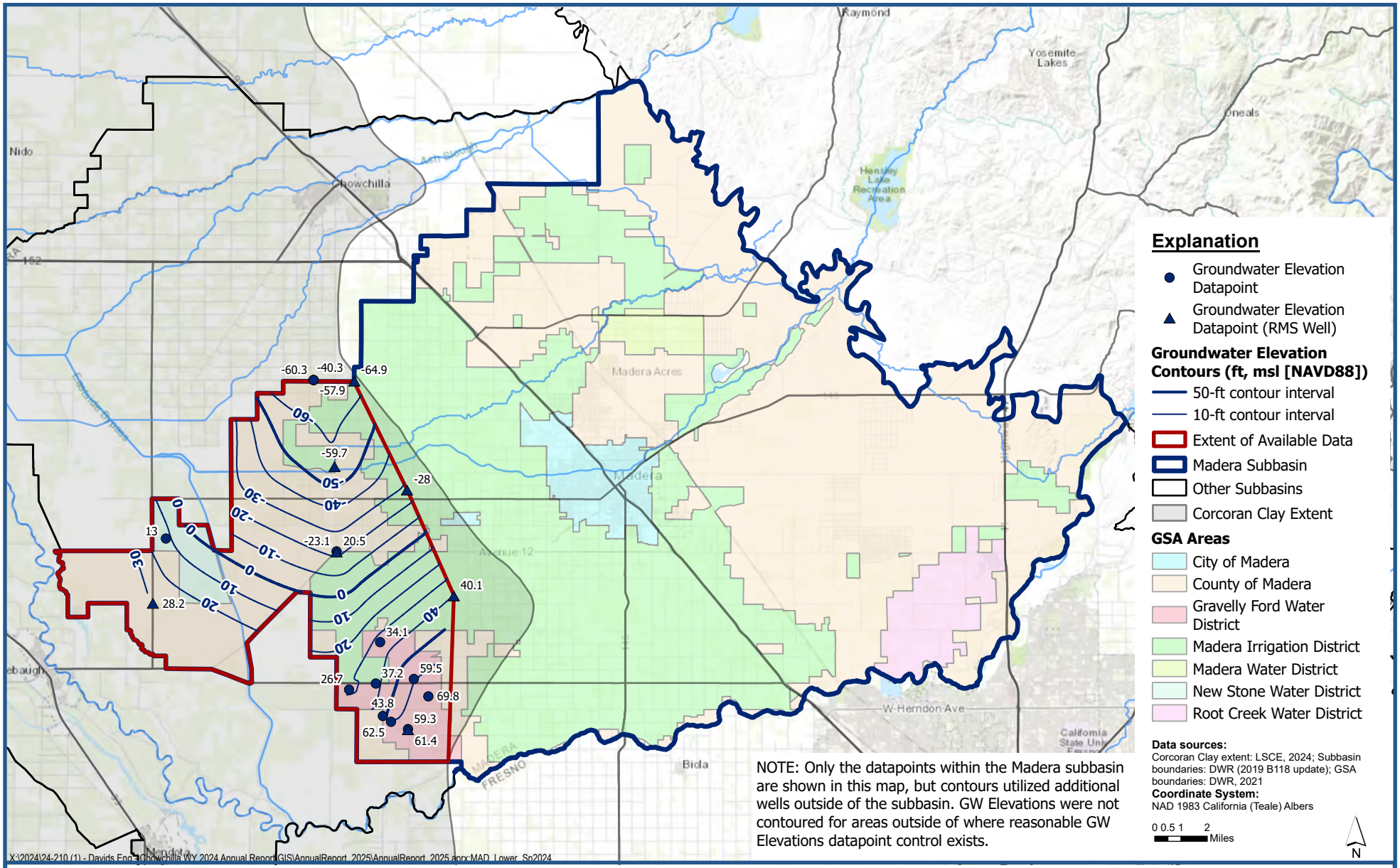
Luhdorff & Scalmanini Consulting Engineers

Contours of Equal Groundwater Elevation Lower Aquifer - Fall 2023

Figure A-36

Madera Subbasin
Groundwater Sustainability Plan 2024 Annual Report



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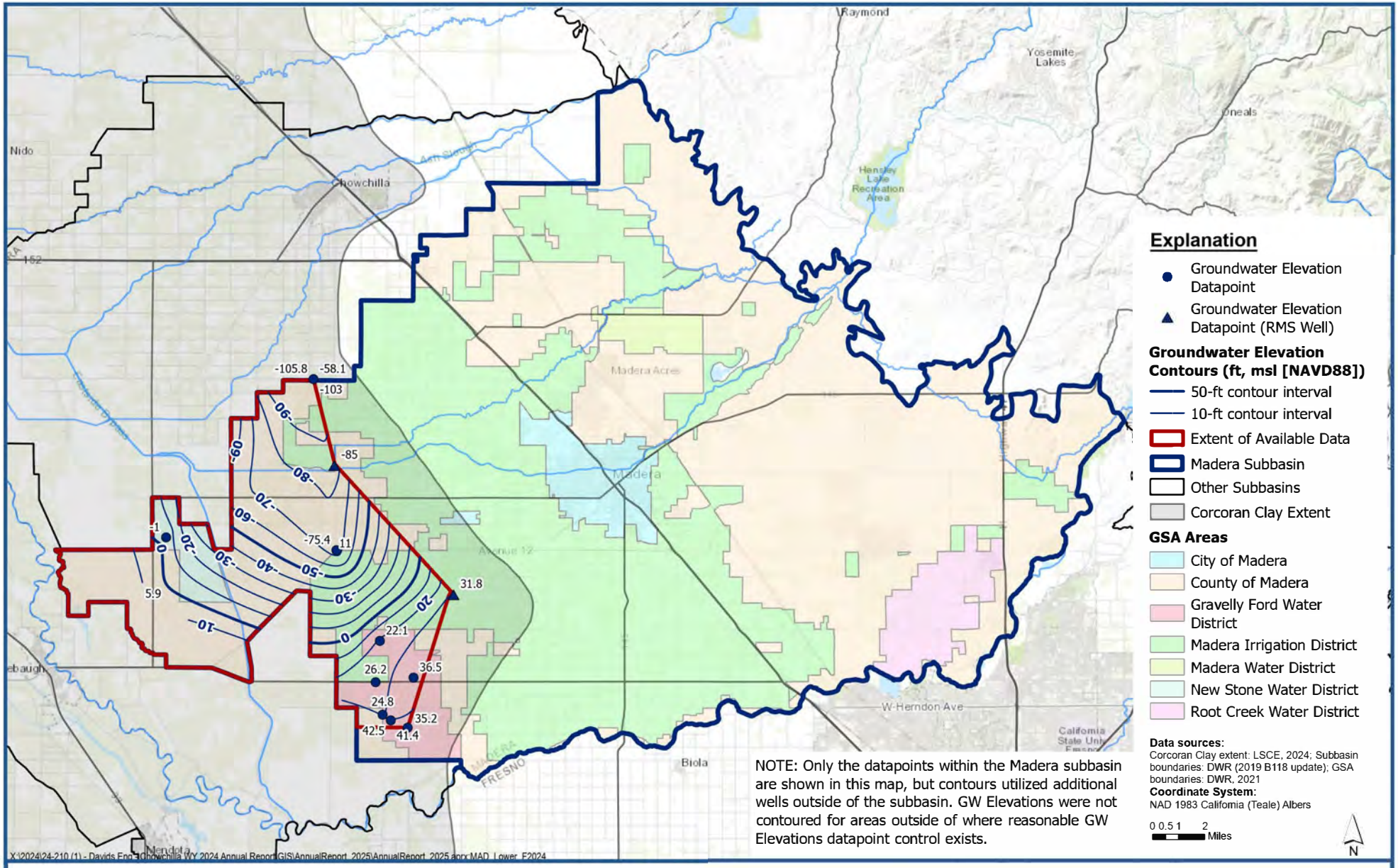
Luhdorff & Scalmanini Consulting Engineers

Contours of Equal Groundwater Elevation
Lower Aquifer - Spring 2024

Figure A-37

Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report



DAVIDS ENGINEERING, INC

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Contours of Equal Groundwater Elevation
Lower Aquifer - Fall 2024

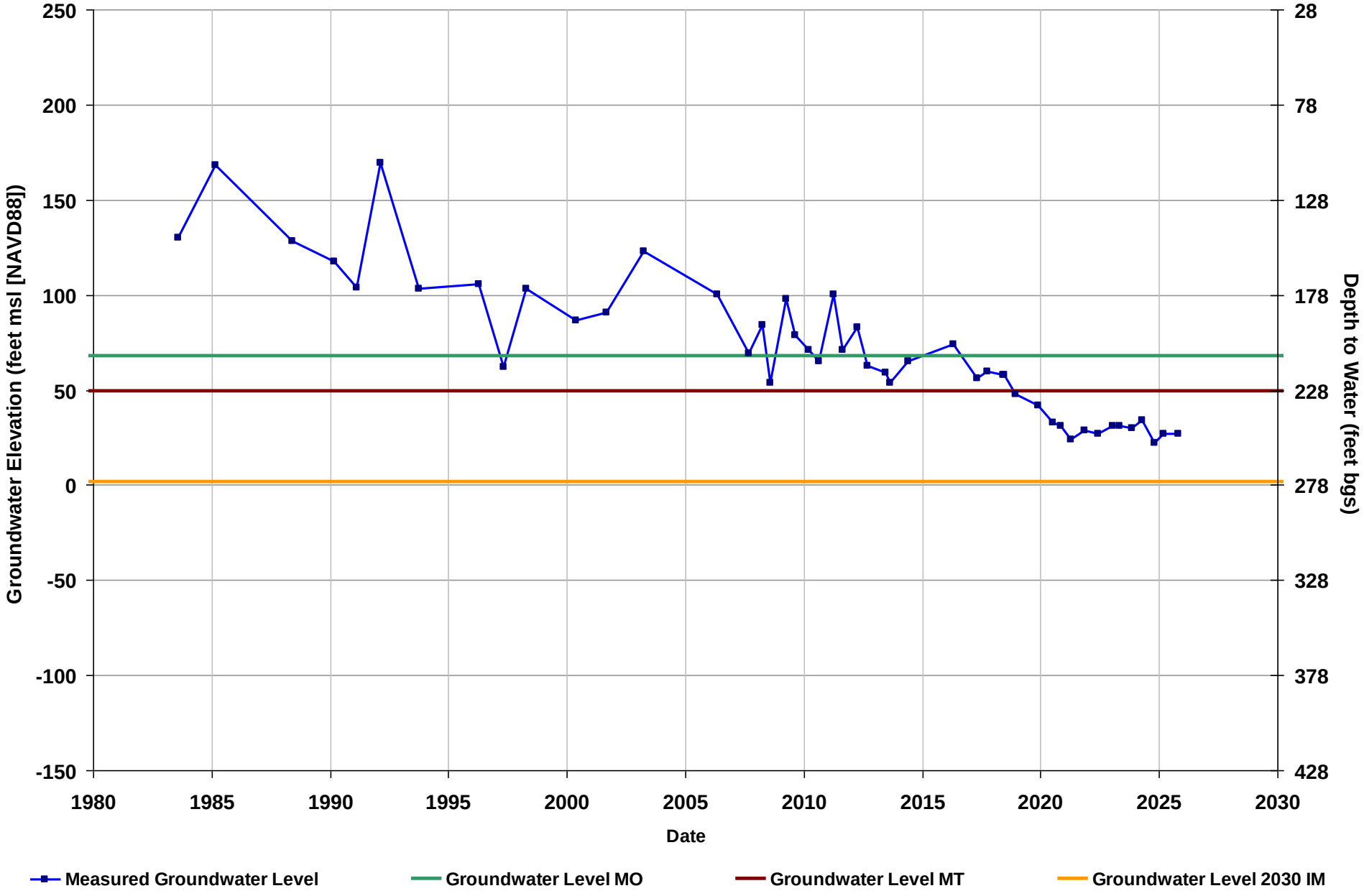
Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report

Figure A-38

Appendix B. Hydrographs of Time-Series Groundwater Level Data for Groundwater Level RMS Wells.

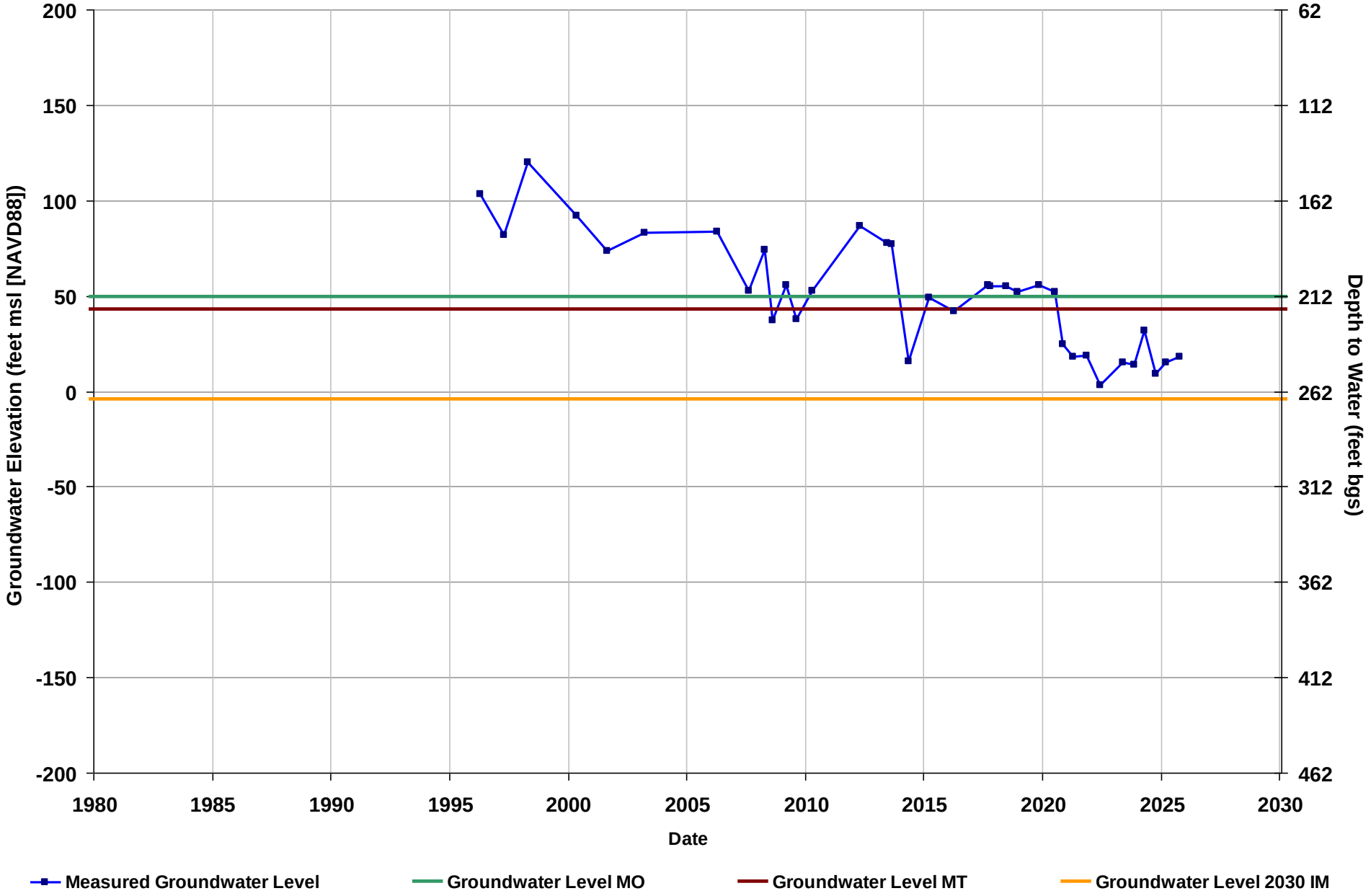
Well Name: COM RMS-1
Depth Zone: Lower
Subbasin: Madera
GSA: City of Madera

Total Depth (ft bgs): 520
Perf. Top (ft bgs): 210
Perf. Bottom (ft bgs): 510
GSE (ft, msl): 278



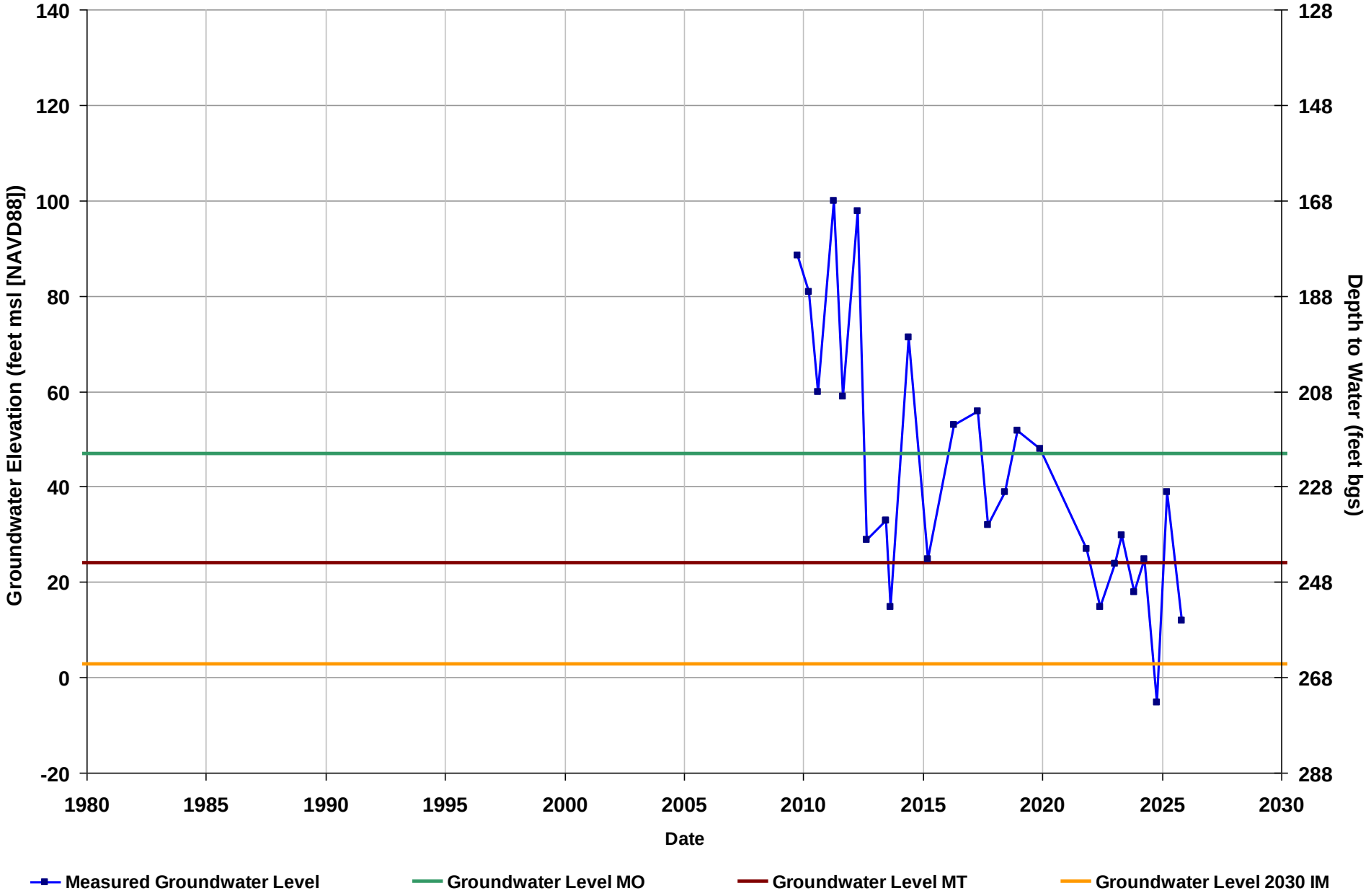
Well Name: COM RMS-2
Depth Zone: Lower
Subbasin: Madera
GSA: City of Madera

Total Depth (ft bgs): 590
Perf. Top (ft bgs): 370
Perf. Bottom (ft bgs): 590
GSE (ft, msl): 262



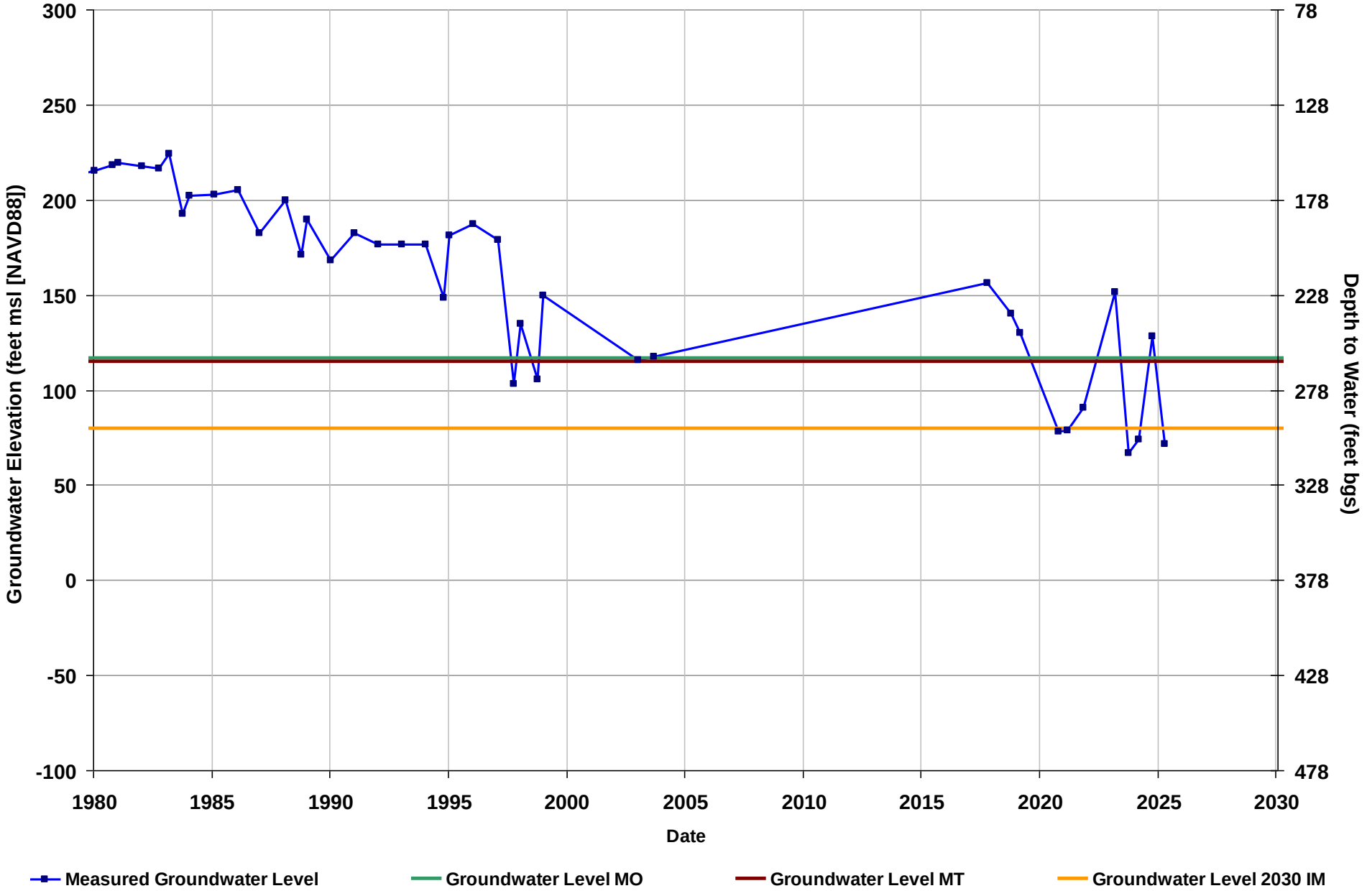
Well Name: COM RMS-4
Depth Zone: Lower
Subbasin: Madera
GSA: City of Madera

Total Depth (ft bgs): 588
Perf. Top (ft bgs): 433
Perf. Bottom (ft bgs): 568
GSE (ft, msl): 268



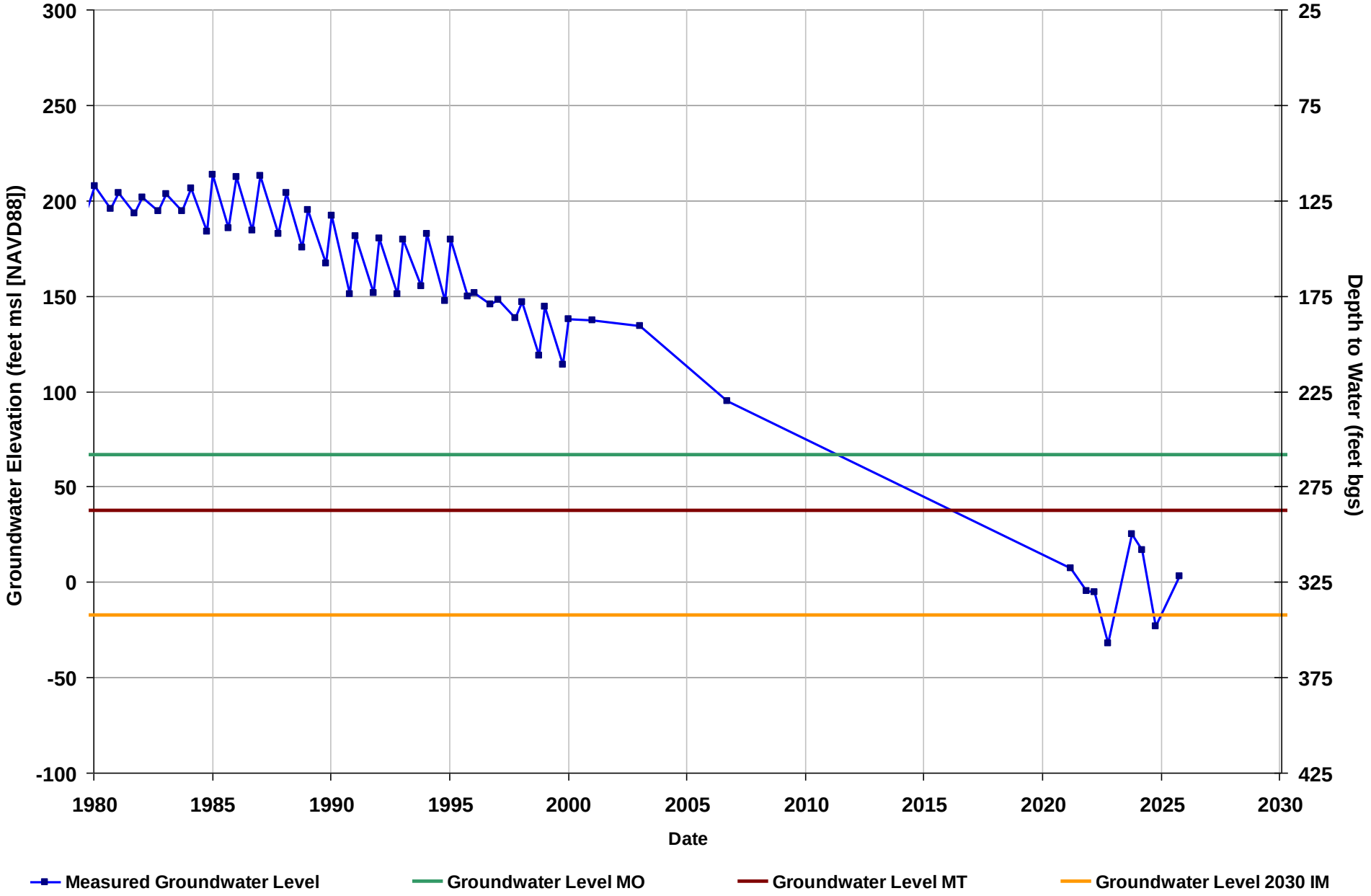
Well Name: MCE RMS-2
Depth Zone: Upper
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs):
Perf. Top (ft bgs):
Perf. Bottom (ft bgs):
GSE (ft, msl): 378



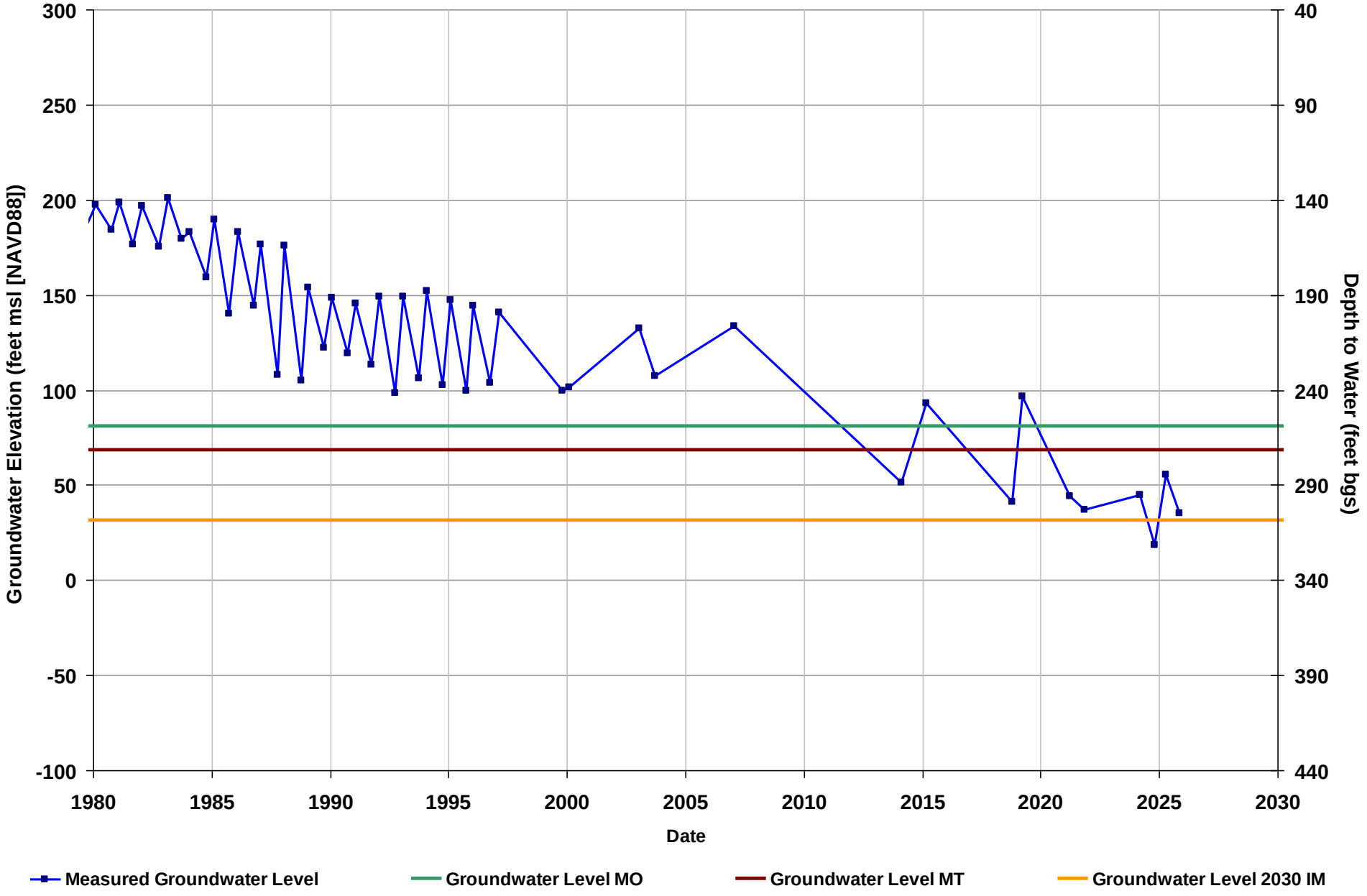
Well Name: MCE RMS-3
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs):
Perf. Top (ft bgs):
Perf. Bottom (ft bgs):
GSE (ft, msl): 325



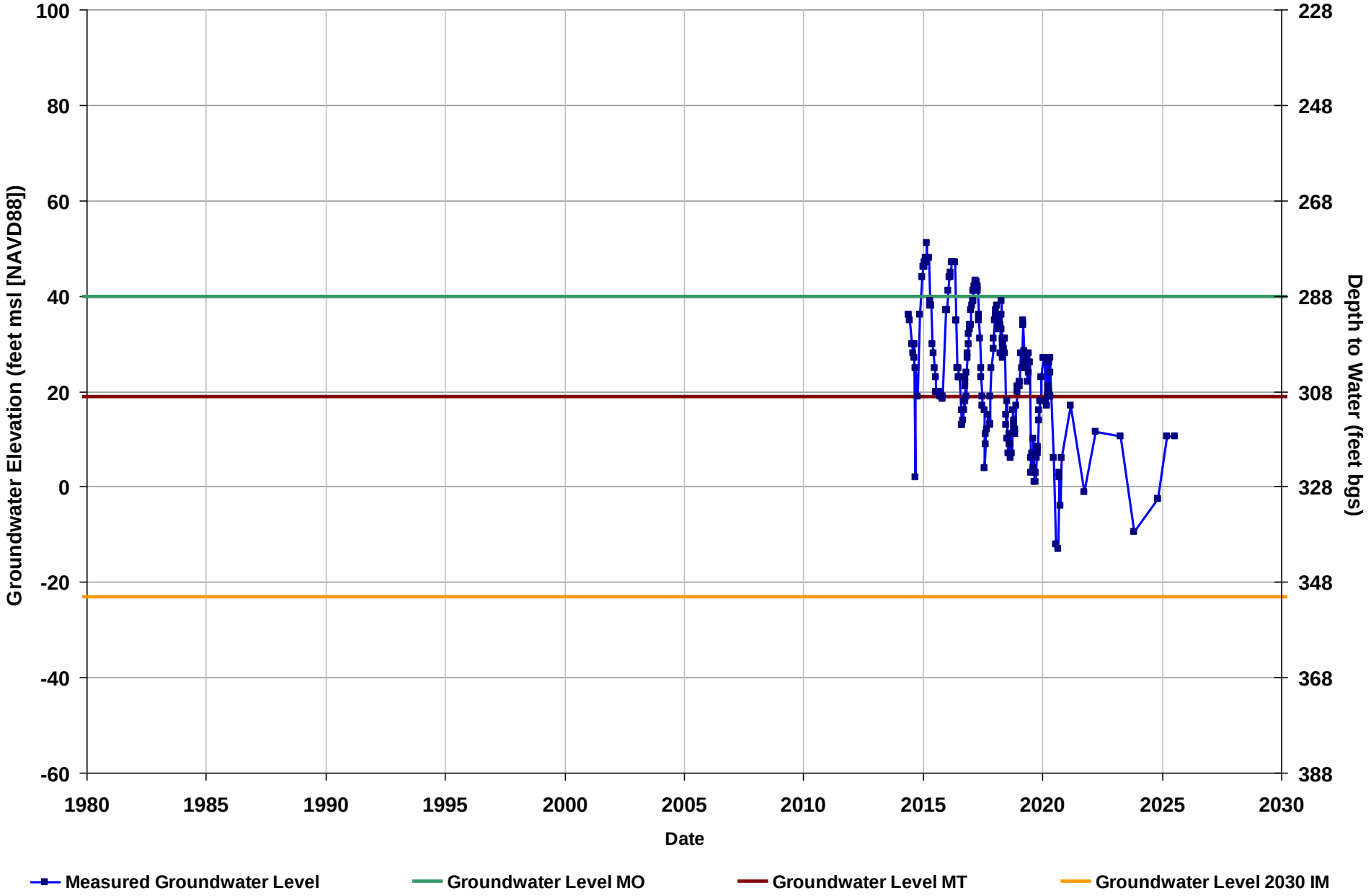
Well Name: MCE RMS-5
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs):
Perf. Top (ft bgs):
Perf. Bottom (ft bgs):
GSE (ft, msl): 340



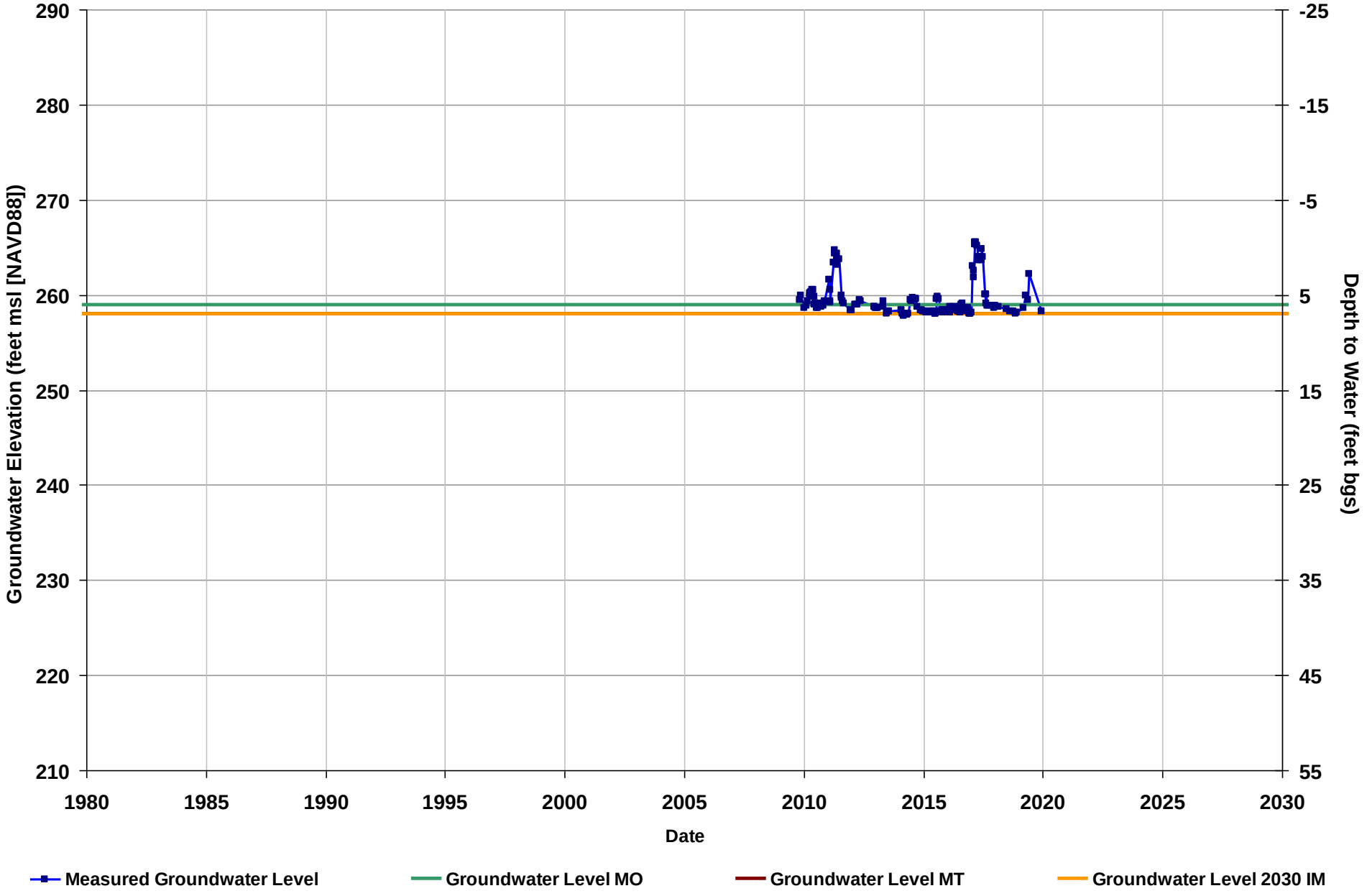
Well Name: MCE RMS-6
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 550
Perf. Top (ft bgs): 450
Perf. Bottom (ft bgs): 550
GSE (ft, msl): 328



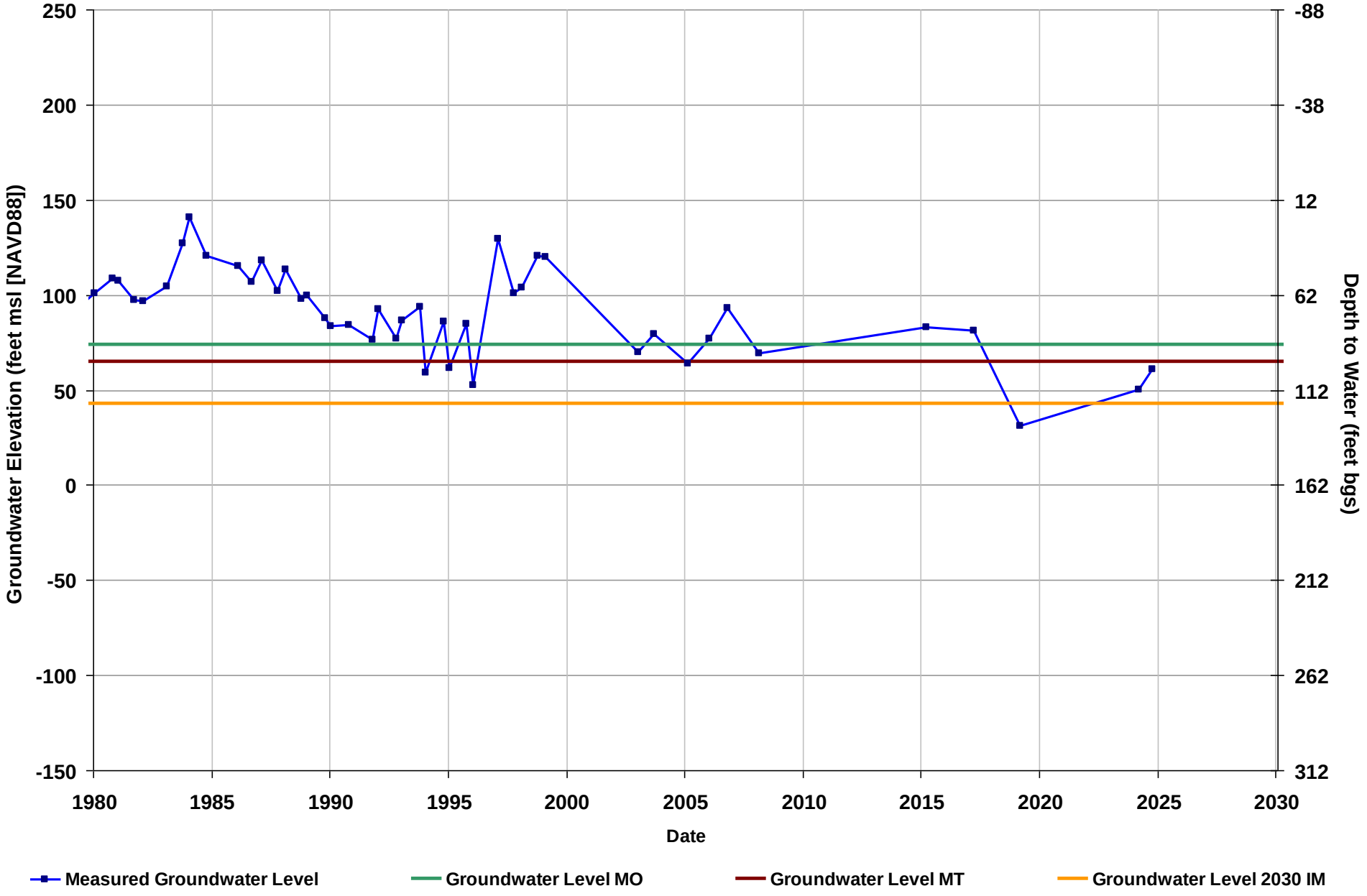
Well Name: MCE RMS-9
Depth Zone: Shallow
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 37
Perf. Top (ft bgs): 17
Perf. Bottom (ft bgs): 37
GSE (ft, msl): 271



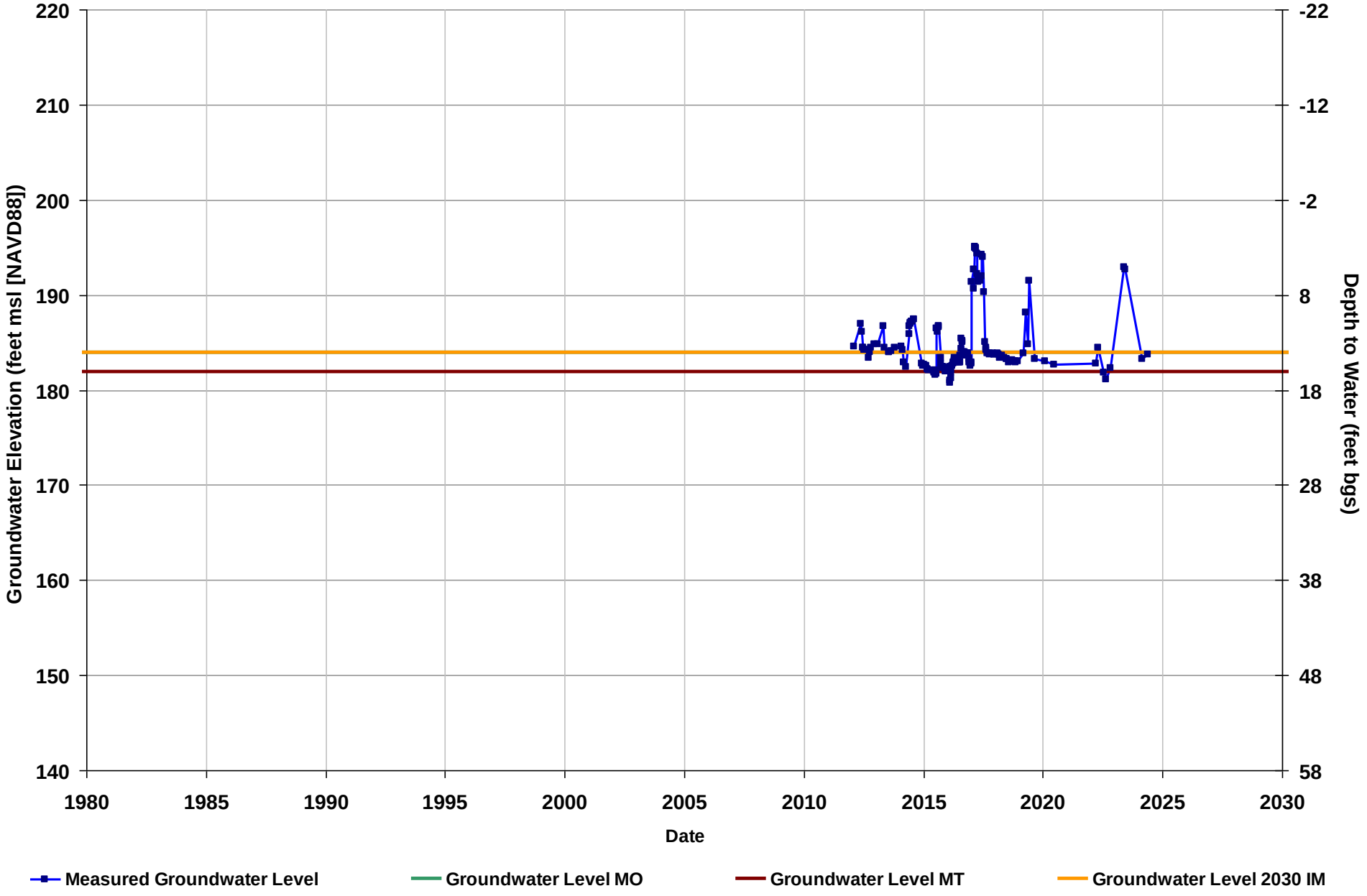
Well Name: MCW RMS-3
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs):
Perf. Top (ft bgs):
Perf. Bottom (ft bgs):
GSE (ft, msl): 162



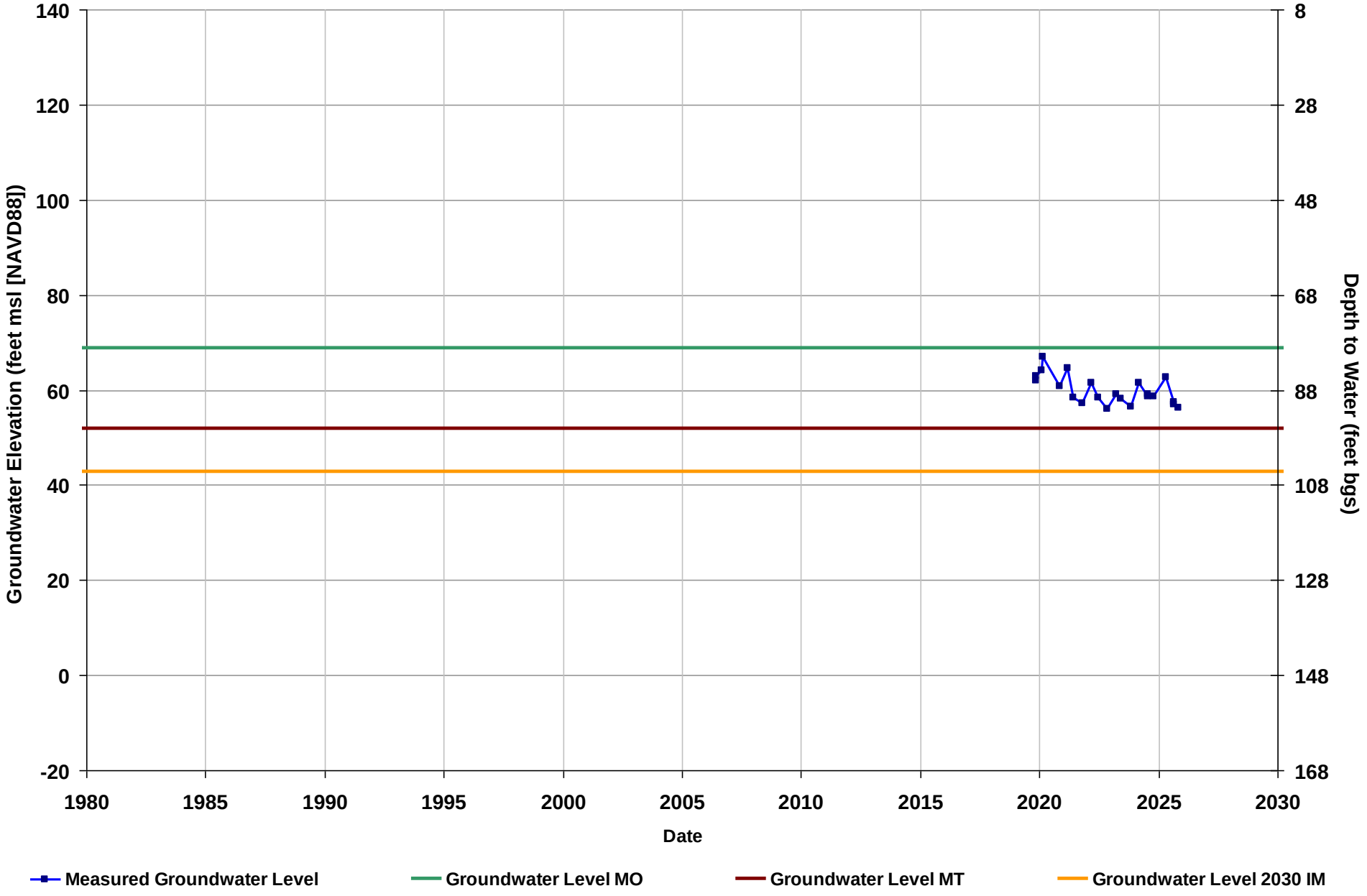
Well Name: MCW RMS-5
Depth Zone: Shallow
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 28.4
Perf. Top (ft bgs): 7.9
Perf. Bottom (ft bgs): 27.9
GSE (ft, msl): 202



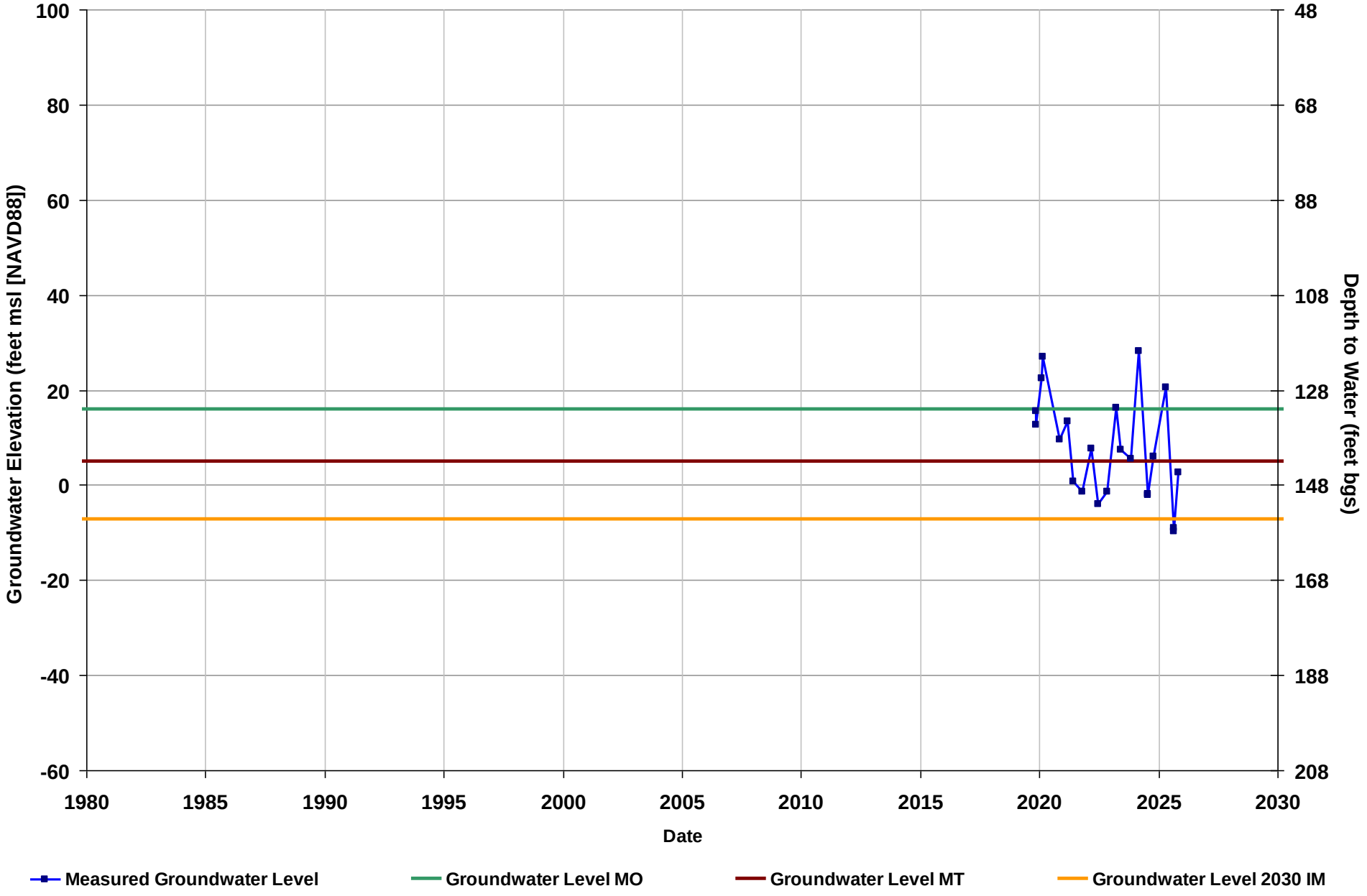
Well Name: MSB03B
Depth Zone: Upper
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 295
Perf. Top (ft bgs): 215
Perf. Bottom (ft bgs): 285
GSE (ft, msl): 148



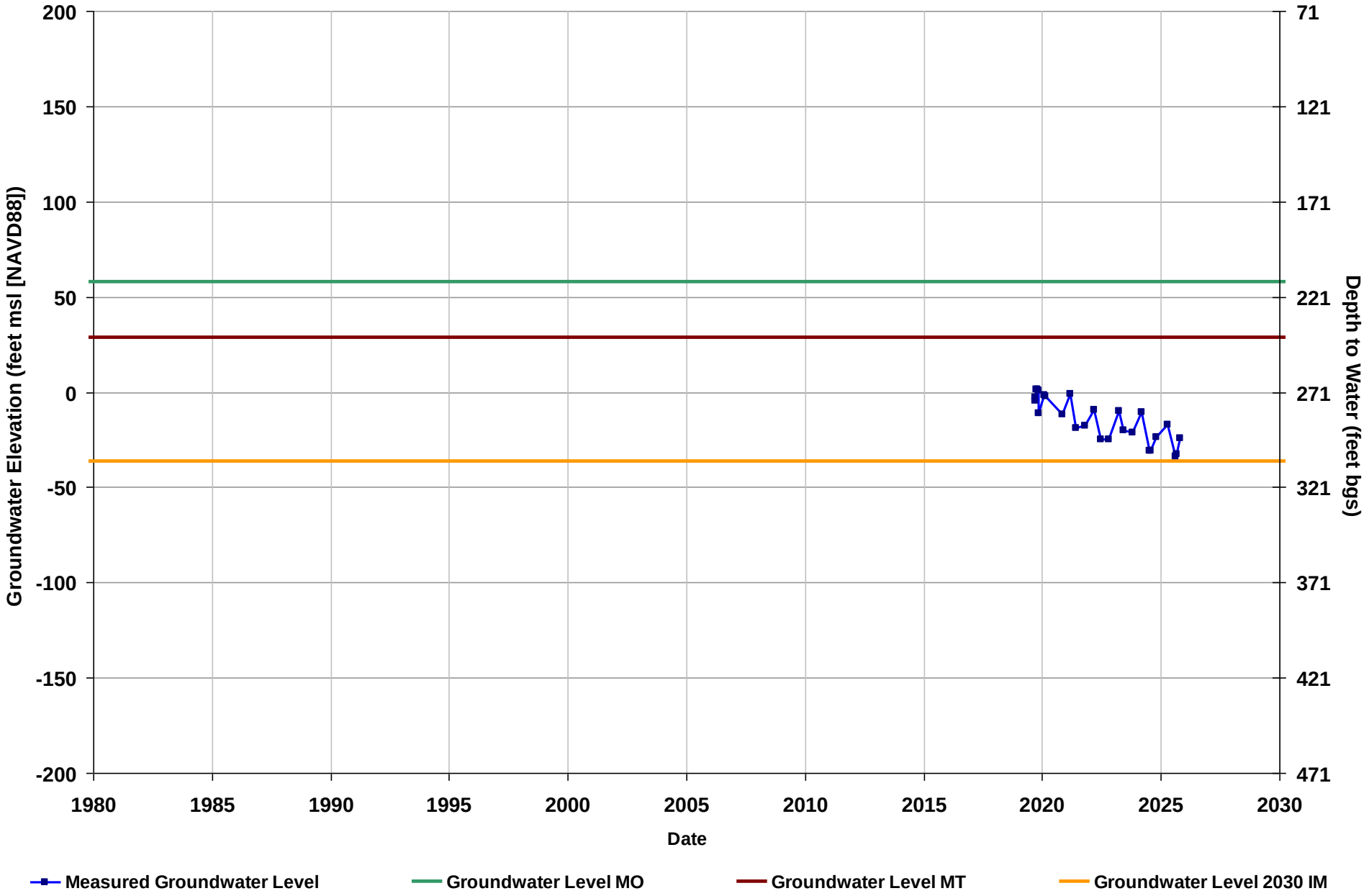
Well Name: MSB03C
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 430
Perf. Top (ft bgs): 355
Perf. Bottom (ft bgs): 420
GSE (ft, msl): 148



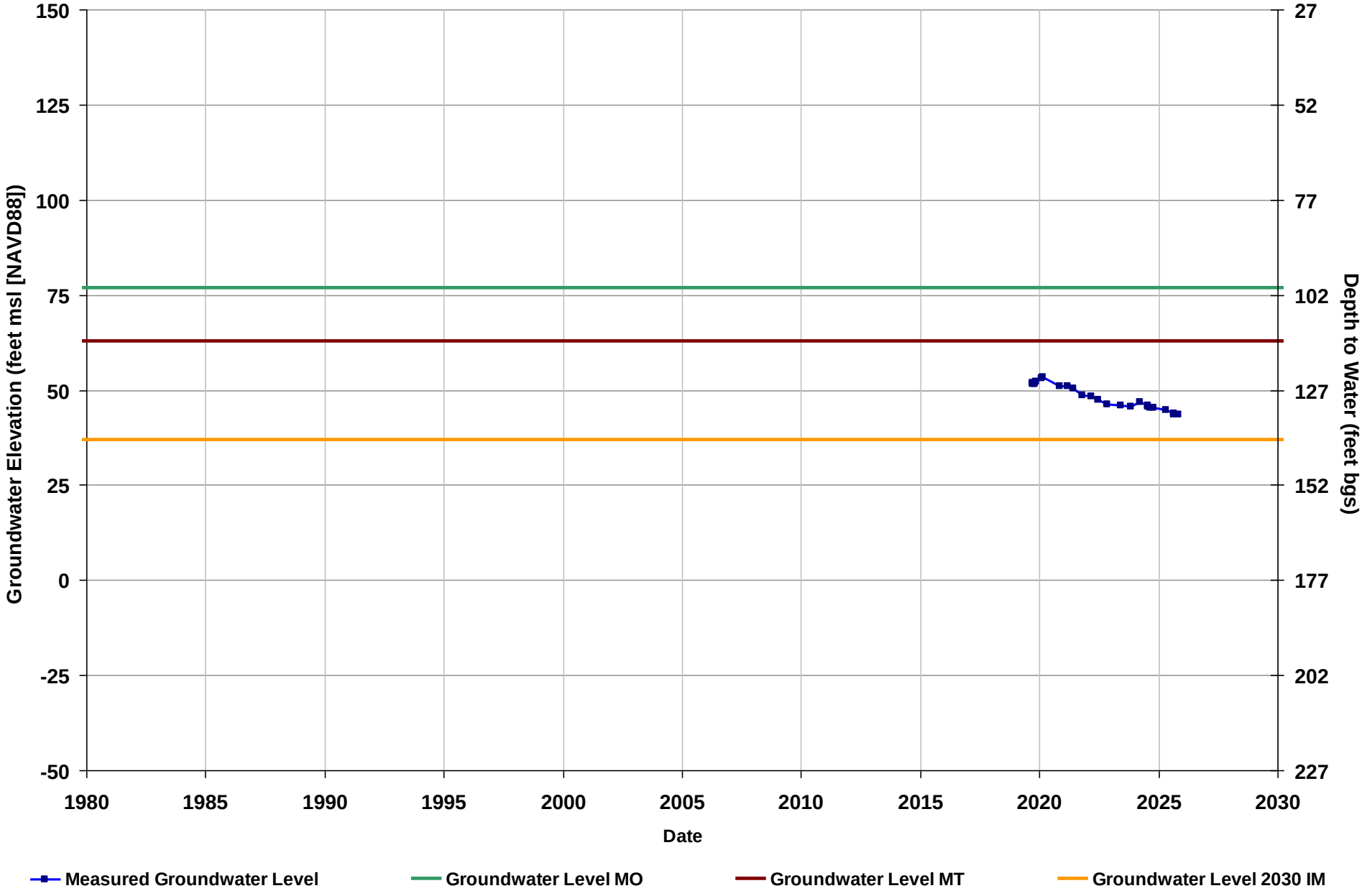
Well Name: MSB04B
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 695
Perf. Top (ft bgs): 530
Perf. Bottom (ft bgs): 685
GSE (ft, msl): 271



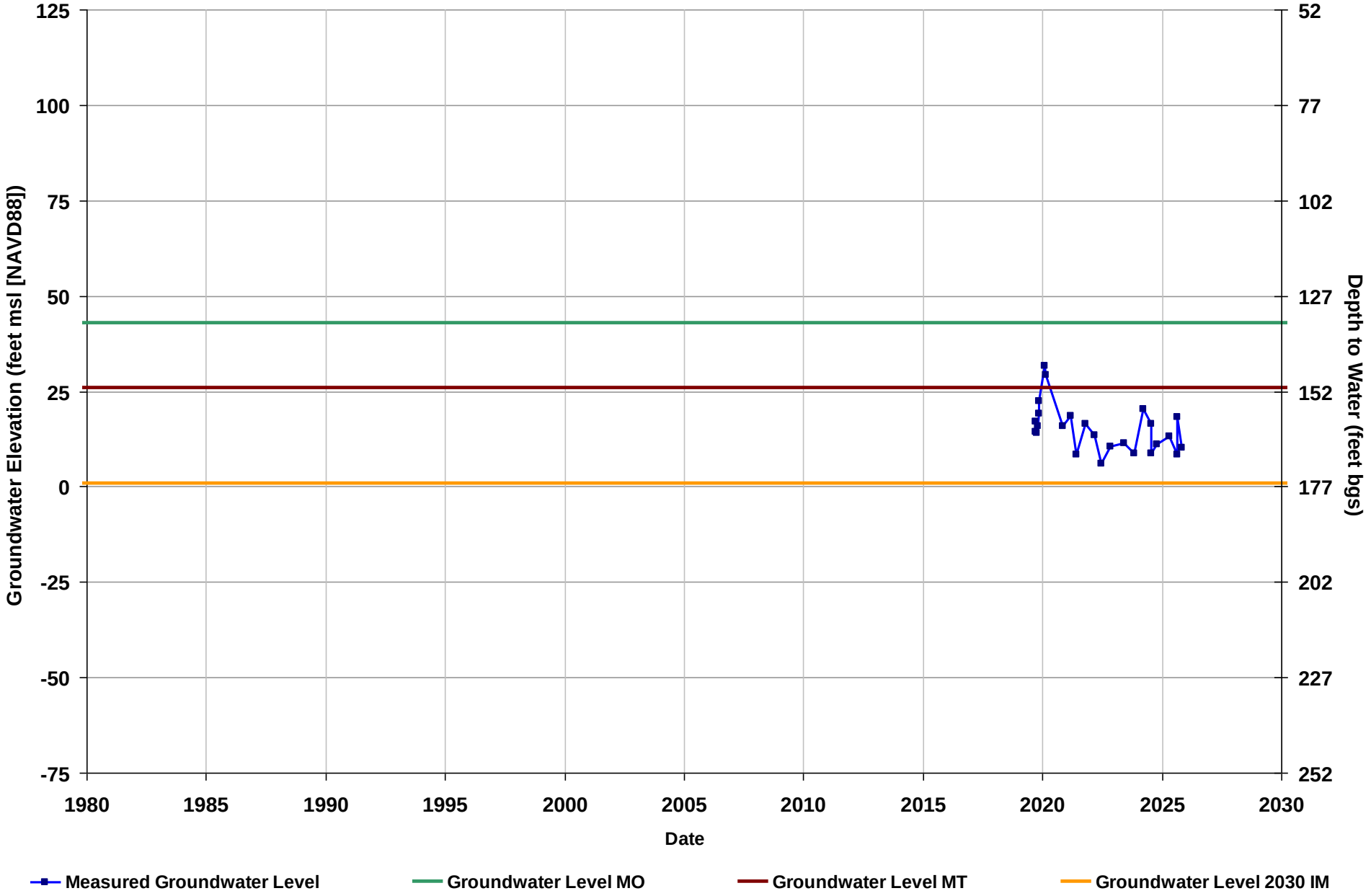
Well Name: MSB05A
Depth Zone: Upper
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 210
Perf. Top (ft bgs): 140
Perf. Bottom (ft bgs): 200
GSE (ft, msl): 177



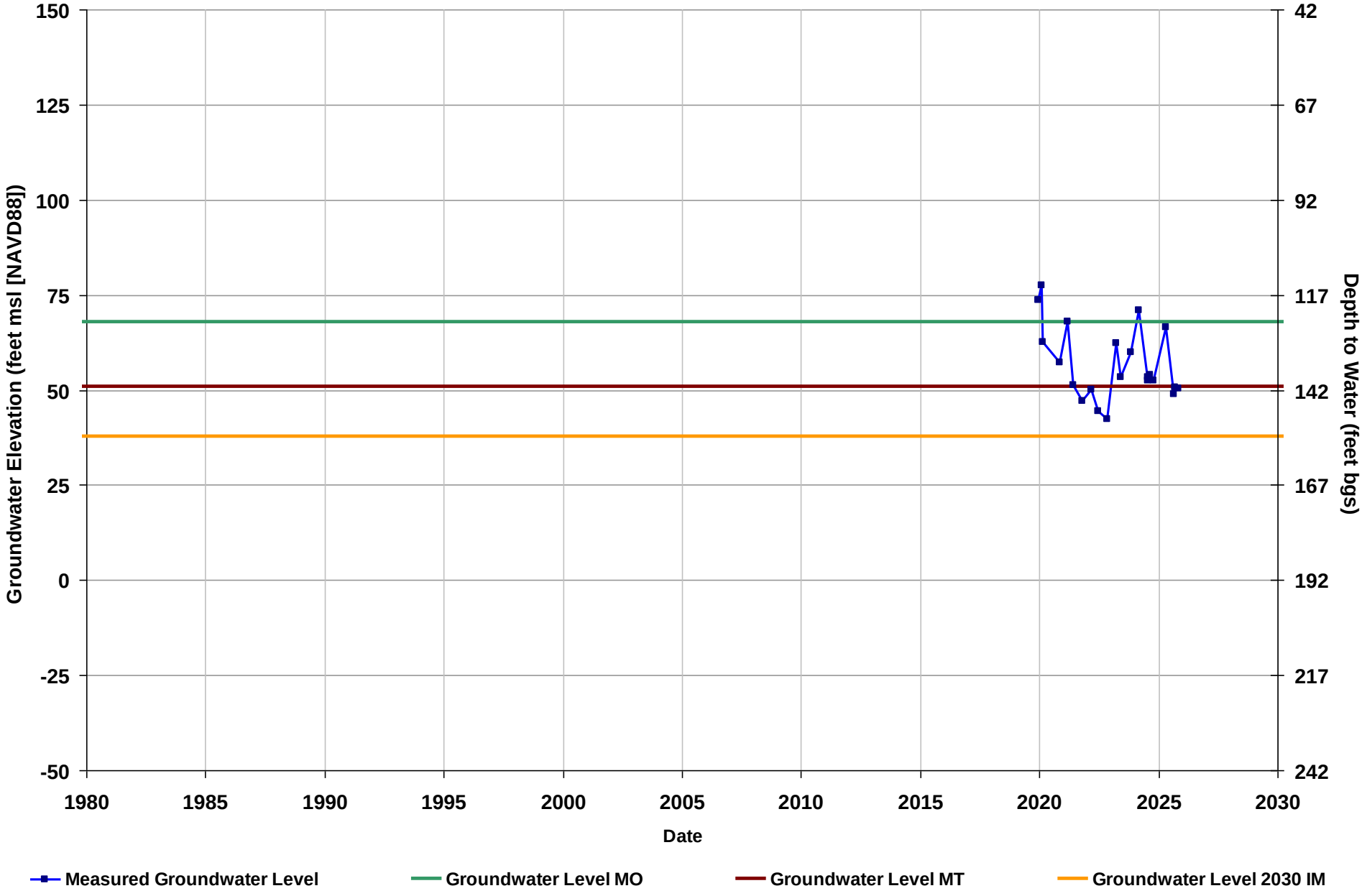
Well Name: MSB05B
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 375
Perf. Top (ft bgs): 240
Perf. Bottom (ft bgs): 365
GSE (ft, msl): 177



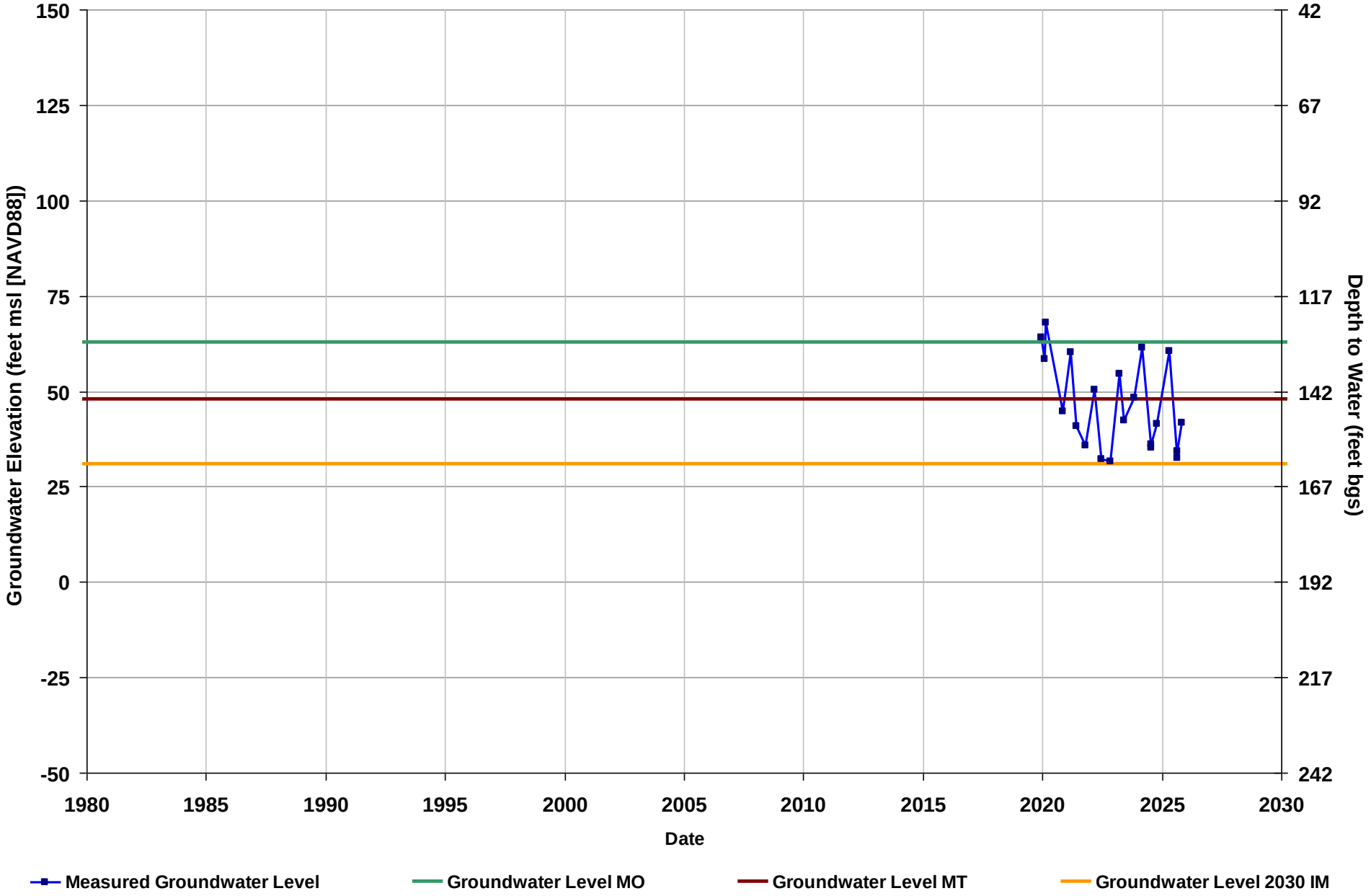
Well Name: MSB06A
Depth Zone: Upper
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 350
Perf. Top (ft bgs): 135
Perf. Bottom (ft bgs): 340
GSE (ft, msl): 192



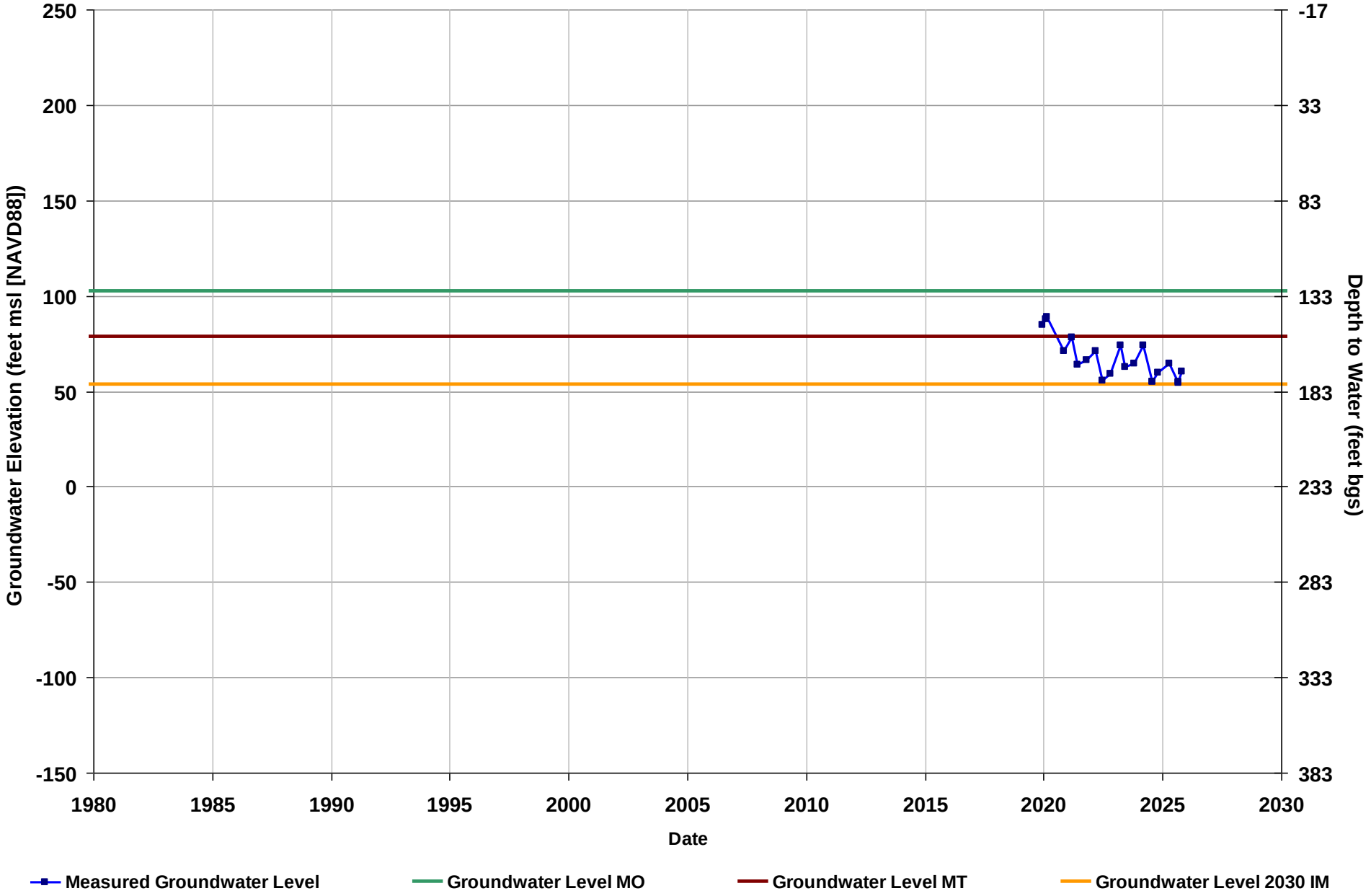
Well Name: MSB06C
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 715
Perf. Top (ft bgs): 630
Perf. Bottom (ft bgs): 705
GSE (ft, msl): 192



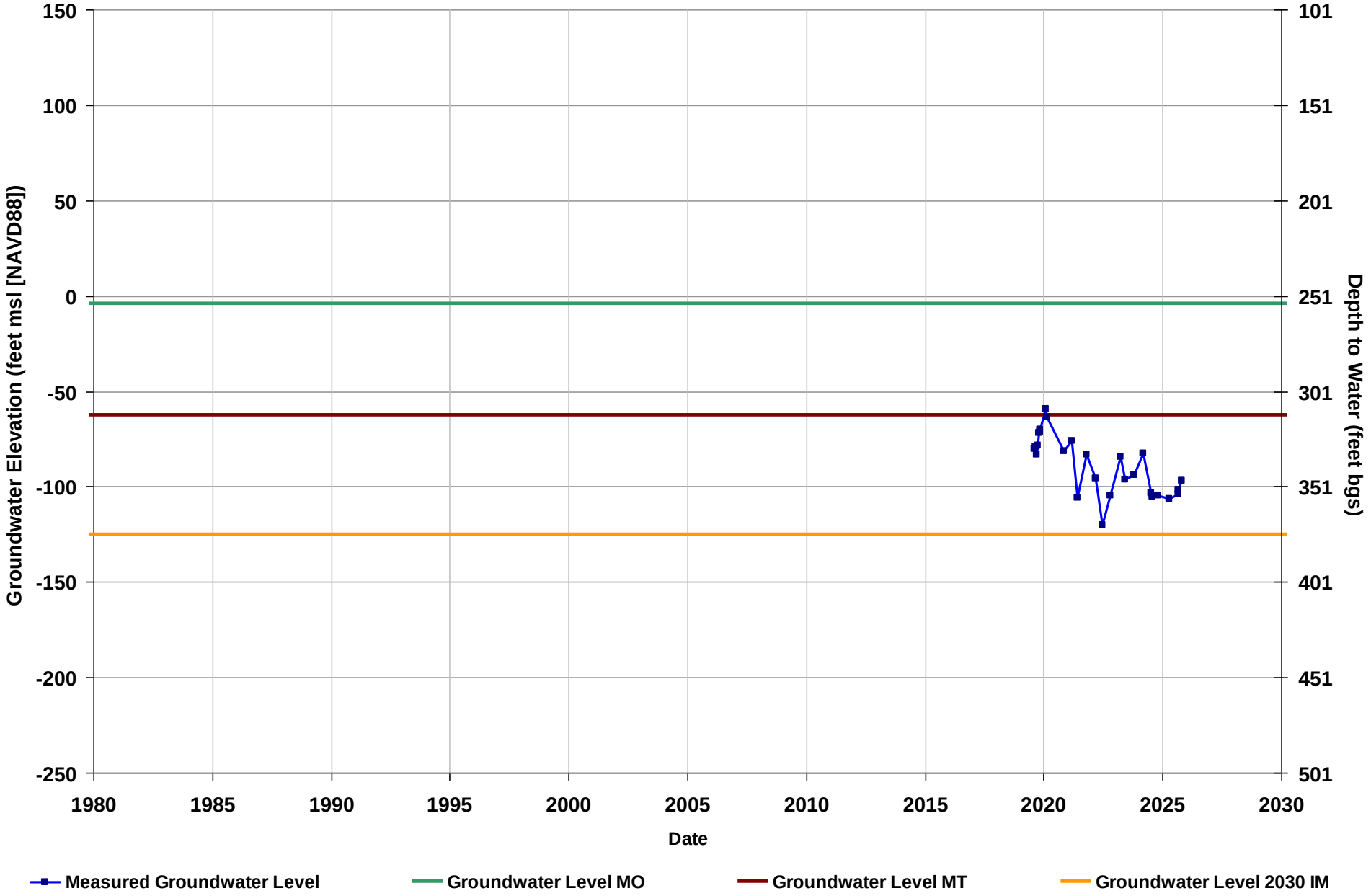
Well Name: MSB09C
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 955
Perf. Top (ft bgs): 880
Perf. Bottom (ft bgs): 945
GSE (ft, msl): 233



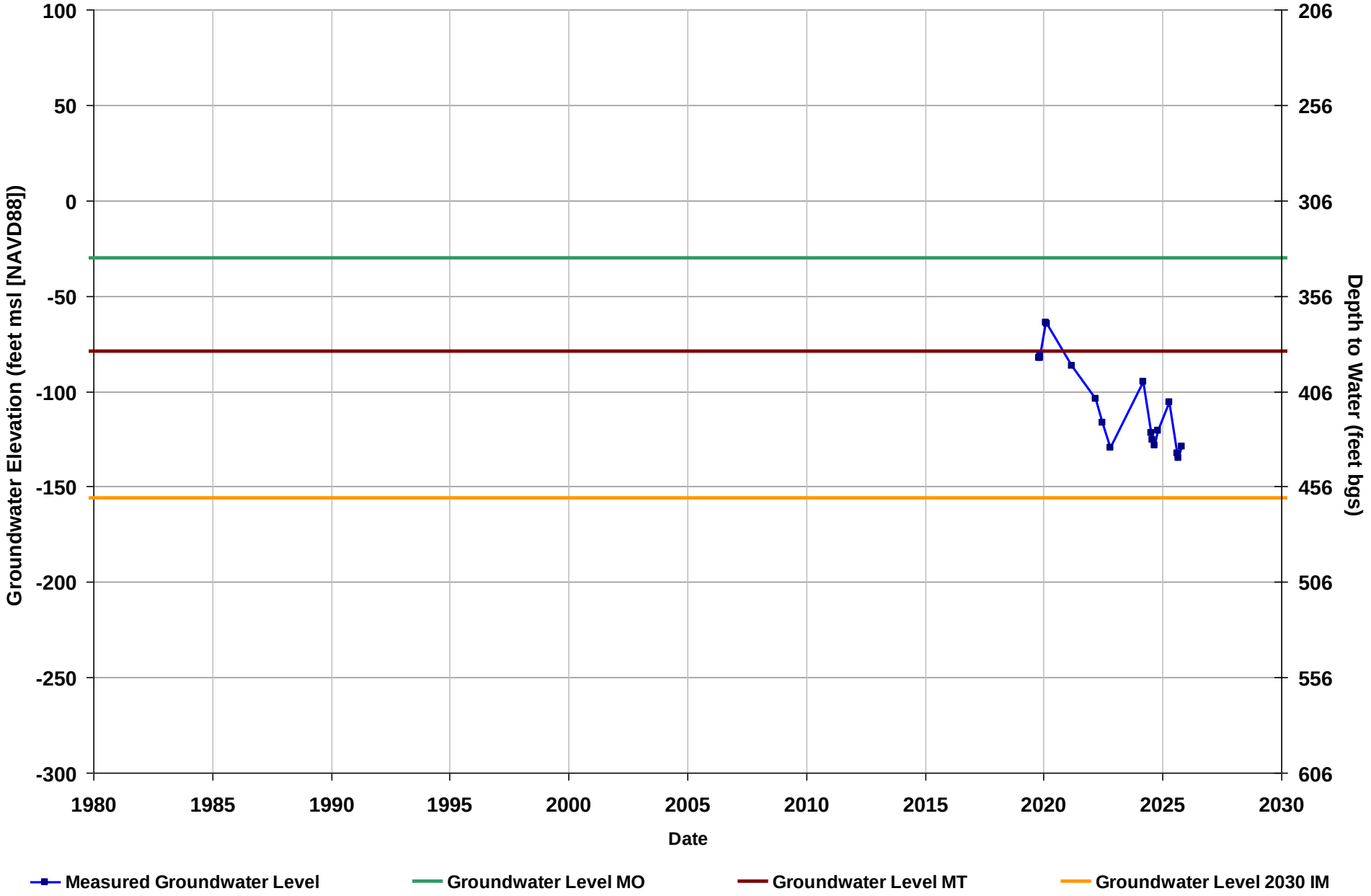
Well Name: MSB10C
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 880
Perf. Top (ft bgs): 790
Perf. Bottom (ft bgs): 870
GSE (ft, msl): 251



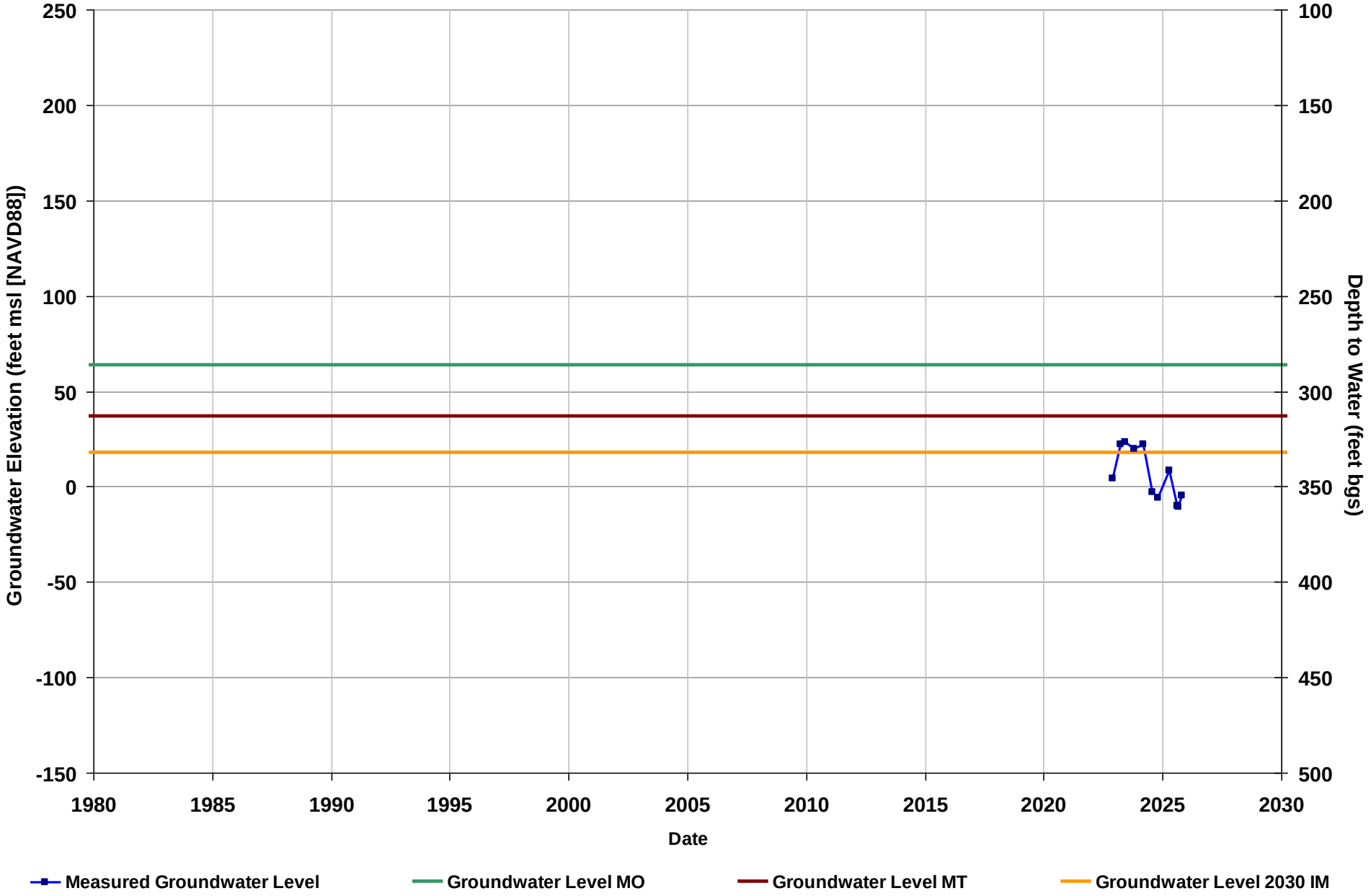
Well Name: MSB11C
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 880
Perf. Top (ft bgs): 775
Perf. Bottom (ft bgs): 870
GSE (ft, msl): 306



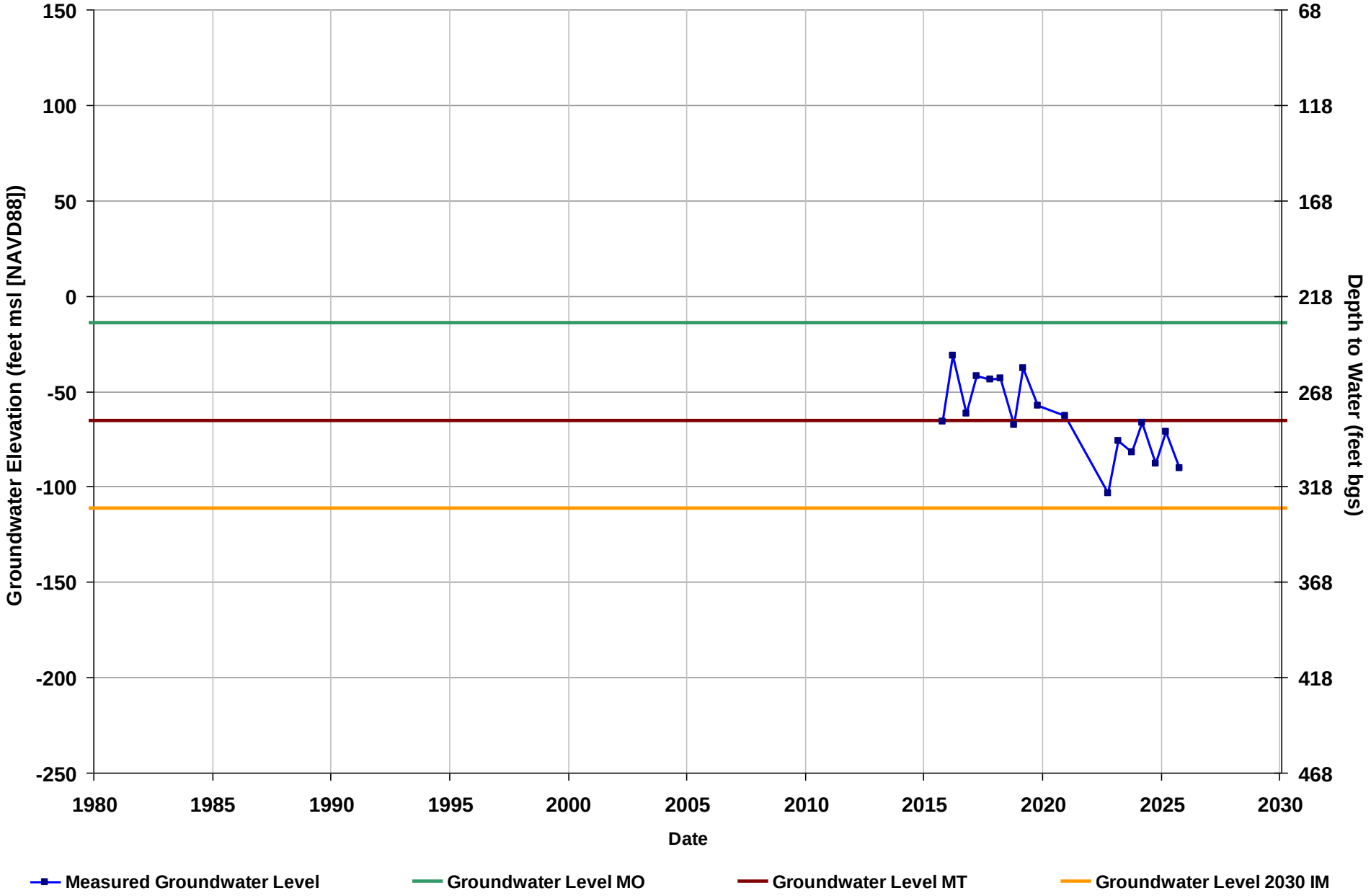
Well Name: MSB12
Depth Zone: Lower
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 465
Perf. Top (ft bgs): 355
Perf. Bottom (ft bgs): 465
GSE (ft, msl): 350



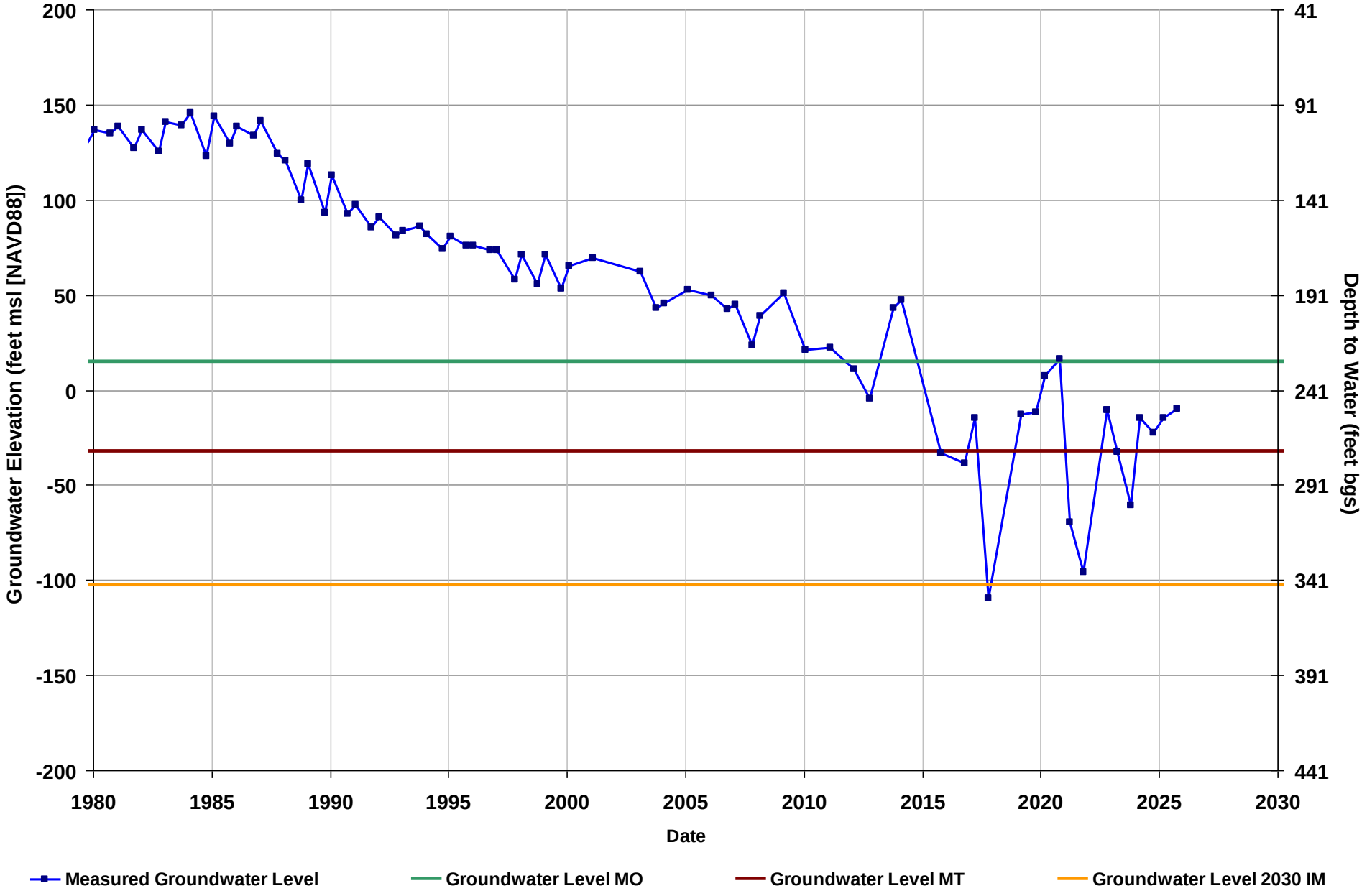
Well Name: MID RMS-2
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 563
Perf. Top (ft bgs): 298
Perf. Bottom (ft bgs): 509
GSE (ft, msl): 218



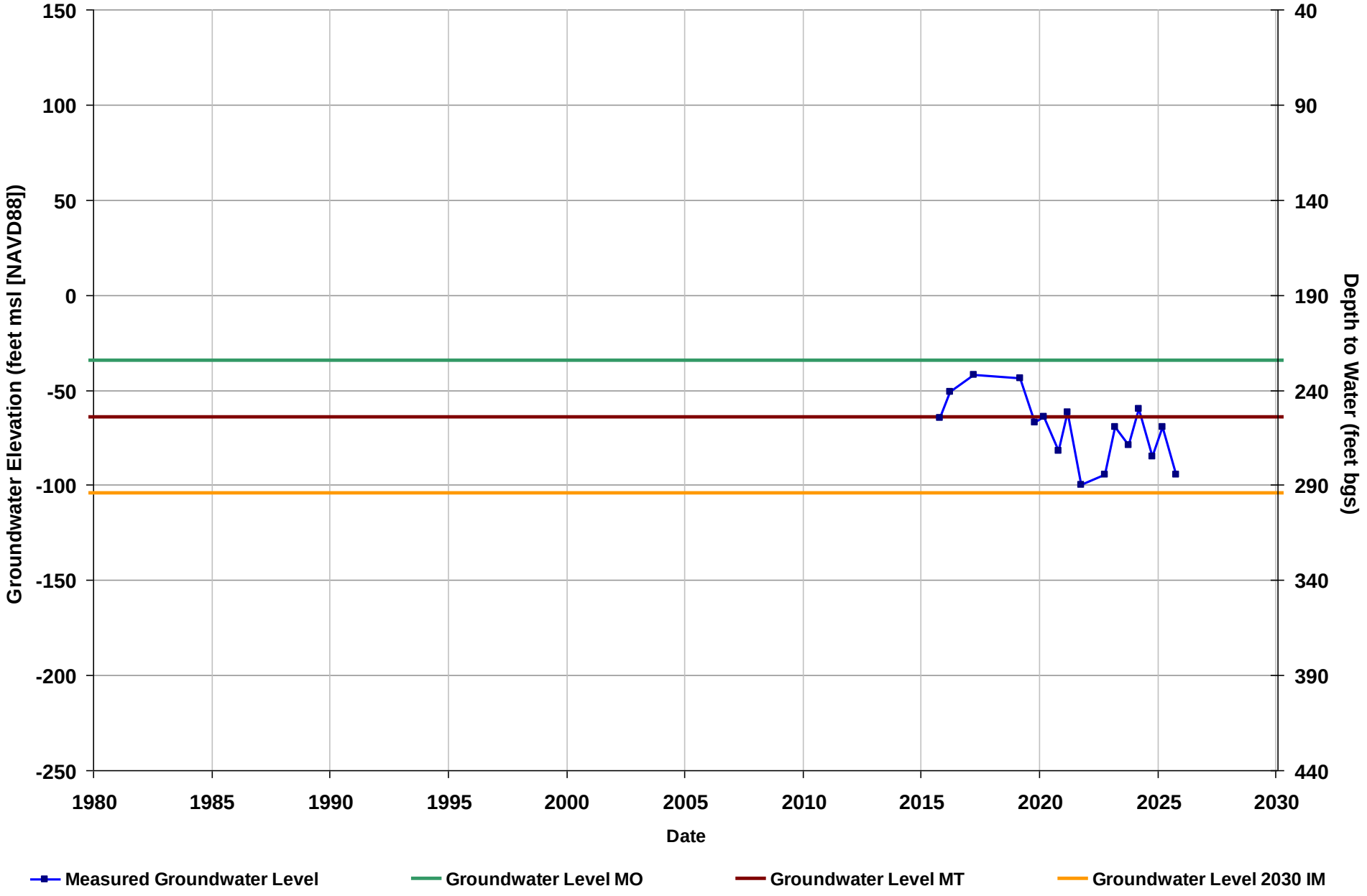
Well Name: MID RMS-3
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 516
Perf. Top (ft bgs): 260
Perf. Bottom (ft bgs): 507
GSE (ft, msl): 241



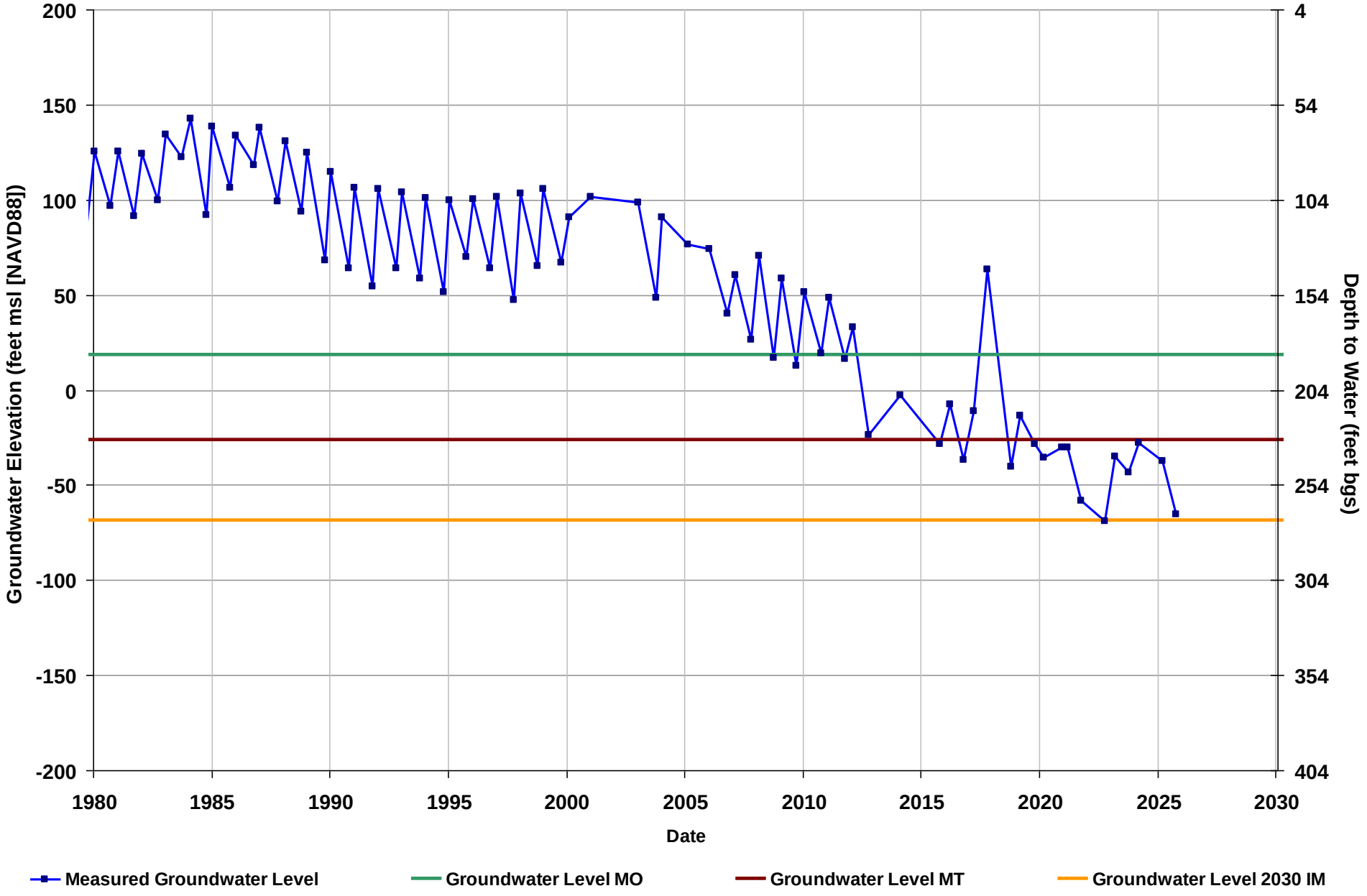
Well Name: MID RMS-4
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 698
Perf. Top (ft bgs): 320
Perf. Bottom (ft bgs): 667
GSE (ft, msl): 190



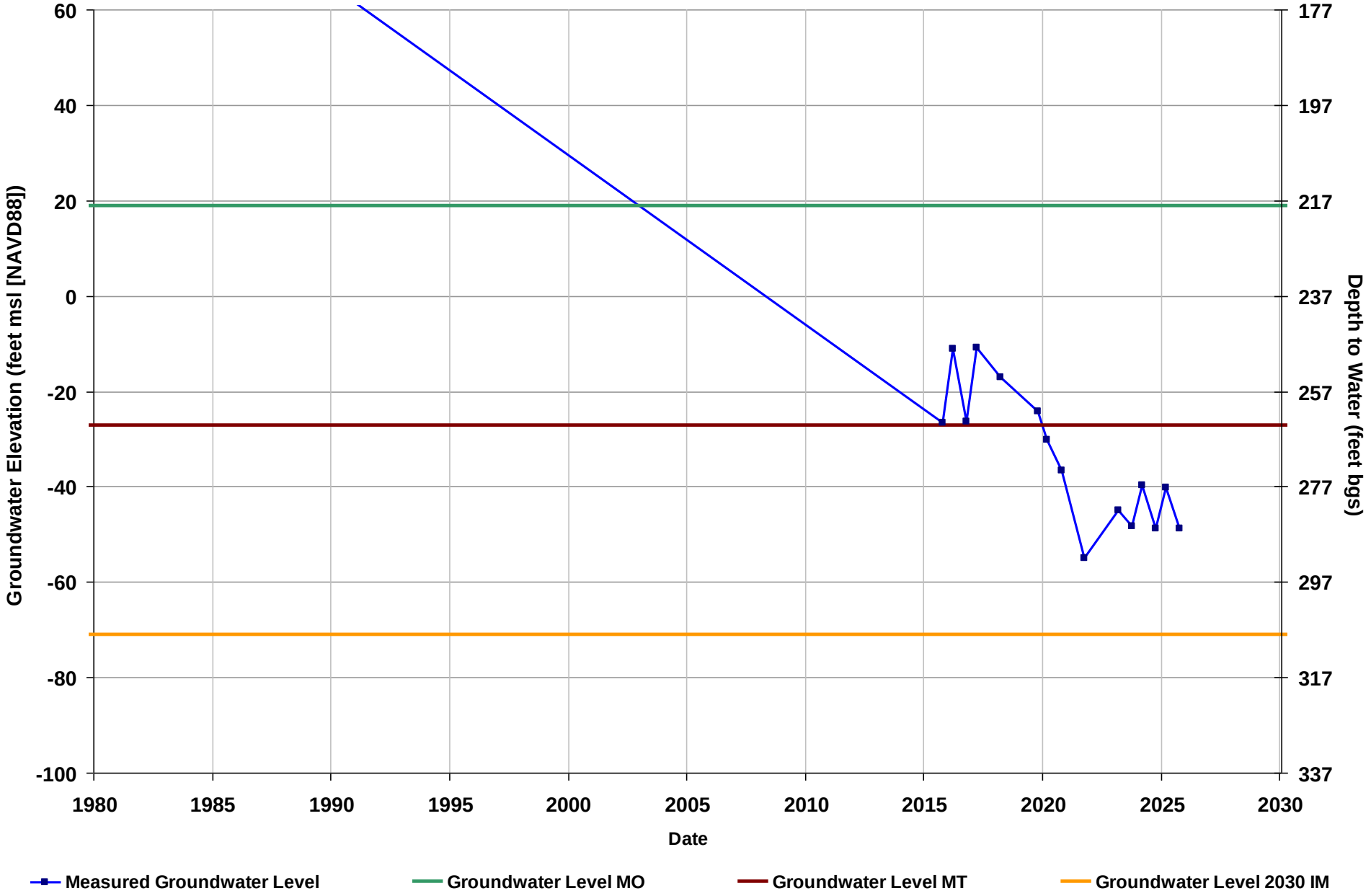
Well Name: MID RMS-5
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 570
Perf. Top (ft bgs): 270
Perf. Bottom (ft bgs): 570
GSE (ft, msl): 204



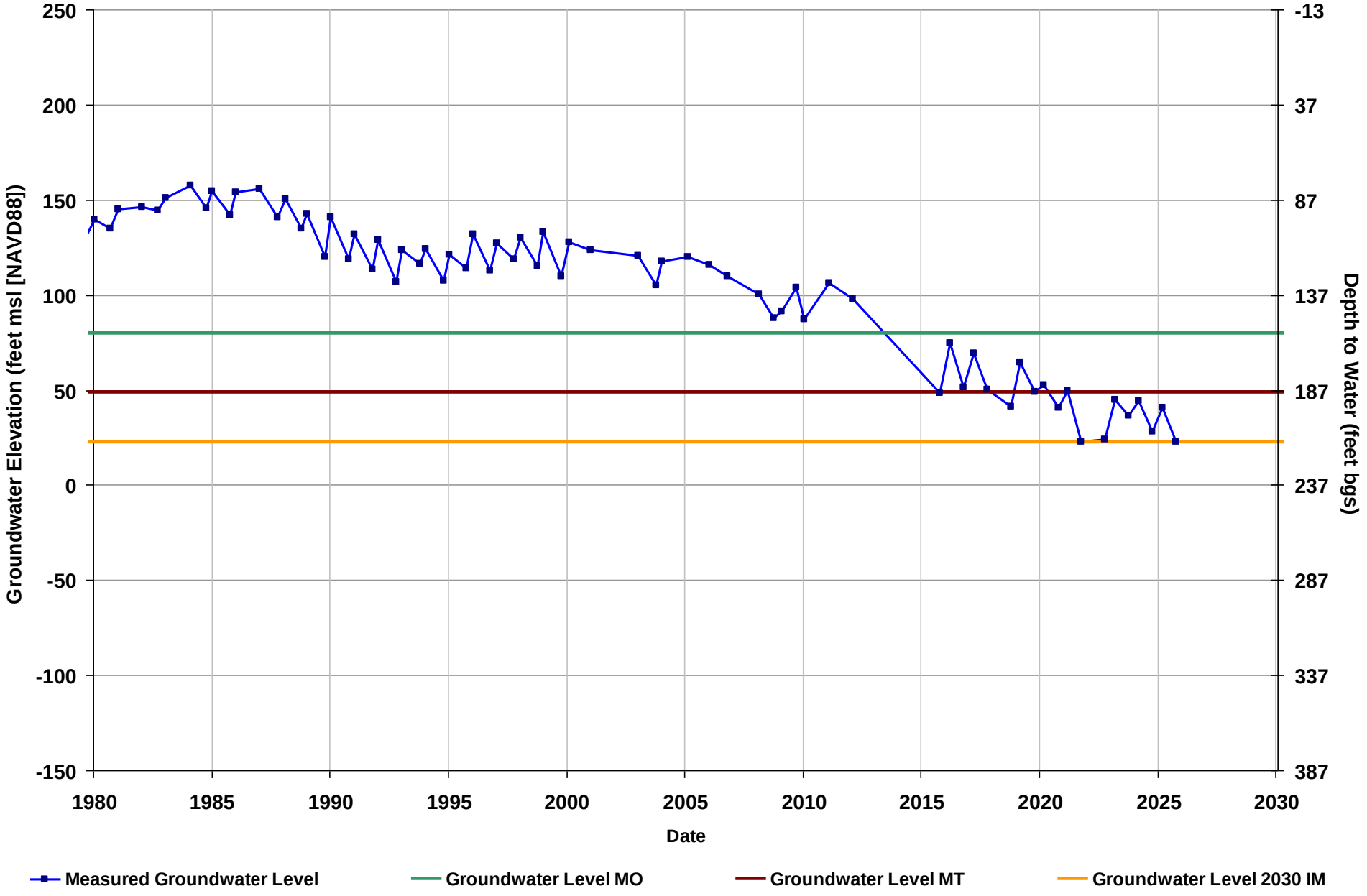
Well Name: MID RMS-6
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 680
Perf. Top (ft bgs): 320
Perf. Bottom (ft bgs): 680
GSE (ft, msl): 237



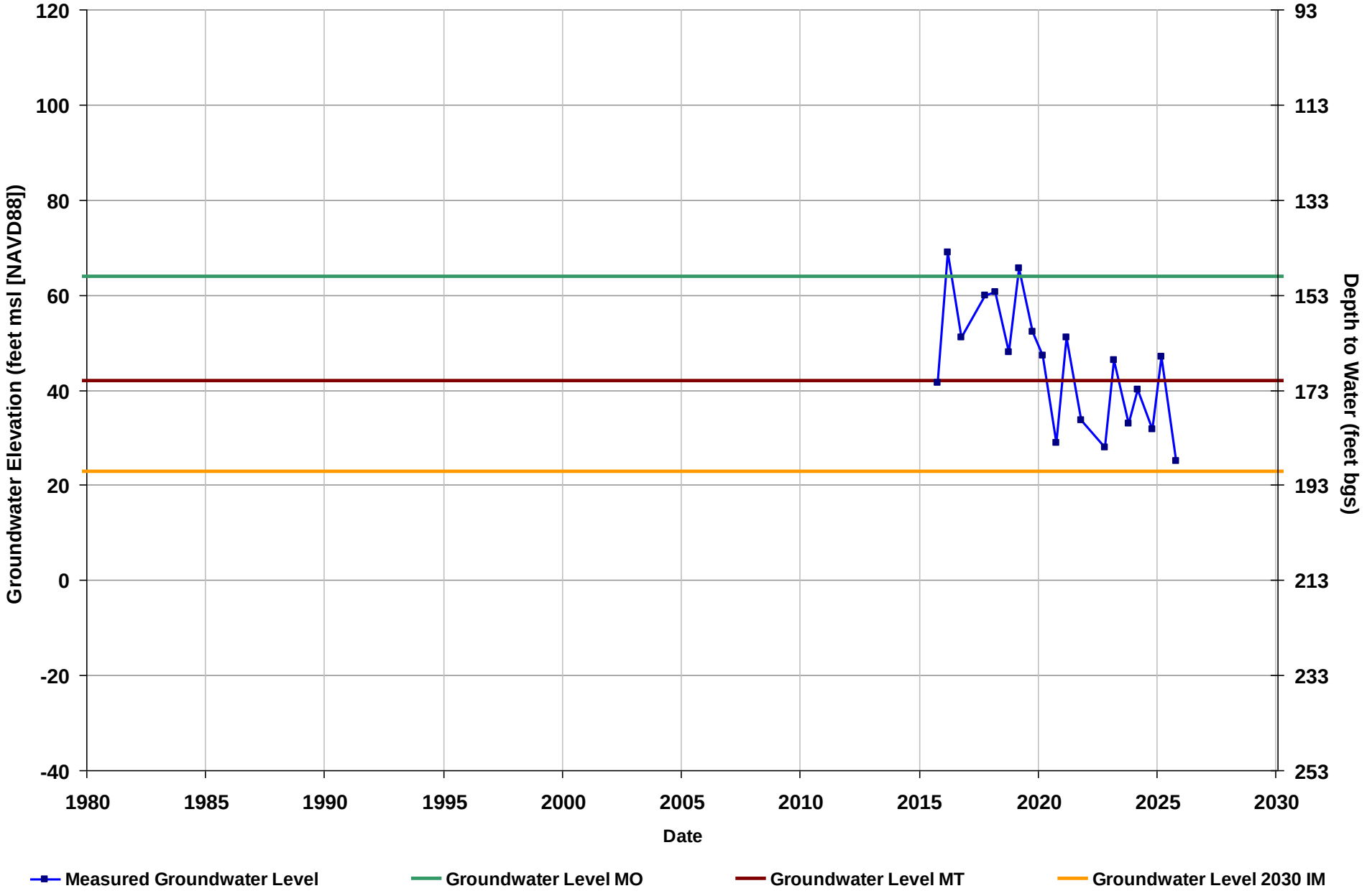
Well Name: MID RMS-7
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 656
Perf. Top (ft bgs): 290
Perf. Bottom (ft bgs): 635
GSE (ft, msl): 237



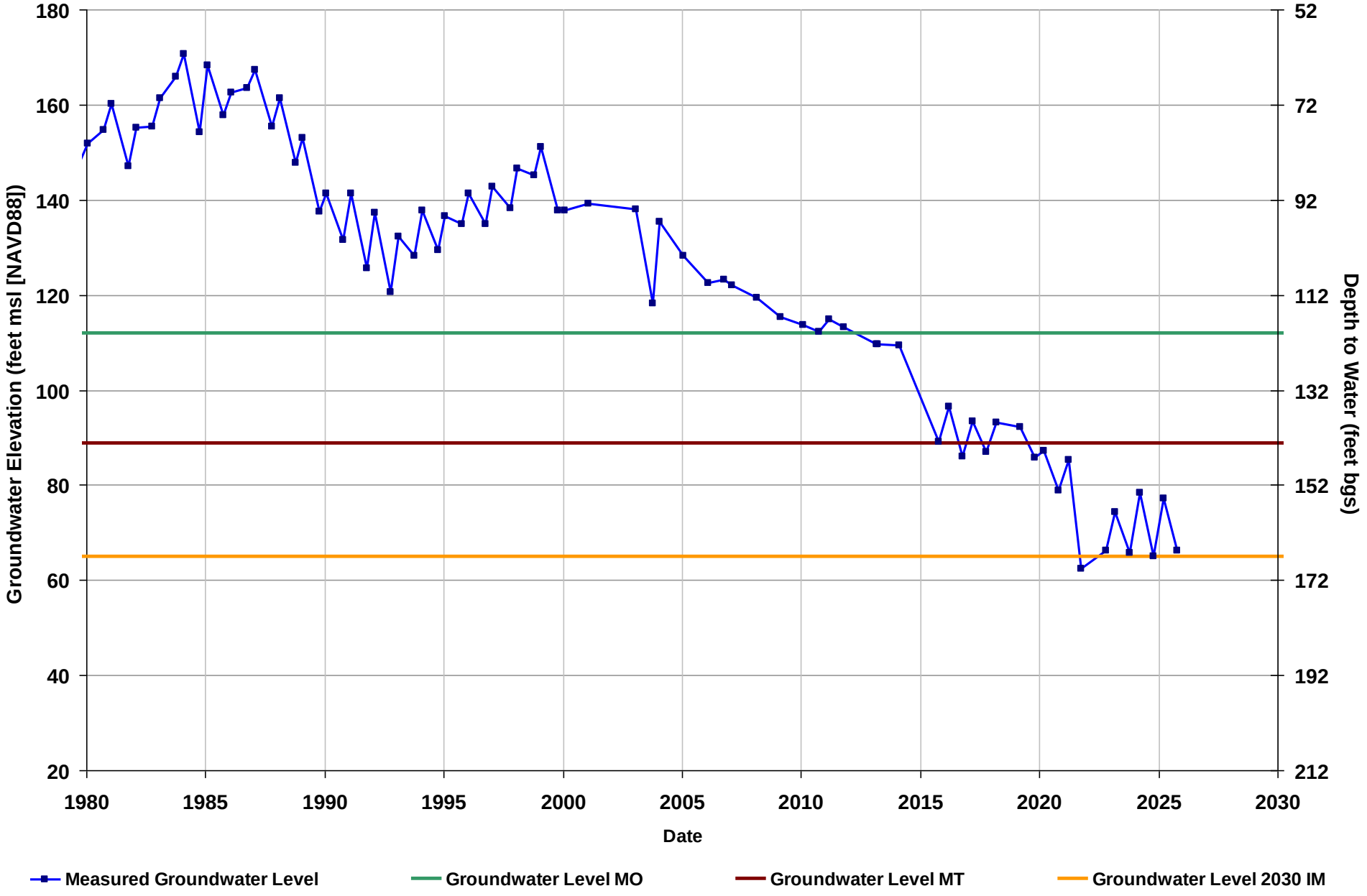
Well Name: MID RMS-10
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 615
Perf. Top (ft bgs): 315
Perf. Bottom (ft bgs): 615
GSE (ft, msl): 213



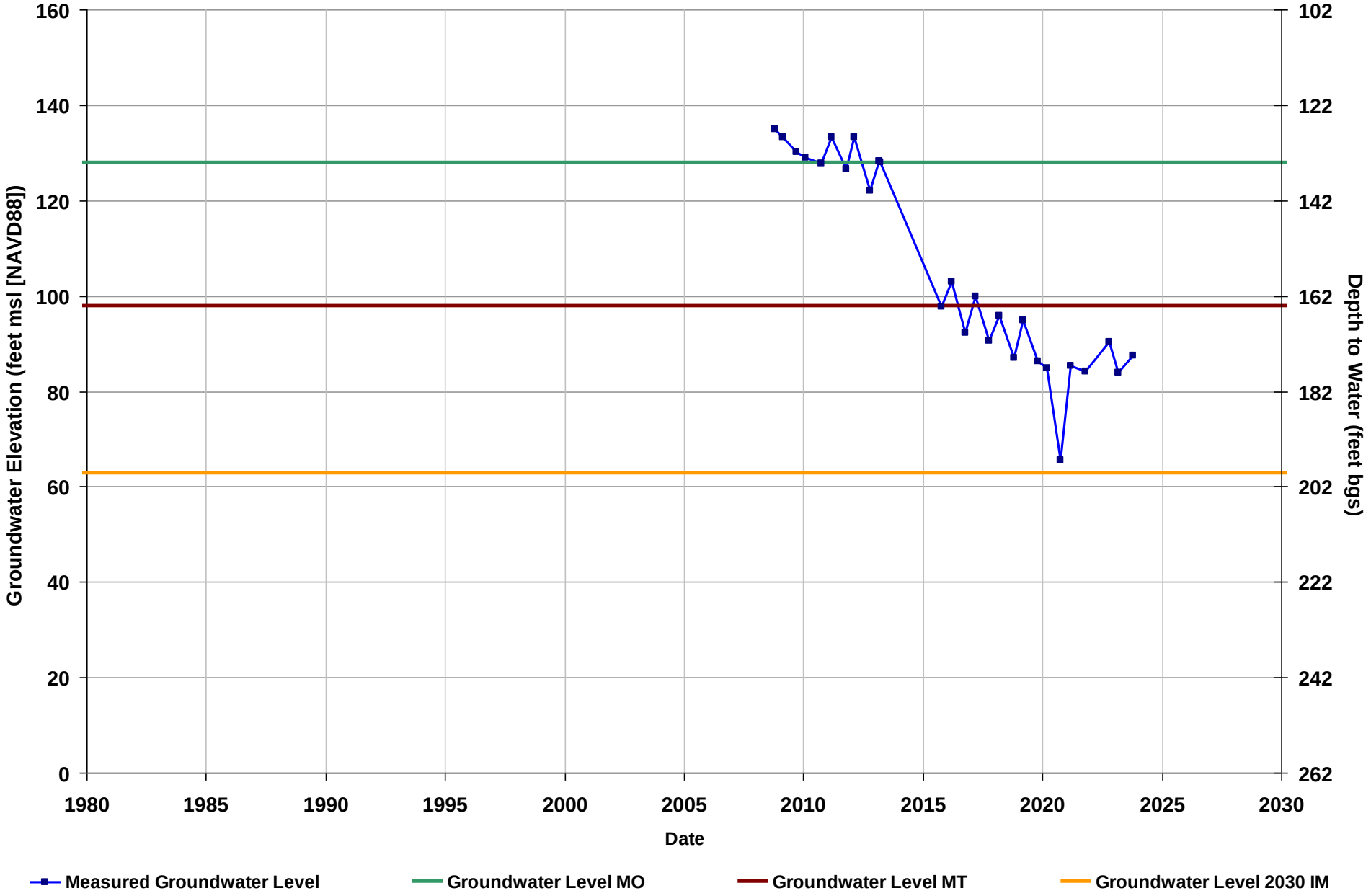
Well Name: MID RMS-11
Depth Zone: Upper
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 315
Perf. Top (ft bgs):
Perf. Bottom (ft bgs):
GSE (ft, msl): 232



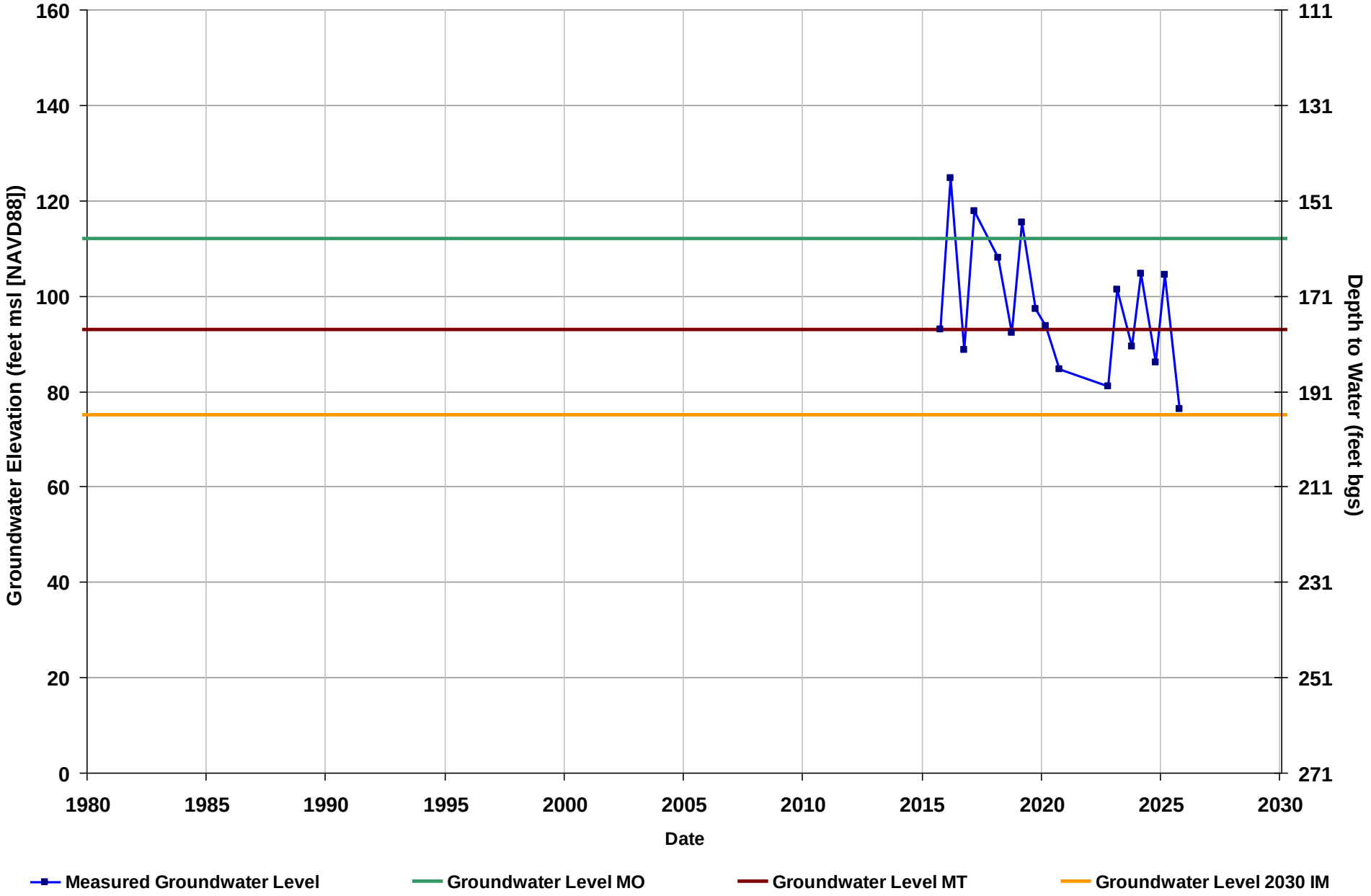
Well Name: MID RMS-12
Depth Zone: Upper
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 176
Perf. Top (ft bgs):
Perf. Bottom (ft bgs):
GSE (ft, msl): 262



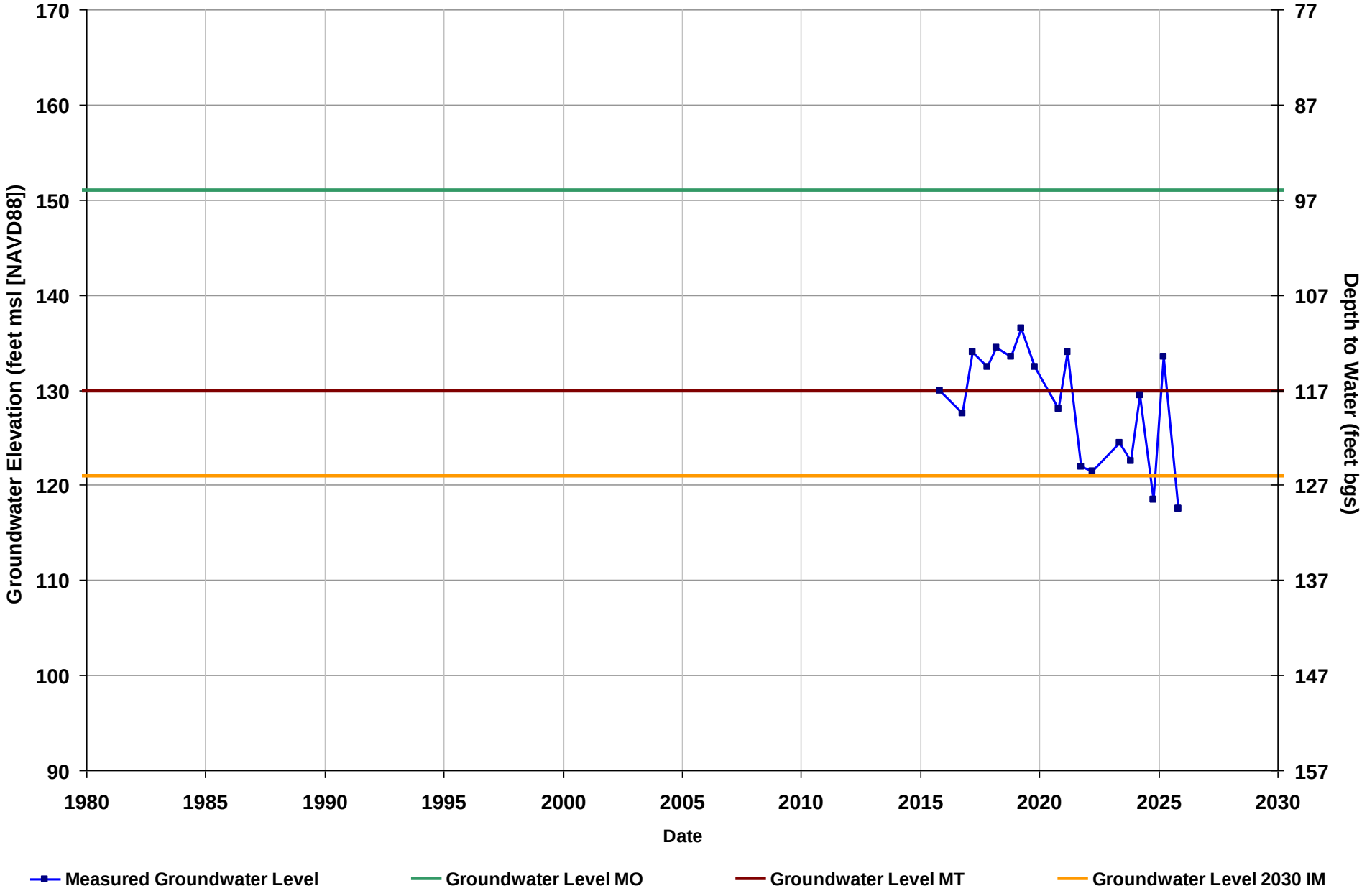
Well Name: MID RMS-13
Depth Zone: Composite
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 600
Perf. Top (ft bgs): 228
Perf. Bottom (ft bgs): 552
GSE (ft, msl): 271



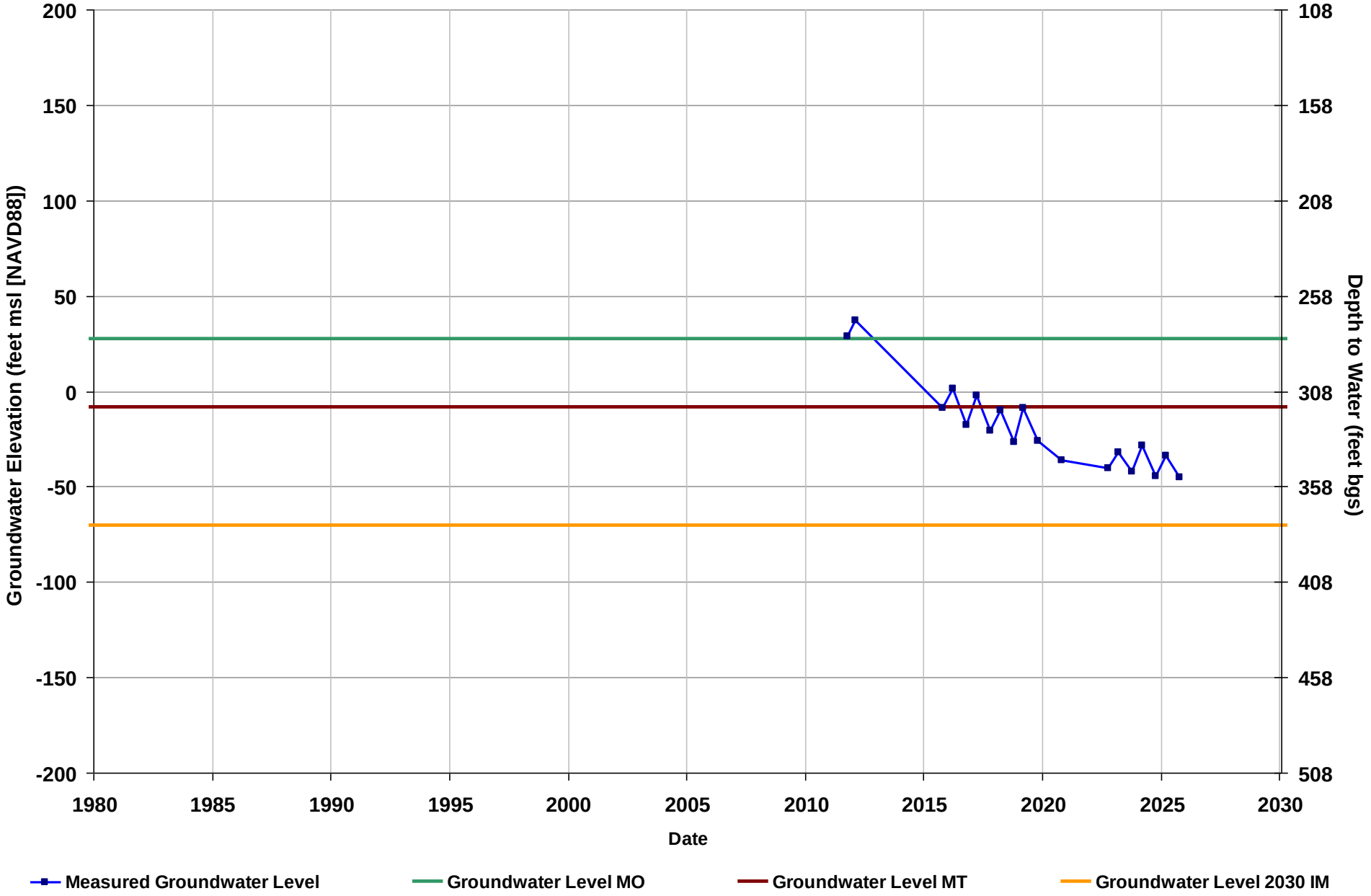
Well Name: MID RMS-15
Depth Zone: Upper
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 502
Perf. Top (ft bgs): 160
Perf. Bottom (ft bgs): 200
GSE (ft, msl): 247



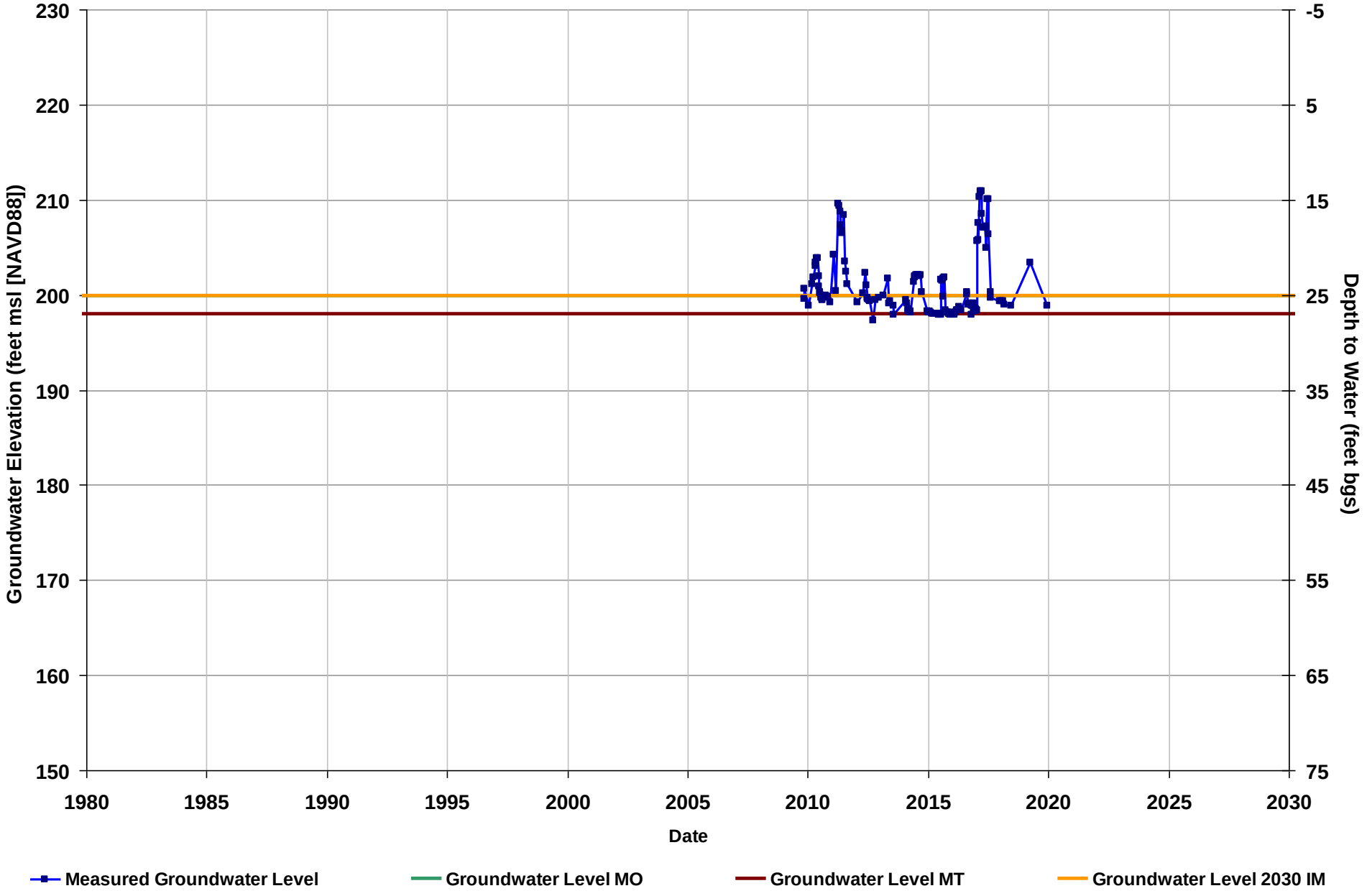
Well Name: MID RMS-16
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Irrigation District

Total Depth (ft bgs): 452
Perf. Top (ft bgs): 348
Perf. Bottom (ft bgs): 388
GSE (ft, msl): 308



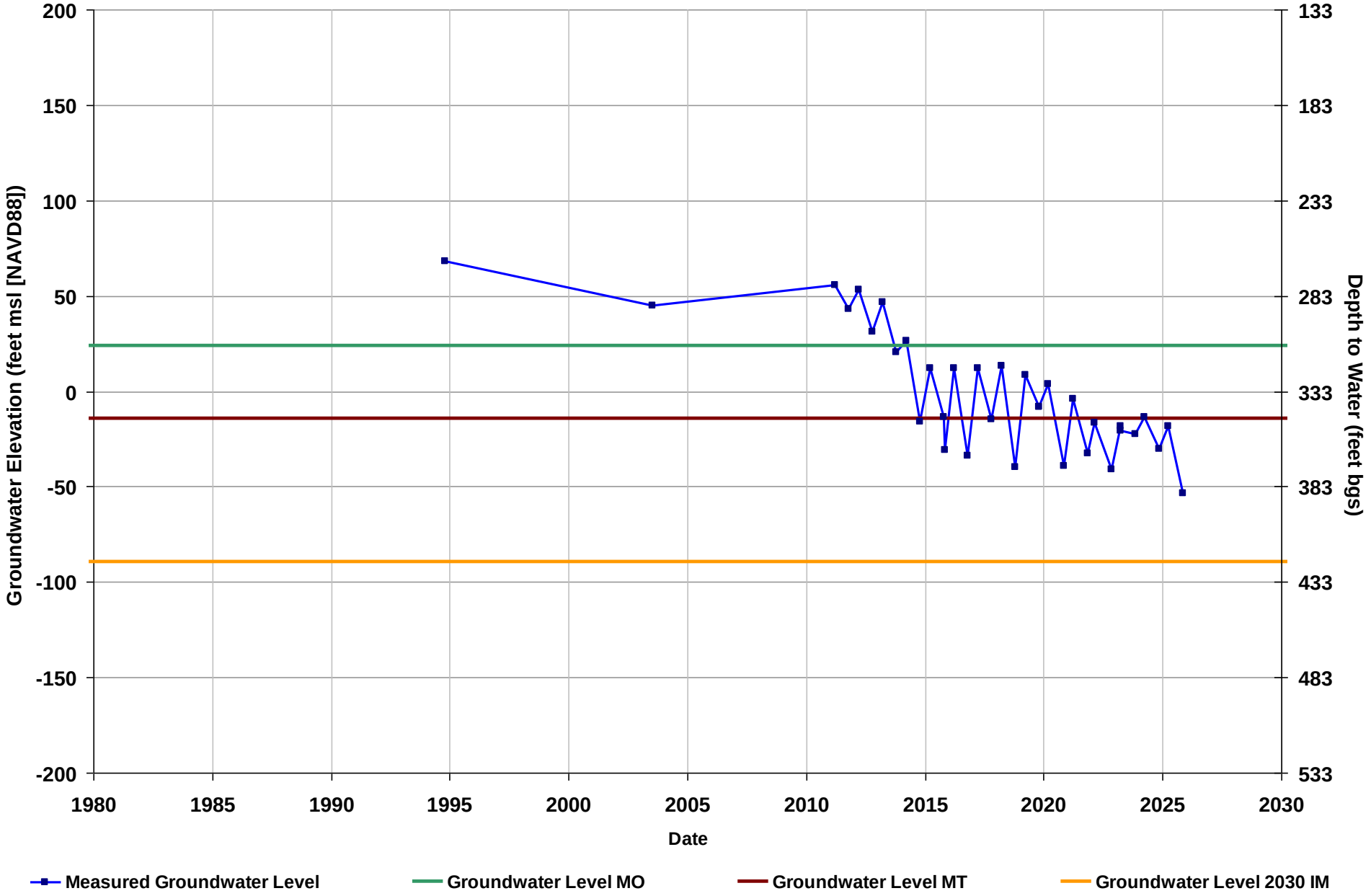
Well Name: MID RMS-17
Depth Zone: Shallow
Subbasin: Madera
GSA: County of Madera

Total Depth (ft bgs): 47
Perf. Top (ft bgs): 26
Perf. Bottom (ft bgs): 46
GSE (ft, msl): 224



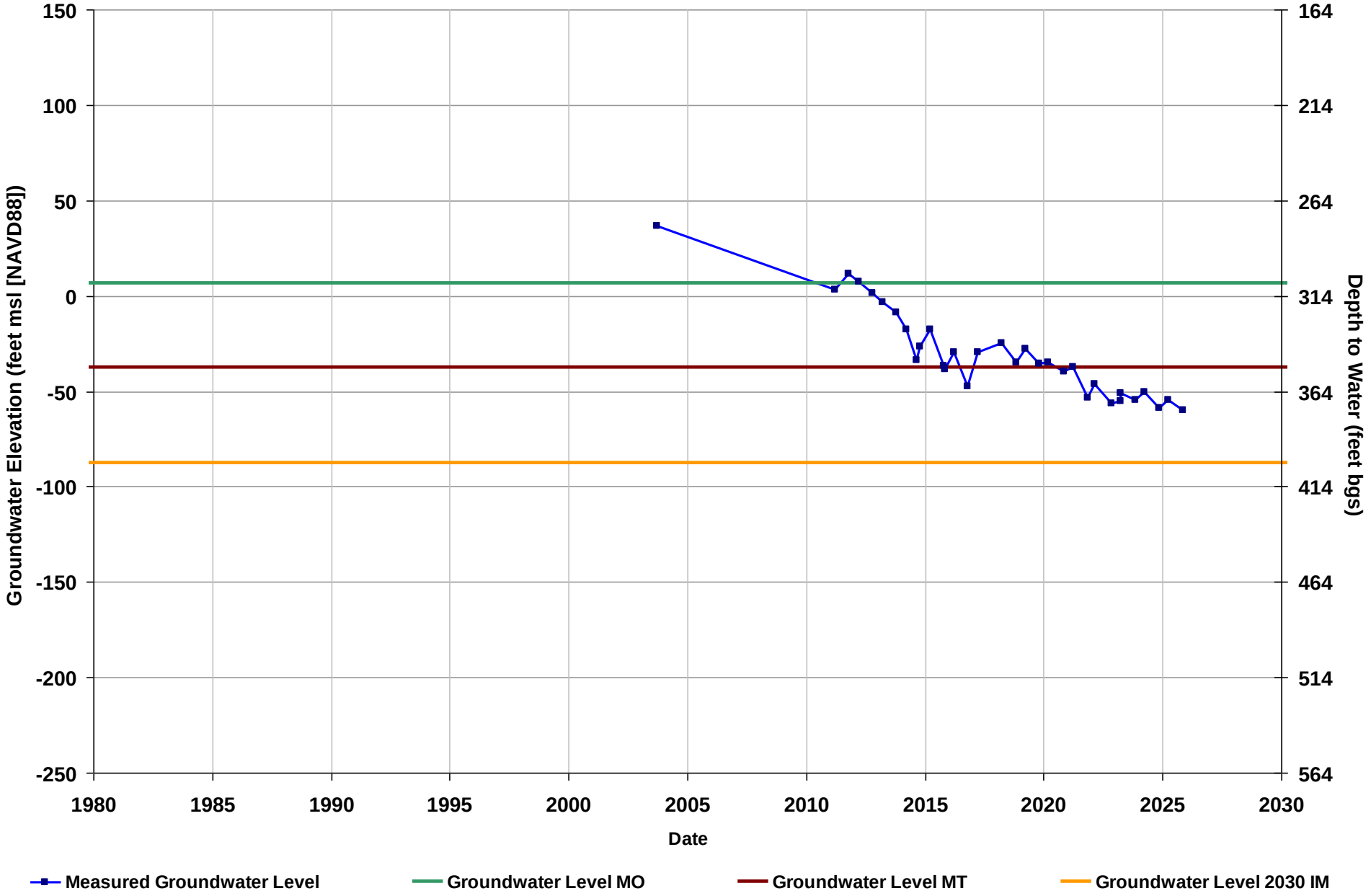
Well Name: MWD RMS-1
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Water District

Total Depth (ft bgs): 504
Perf. Top (ft bgs): 200
Perf. Bottom (ft bgs): 500
GSE (ft, msl): 330



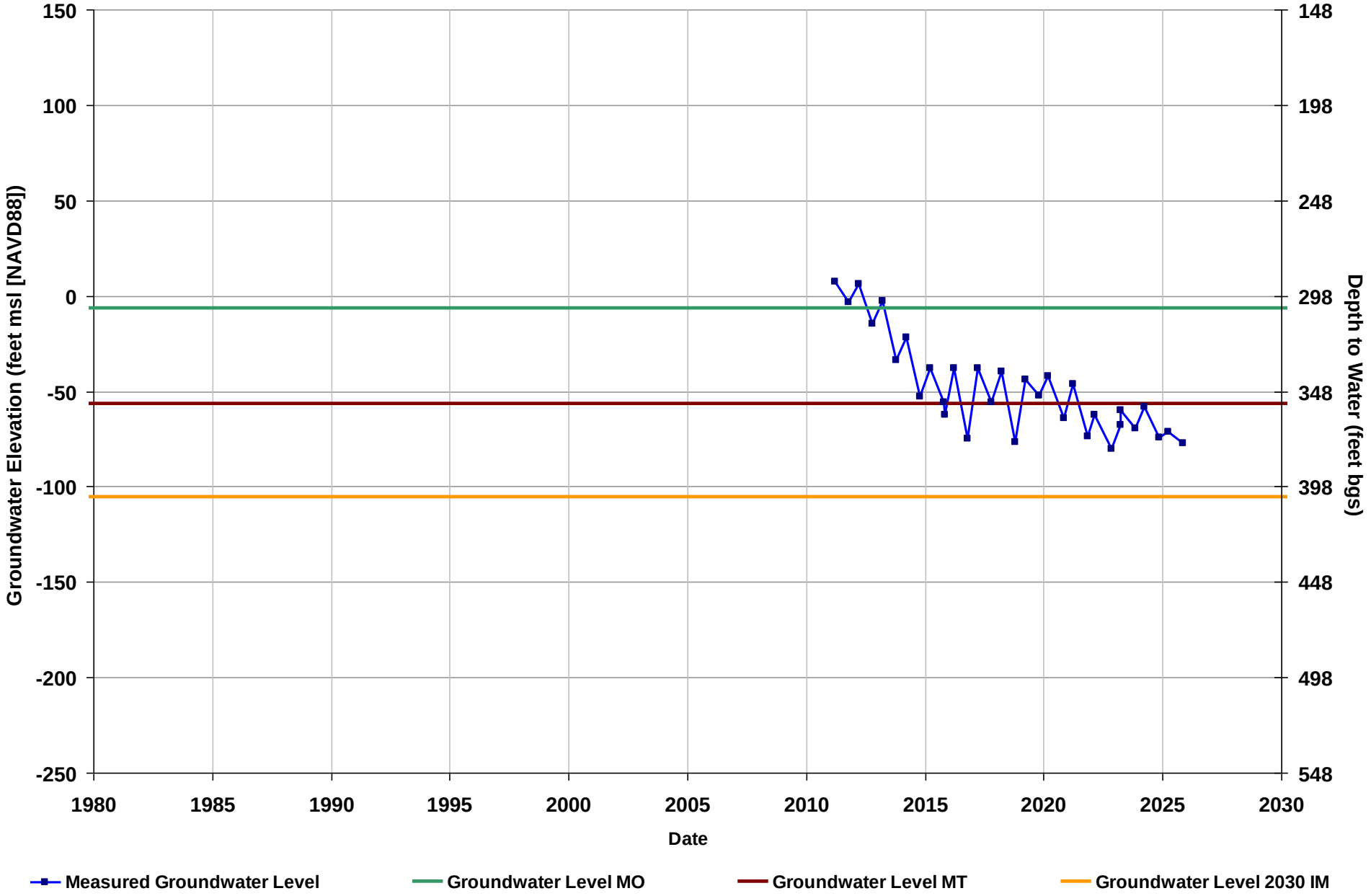
Well Name: MWD RMS-2
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Water District

Total Depth (ft bgs): 537
Perf. Top (ft bgs): 200
Perf. Bottom (ft bgs): 537
GSE (ft, msl): 310

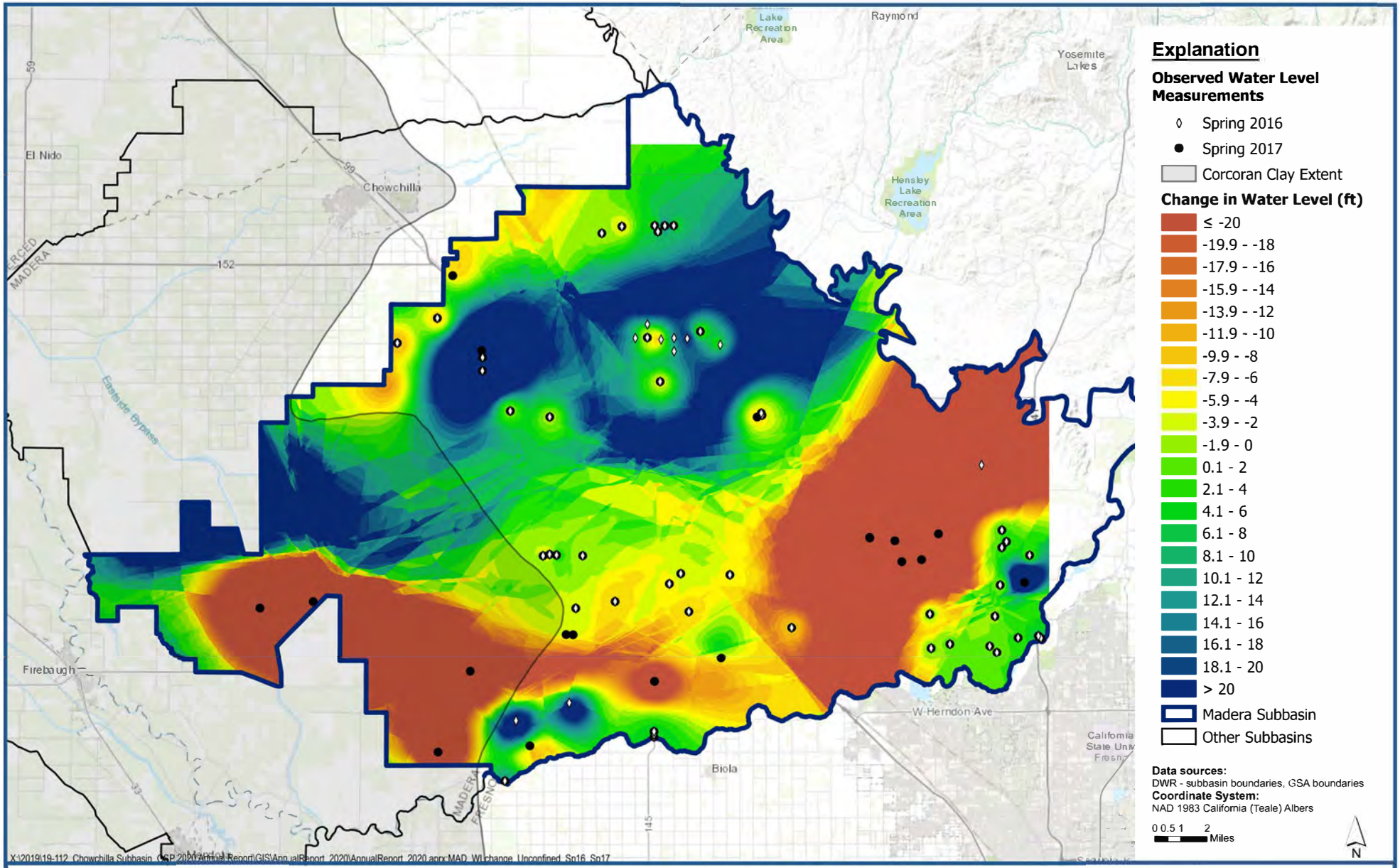


Well Name: MWD RMS-3
Depth Zone: Lower
Subbasin: Madera
GSA: Madera Water District

Total Depth (ft bgs): 800
Perf. Top (ft bgs): 380
Perf. Bottom (ft bgs): 800
GSE (ft, msl): 295



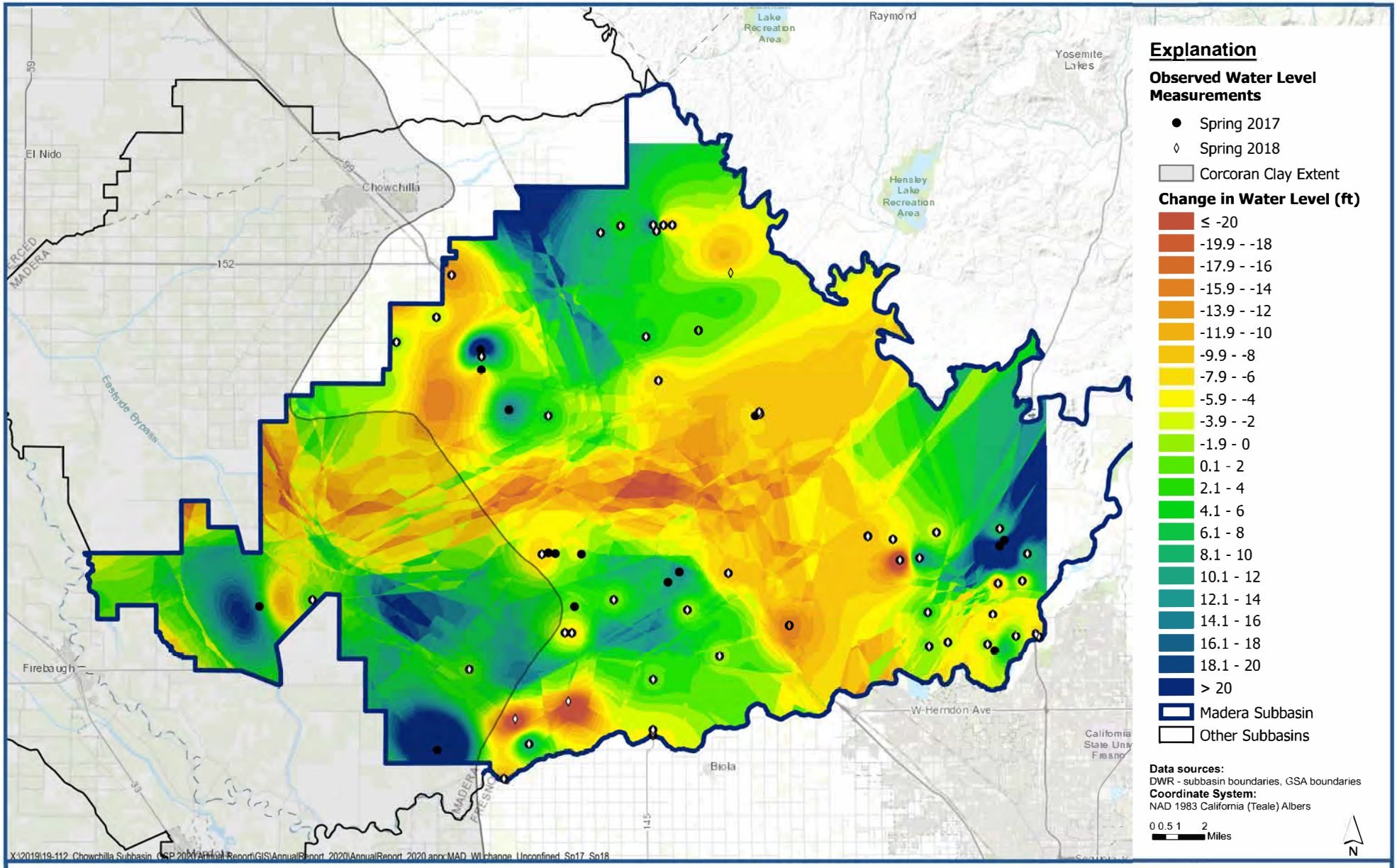
Appendix C. Maps of Change in Groundwater Levels and Change in Groundwater Storage in 2016 through 2024, Separated by Principal Aquifer.



Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2016 through Spring 2017

Figure C-1

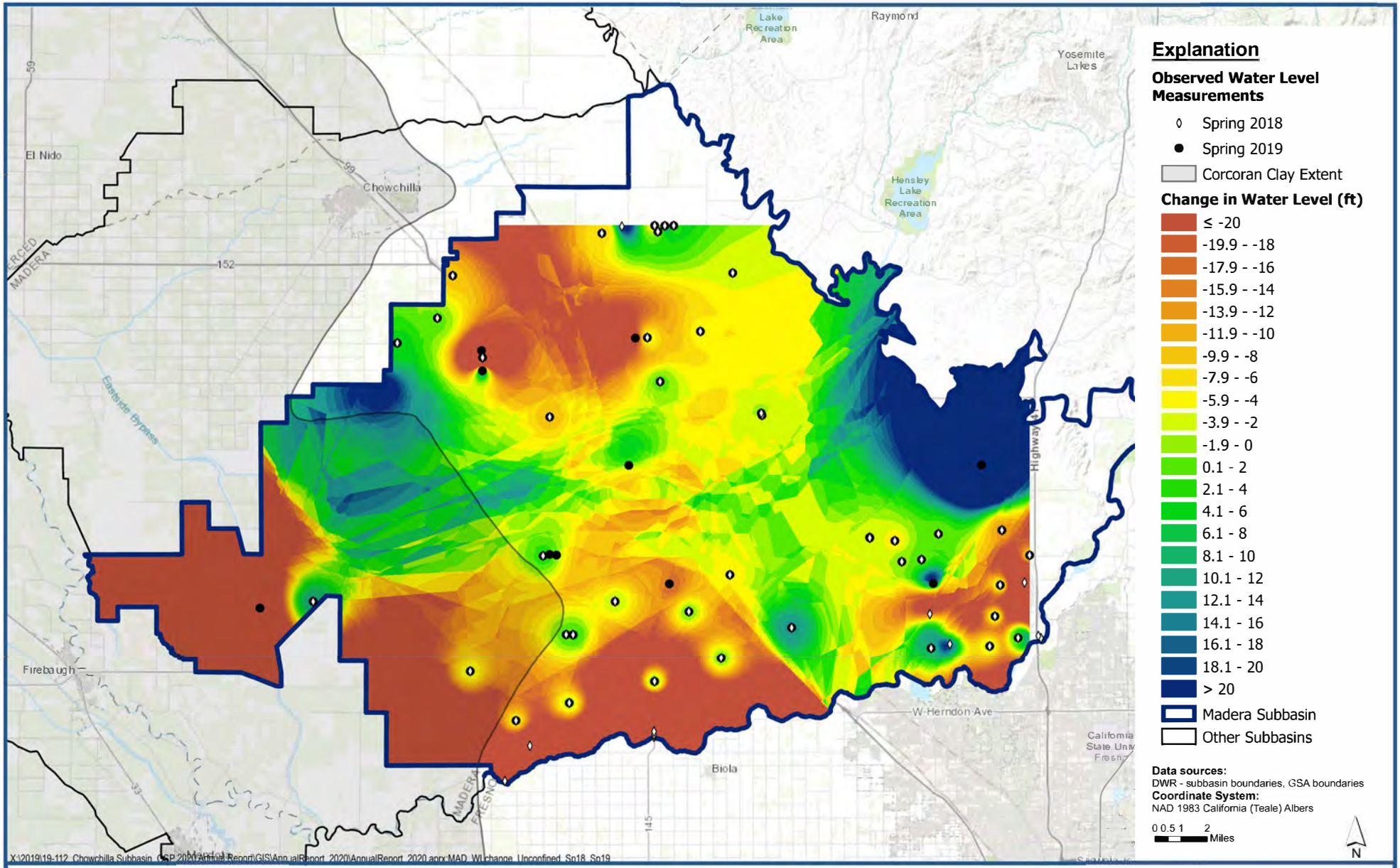
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2017 through Spring 2018

Figure C-2

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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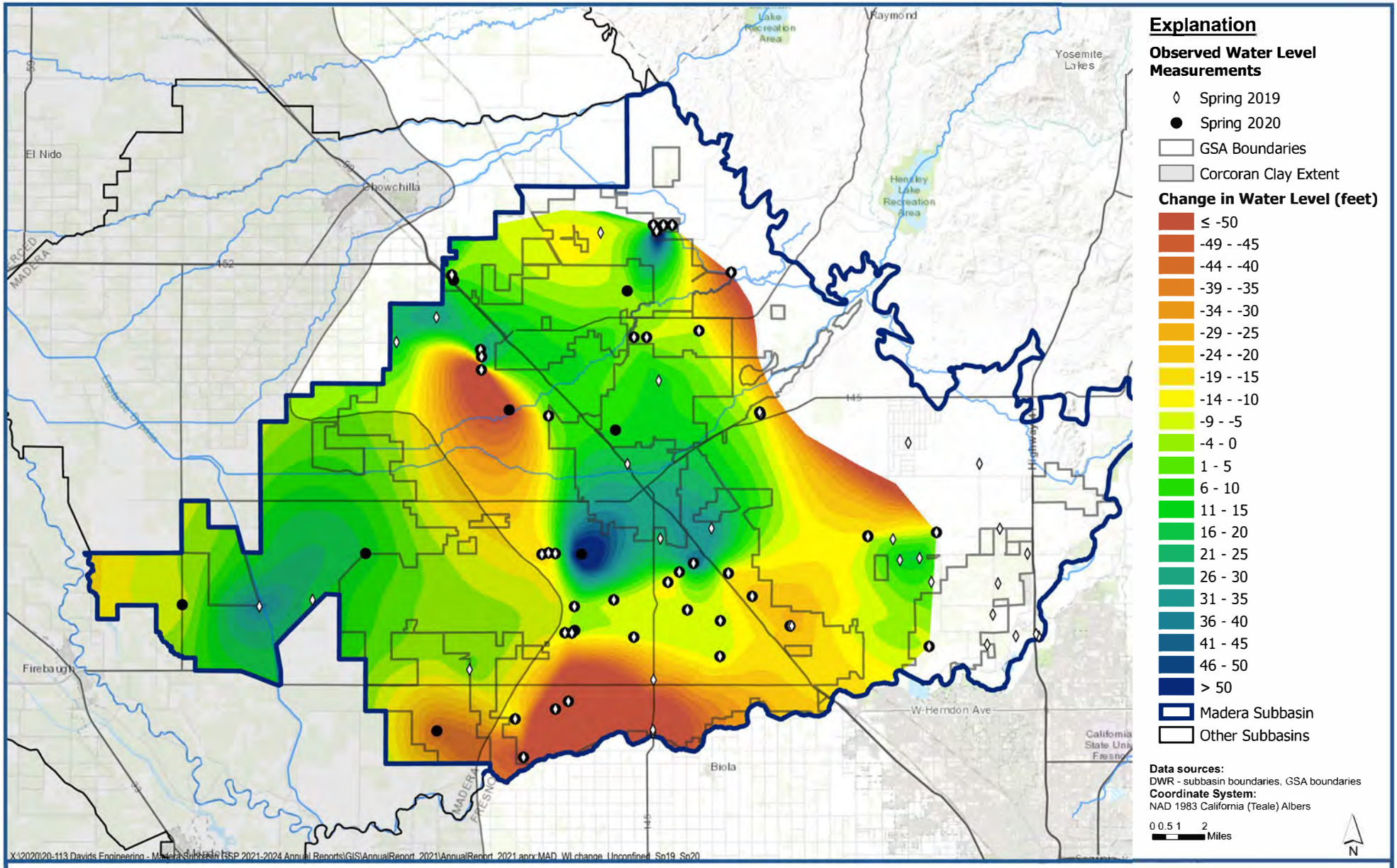
Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2018 through Spring 2019

Figure C-3

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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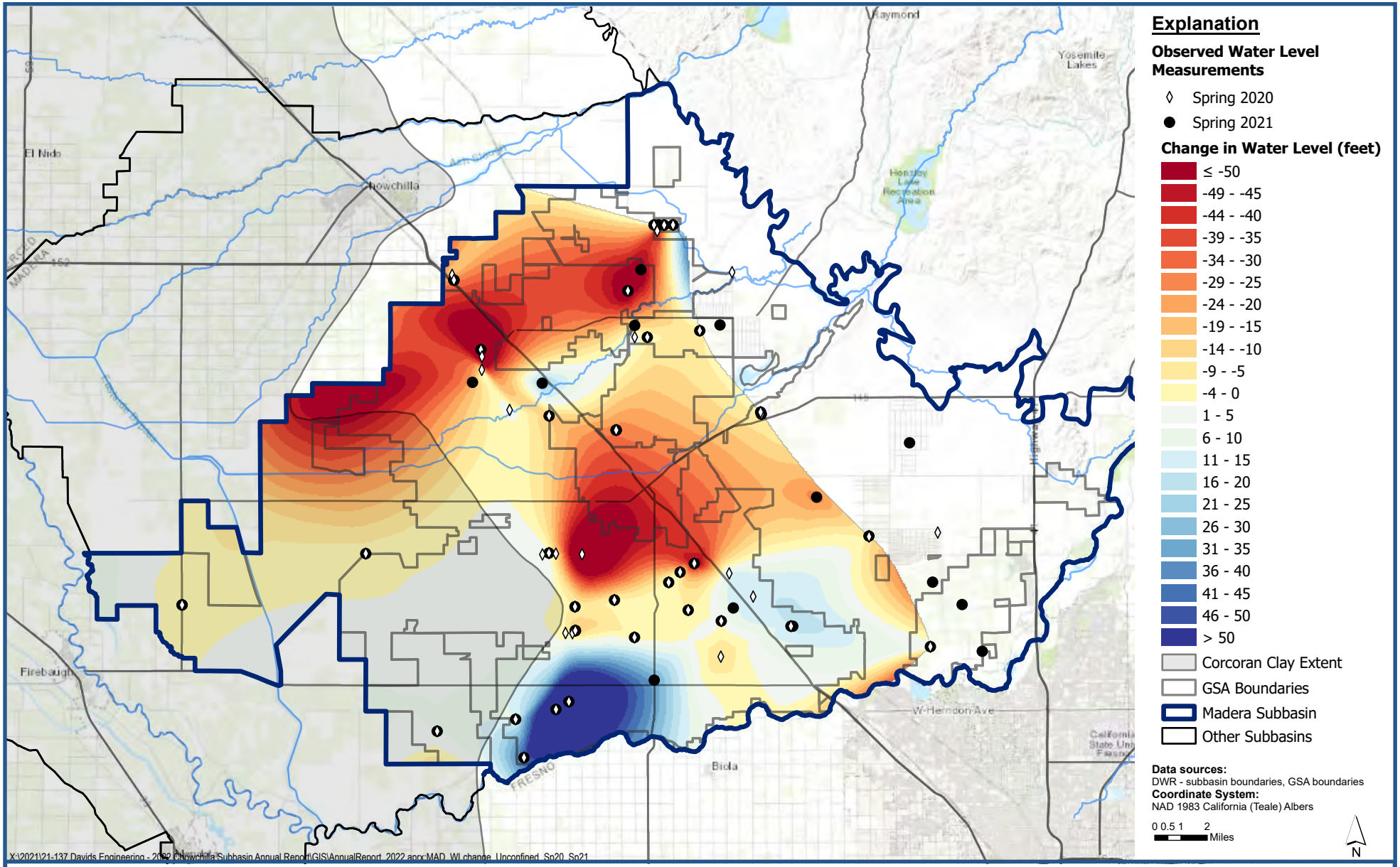
Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2019 through Spring 2020

Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report

Figure C-4



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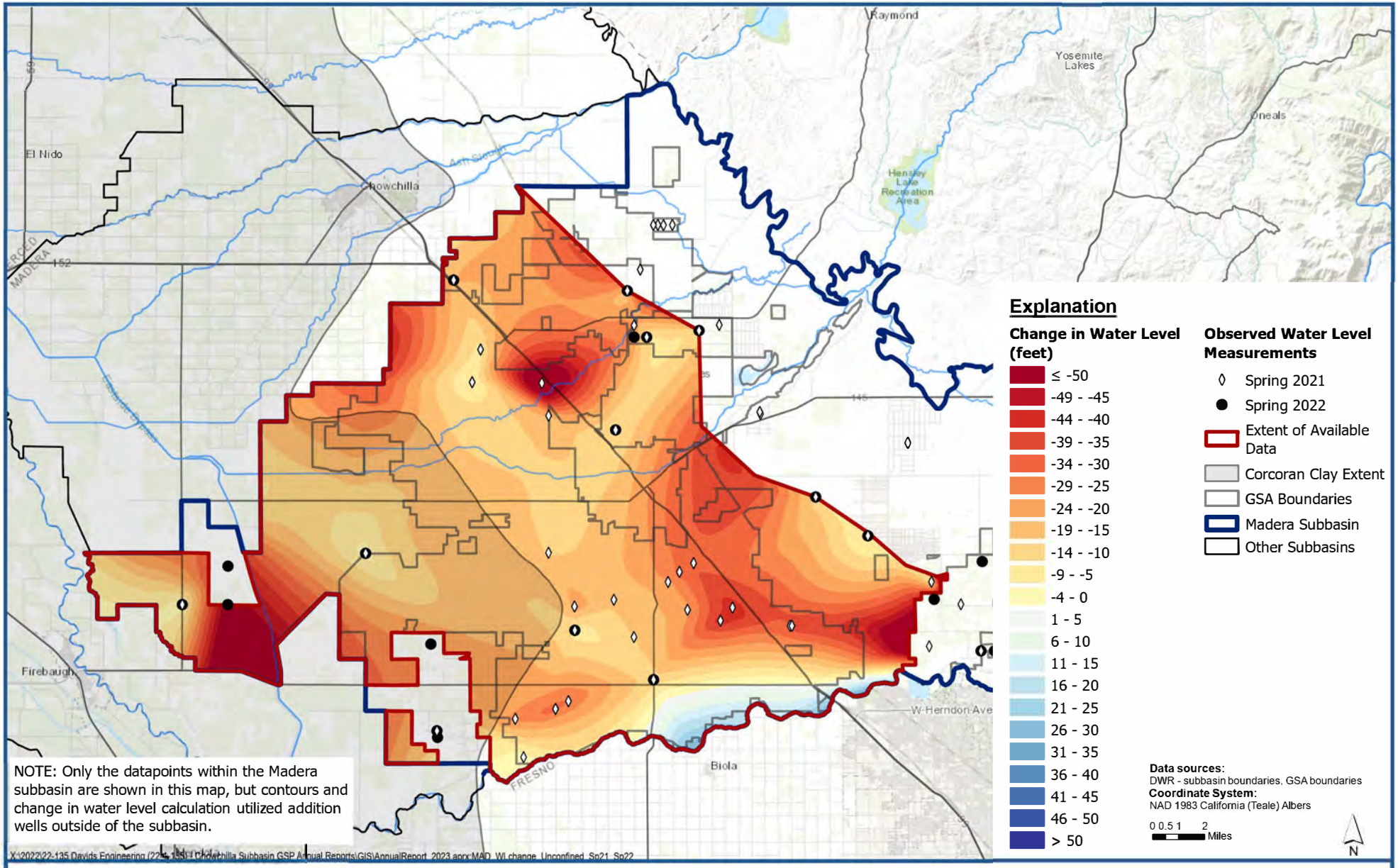
Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2020 through Spring 2021

Figure C-5

Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



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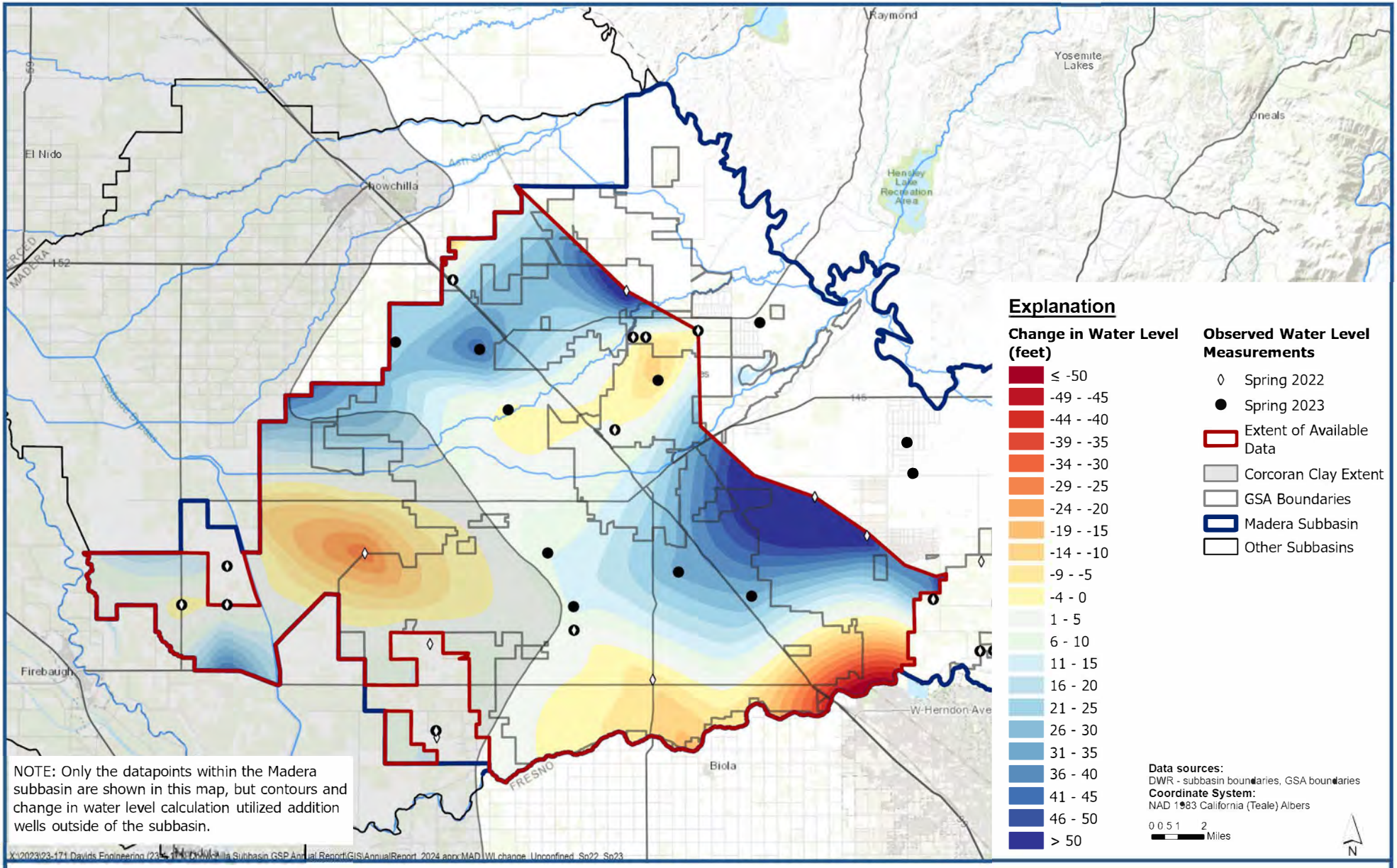
Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2021 through Spring 2022

Figure C-6

Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



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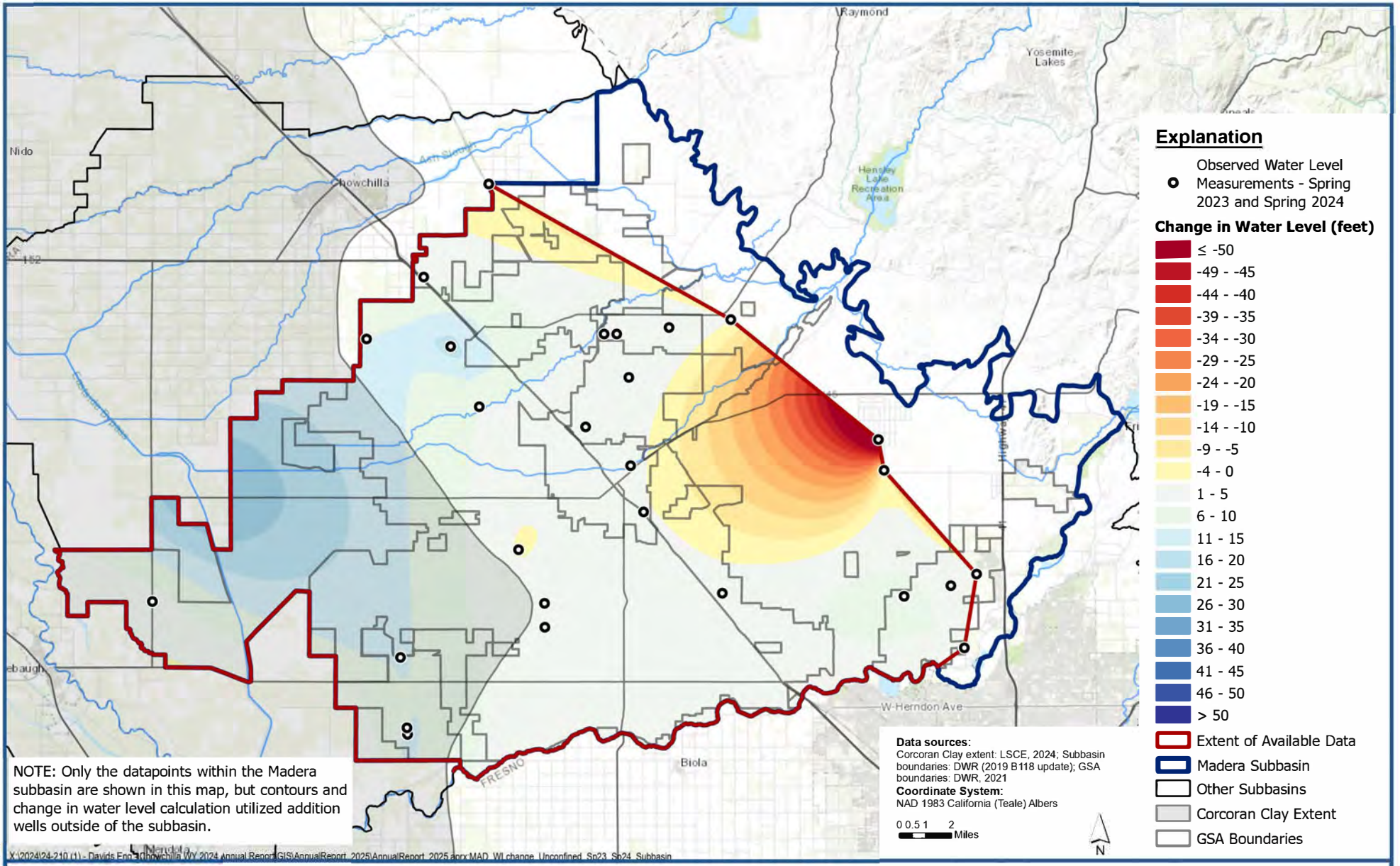
Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2022 through Spring 2023

Figure C-7

Madera Subbasin
Groundwater Sustainability Plan 2024 Annual Report



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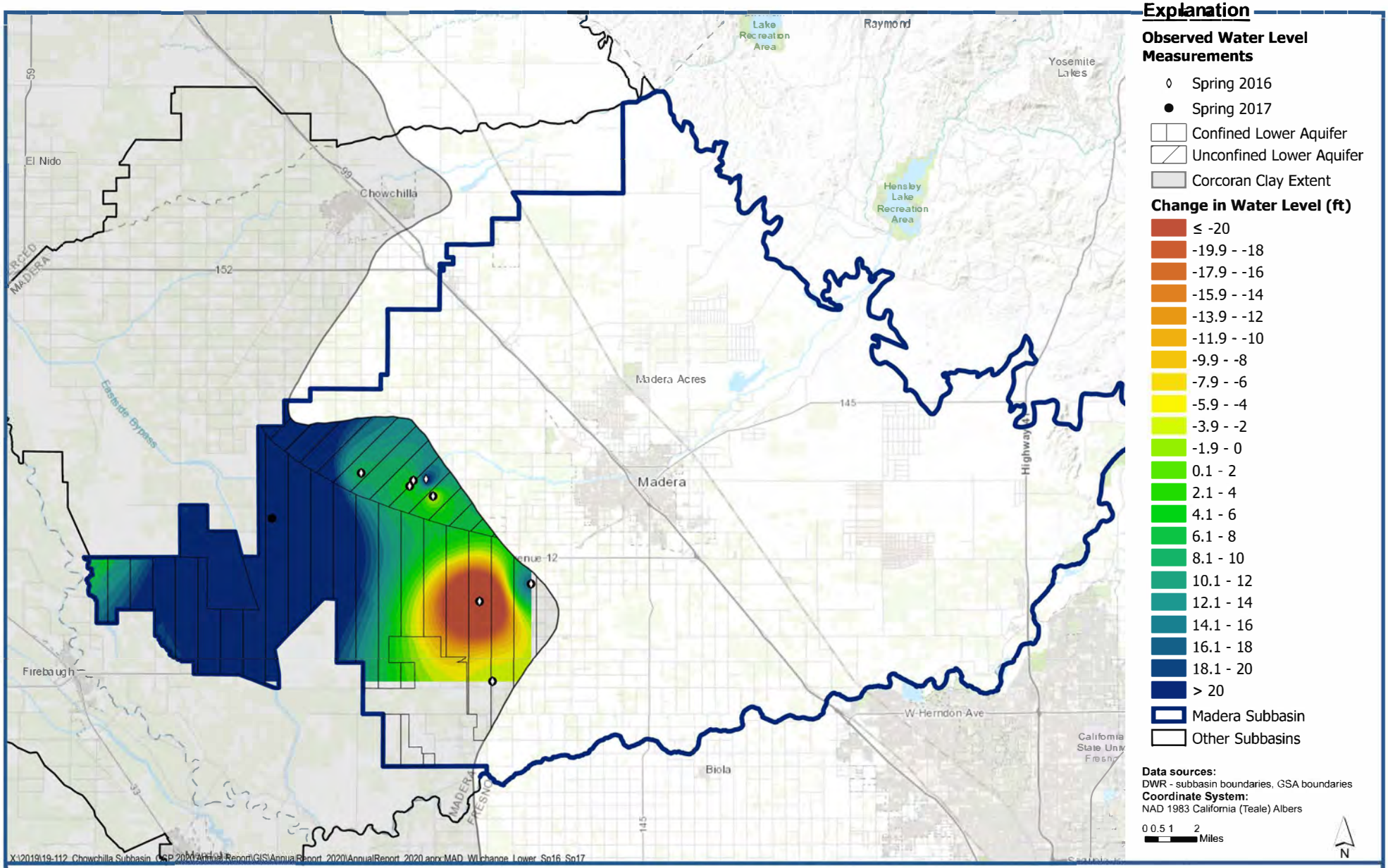
Change in Water Level in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2023 through Spring 2024

Figure C-8

Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report



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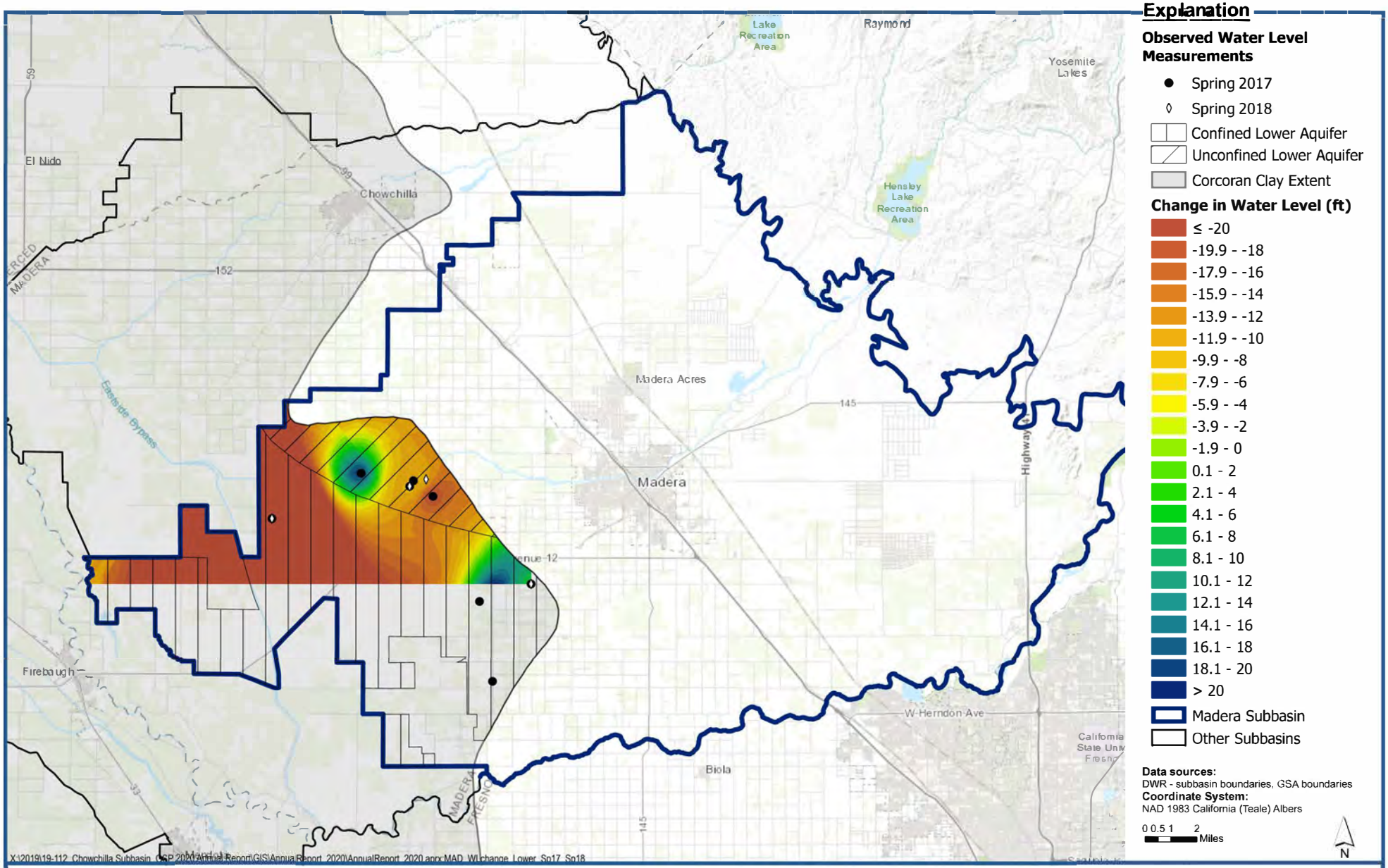
Change in Water Level in the Lower Aquifer - Spring 2016 through Spring 2017

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report

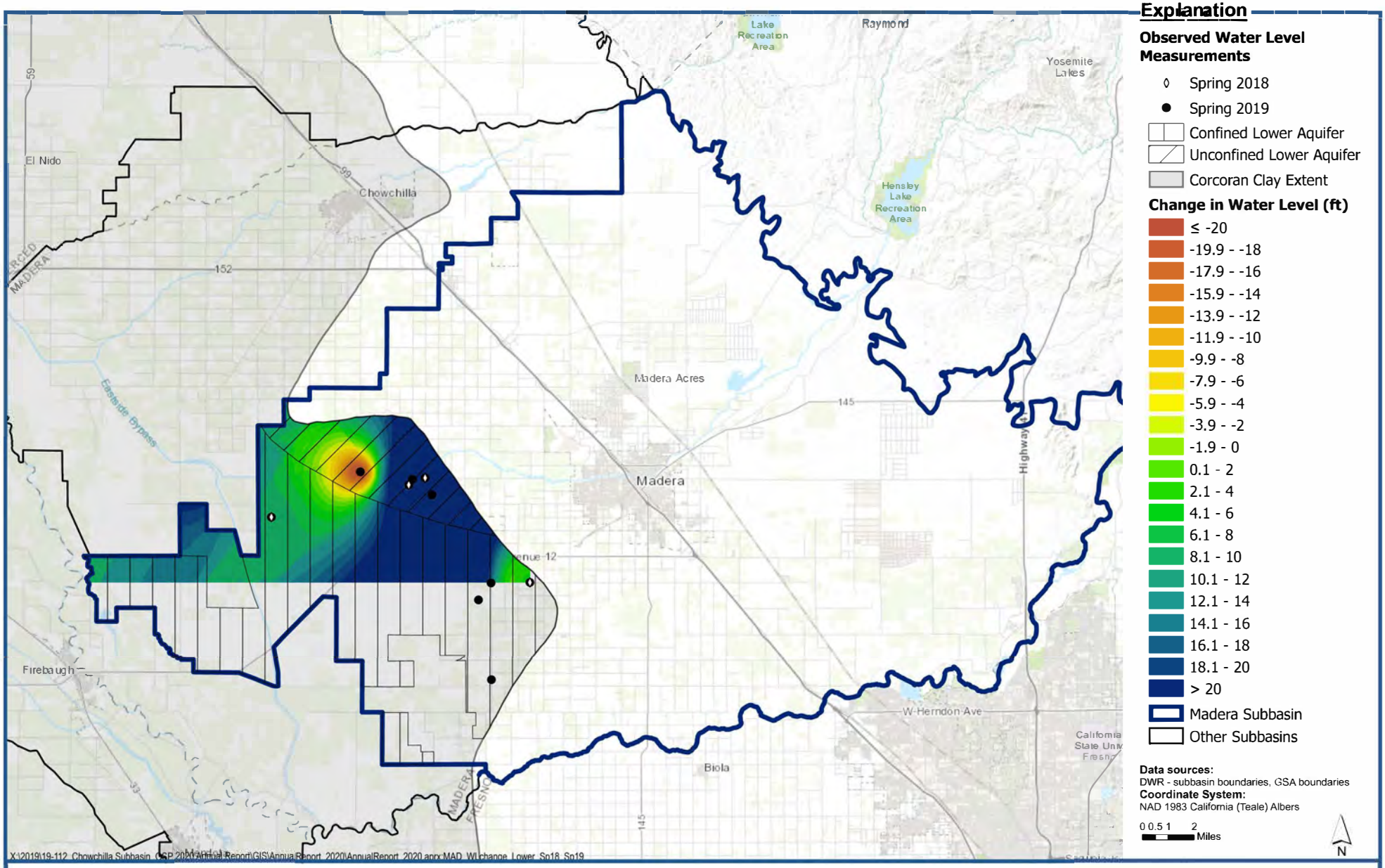
Figure C-9



Change in Water Level in the Lower Aquifer - Spring 2017 through Spring 2018

Figure C-10

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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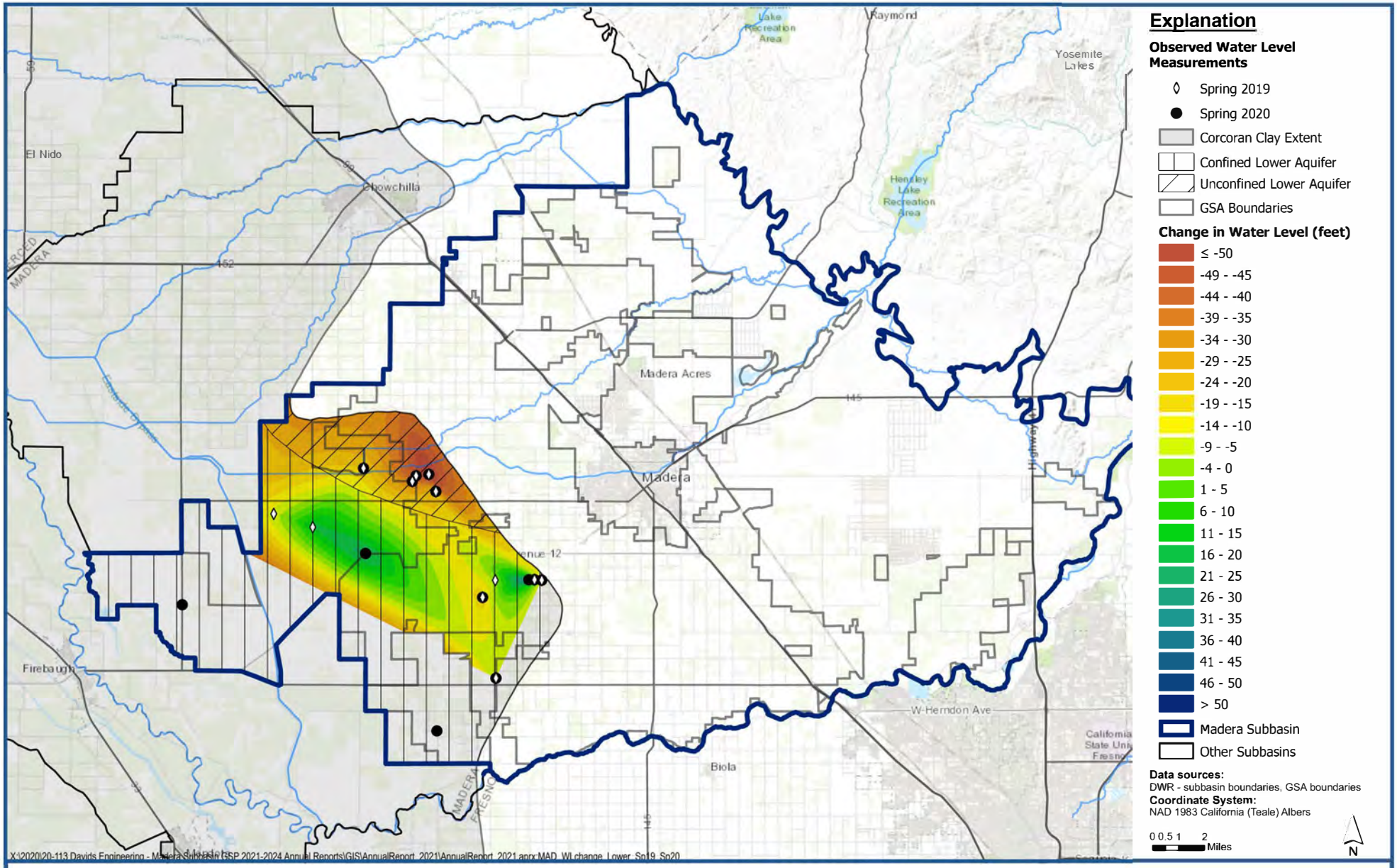
Change in Water Level in the Lower Aquifer - Spring 2018 through Spring 2019

Figure C-11

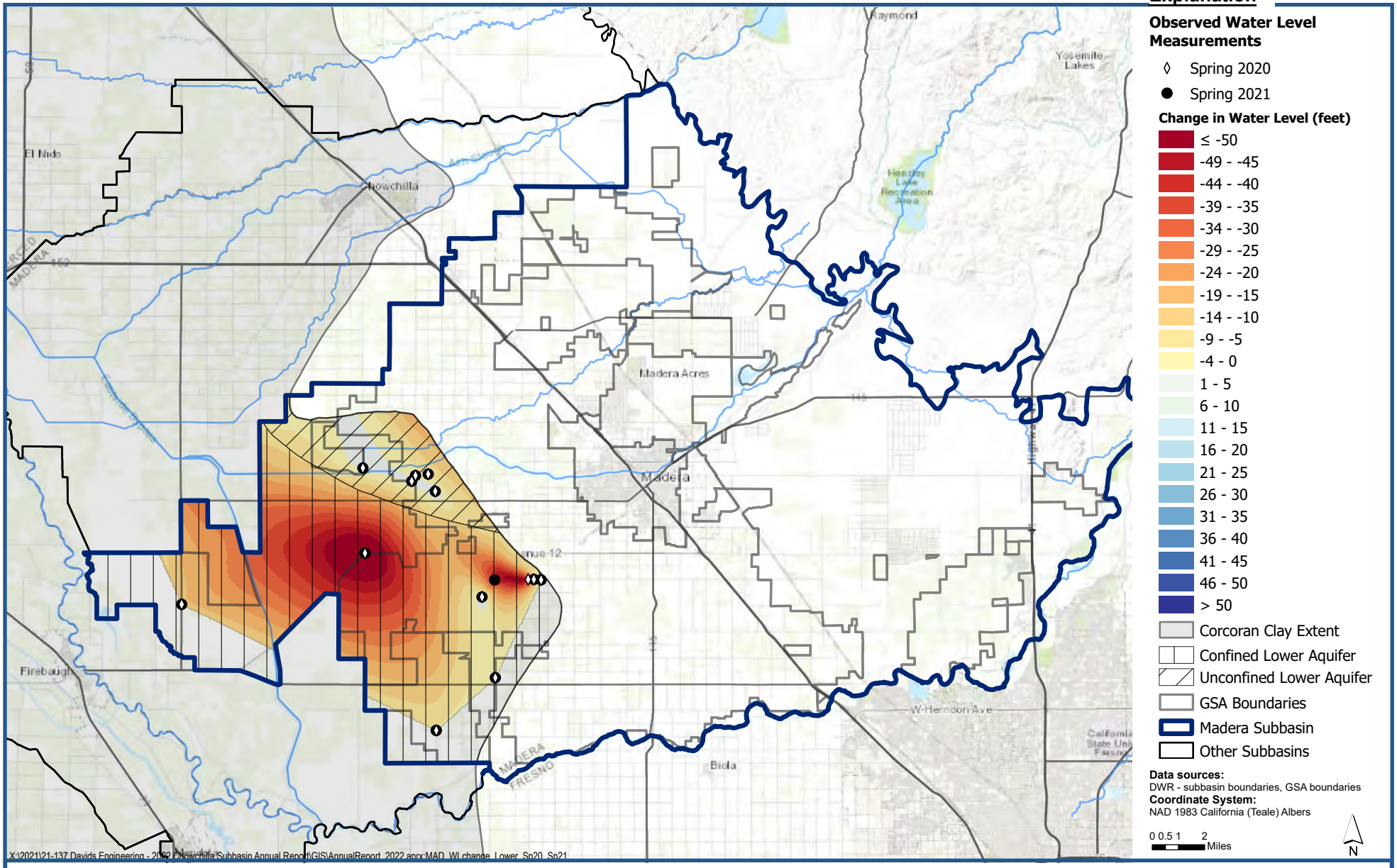
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Change in Water Level in the Lower Aquifer - Spring 2019 through Spring 2020

Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report

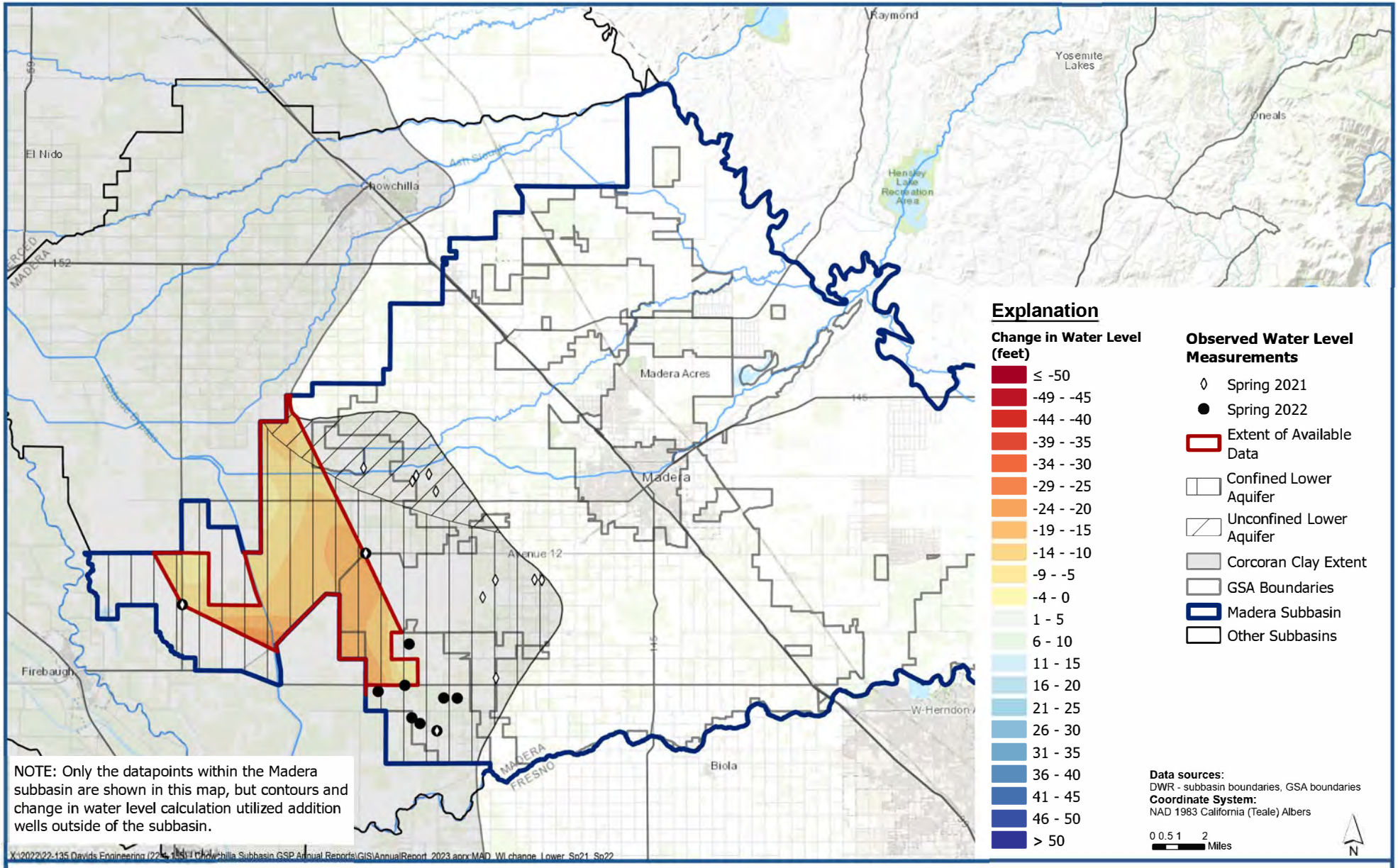
Figure C-12



Change in Water Level in the Lower Aquifer - Spring 2020 through Spring 2021

Figure C-13

Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



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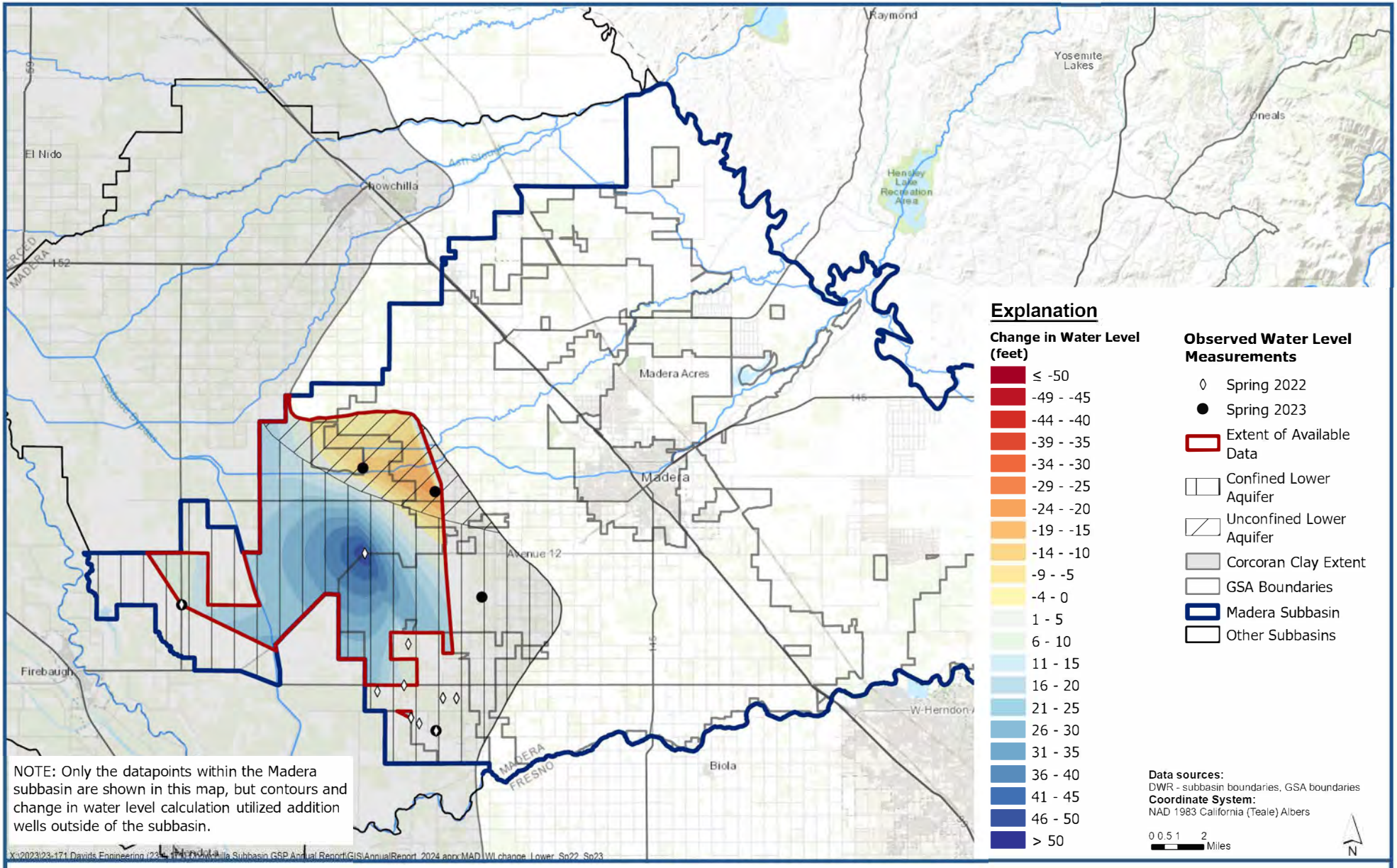
Change in Water Level in the Lower Aquifer - Spring 2021 through Spring 2022

Figure C-14

Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



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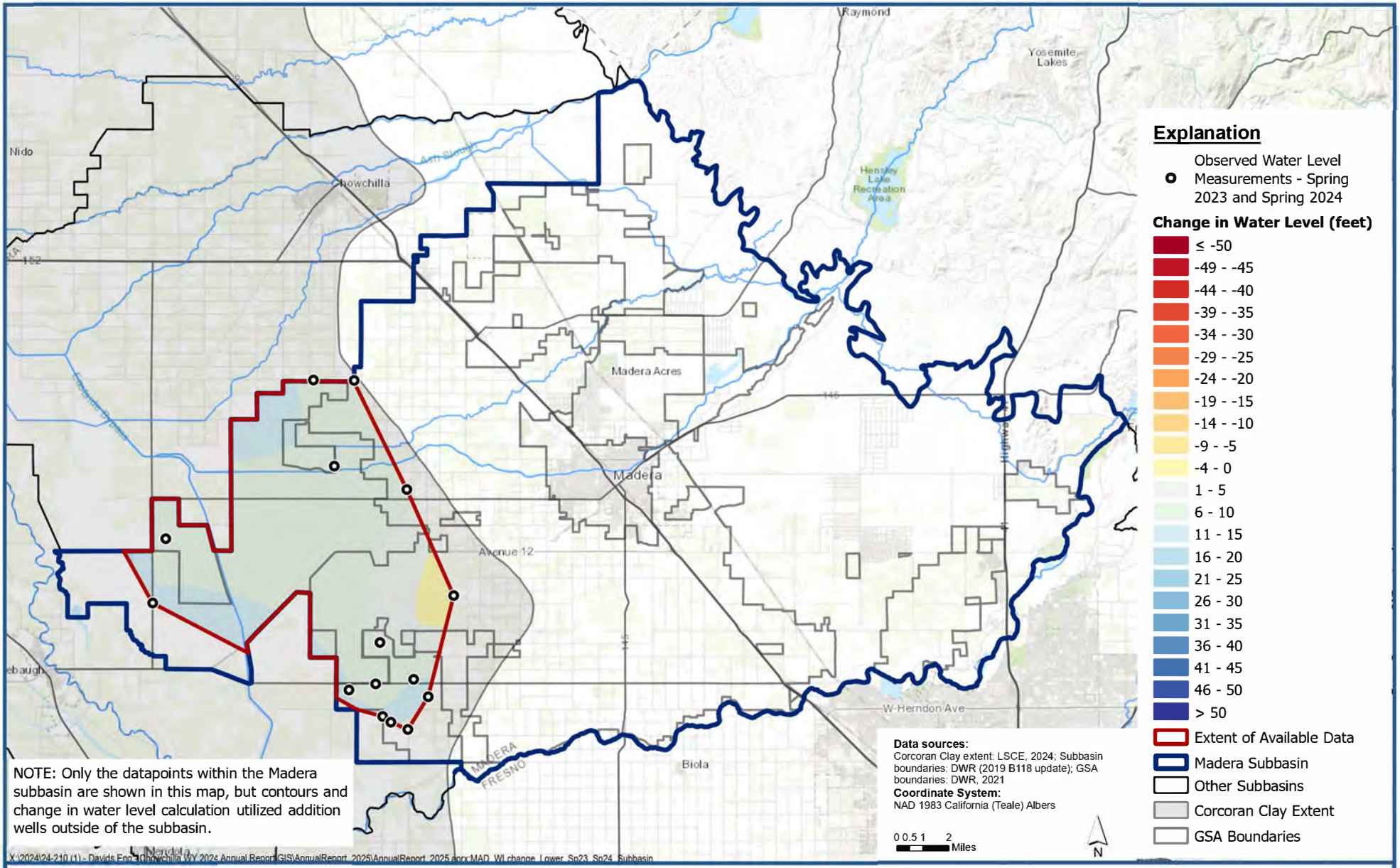
Change in Water Level in the Lower Aquifer - Spring 2022 through Spring 2023

Figure C-15

Madera Subbasin
Groundwater Sustainability Plan 2024 Annual Report



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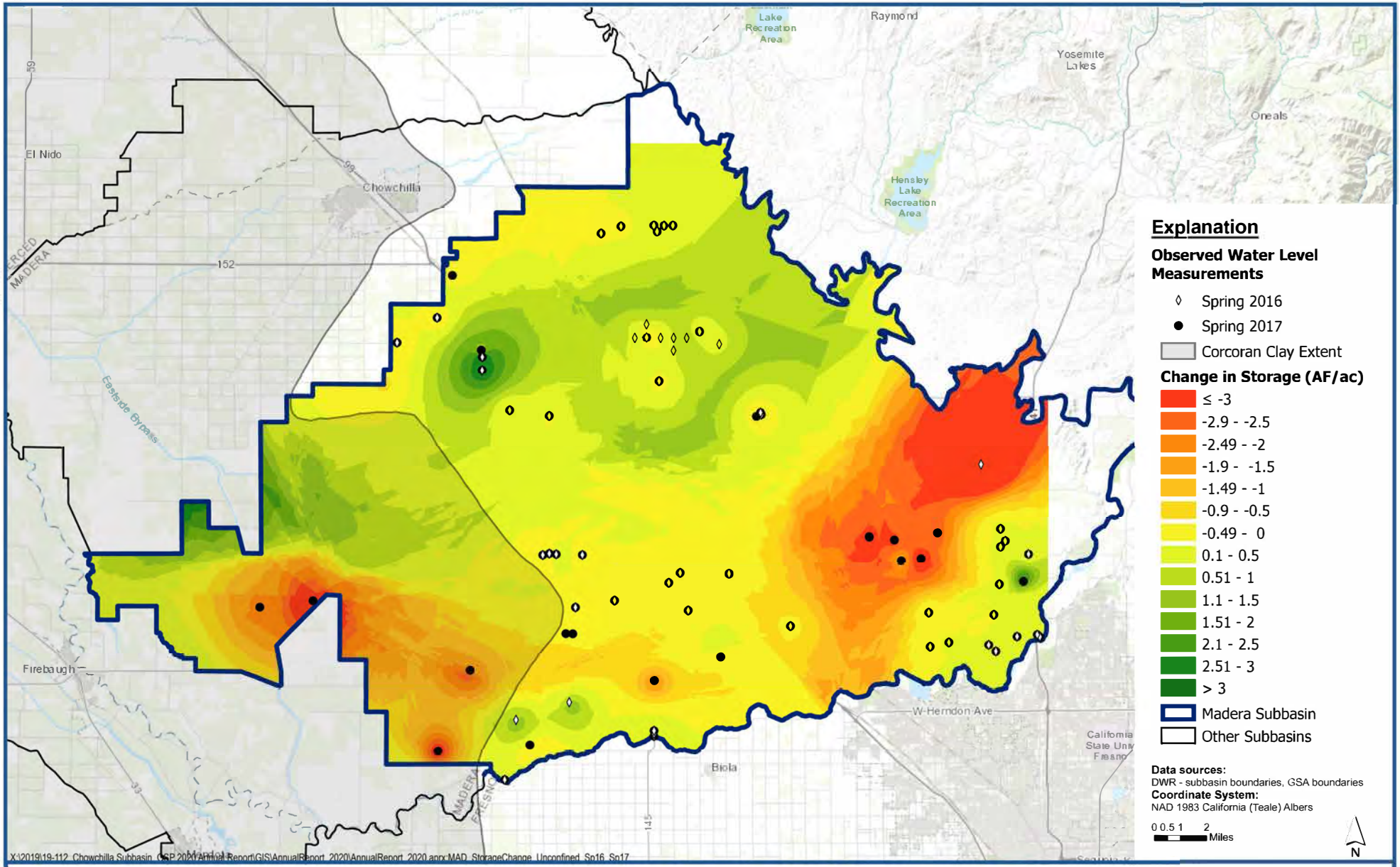
Change in Water Level in the Lower Aquifer - Spring 2023 through Spring 2024

Figure C-16

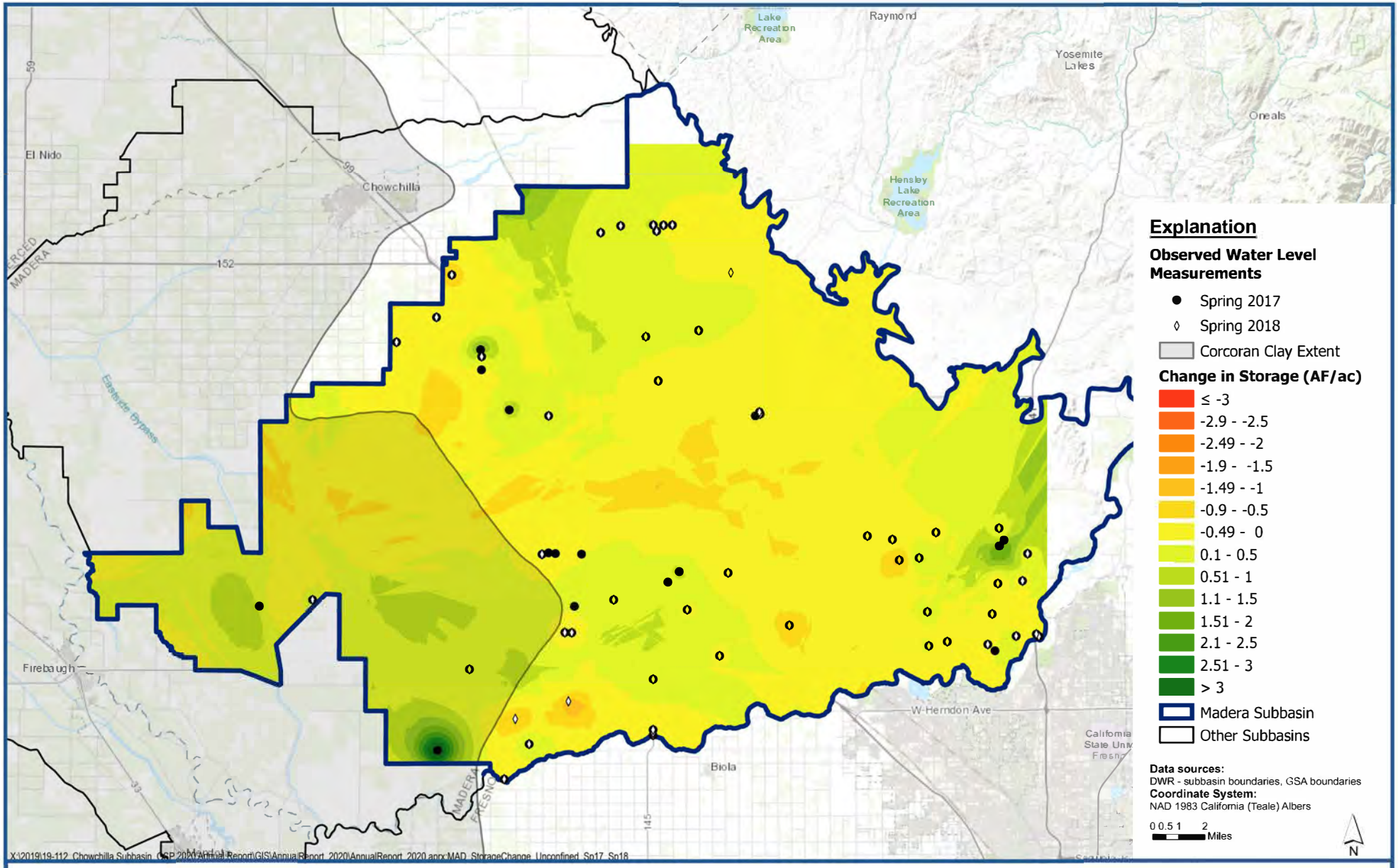
Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report



Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2016 through Spring 2017

Figure C-17

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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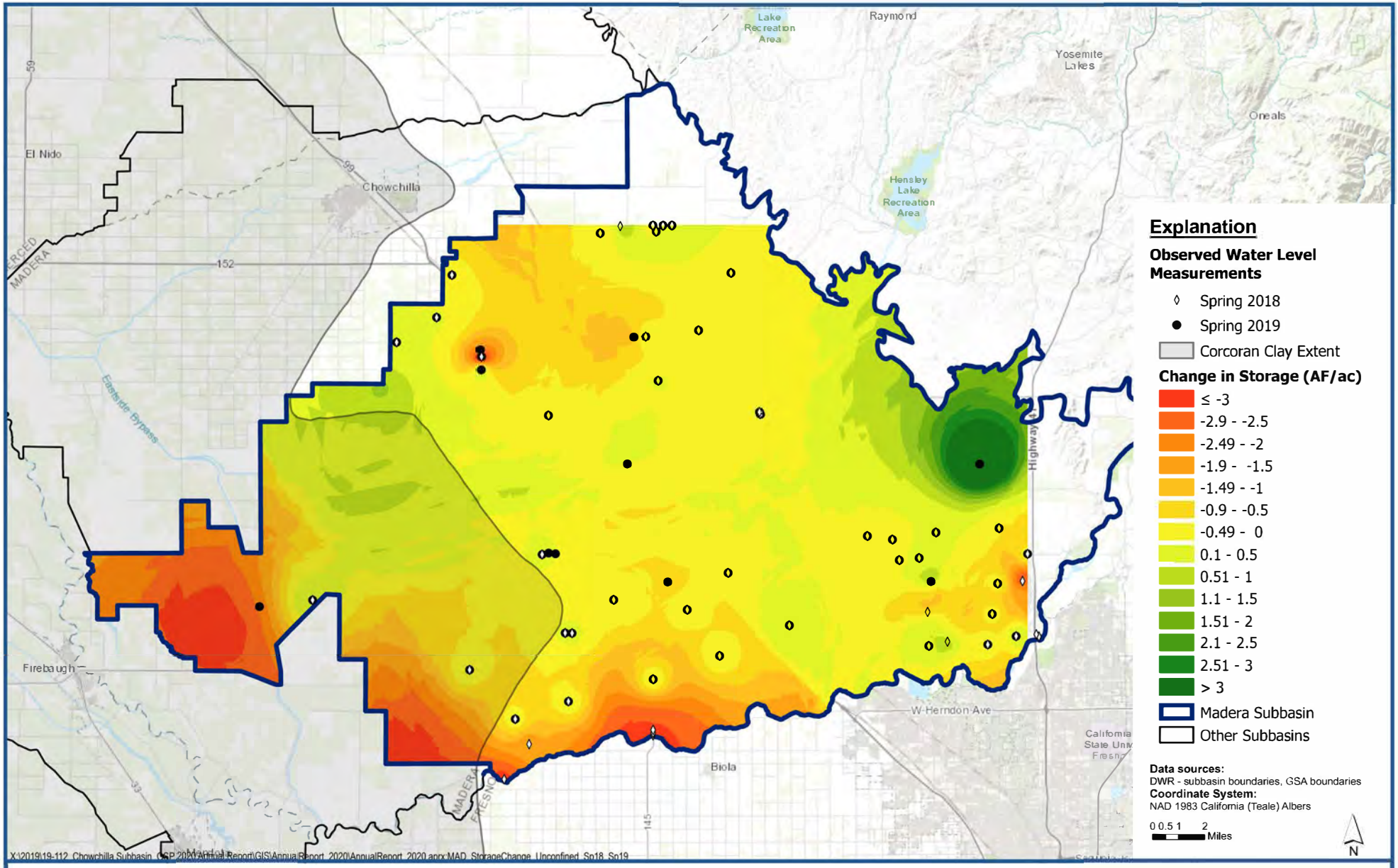
Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2017 through Spring 2018

Figure C-18

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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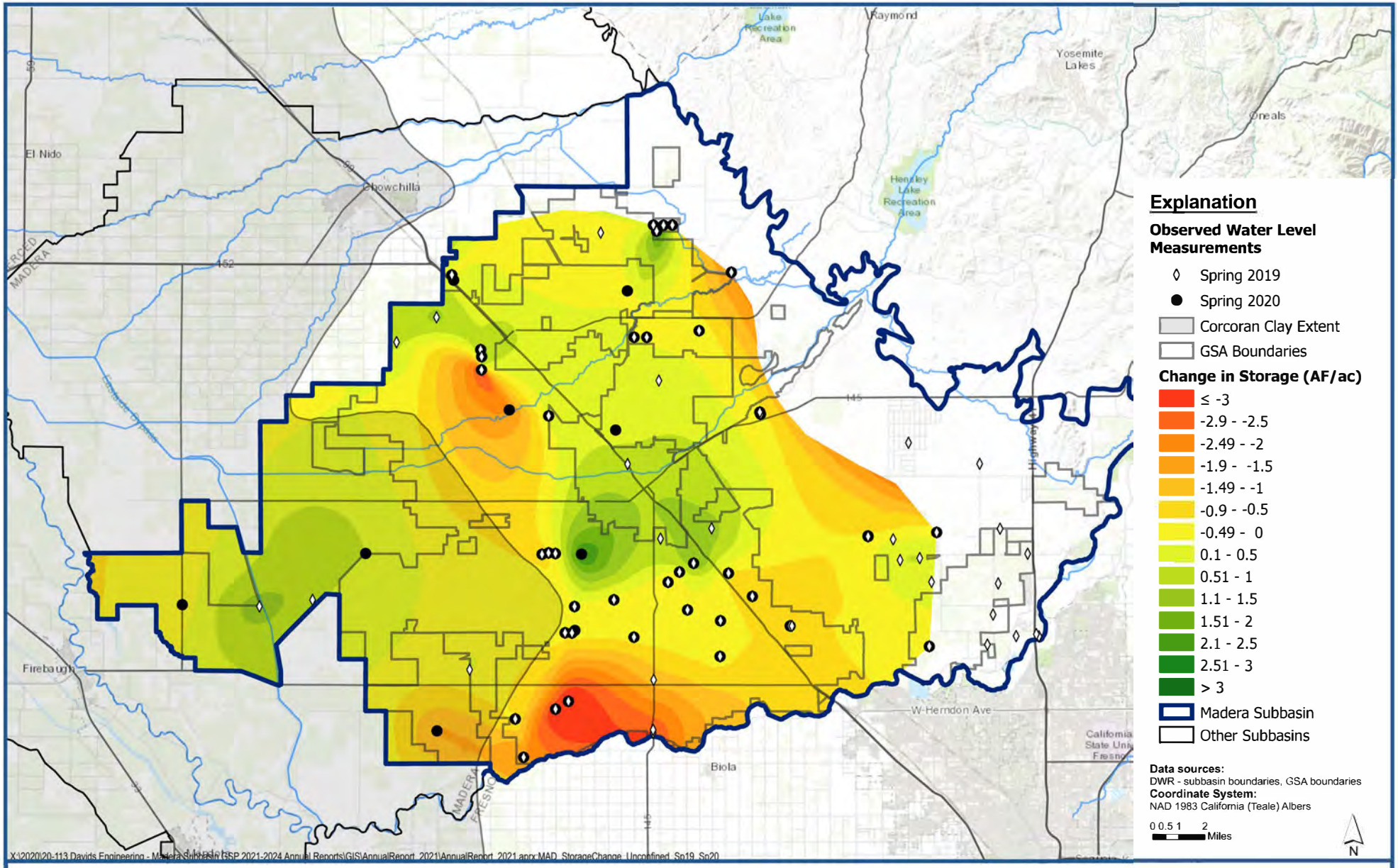
Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2018 through Spring 2019

Figure C-19

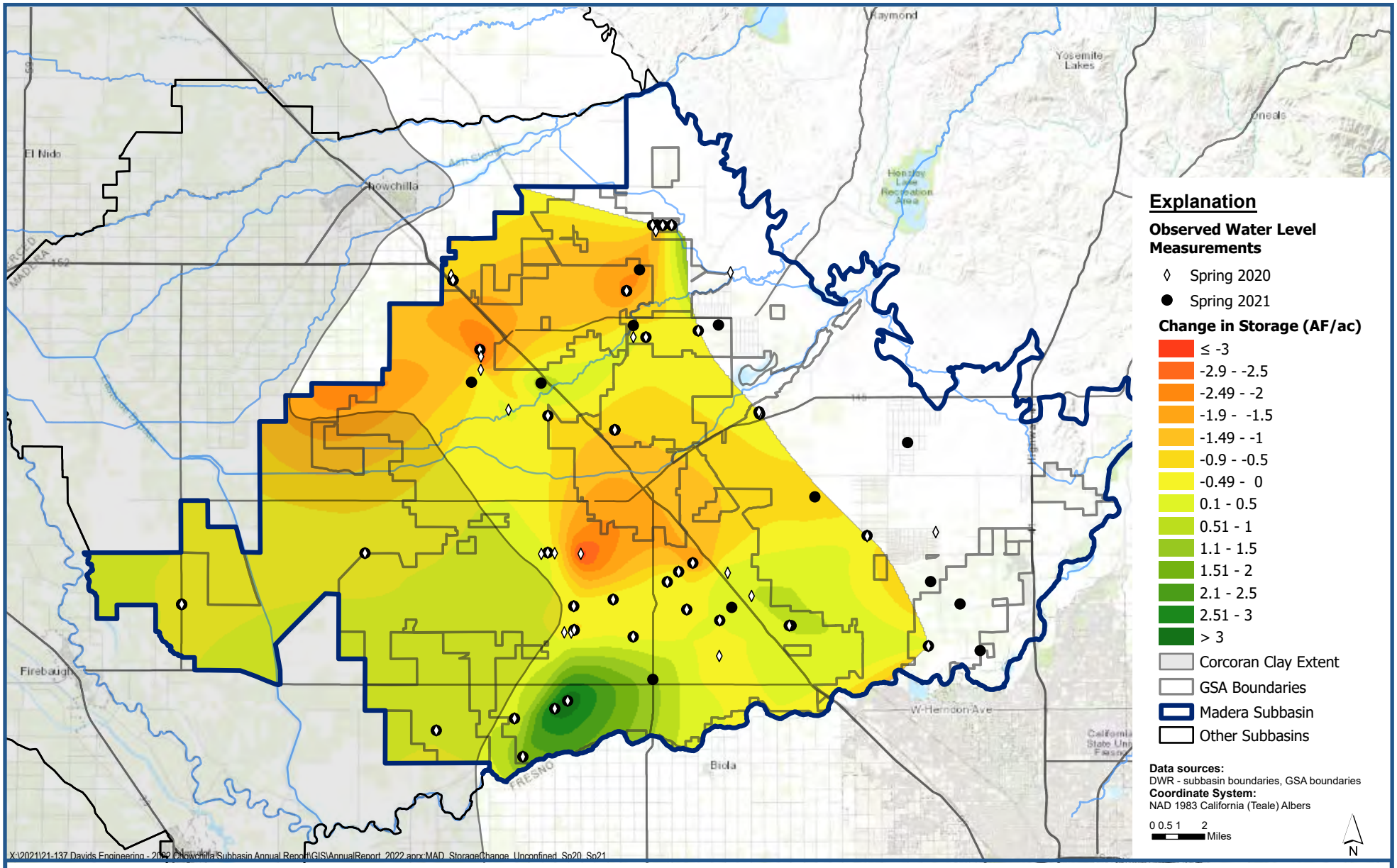
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2019 through Spring 2020

Figure C-20

Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report



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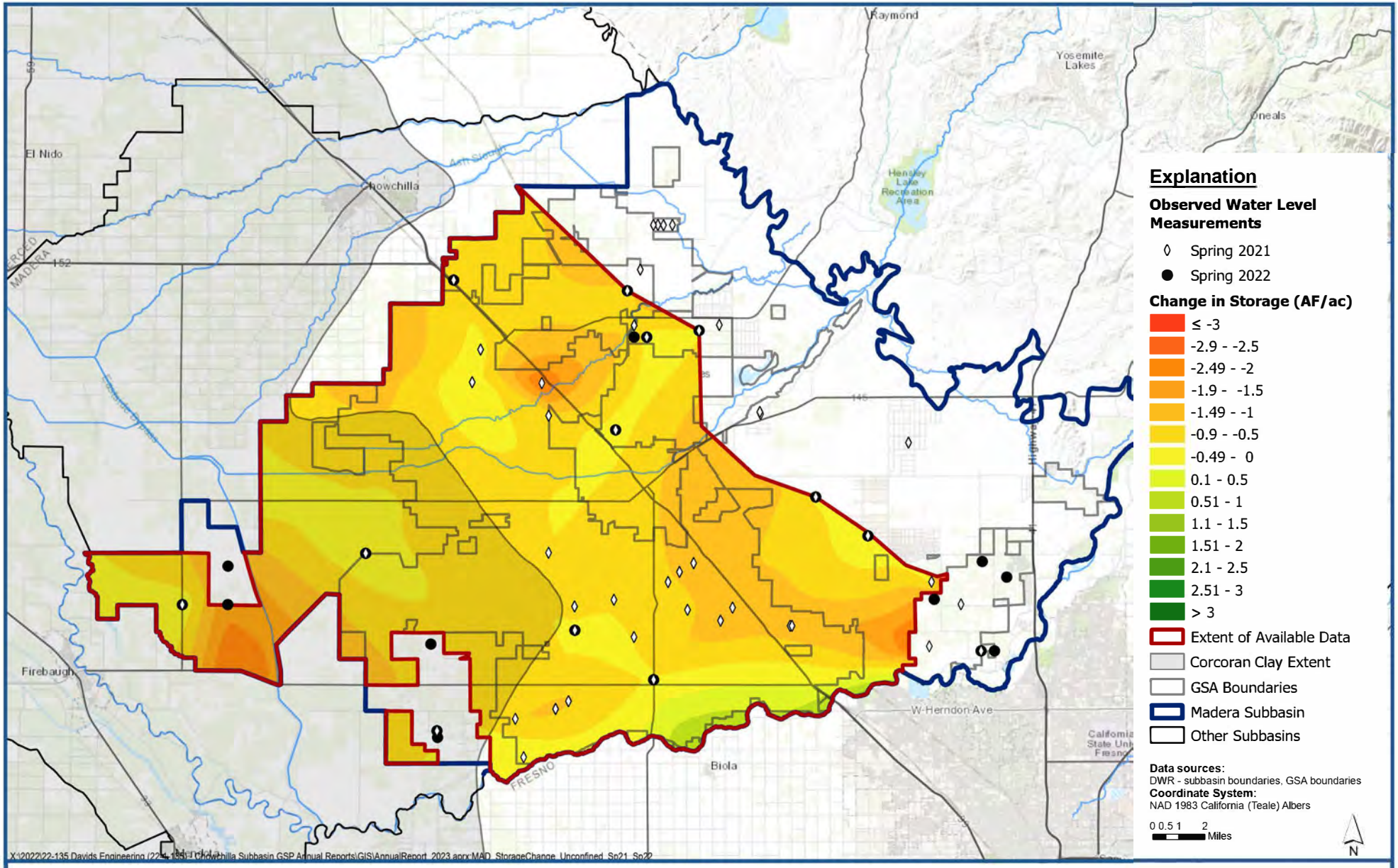
Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2020 through Spring 2021

Figure C-21

Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



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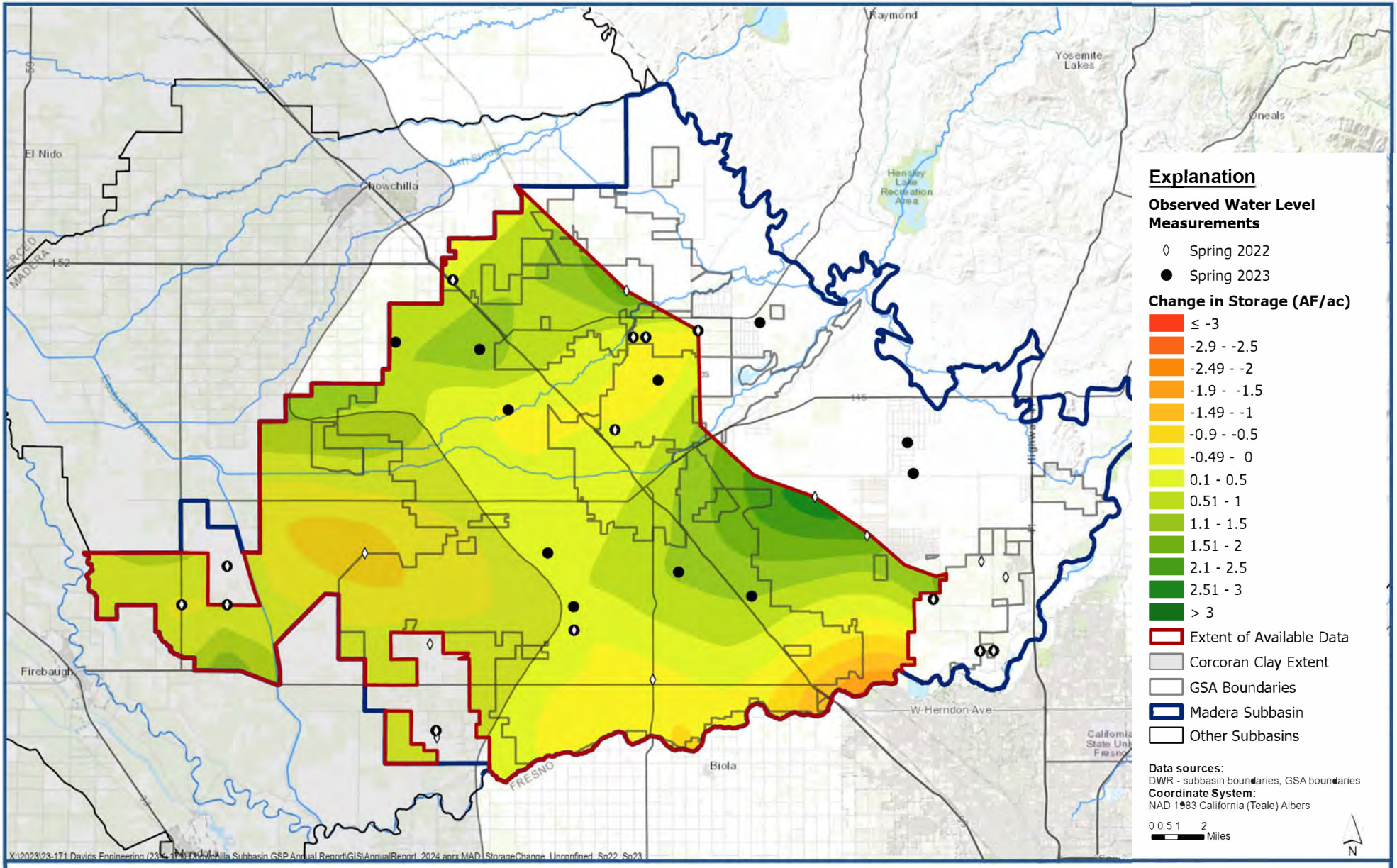
Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2021 through Spring 2022

Figure C-22

Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



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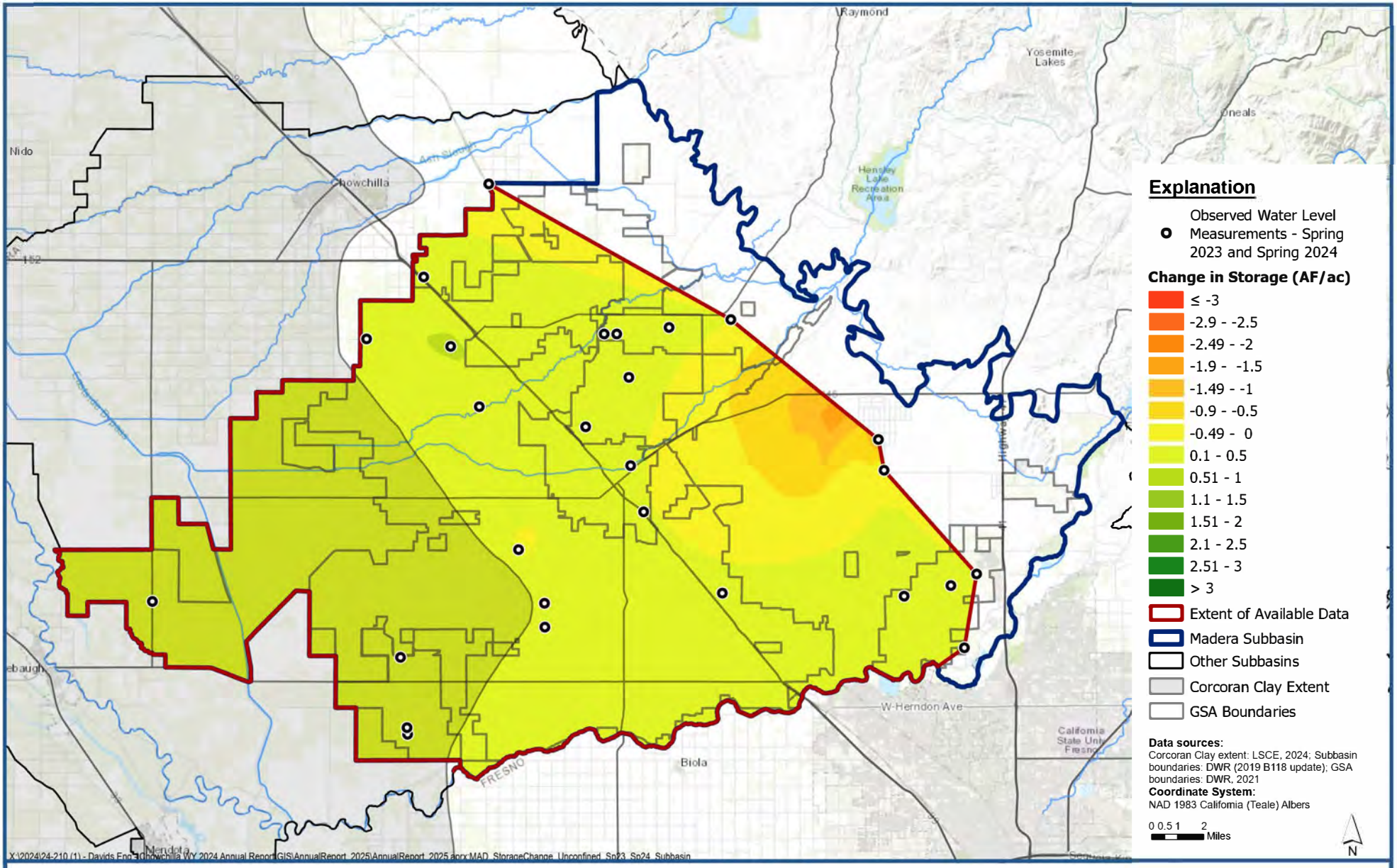
Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2022 through Spring 2023

Figure C-23

Madera Subbasin
Groundwater Sustainability Plan 2024 Annual Report



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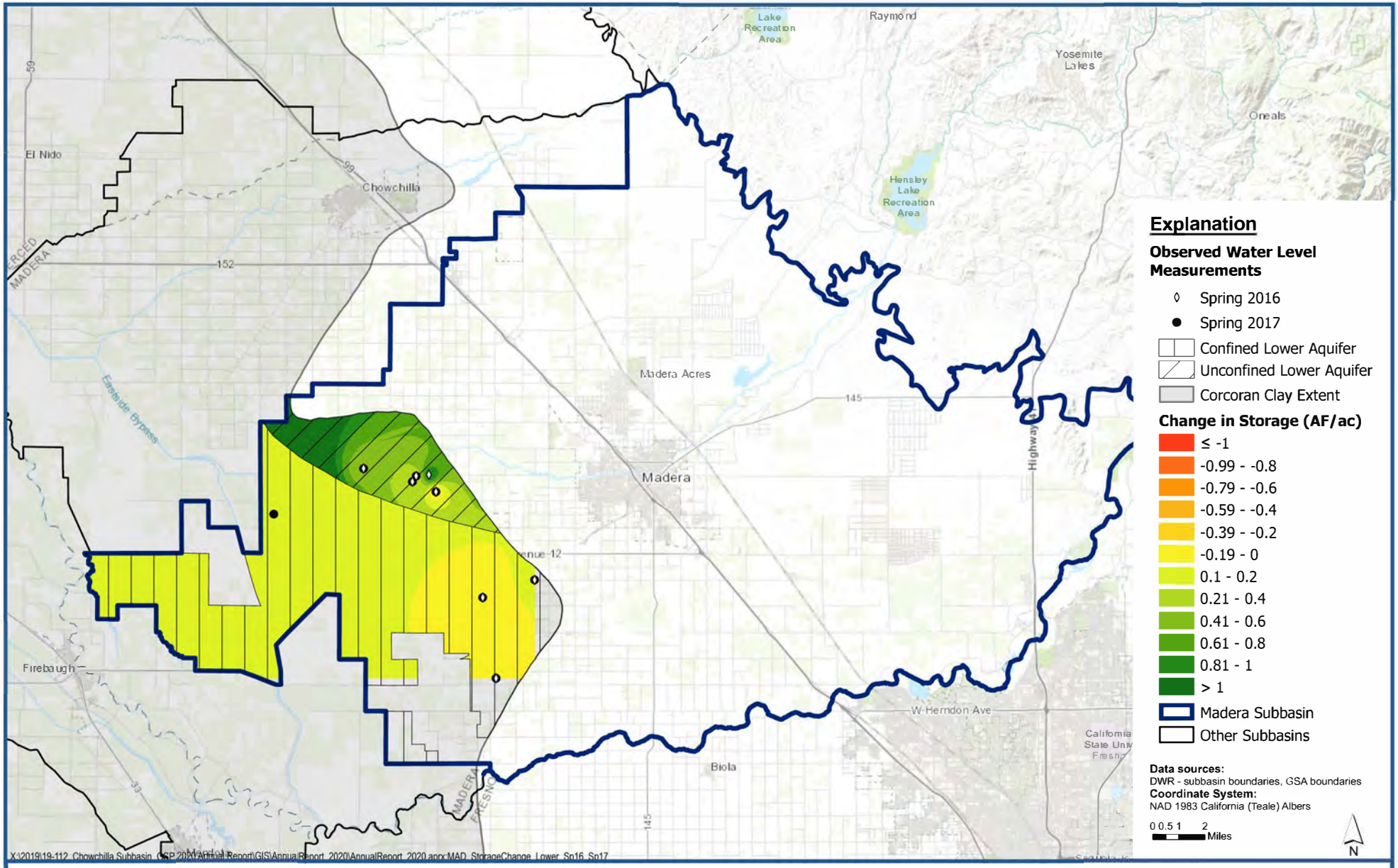
Change in Groundwater Storage in the Upper Aquifer/Undifferentiated Unconfined Zone - Spring 2023 through Spring 2024

Figure C-24

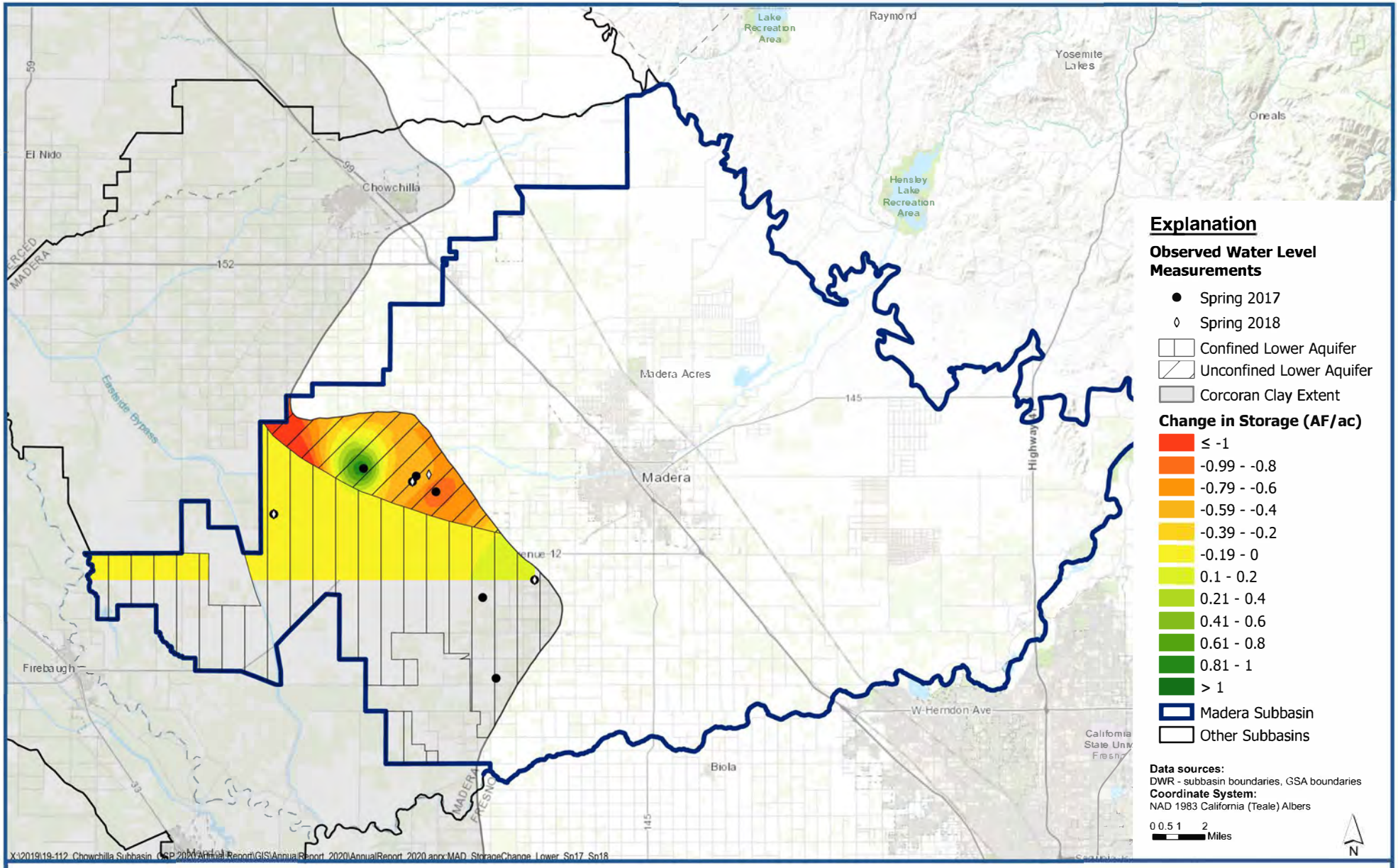
Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report



Change in Groundwater Storage in the Lower Aquifer - Spring 2016 through Spring 2017

Figure C-25

Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



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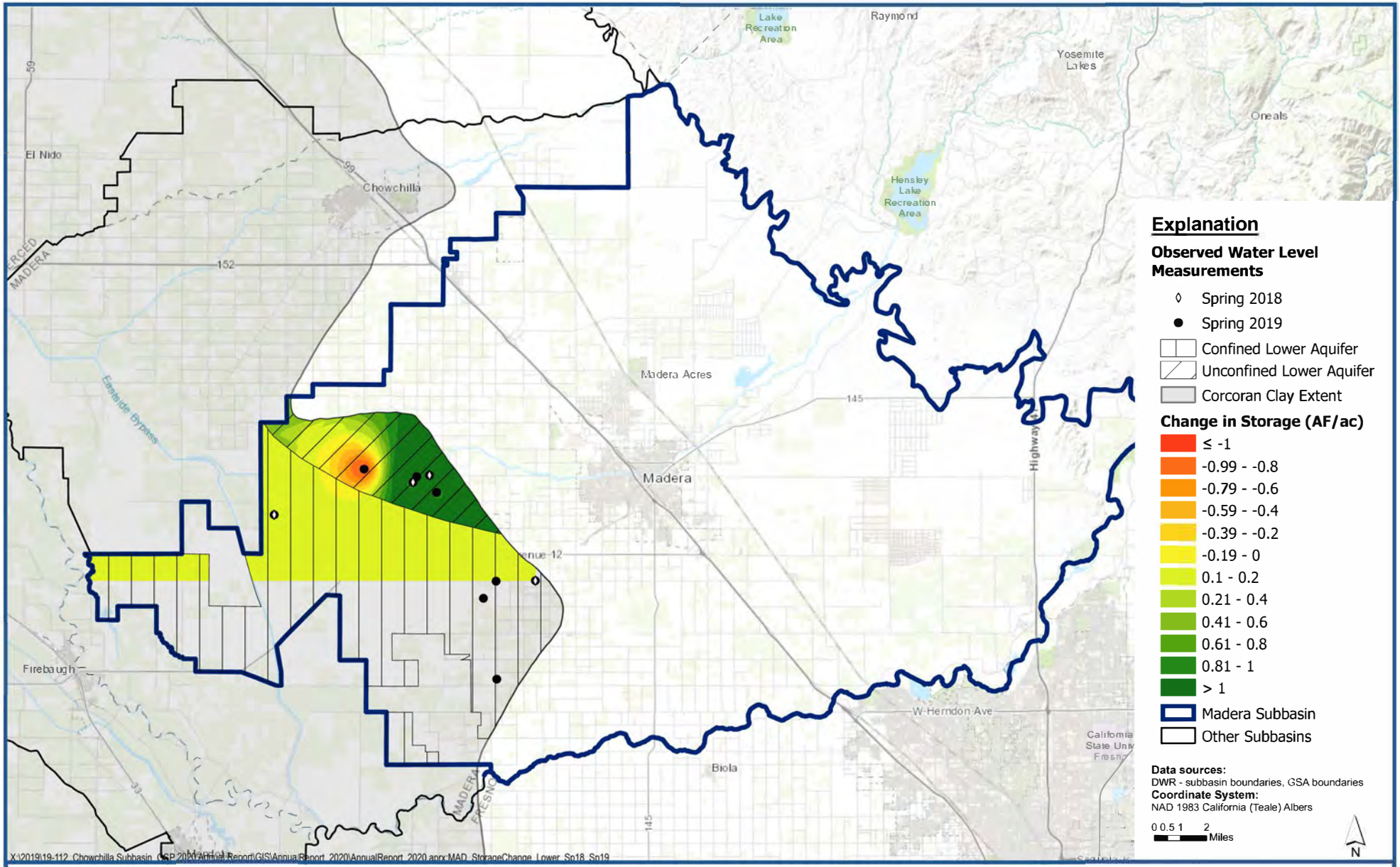
Change in Groundwater Storage in the Lower Aquifer - Spring 2017 through Spring 2018

Figure C-26

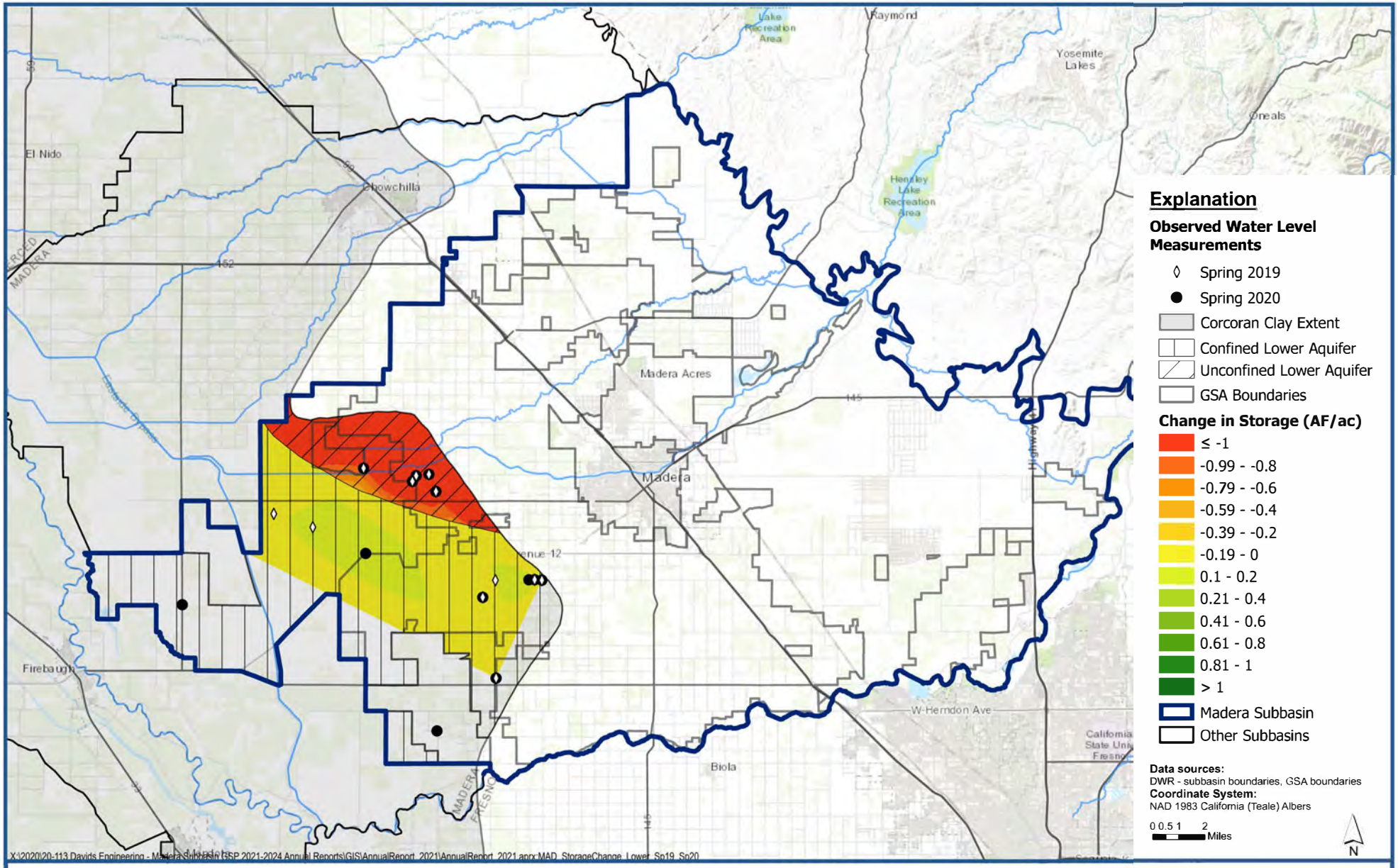
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Change in Groundwater Storage in the Lower Aquifer - Spring 2018 through Spring 2019

Figure C-27

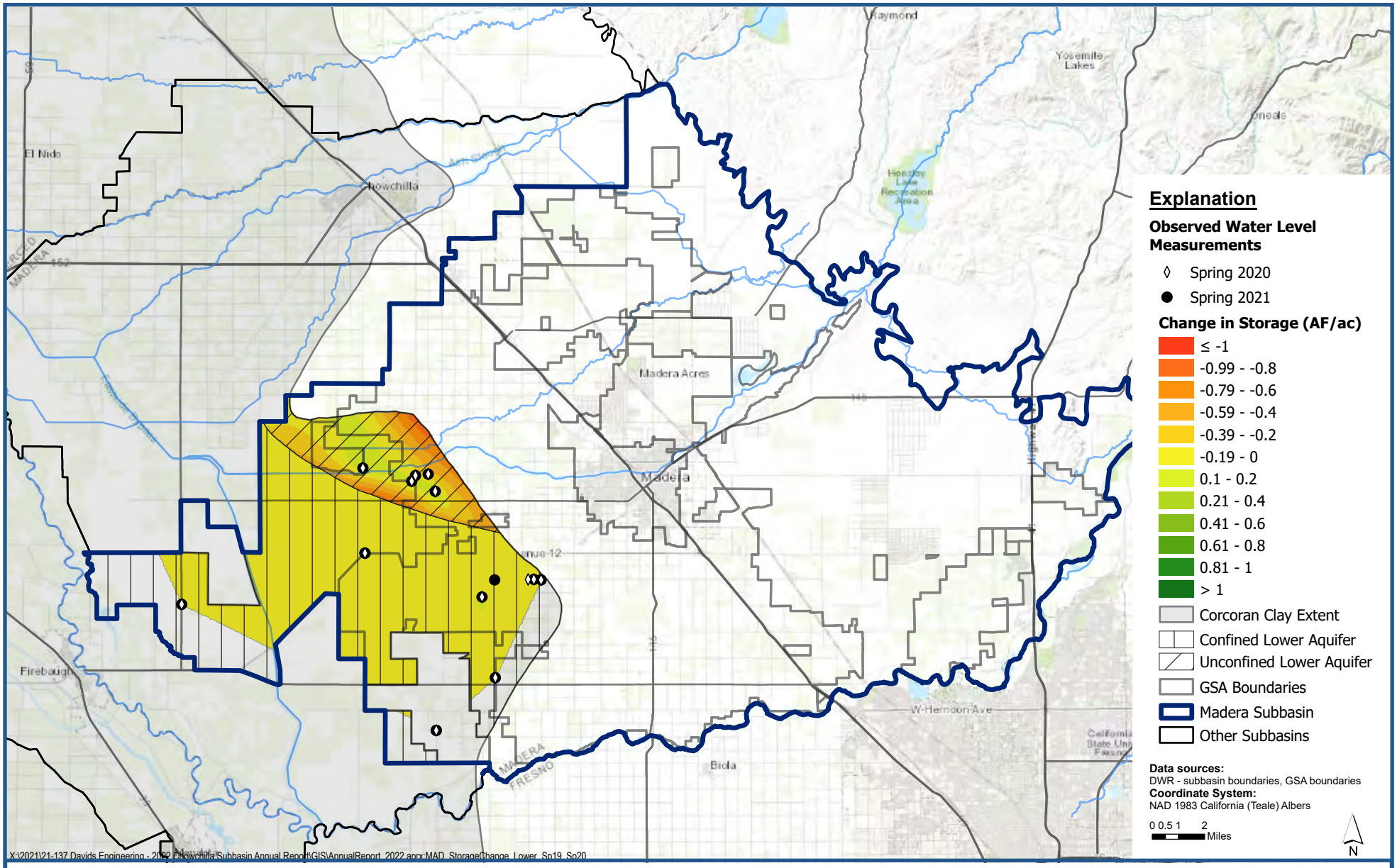
Madera Subbasin
Groundwater Sustainability Plan 2020 Annual Report



Change in Groundwater Storage in the Lower Aquifer - Spring 2019 through Spring 2020

Figure C-28

Madera Subbasin
Groundwater Sustainability Plan 2021 Annual Report



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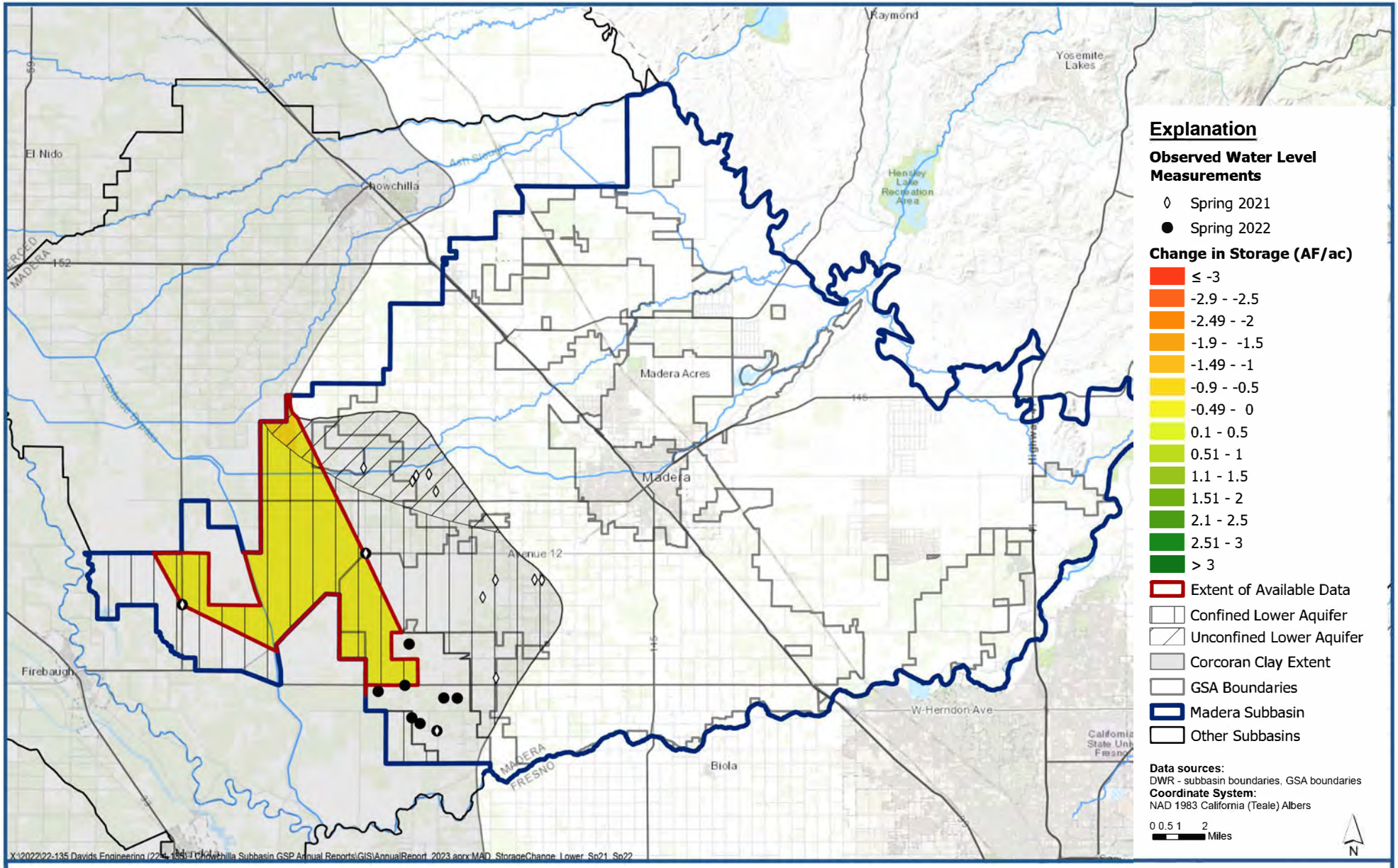
Change in Groundwater Storage in the Lower Aquifer - Spring 2020 through Spring 2021

Figure C-29

Madera Subbasin
Groundwater Sustainability Plan 2022 Annual Report



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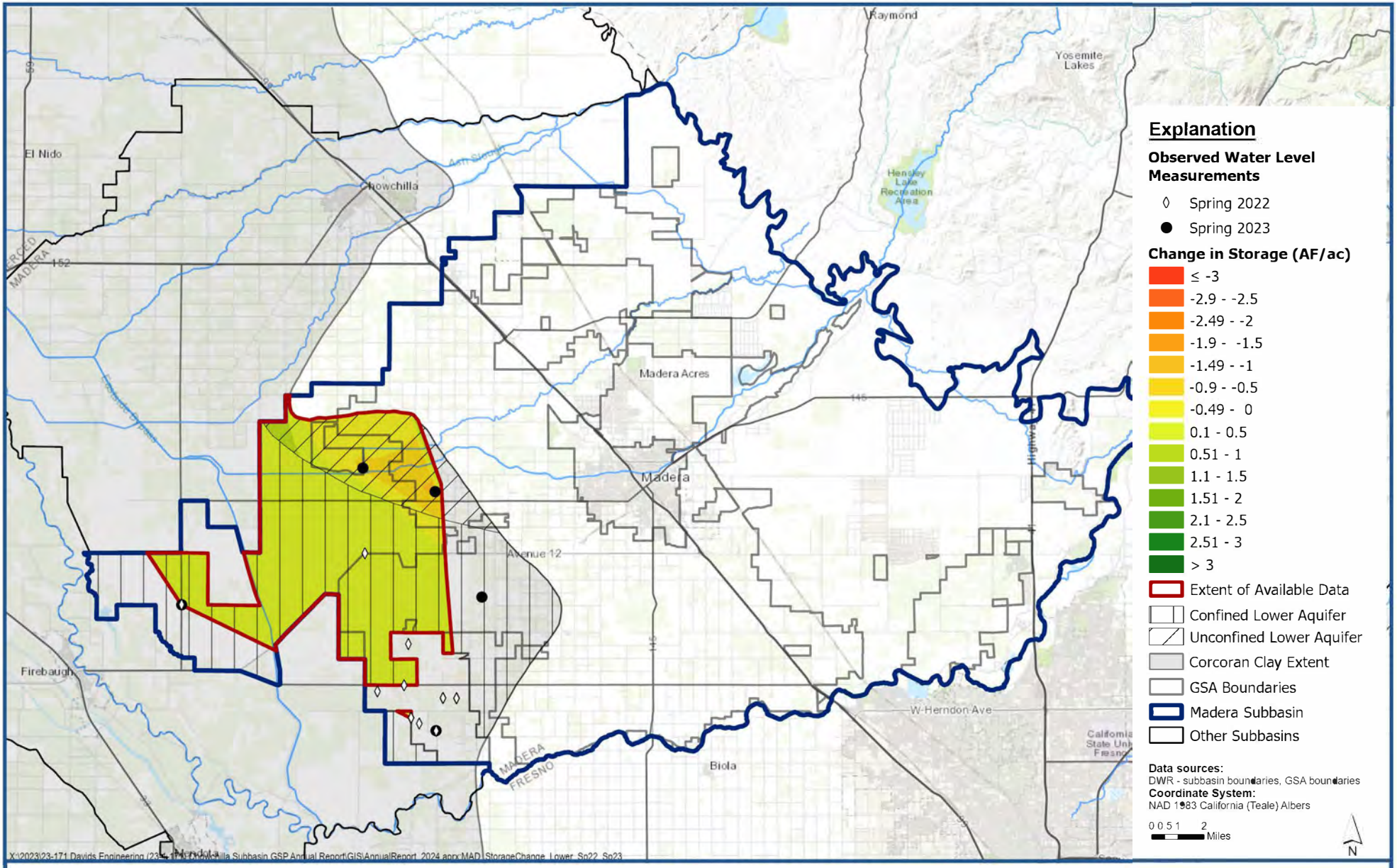
Change in Groundwater Storage in the Lower Aquifer - Spring 2021 through Spring 2022

Figure C-30

Madera Subbasin
Groundwater Sustainability Plan 2023 Annual Report



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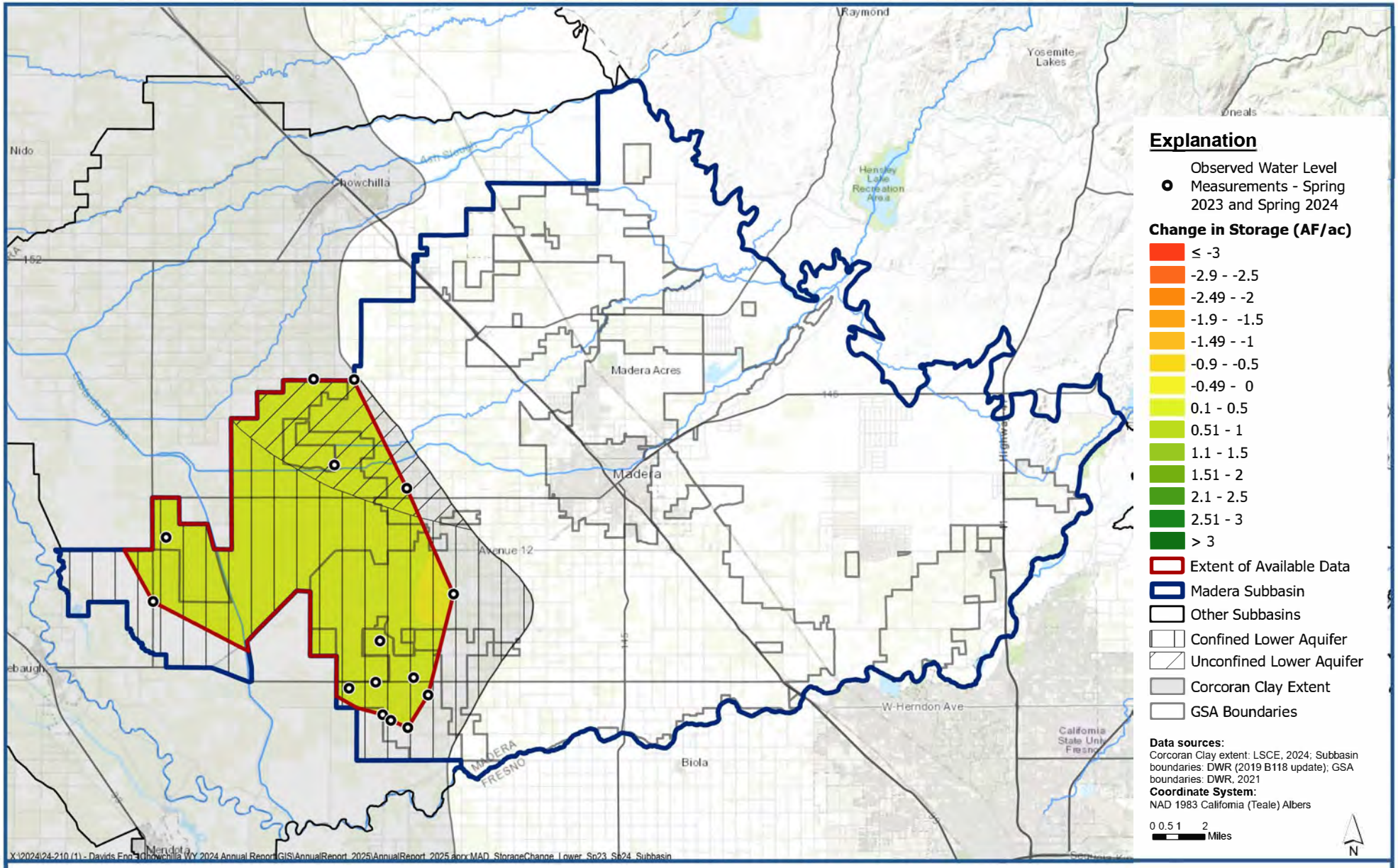
Change in Groundwater Storage in the Lower Aquifer - Spring 2022 through Spring 2023

Figure C-31

Madera Subbasin
Groundwater Sustainability Plan 2024 Annual Report



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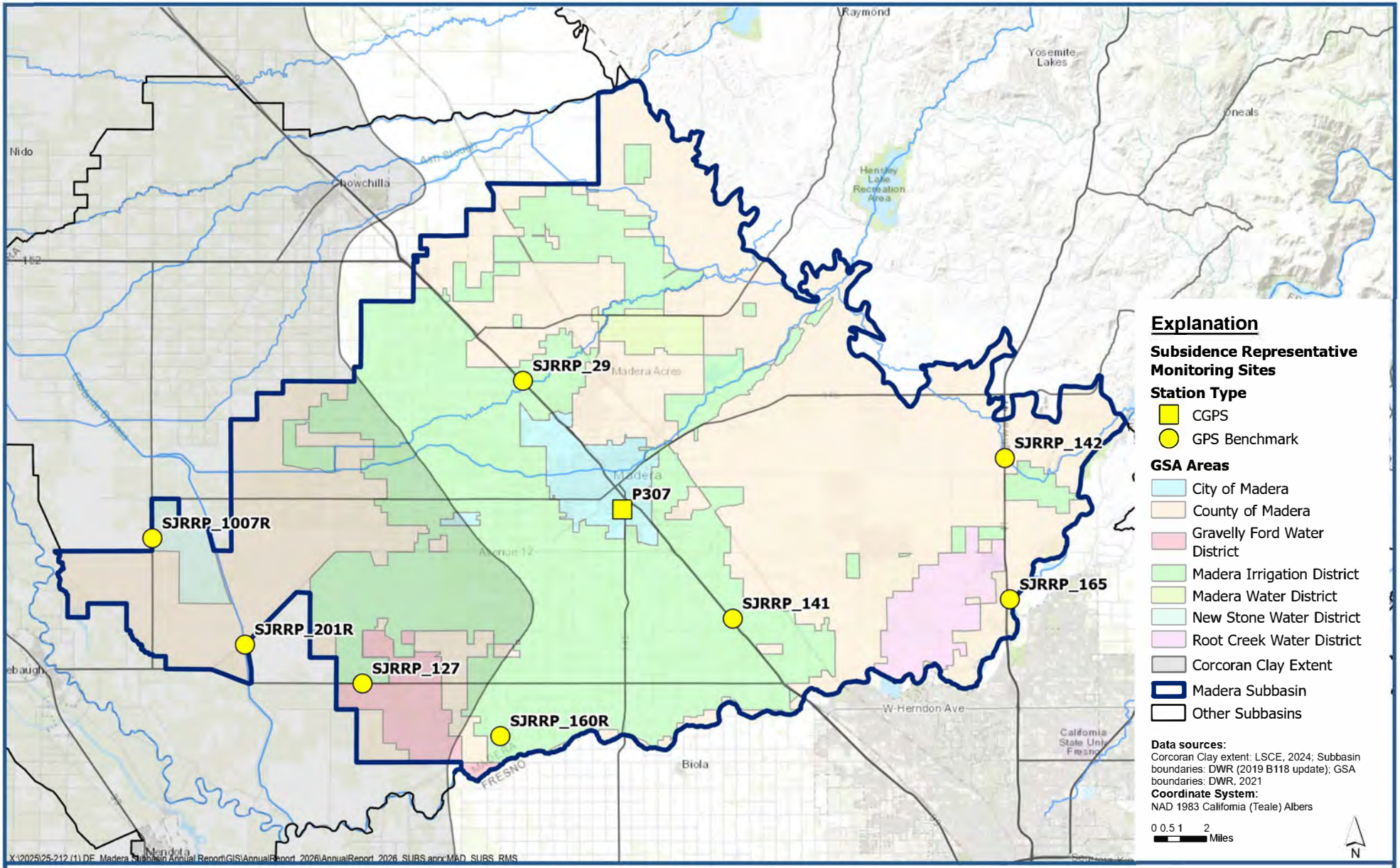
Change in Groundwater Storage in the Lower Aquifer - Spring 2023 through Spring 2024

Figure C-32

Madera Subbasin
Groundwater Sustainability Plan 2025 Annual Report

Appendix D. Maps of Annual and Cumulative Subsidence in 2015 through 2025.



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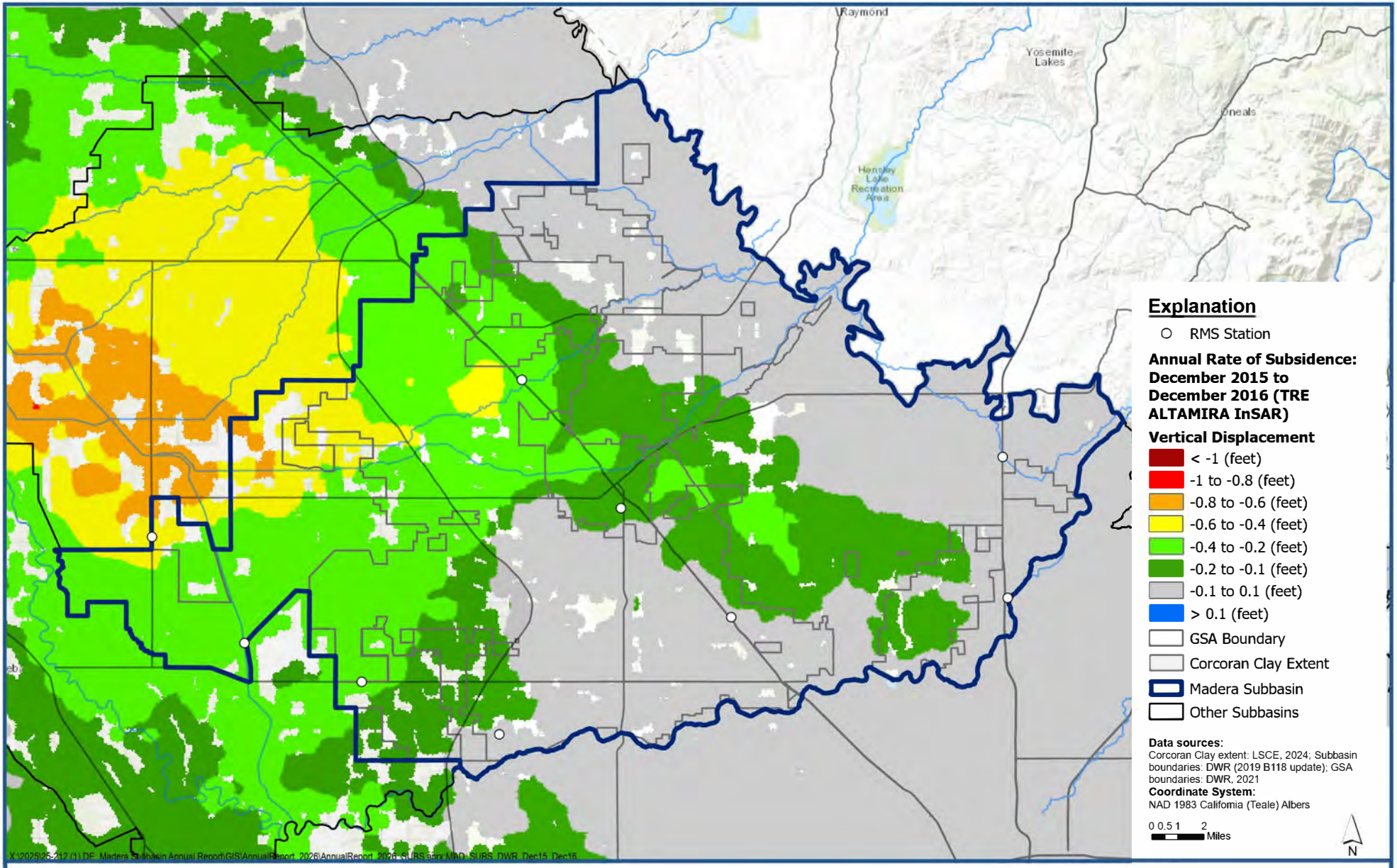
Land Subsidence Sustainability Indicator Representative Monitoring Sites

Figure D-1

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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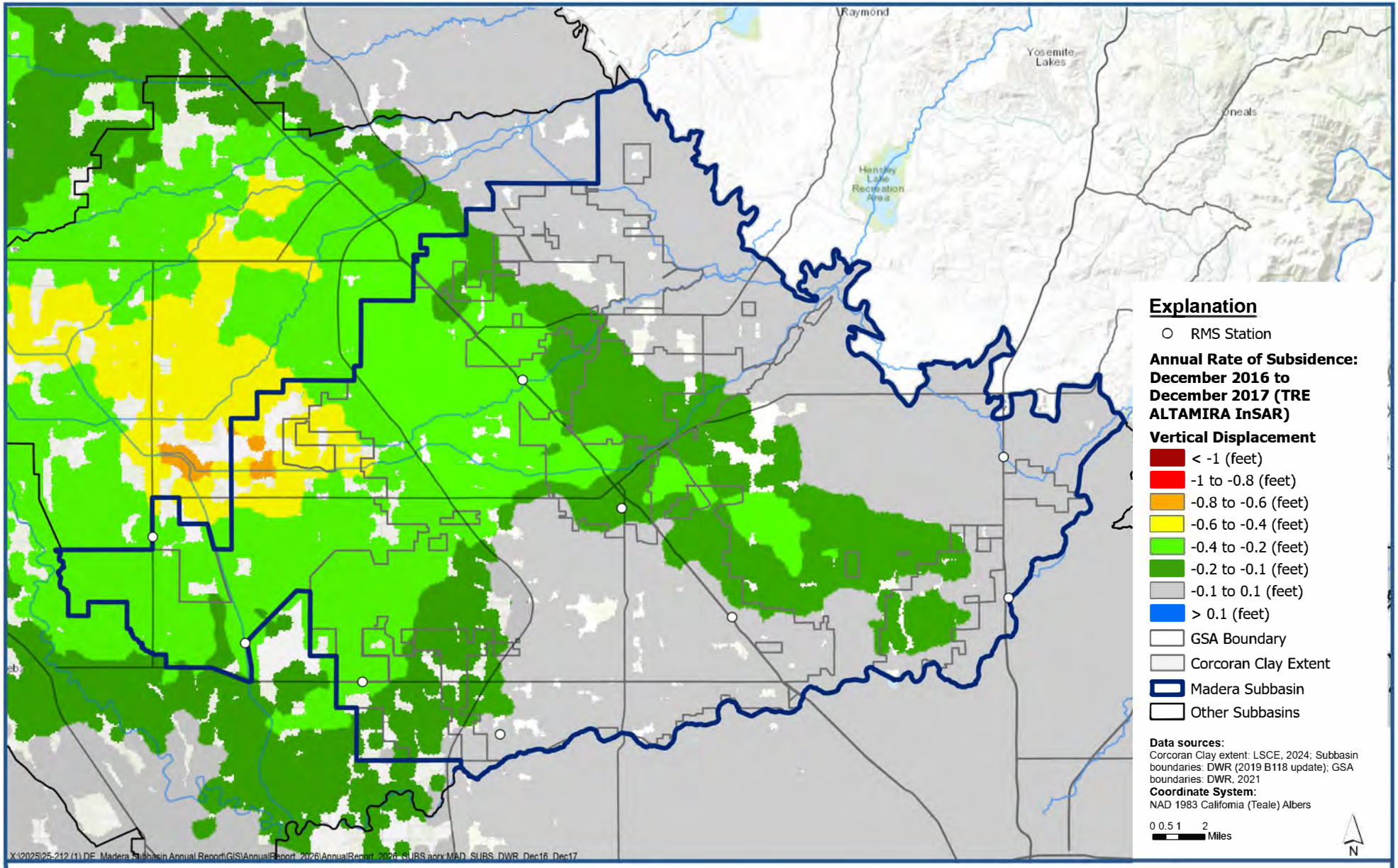
Annual Rate of Subsidence: December 2015 to December 2016 (TRE ALTAMIRA InSAR)

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-2



DAVIDS ENGINEERING, INC

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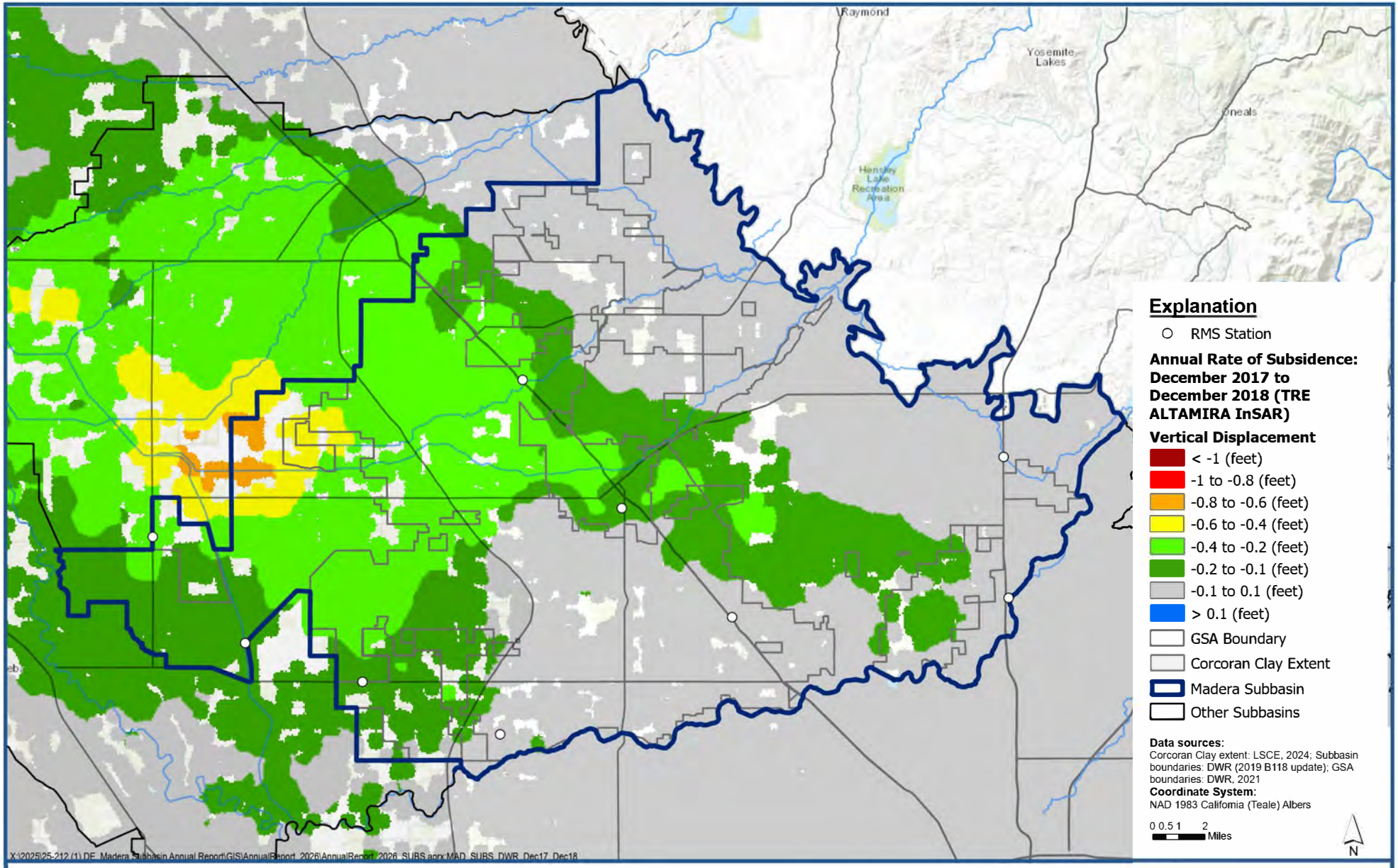
Annual Rate of Subsidence: December 2016 to December 2017 (TRE ALTAMIRA InSAR)

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-3



DAVIDS ENGINEERING, INC

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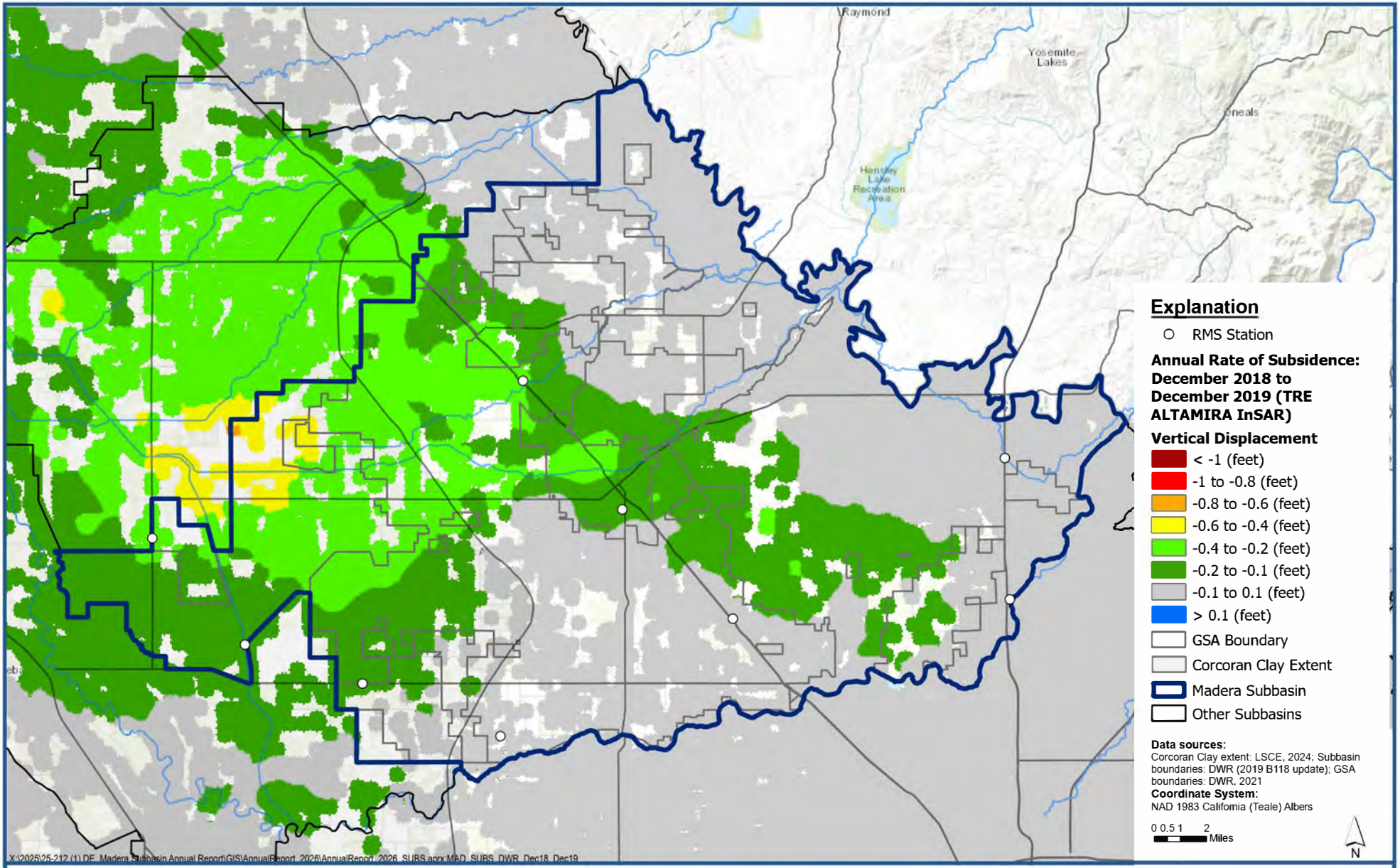
Annual Rate of Subsidence: December 2017 to December 2018 (TRE ALTAMIRA InSAR)

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-4



DAVIDS ENGINEERING, INC

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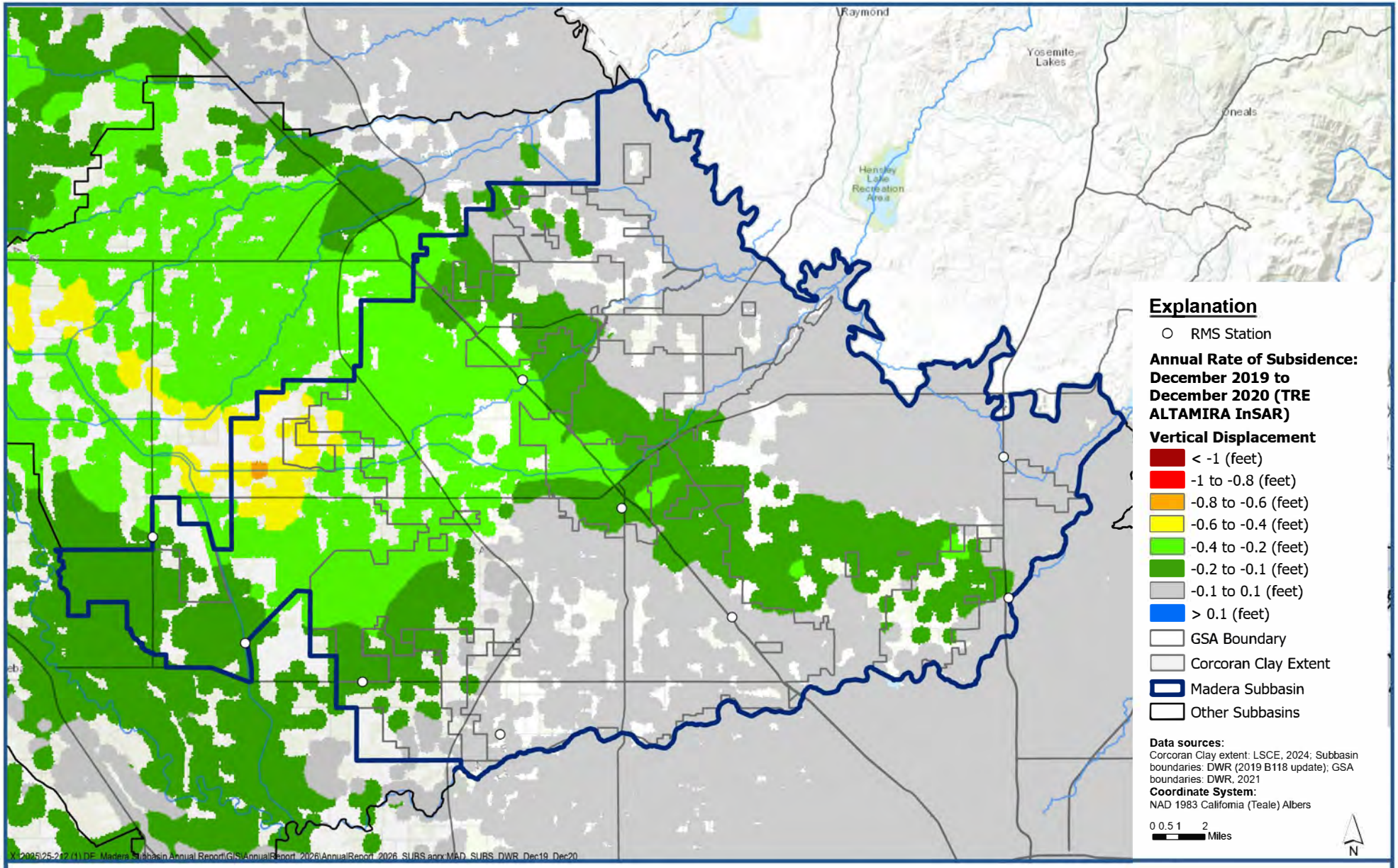
Annual Rate of Subsidence: December 2018 to December 2019 (TRE ALTAMIRA InSAR)

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-5



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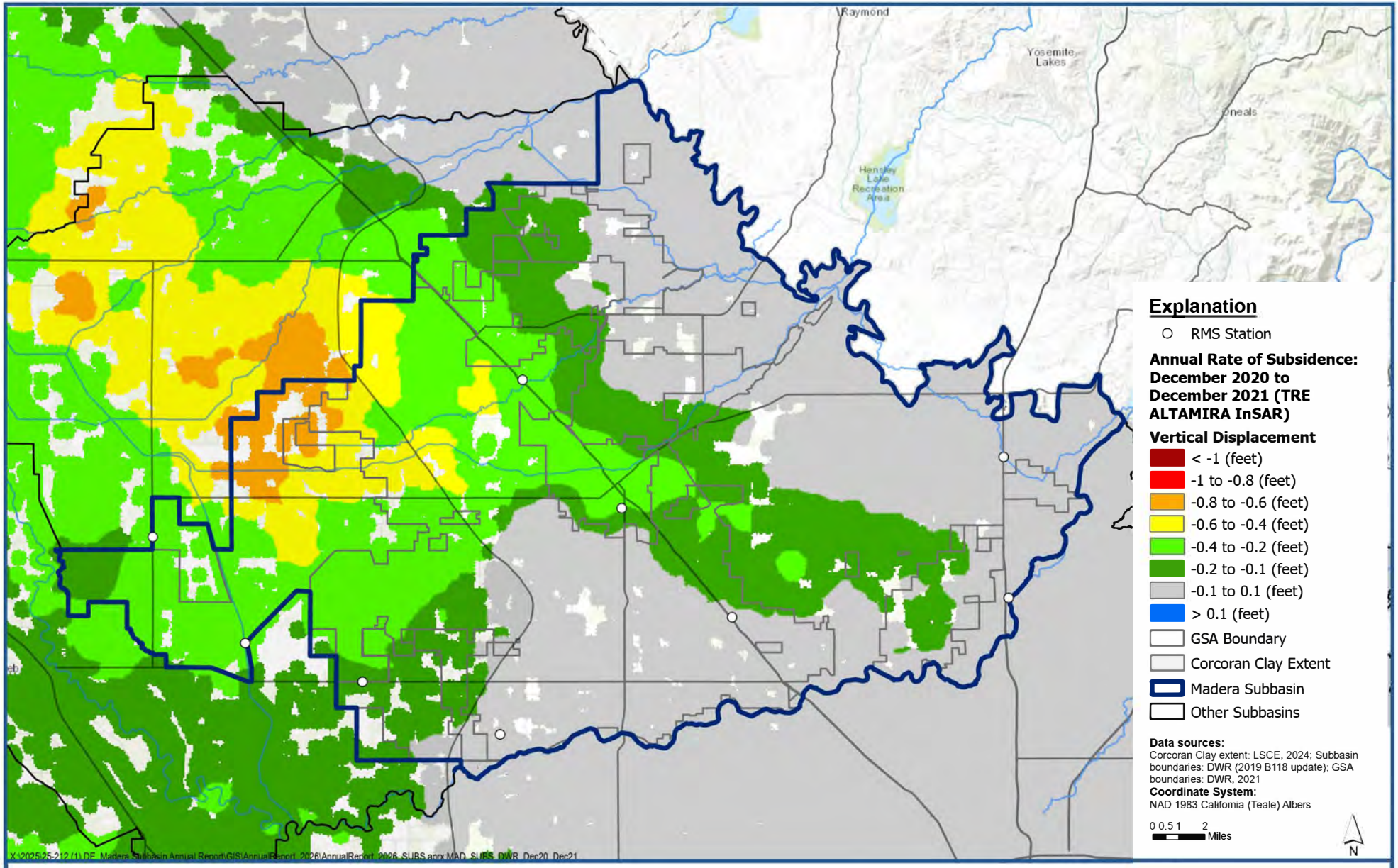
Annual Rate of Subsidence: December 2019 to December 2020 (TRE ALTAMIRA InSAR)

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-6



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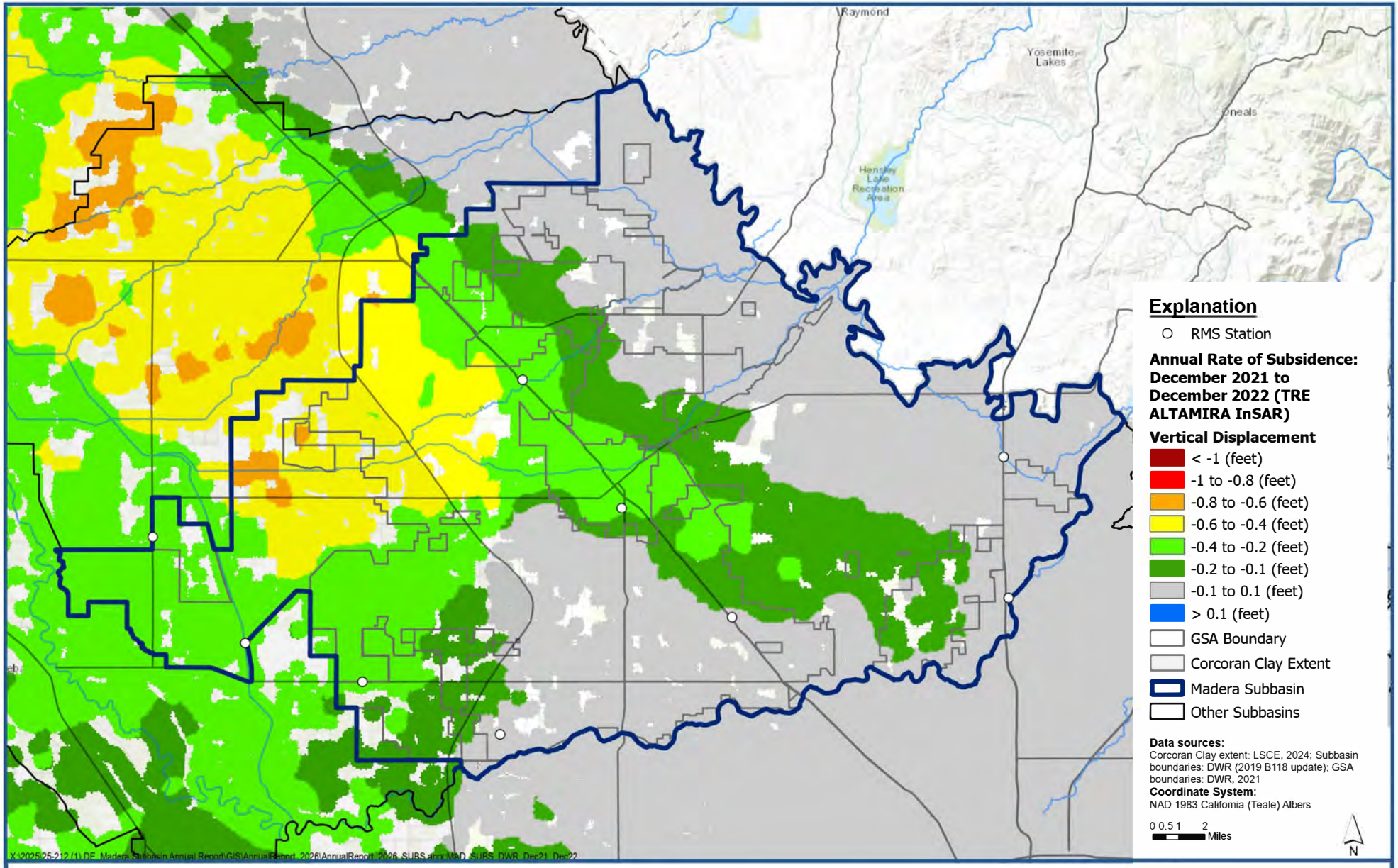
Annual Rate of Subsidence: December 2020 to December 2021 (TRE ALTAMIRA InSAR)

Figure D-7

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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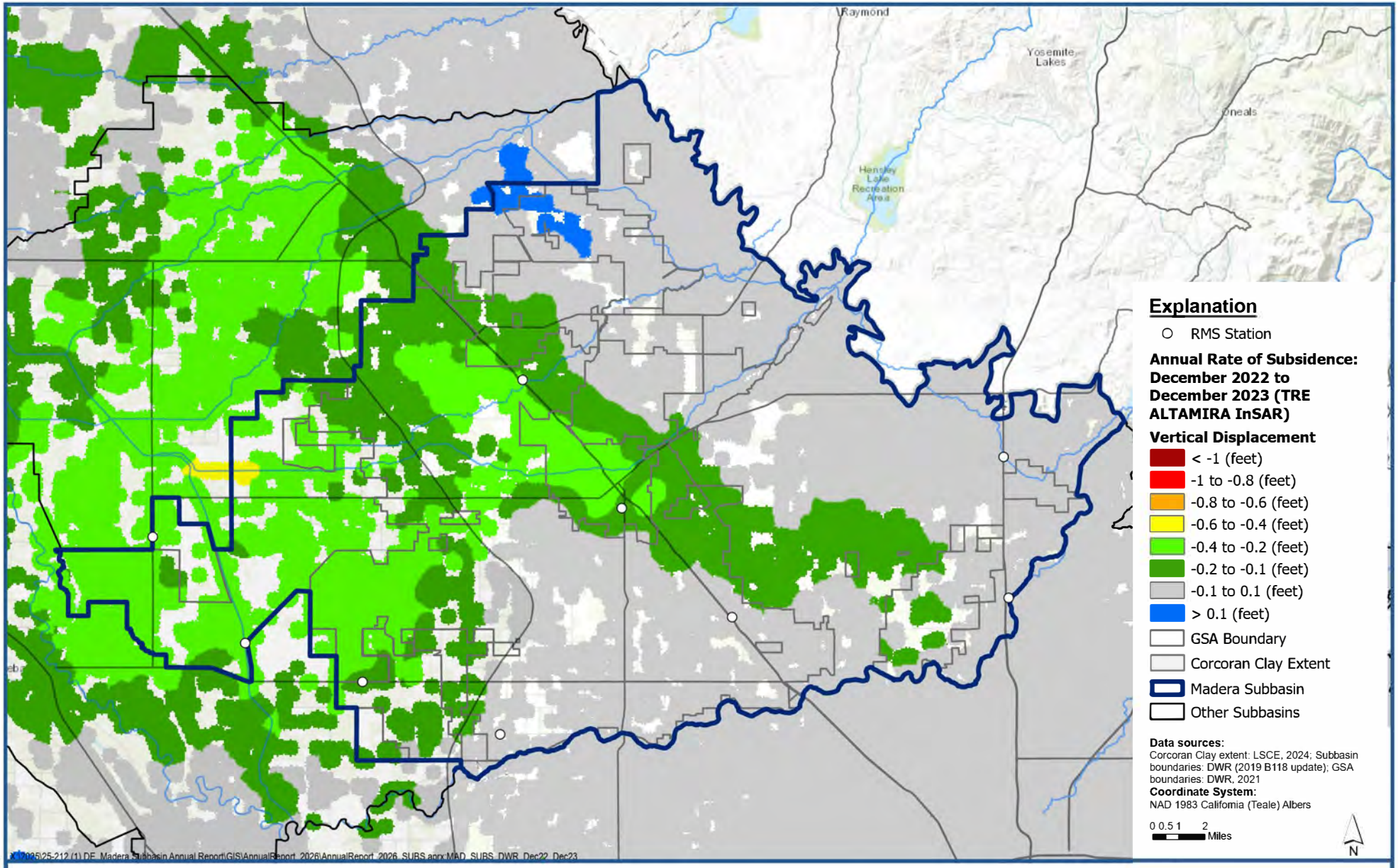
Annual Rate of Subsidence: December 2021 to December 2022 (TRE ALTAMIRA InSAR)

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-8



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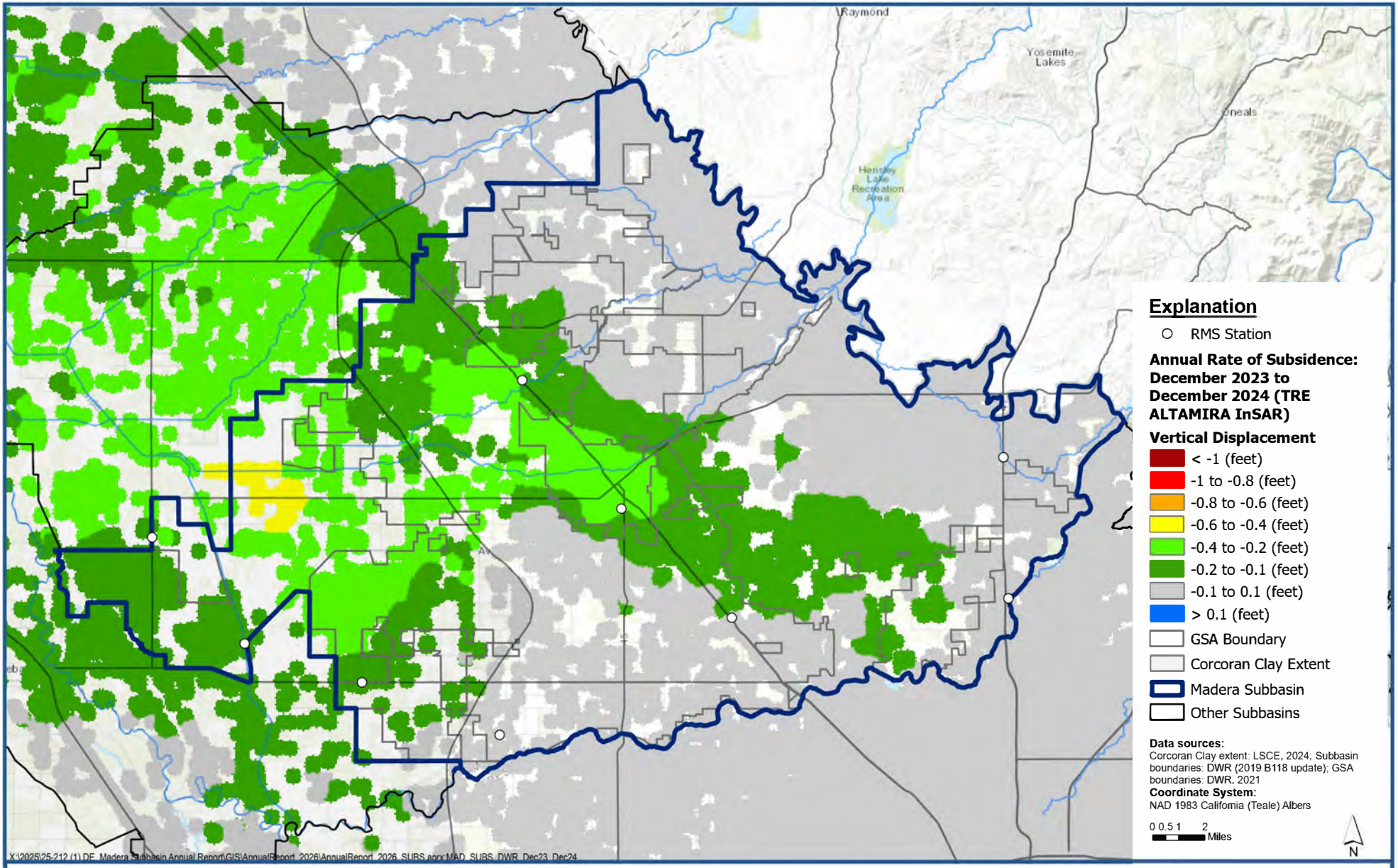
Luhdorff & Scalmanini Consulting Engineers

Annual Rate of Subsidence: December 2022 to December 2023 (TRE ALTAMIRA InSAR)

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-9



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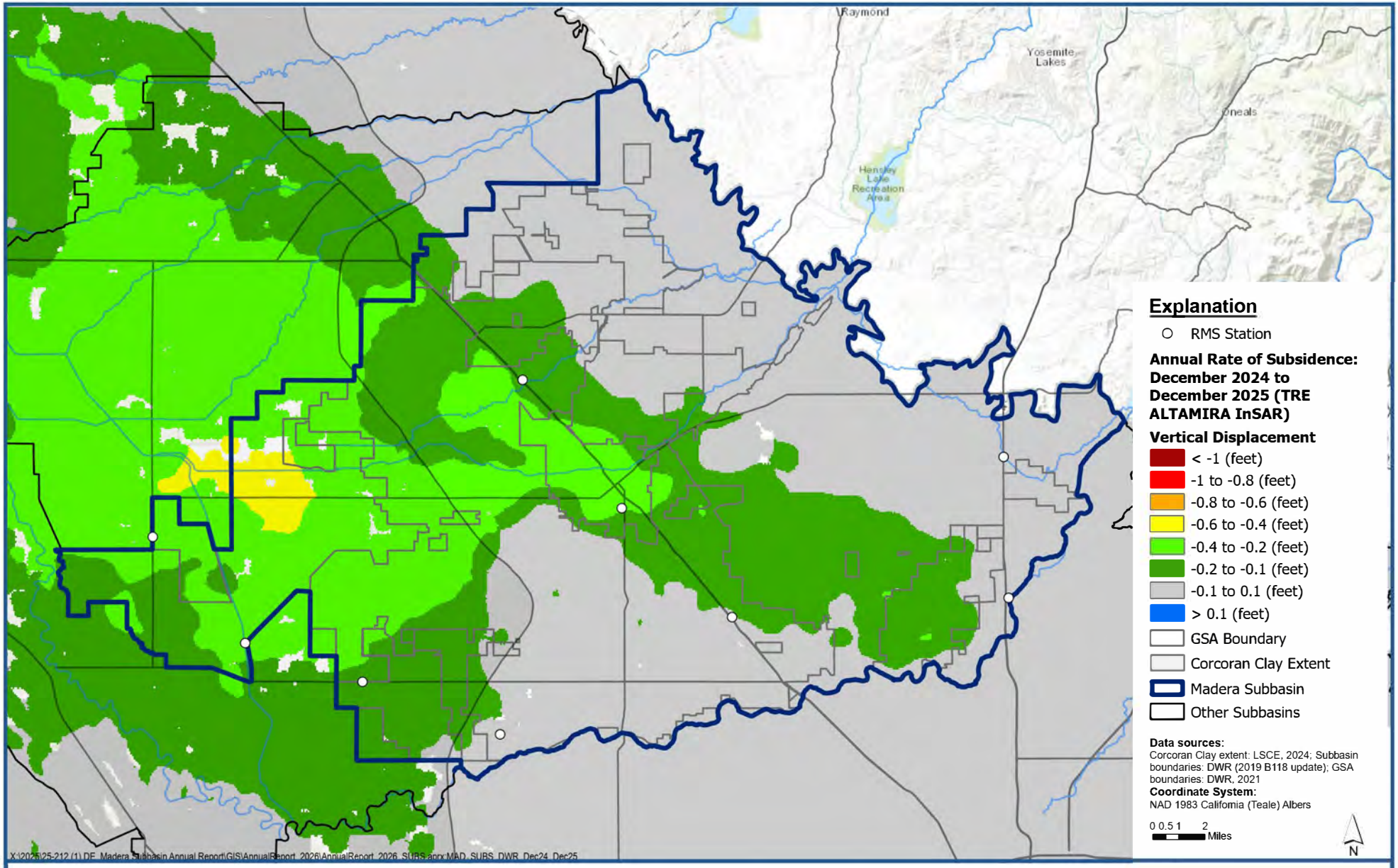
Annual Rate of Subsidence: December 2023 to December 2024 (TRE ALTAMIRA InSAR)

Figure D-10

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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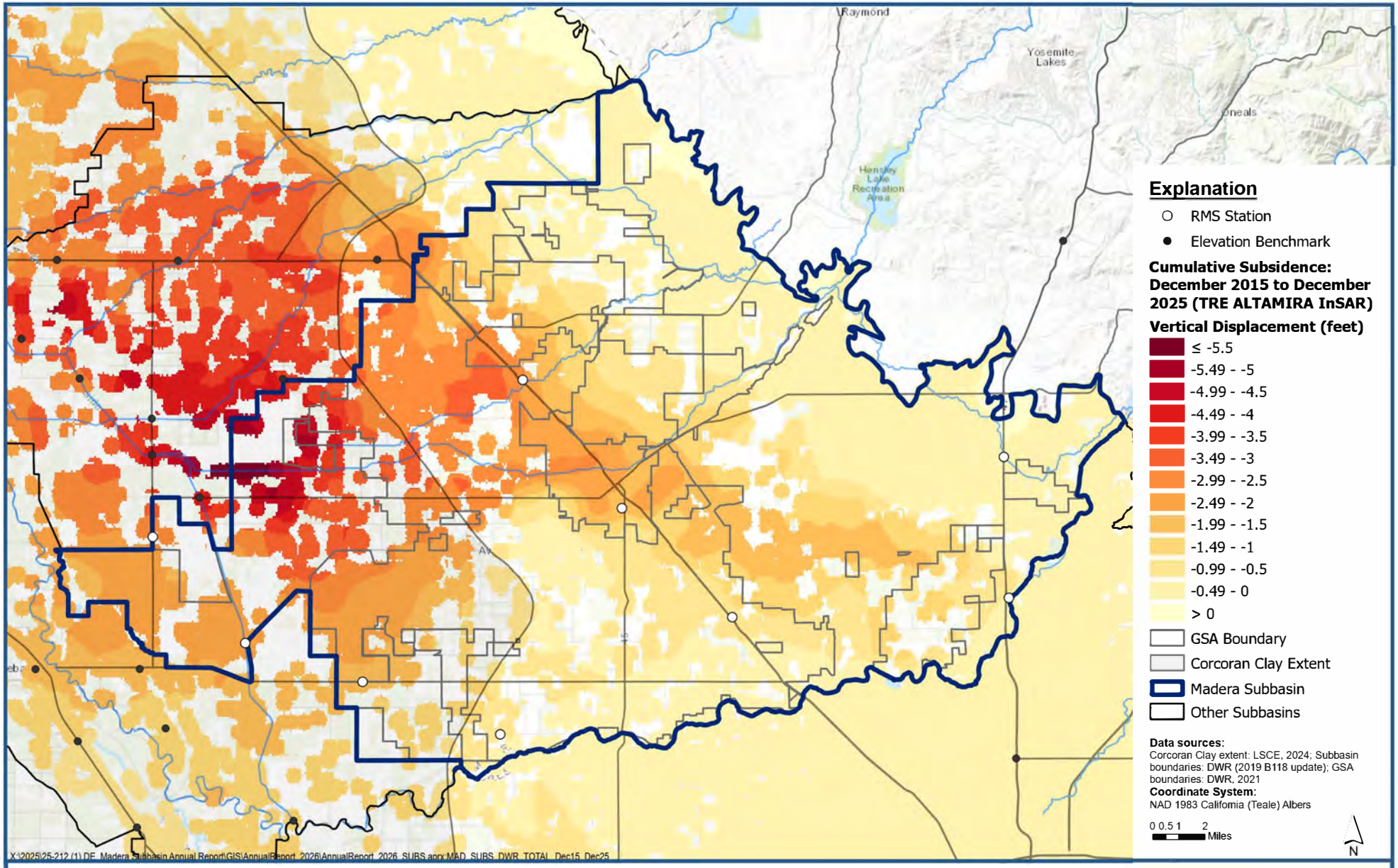
Annual Rate of Subsidence: December 2024 to December 2025 (TRE ALTAMIRA InSAR)

Figure D-11

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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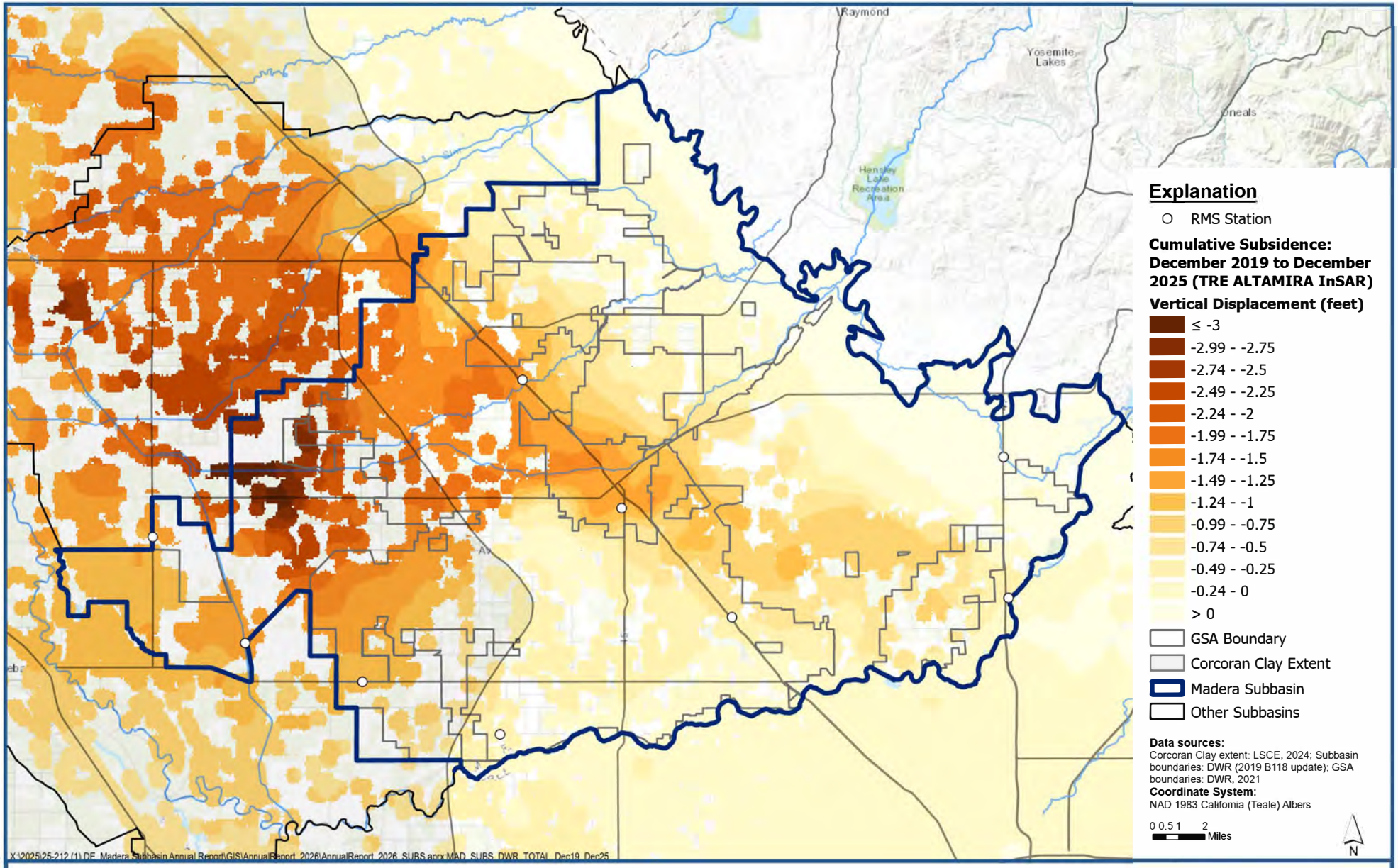
Total Subsidence since December 2015 through December 2025 (TRE ALTAMIRA InSAR)

Figure D-12

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



DAVIDS ENGINEERING, INC

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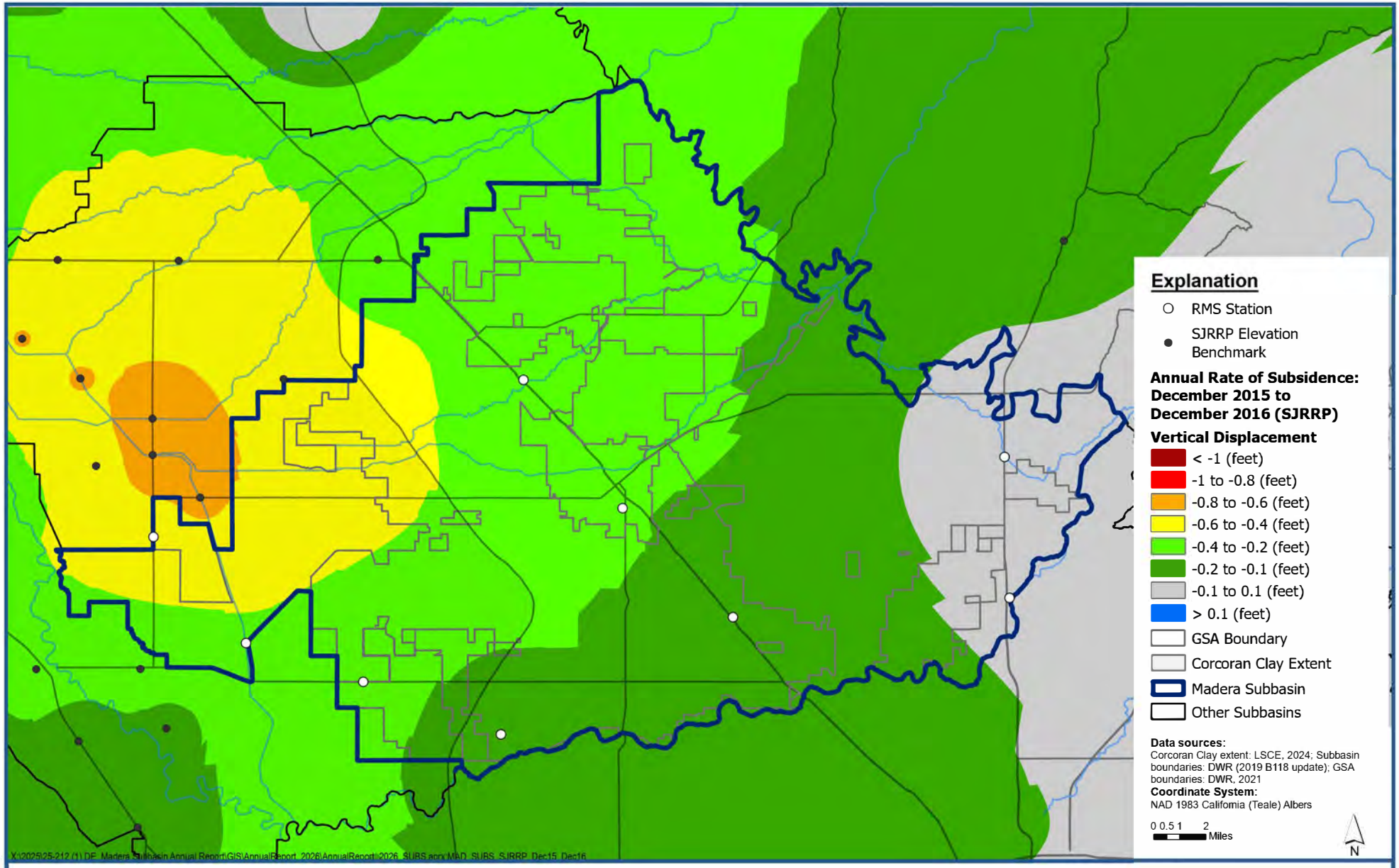
Total Subsidence since December 2019 through December 2025 (TRE ALTAMIRA InSAR)

Figure D-13

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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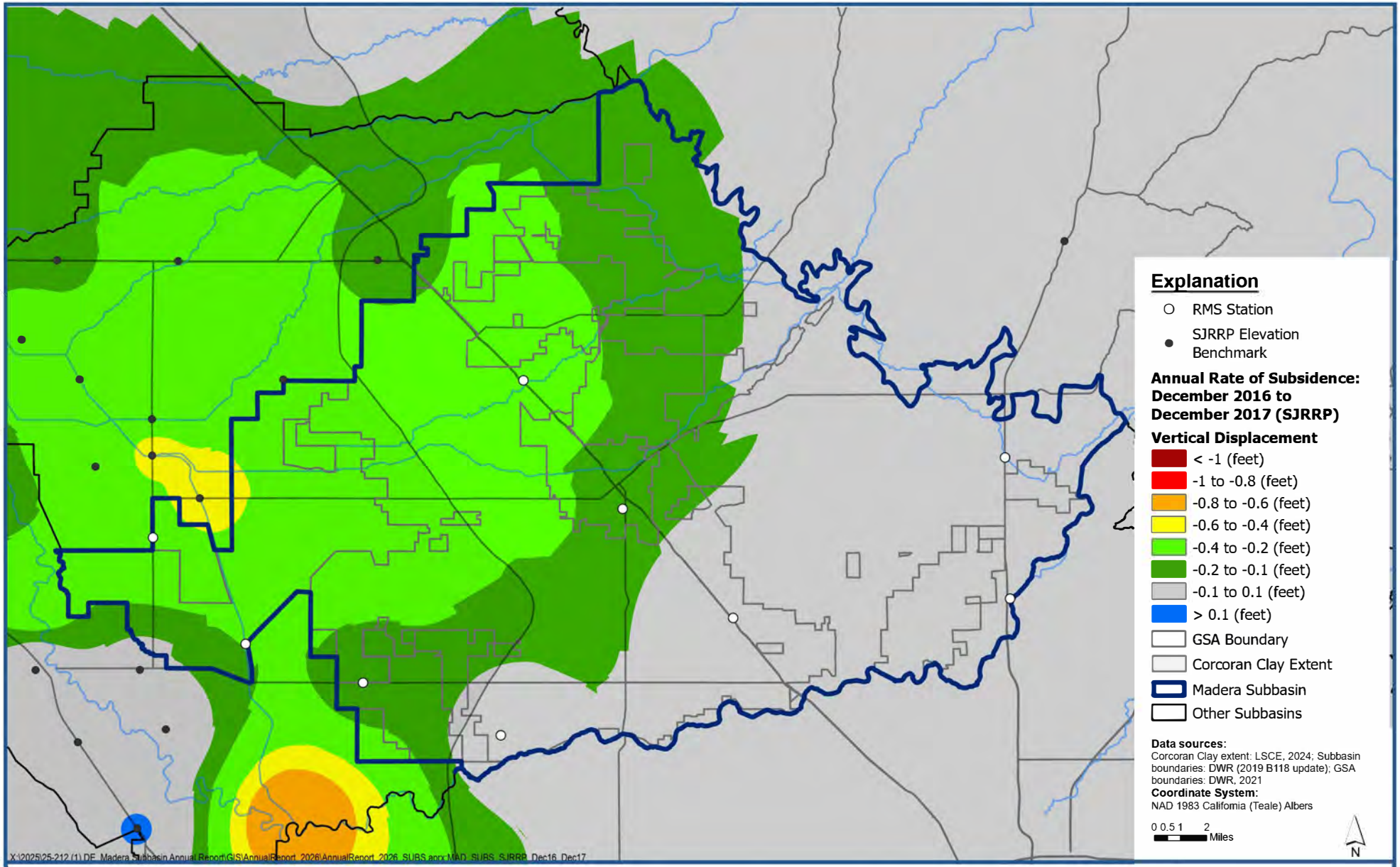
Annual Rate of Subsidence: December 2015 to December 2016 (SJRRP Elevation Benchmark)

Figure D-14

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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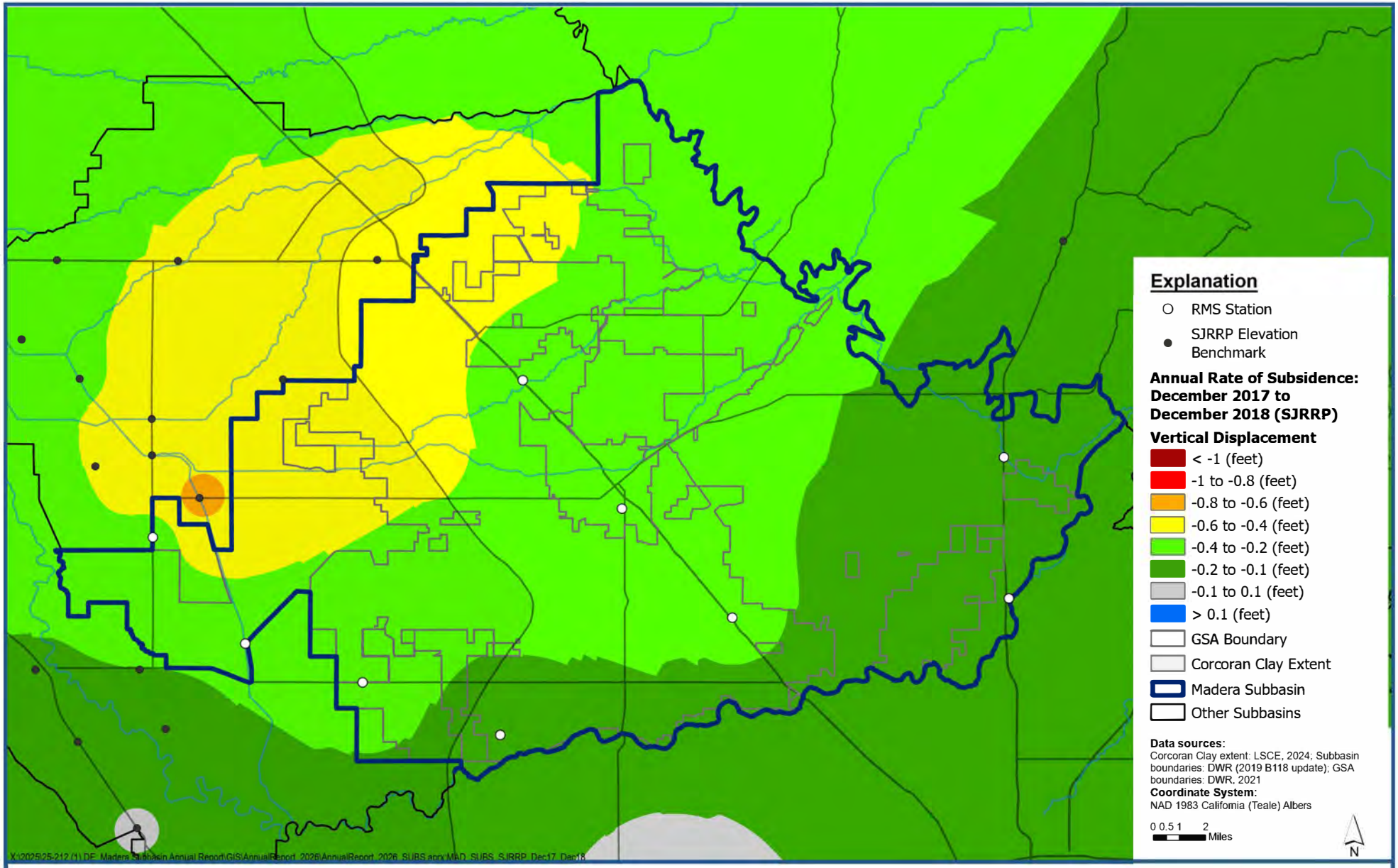
Annual Rate of Subsidence: December 2016 to December 2017 (SJRRP Elevation Benchmark)

Figure D-15

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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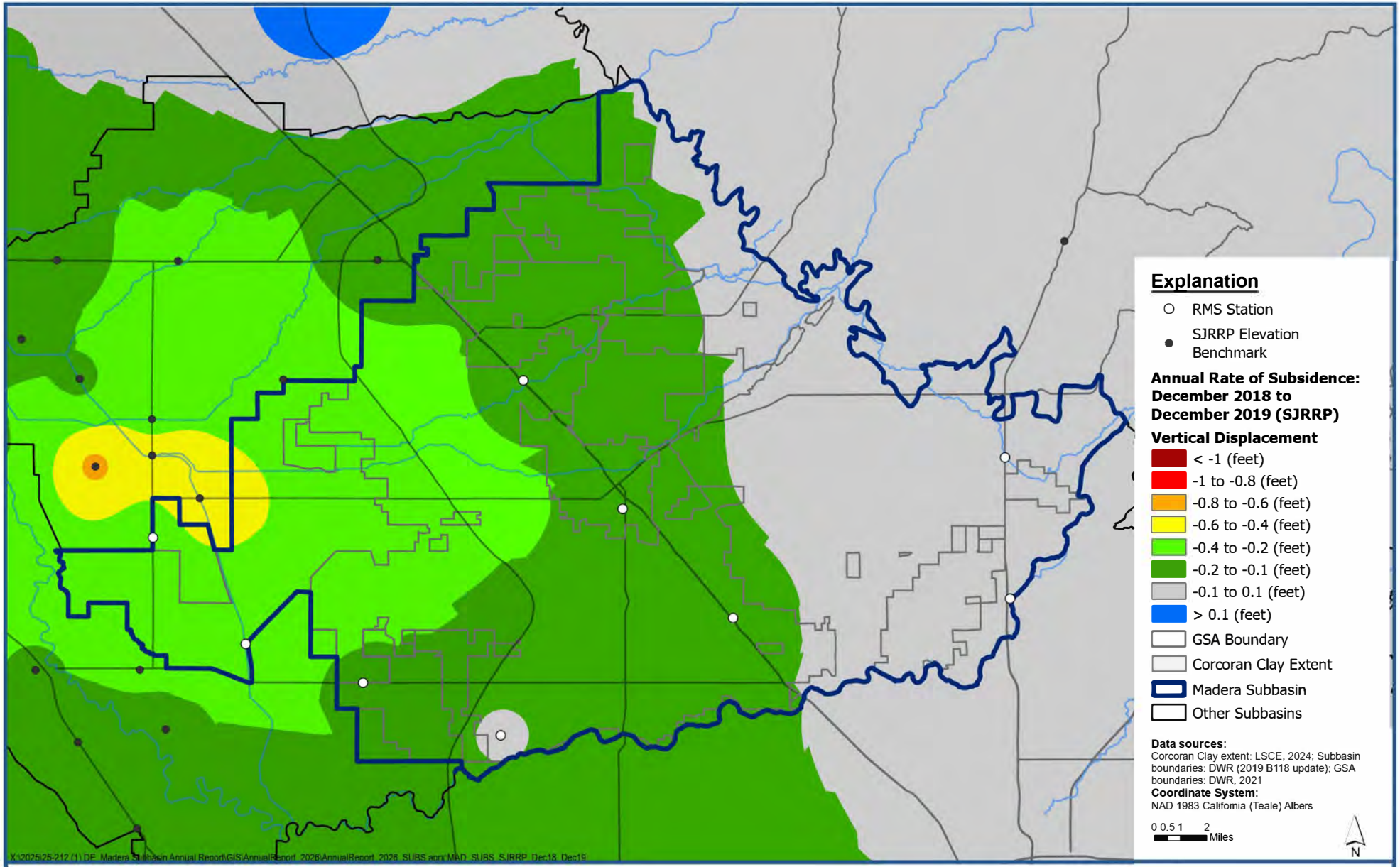
Annual Rate of Subsidence: December 2017 to December 2018 (SJRRP Elevation Benchmark)

Figure D-16

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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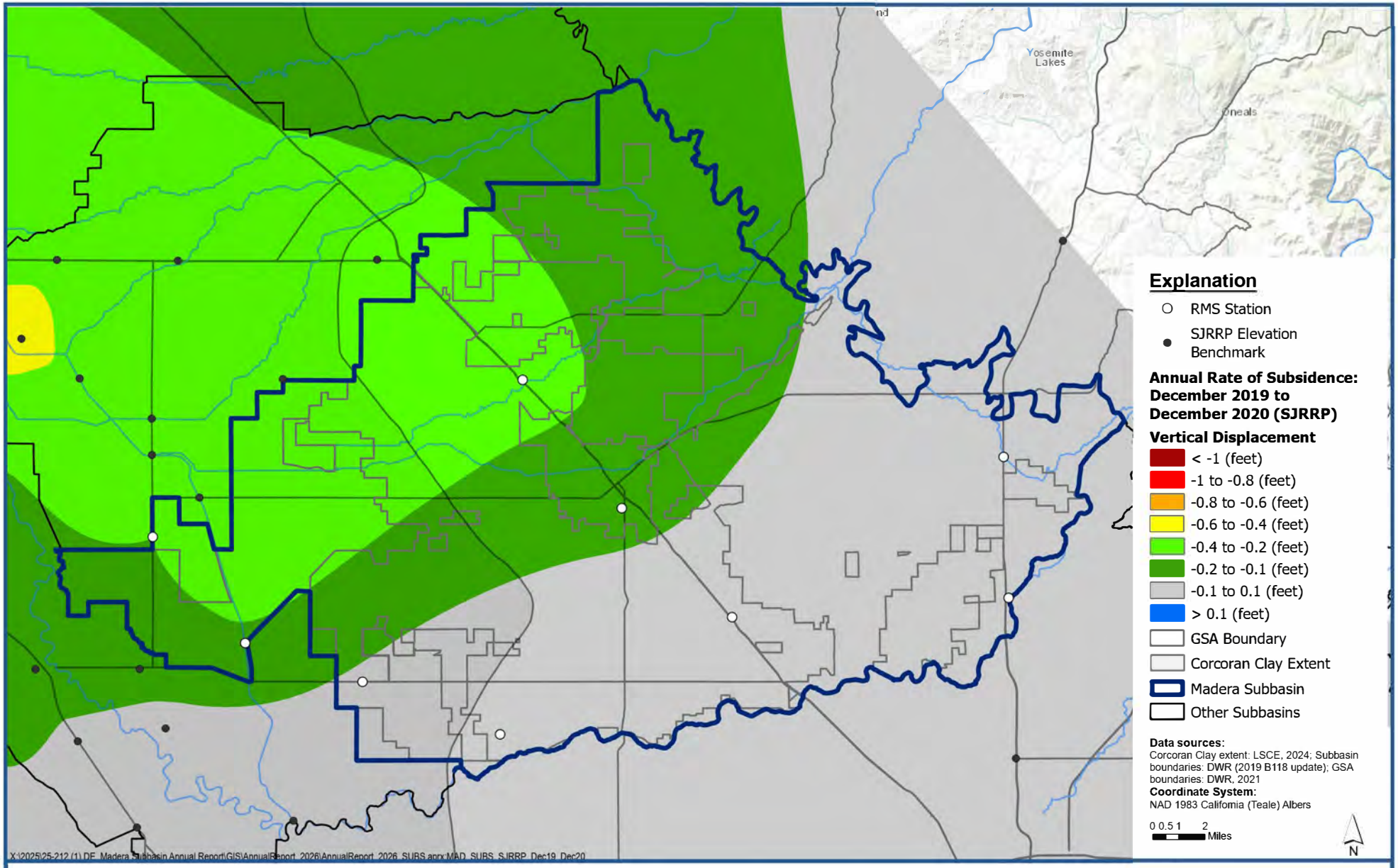
Annual Rate of Subsidence: December 2018 to December 2019 (SJRRP Elevation Benchmark)

Figure D-17

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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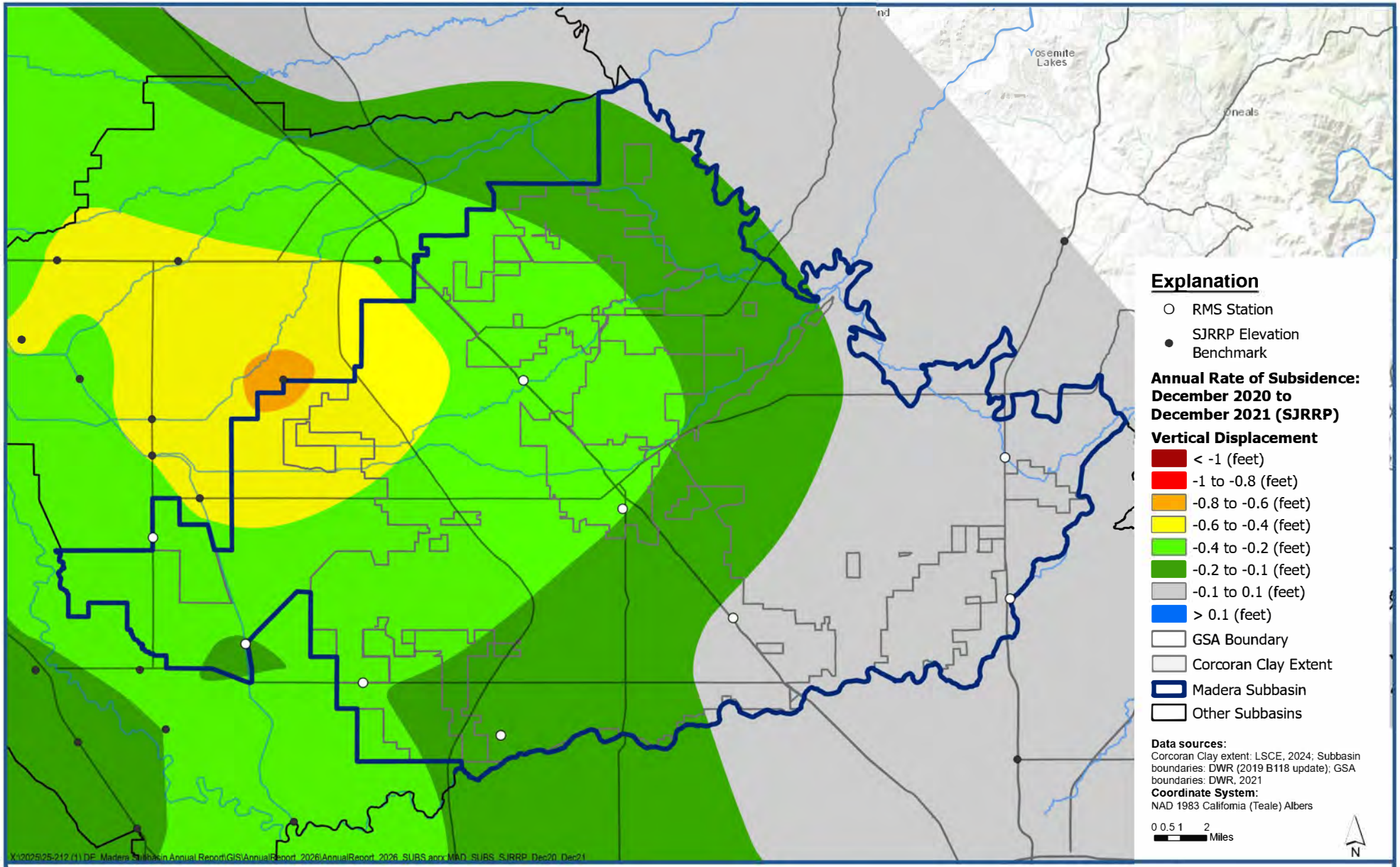
Annual Rate of Subsidence: December 2019 to December 2020 (SJRRP Elevation Benchmark)

Figure D-18

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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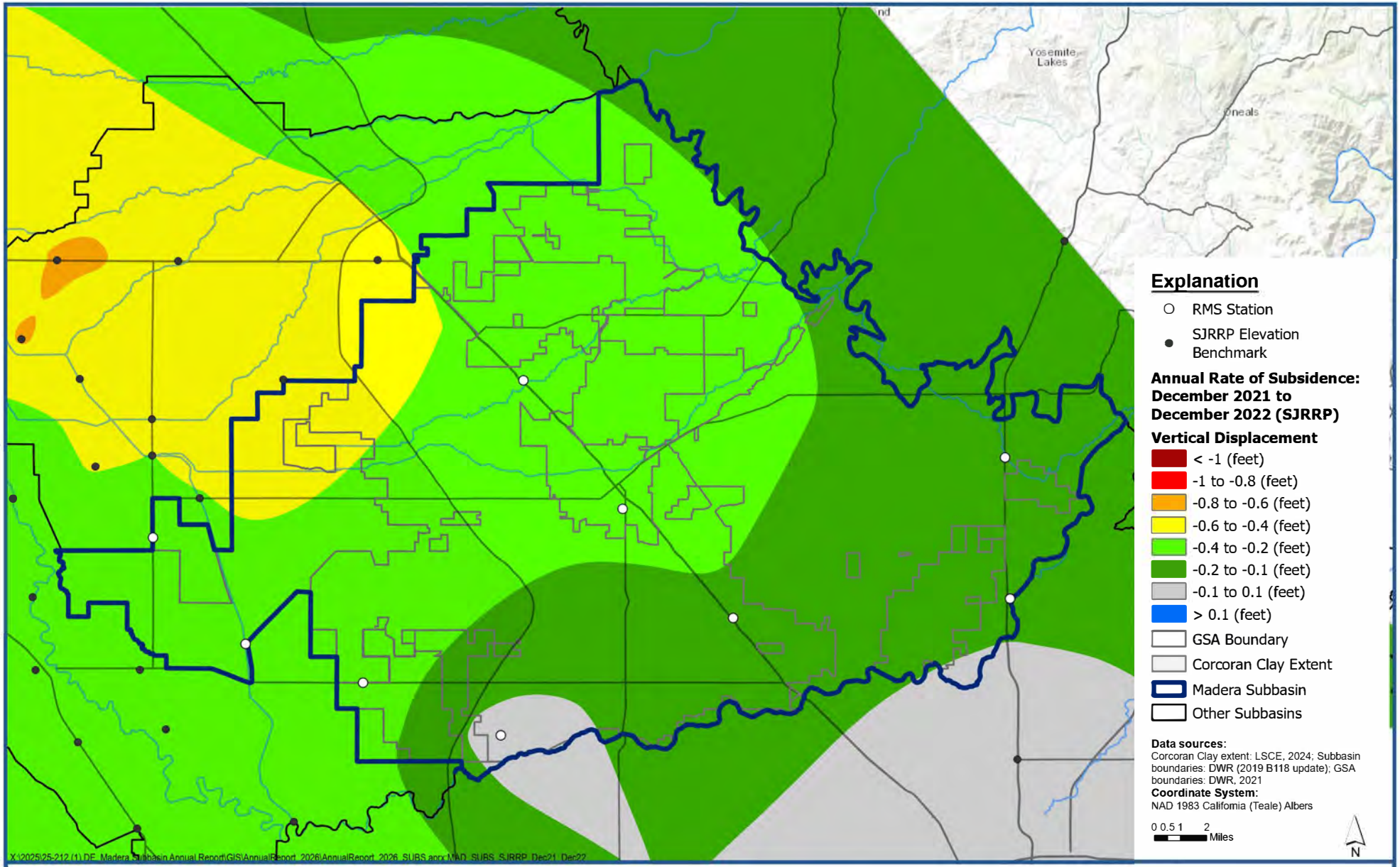
Annual Rate of Subsidence: December 2020 to December 2021 (SJRRP Elevation Benchmark)

Figure D-19

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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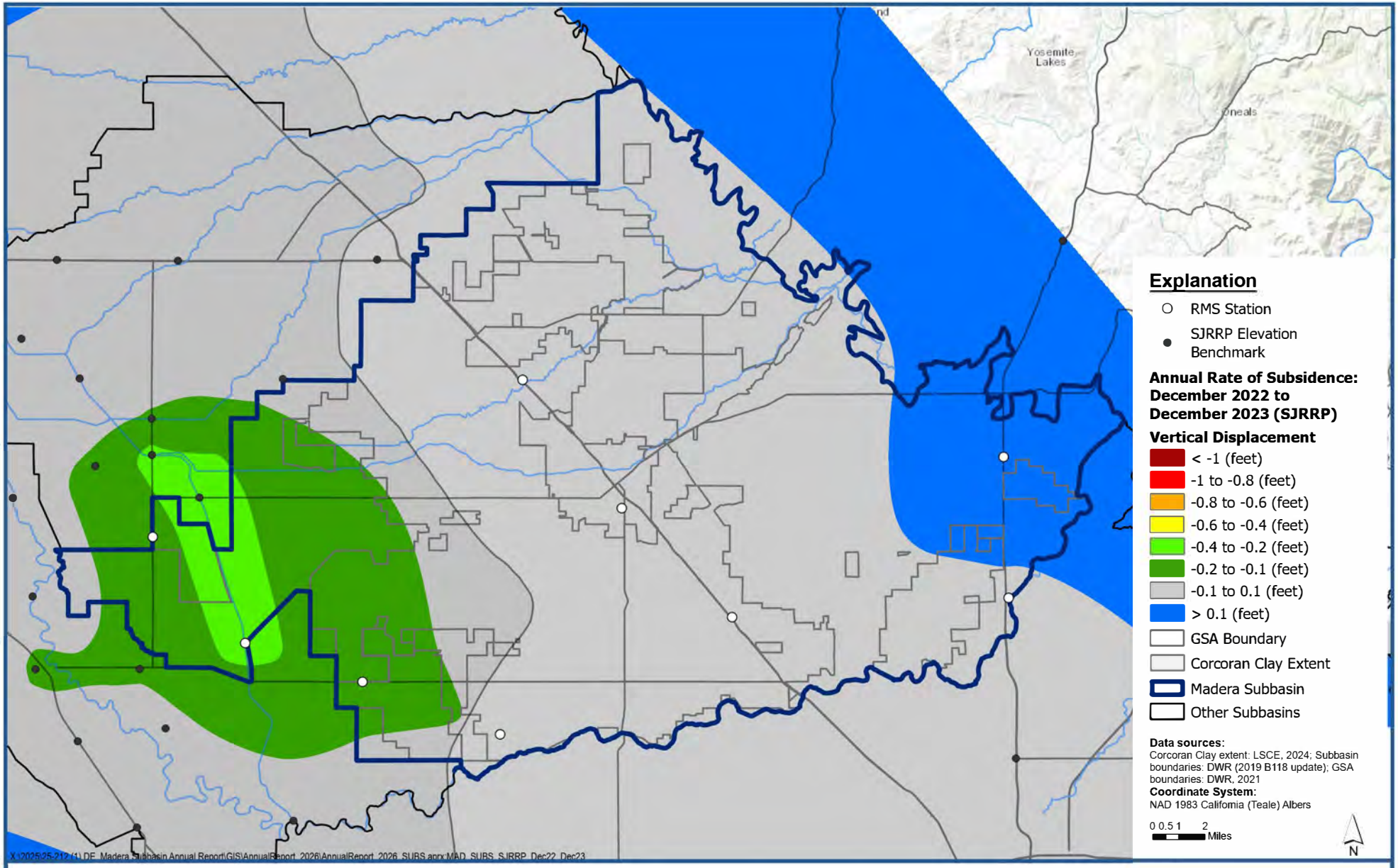
Annual Rate of Subsidence: December 2021 to December 2022 (SJRRP Elevation Benchmark)

Figure D-20

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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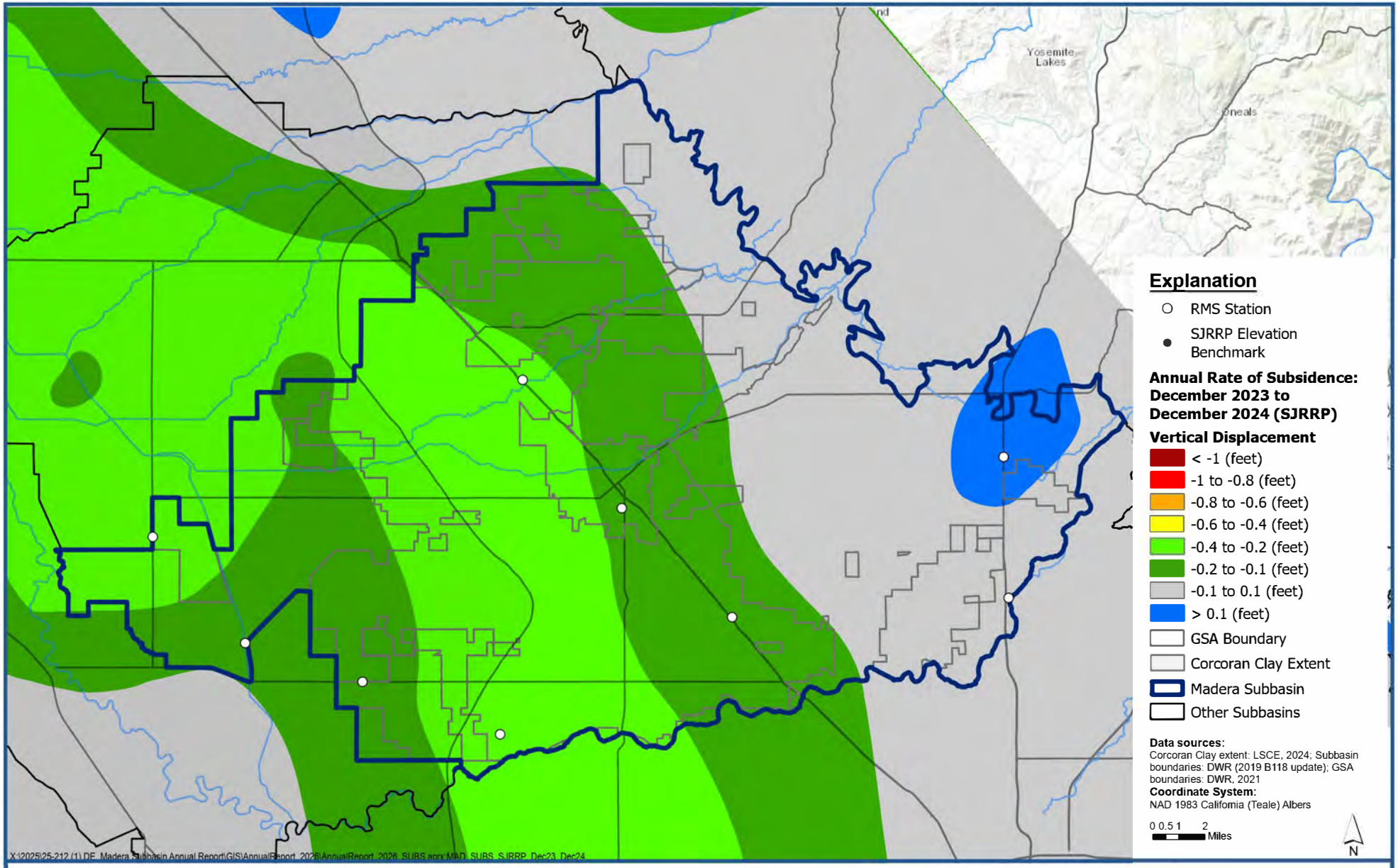
Annual Rate of Subsidence: December 2022 to December 2023 (SJRRP Elevation Benchmark)

Figure D-21

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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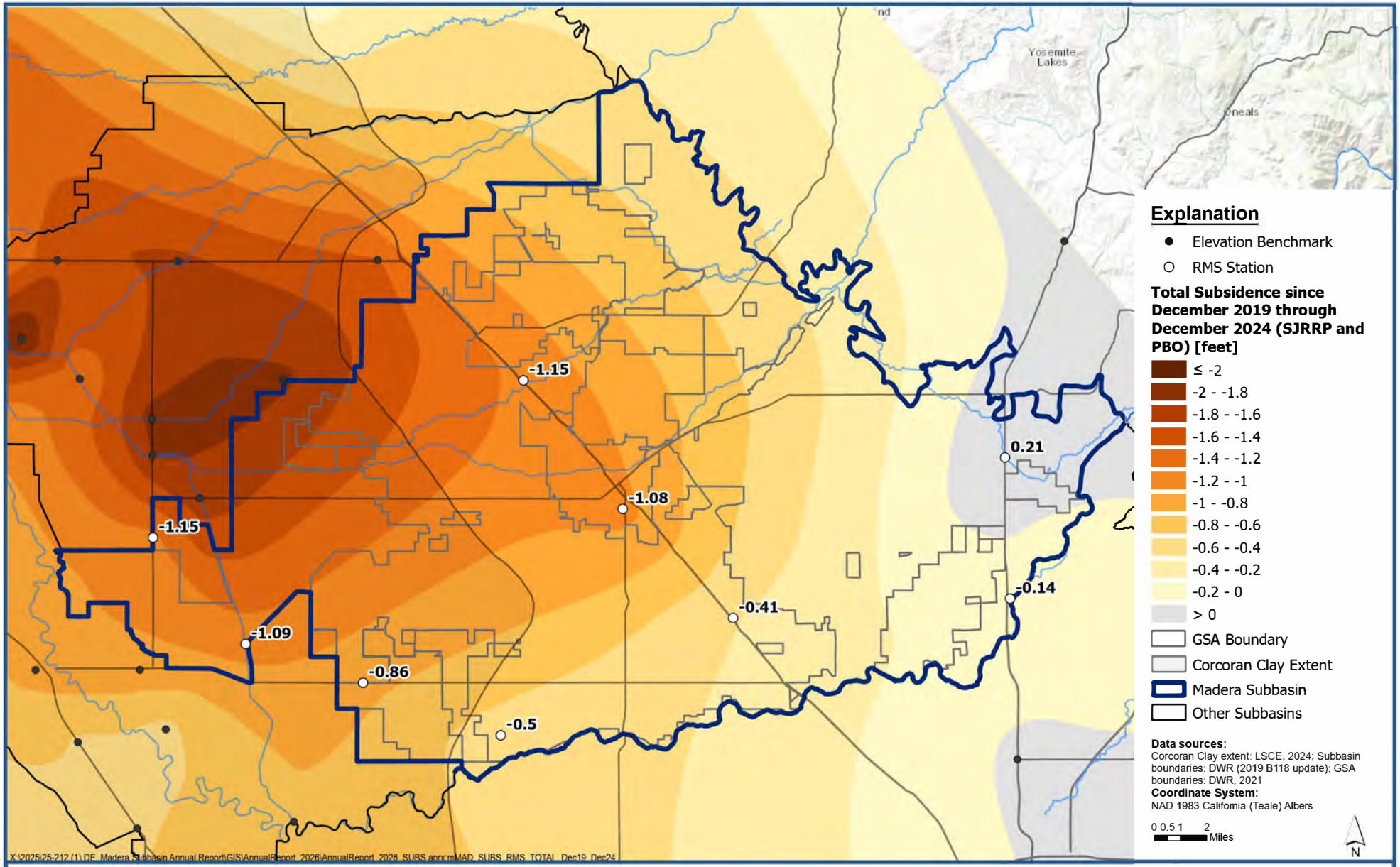
Annual Rate of Subsidence: December 2023 to December 2024 (SJRRP Elevation Benchmark)

Figure D-22

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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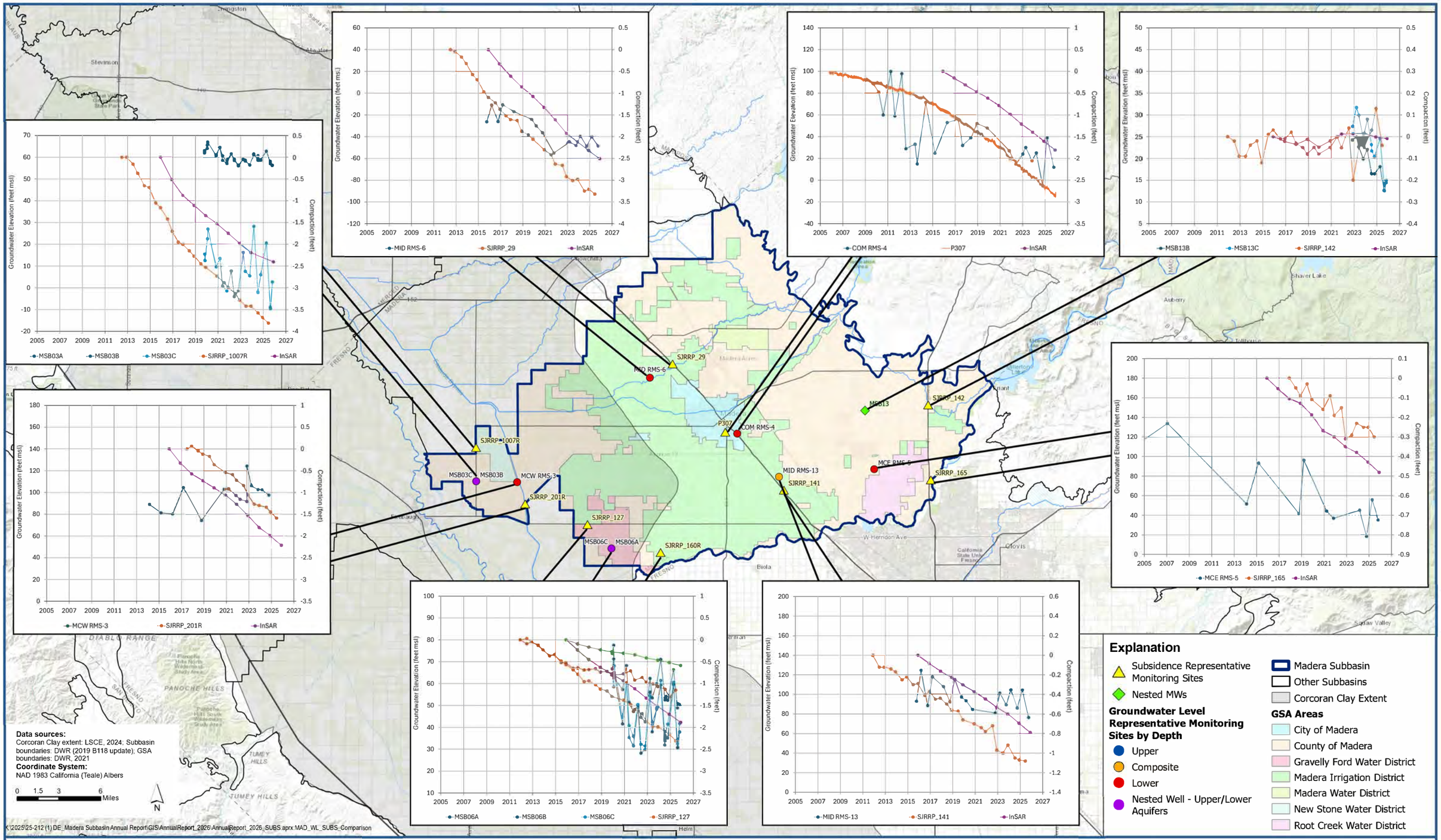
Total Subsidence since December 2019 through December 2024 (SJRRP Elevation Benchmarks & PBO Continuous GPS Station)

Figure D-23

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



Data sources:
Corcoran Clay extent: LSCE, 2024; Subbasin boundaries: DWR (2019 B118 update); GSA boundaries: DWR, 2021
Coordinate System:
NAD 1983 California (Teale) Albers

0 1.5 3 6 Miles

N

X:\2025\25-212 (1) DE_Madera Subbasin Annual Report\GIS\AnnualReport_2026\AnnualReport_2026_SUBS.aprx:MAD_WL_SUBS_Comparison

Explanation

- Subsidence Representative Monitoring Sites
- Nested MWs

Groundwater Level Representative Monitoring Sites by Depth

- Upper
- Composite
- Lower
- Nested Well - Upper/Lower Aquifers

- Madera Subbasin
- Other Subbasins
- Corcoran Clay Extent

GSA Areas

- City of Madera
- County of Madera
- Gravelly Ford Water District
- Madera Irrigation District
- Madera Water District
- New Stone Water District
- Root Creek Water District

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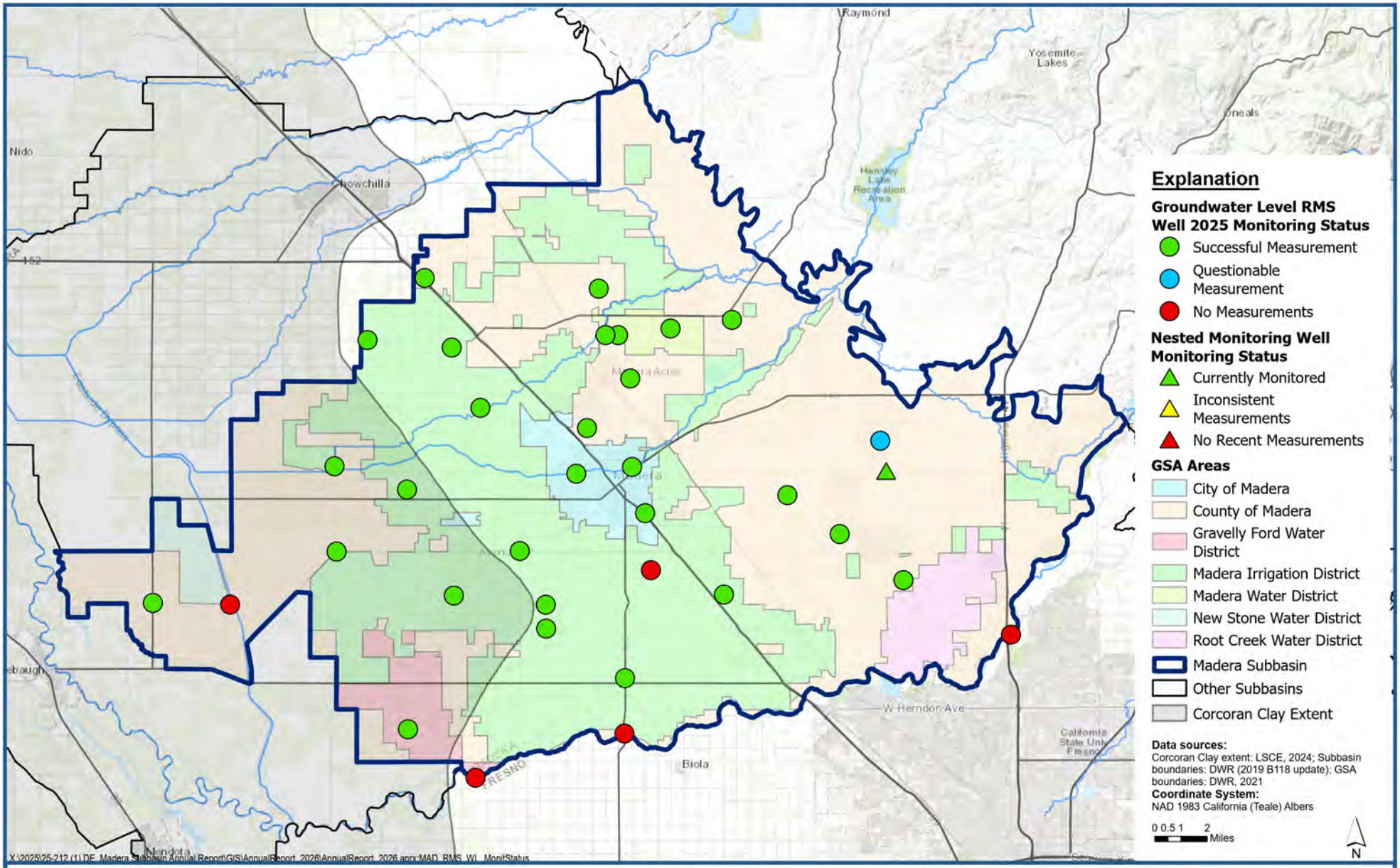
Comparison of Water Levels and Compaction at Land Subsidence RMS Stations

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure D-24

Appendix E. Status of Monitoring Efforts for RMS Wells in Madera Subbasin.



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Monitoring Status of Groundwater Level RMS Network

Figure E-1

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Appendix E. Table 1 - Status of Monitoring Efforts for Water Level RMS Wells in Madera Subbasin

Subbasin	GSA	RMS ID	Fall 2025 Monitoring Status	Most Recent Successful WL Msmt	Most Recent Successful WL Msmt (Season)
Madera	City of Madera	COM RMS-1	Currently Monitored	10/24/2025	Fall 2025
Madera	City of Madera	COM RMS-2	Currently Monitored	10/30/2025	Fall 2025
Madera	City of Madera	COM RMS-4	Currently Monitored	10/23/2025	Fall 2025
Madera	County of Madera	MCE RMS-2	Q9 - Acoustical sounder	4/15/2025	Spring 2025
Madera	County of Madera	MCE RMS-3	Currently Monitored	10/31/2025	Fall 2025
Madera	County of Madera	MCE RMS-5	Currently Monitored	10/31/2025	Fall 2025
Madera	County of Madera	MCE RMS-6	N7 - Special/Other	7/22/2025	Summer 2025
Madera	County of Madera	MCE RMS-9	N9 - Temporarily inaccessible	12/6/2019	Winter 2019
Madera	County of Madera	MCW RMS-3	N4 - Can't get tape in casing	10/16/2024	Fall 2024
Madera	County of Madera	MCW RMS-5	No 2025 measurements reported	5/22/2024	Summer 2024
Madera	County of Madera	MSB03B	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB03C	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB04B	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB05A	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB05B	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB06A	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB06C	Currently Monitored	10/28/2025	Fall 2025
Madera	Madera Irrigation District	MSB09C	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB10C	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB11C	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB12	Currently Monitored	10/27/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-2	Currently Monitored	10/7/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-3	Currently Monitored	10/7/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-4	Currently Monitored	10/7/2025	Fall 2025

Appendix E. Table 1 - Status of Monitoring Efforts for Water Level RMS Wells in Madera Subbasin

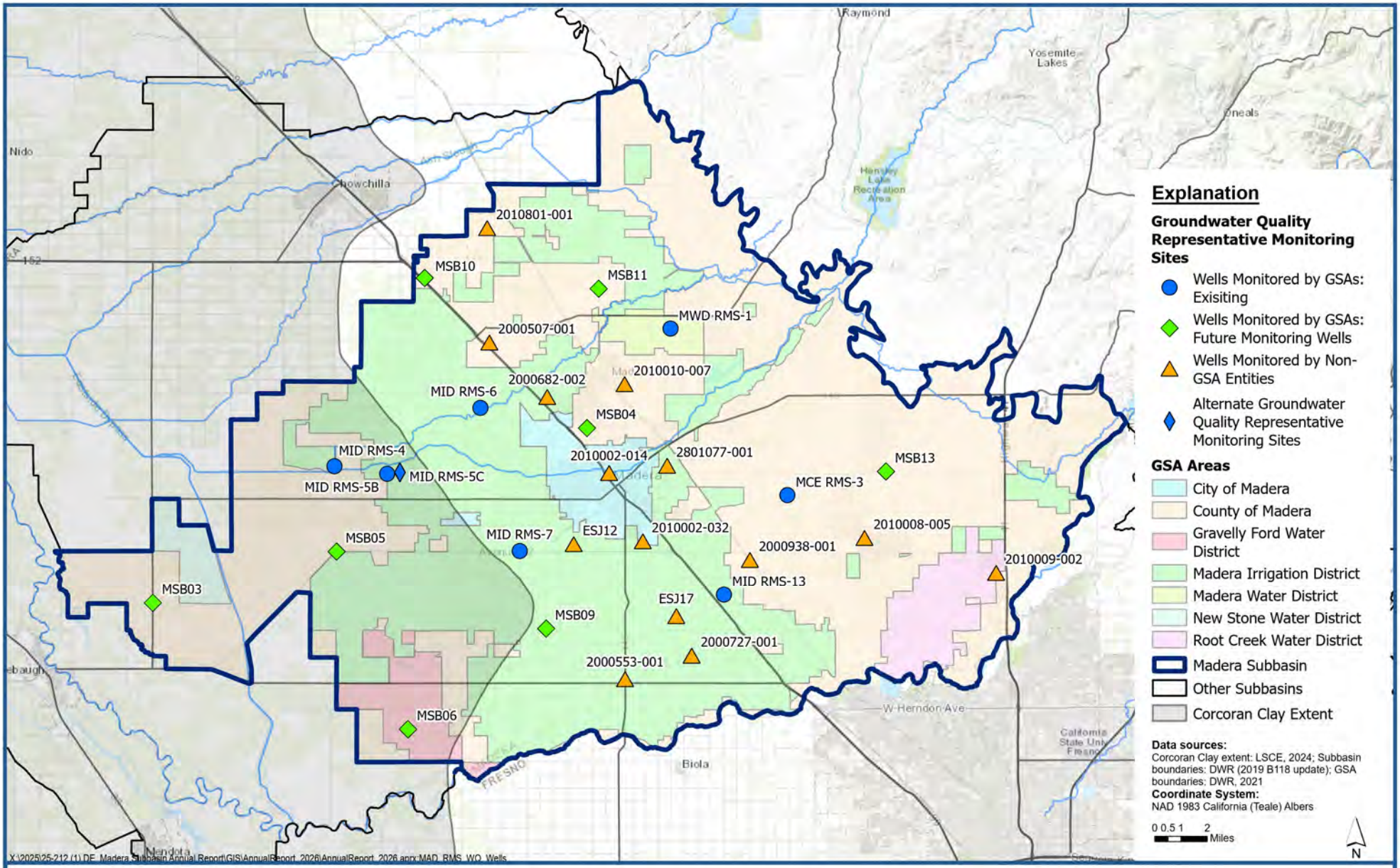
Subbasin	GSA	RMS ID	Fall 2025 Monitoring Status	Most Recent Successful WL Msmt	Most Recent Successful WL Msmt (Season)
Madera	Madera Irrigation District	MID RMS-5	Currently Monitored	10/7/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-6	Currently Monitored	10/14/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-7	Currently Monitored	10/7/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-10	Currently Monitored	10/7/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-11	Currently Monitored	10/14/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-12	N6 - Well has been destroyed	10/19/2023	Fall 2023
Madera	Madera Irrigation District	MID RMS-13	Currently Monitored	10/9/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-15	Currently Monitored	10/30/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-16	Currently Monitored	10/13/2025	Fall 2025
Madera	Madera Irrigation District	MID RMS-17	N9 - Temporarily inaccessible	12/10/2019	Winter 2019
Madera	Madera Water District	MWD RMS-1	Currently Monitored	11/6/2025	Fall 2025
Madera	Madera Water District	MWD RMS-2	Currently Monitored	11/6/2025	Fall 2025

Appendix E. Table 2 - Status of Monitoring Efforts for Nested Monitoring Wells in Madera Subbasin

Subbasin	GSA	RMS ID	Fall 2025 Monitoring Status	Most Recent Successful WL Msmt	Most Recent Successful WL Msmt (Season)
Madera	County of Madera	MSB03A	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB03B	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB03C	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB04A	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB04B	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB04C	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB05A	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB05B	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB05C	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB06A	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB06B	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB06C	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB09A	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB09B	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB09C	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB10A	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB10B	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB10C	Currently Monitored	10/28/2025	Fall 2025
Madera	County of Madera	MSB11A	NM - Well is Dry	3/8/2022	Spring 2022
Madera	County of Madera	MSB11B	Well has been abandoned	n/a	n/a
Madera	County of Madera	MSB11C	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB12	Currently Monitored	10/27/2025	Fall 2025
Madera	County of Madera	MSB13A	NM - Well is Dry	n/a	n/a
Madera	County of Madera	MSB13B	Currently Monitored	10/31/2025	Fall 2025

Appendix E. Table 2 - Status of Monitoring Efforts for Nested Monitoring Wells in Madera Subbasin

Subbasin	GSA	RMS ID	Fall 2025 Monitoring Status	Most Recent Successful WL Msmt	Most Recent Successful WL Msmt (Season)
Madera	County of Madera	MSB13C	Currently Monitored	10/31/2025	Fall 2025



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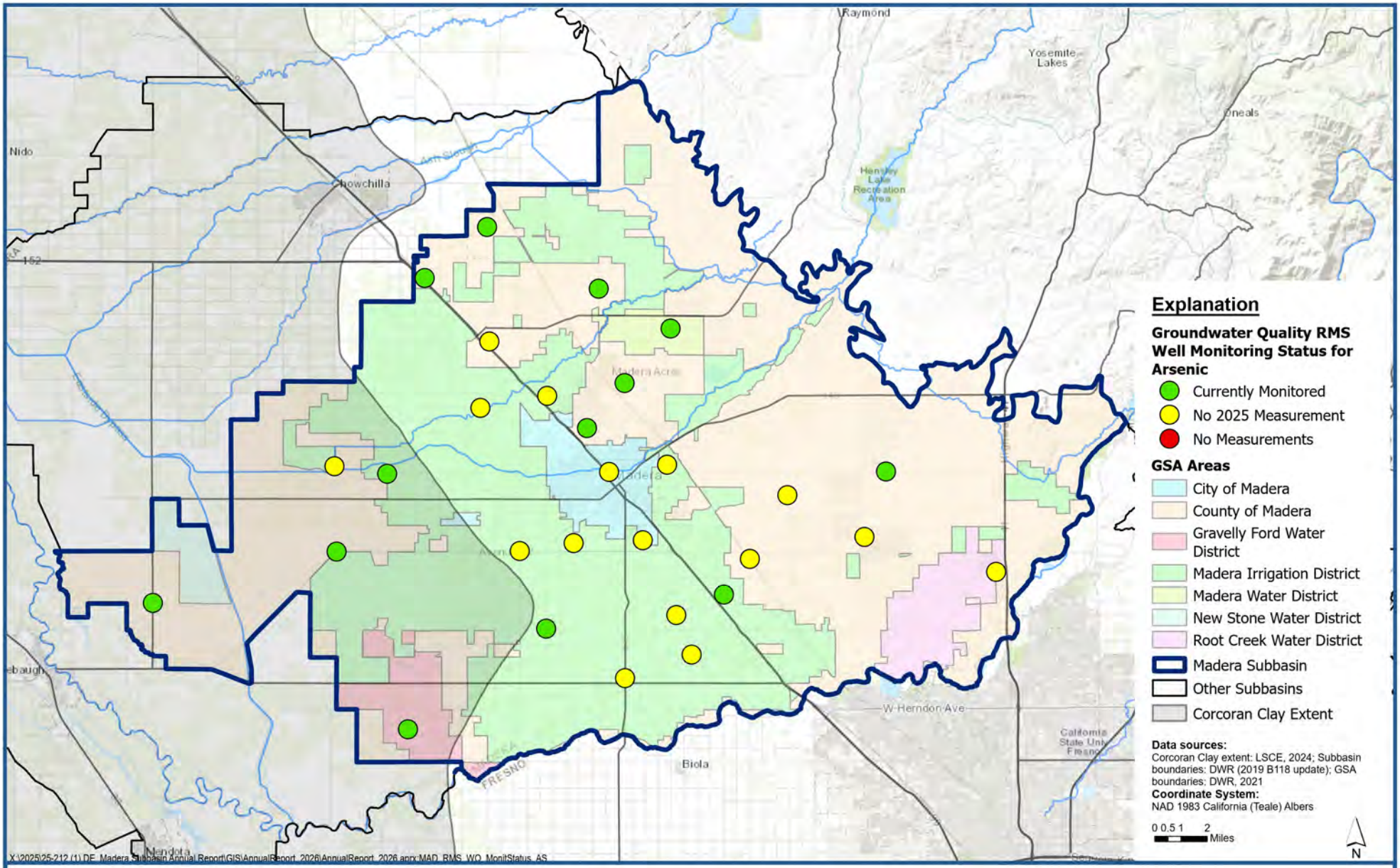
Groundwater Quality Sustainable Indicator Wells

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Figure E-2



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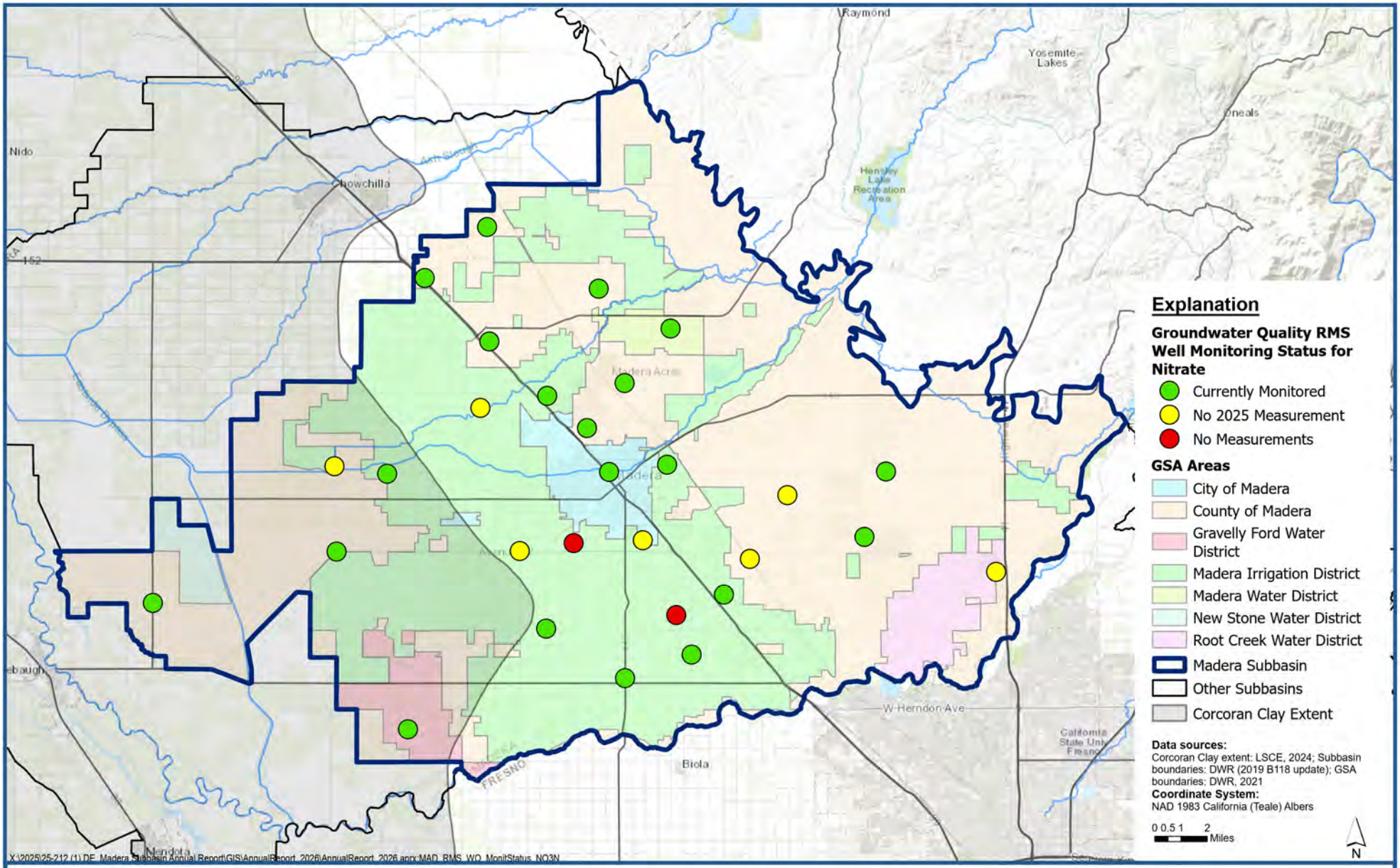
Monitoring Status of Groundwater Quality RMS Network - Arsenic

Figure E-3

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



DAVIDS ENGINEERING, INC

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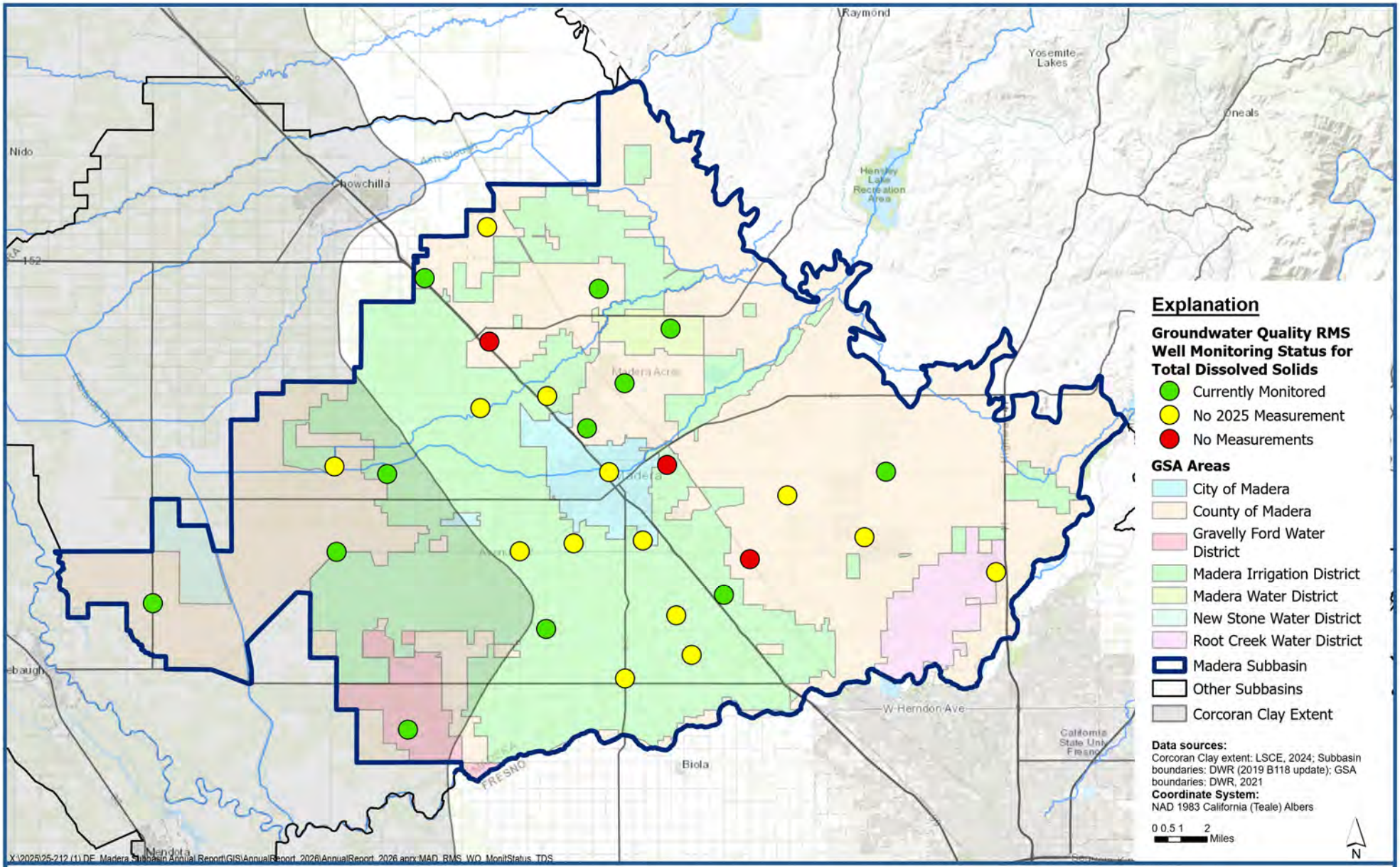
Monitoring Status of Groundwater Quality RMS Network - Nitrate (as N)

Figure E-4

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report



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Luhdorff & Scalmanini Consulting Engineers

Monitoring Status of Groundwater Quality RMS Network - Total Dissolved Solids

Figure E-5

Madera Subbasin
Groundwater Sustainability Plan 2026 Annual Report

Appendix E. Table 3 - Summary of Monitoring Efforts for Water Quality RMS Wells in Madera Subbasin

		Arsenic (ug/L)						Nitrate (as N) (mg/L)						Total Dissolved Solids (mg/L)					
RMS Well ID	Aquifer Designation	First Sample Date	Most Recent Sample Date	Sample Count	Minimum Result	Maximum Result	Average Result	First Sample Date	Most Recent Sample Date	Sample Count	Minimum Result	Maximum Result	Average Result	First Sample Date	Most Recent Sample Date	Sample Count	Minimum Result	Maximum Result	Average Result
Wells Monitored by GSAs																			
MCE RMS-3	Lower	8/18/2021	7/30/2024	5	ND	160.0	62.6	8/18/2021	7/30/2024	4	ND	0.5	0.2	8/18/2021	7/30/2024	4	590	720	640
MID RMS-4	Lower	8/22/2024	8/22/2024	1	ND	ND	ND	8/22/2024	8/22/2024	1	2.0	2.0	2.0	8/22/2024	8/22/2024	1	310	310	310
MID RMS-5B*	Lower	9/11/2025	9/11/2025	1	ND	ND	ND	9/11/2025	9/11/2025	1	4.7	4.7	4.7	9/11/2025	9/11/2025	1	320	320	320
MID RMS-6	Lower	7/12/2022	8/22/2024	2	ND	5.4	3.2	7/12/2022	8/22/2024	2	4.4	5.4	4.9	7/12/2022	8/22/2024	2	270	270	270
MID RMS-7	Lower	7/12/2022	7/25/2024	2	ND	ND	ND	7/12/2022	7/25/2024	2	0.7	0.8	0.7	7/12/2022	7/25/2024	2	190	220	205
MID RMS-13	Composite	9/10/2025	9/10/2025	1	ND	ND	ND	9/10/2025	9/10/2025	1	2.0	2.0	2.0	9/10/2025	9/10/2025	1	210	210	210
MWD RMS-1	Lower	7/18/2019	8/25/2025	5	2.0	3.0	2.8	7/18/2019	8/25/2025	5	1.0	2.8	2.0	7/18/2019	8/25/2025	5	191	230	205
MSB03A	Upper	2/12/2020	8/28/2025	14	2.3	4.7	3.0	6/22/2022	8/28/2025	8	6.2	8.1	7.3	2/12/2020	8/28/2025	16	720	930	825
MSB03B	Upper	2/12/2020	8/28/2025	7	3.9	5.5	4.6	6/15/2021	8/28/2025	5	0.4	0.6	0.4	2/12/2020	8/28/2025	6	210	400	357
MSB03C	Lower	2/12/2020	8/28/2025	7	ND	5.5	4.3	6/15/2021	8/28/2025	5	ND	0.6	0.2	2/12/2020	8/28/2025	6	250	1,400	1,025
MSB04A	Upper	2/13/2020	6/15/2023	5	ND	3.1	2.3	6/15/2021	6/15/2023	3	5.0	6.5	5.8	2/13/2020	6/15/2023	4	200	240	218
MSB04B	Lower	2/13/2020	9/3/2025	7	45.0	82.0	53.1	6/15/2021	9/3/2025	5	ND	0.1	0.1	2/13/2020	9/3/2025	6	360	420	392
MSB04C	Lower	2/13/2020	7/24/2024	6	48.0	60.0	54.0	6/15/2021	7/24/2024	4	0.1	0.1	0.1	2/13/2020	7/24/2024	5	340	400	364
MSB05A	Upper	2/12/2020	8/29/2025	14	1.9	10.0	5.1	6/22/2022	8/29/2025	8	3.2	18.0	10.4	2/12/2020	8/29/2025	16	330	720	565
MSB05B	Lower	2/12/2020	8/29/2025	5	9.0	49.0	29.4	6/22/2022	8/29/2025	4	0.3	2.3	1.0	2/12/2020	8/29/2025	5	230	320	268
MSB05C	Lower	2/12/2020	7/23/2024	4	5.3	9.0	7.6	6/22/2022	7/23/2024	3	ND	0.9	0.6	2/12/2020	7/23/2024	4	99	270	210
MSB06A	Upper	2/12/2020	9/9/2025	18	ND	3.2	1.5	6/15/2021	9/9/2025	10	8.5	16.0	10.5	2/12/2020	9/9/2025	18	330	1,300	526
MSB06B	Lower	2/12/2020	8/29/2025	9	ND	47.0	32.7	6/15/2021	8/29/2025	6	0.1	4.0	1.2	2/12/2020	8/29/2025	7	350	520	397
MSB06C	Lower	2/12/2020	8/29/2025	8	2.0	20.0	12.8	6/15/2021	8/29/2025	6	ND	1.0	0.3	2/12/2020	8/29/2025	7	160	540	449
MSB09A	Upper	2/11/2020	8/29/2025	16	ND	2.1	1.4	6/17/2021	8/29/2025	10	7.7	10.0	8.9	2/11/2020	8/29/2025	18	450	570	510
MSB09B	Lower	2/11/2020	8/29/2025	7	ND	3.3	1.9	6/17/2021	8/29/2025	5	0.9	1.7	1.3	2/11/2020	8/29/2025	6	170	530	258
MSB09C	Lower	2/11/2020	8/29/2025	6	110.0	120.0	111.7	6/17/2021	8/29/2025	5	ND	0.1	0.1	2/11/2020	8/29/2025	6	130	310	258
MSB10B	Lower	2/13/2020	8/27/2025	18	ND	3.7	2.3	6/15/2021	8/27/2025	10	1.5	2.3	1.9	2/13/2020	8/27/2025	18	170	220	207
MSB10C	Lower	2/13/2020	8/27/2025	7	ND	3.8	1.7	6/15/2021	8/27/2025	5	ND	1.7	0.4	2/13/2020	8/27/2025	6	260	540	315
MSB11C	Lower	2/11/2020	9/4/2025	4	4.5	8.5	6.2	6/21/2022	9/4/2025	3	ND	ND	ND	2/11/2020	9/4/2025	4	450	520	475
MSB13A	Upper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSB13B	Lower	6/15/2023	9/4/2025	3	3.1	4.0	3.6	6/15/2023	9/4/2025	3	3.0	3.7	3.4	6/15/2023	9/4/2025	3	250	290	277
MSB13C	Lower	6/15/2023	9/4/2025	3	3.6	4.7	4.0	6/15/2023	9/4/2025	3	ND	ND	ND	6/15/2023	9/4/2025	3	810	1,000	900
Wells Monitored by Non-GSA Entities																			
2000507-001	Lower	12/23/2008	5/11/2023	4	2.6	4.6	3.8	11/5/2004	6/13/2025	9	2.8	9.7	5.1	-	-	-	-	-	-
2000553-001	Lower	5/27/2008	2/14/2024	6	1.5	2.6	2.0	12/8/2005	10/7/2025	44	3.1	22.0	7.1	12/8/2005	2/14/2024	8	180	420	281
2000682-002	Lower	5/20/2008	8/23/2023	3	2.1	3.8	2.7	5/20/2008	3/19/2025	19	0.8	13.8	6.5	5/20/2008	5/20/2008	1	220	220	220
2000727-001	Lower	5/27/2008	2/21/2024	8	ND	2.1	1.6	5/24/2006	4/1/2025	26	1.5	7.8	4.7	5/27/2008	2/21/2024	8	190	380	229
2000938-001	Lower	12/17/2008	8/23/2022	4	1.0	2.0	1.5	6/25/2008	1/17/2023	20	1.1	6.5	3.2	-	-	-	-	-	-
2010002-014	Lower	3/4/1986	5/22/2023	10	ND	30.0	5.2	3/4/1986	6/23/2025	36	ND	14.0	4.4	3/4/1986	5/22/2023	15	148	207	181
2010002-032	Lower	11/16/2006	3/25/2024	7	ND	3.9	1.6	11/16/2006	12/18/2024	24	ND	12.0	5.7	9/6/2006	12/18/2024	12	190	240	214
2010008-005	Composite	5/1/1997	3/25/2024	8	2.0	4.4	3.0	5/1/1997	5/5/2025	37	1.8	22.3	11.6	5/1/1997	3/25/2024	10	280	360	322
2010009-002	Composite	10/22/1985	7/15/2013	7	4.1	10.0	6.0	10/22/1985	1/26/2017	20	1.6	8.7	6.4	10/22/1985	7/15/2013	7	110	150	138
2010010-007	Lower	10/18/2005	5/6/2025	6	2.0	3.3	2.5	10/18/2005	5/6/2025	20	0.2	20.0	7.8	10/18/2005	5/6/2025	8	190	230	208
2010801-001	Lower	3/4/1998	10/7/2025	164	4.3	22.0	14.8	3/4/1998	8/26/2025	28	0.2	4.6	1.2	3/4/1998	8/27/2024	12	220	270	240
2801077-001	Composite	4/3/2002	4/3/2002	1	5.0	5.0	5.0	4/3/2002	4/29/2025	16	0.1	75.0	6.7	-	-	-	-	-	-

Appendix E. Table 3 - Summary of Monitoring Efforts for Water Quality RMS Wells in Madera Subbasin

		Arsenic (ug/L)						Nitrate (as N) (mg/L)						Total Dissolved Solids (mg/L)					
RMS Well ID	Aquifer Designation	First Sample Date	Most Recent Sample Date	Sample Count	Minimum Result	Maximum Result	Average Result	First Sample Date	Most Recent Sample Date	Sample Count	Minimum Result	Maximum Result	Average Result	First Sample Date	Most Recent Sample Date	Sample Count	Minimum Result	Maximum Result	Average Result
ESJ12	Upper	7/27/2021	8/26/2024	4	0.5	0.6	0.5	-	-	-	-	-	-	10/30/2018	7/25/2022	8	450	540	488
ESJ17	Unknown	7/27/2021	7/27/2021	2	2.0	2.0	2.0	-	-	-	-	-	-	7/22/2019	7/22/2019	4	260	270	265

ND = Non-detect

ND measurements included in average concentration cacluation as half of reporting limit.

*Due to monitoring challenges, MID RMS-5B could not be sampled. A well located 0.5-mile away, MID RMS-5C, was sampled instead. Perforation intervals: MID RMS-5B (245-496 feet bgs); MID RMS-5C (220-800 feet bgs).

March 4, 2026

Monica Salais, P.E.
Sustainable Groundwater Management Office
California Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Sent Electronically

RE: Request for Department of Water Resources Monitoring of San Joaquin River Restoration Program Subsidence Benchmarks

Dear Ms. Salais:

In recent weeks, the undersigned Groundwater Sustainability Agencies (GSAs), representing 5 subbasins and over 2.5 million acres in the Central Valley, have been advised that the U.S. Bureau of Reclamation (USBR) will no longer provide critical bi-annual monitoring of the existing San Joaquin River Restoration Program (SJRRP) subsidence benchmarks. As you know, subsidence data previously collected by USBR as part of its ongoing obligations under the SJRRP has proved invaluable and remains a cornerstone to our Groundwater Sustainability Plans (GSPs), providing quantifiable metrics for tracking the success of our projects and

management actions (PMAs) and, ultimately, attainment of our sustainability goals. In most of our subbasins, the subsidence data previously collected by USBR serves as the basis for:

- Implementation and monitoring of Groundwater Demand Management (GDM) Programs, as applicable.
- Subsidence Sustainable Management Criteria (SMC).
- Measuring success of our GSP implementation activities and reporting such in annual reports, periodic evaluations, and plan amendments (as required).
- Coordination with neighboring subbasins.

As demonstrated above, the importance of this data set is not trivial. Given the broad use of and reliance upon this dataset, continued monitoring is an issue of statewide significance. As a result, the undersigned GSAs respectfully request that the Department of Water Resources (DWR) immediately take responsibility for continued monitoring. Absent DWR's assistance the GSAs will be forced to contract for continued monitoring at a cost that will significantly detract from ongoing and planned GSP implementation actions.

As is always the case, we appreciate our ongoing working relationship with DWR and should you have any questions, please contact John Davids at (209) 404-8896.

Sincerely,

Julia Berry
Root Creek Water District GSA
Madera Subbasin

Stephanie Anagnoson
Madera County GSA
Madera/Chowchilla Subbasin

Douglas Welch
Chowchilla Water District GSA
Chowchilla Subbasin

Lacey McBride
Merced County GSA
Chowchilla Subbasin

Sarah Woolf
Triangle T Water District GSA
Chowchilla Subbasin

Don Roberts
Gravelly Ford Water District GSA
Madera Subbasin

Tommy Greci
Madera Irrigation District GSA
Madera Subbasin

Joe Hopkins
Delta-Mendota Subbasin

Keith Helmuth
City of Madera GSA
Madera Subbasin

Gabriella Lion
New Stone Water District GSA
Madera Subbasin

Chris Newton
Madera Water District GSA
Madera Subbasin

manny amorelli
Manny Amorelli
James GSA
Kings Subbasin

Kassy D. Ch
Kassy Chauhan
North Kings GSA
Kings Subbasin

Bryan Kelly
Merced Subbasin

Enclosure: Copy of February 6, 2026 Correspondence from USBR

cc: Administration Files
Paul Gosselin, Deputy Director, Sustainable Groundwater Management Office, DWR
GSAs

From: John Davids
To: John Davids
Subject: FW: [EXTERNAL] RE: SJRRP Subsidence Data
Date: Wednesday, February 25, 2026 2:27:02 PM

From: Newcom, Samuel (Joshua) <snewcom@usbr.gov>
Sent: Friday, February 6, 2026 9:22 AM
To: Bernadette Boyle <bboyle@lsce.com>
Subject: Re: [EXTERNAL] RE: SJRRP Subsidence Data

Hi. SJRRP will no longer be conducting subsidence data collection. With the Program's current infrastructure projects approaching complete designs, bi-annual subsidence monitoring is no longer needed for SJRRP purposes, concluding with the July 2025 survey. Reclamation is exploring opportunities to continue the subsidence surveys alongside other State subsidence monitoring initiatives. Feel free to check back at Channel Capacity - San Joaquin River Restoration Program in case we have additional information.

Thank you for your interest in the SJRRP.

From: Bernadette Boyle <bboyle@lsce.com>
Sent: Friday, February 6, 2026 9:01 AM
To: Newcom, Samuel (Joshua) <snewcom@usbr.gov>
Subject: [EXTERNAL] RE: SJRRP Subsidence Data

Hi Josh,

Following up on this request, do you have any idea when this data will be published?

Thanks,
Bernadette

From: Bernadette Boyle
Sent: Tuesday, January 27, 2026 9:21 AM
To: Newcom, Samuel (Joshua) <snewcom@usbr.gov>
Subject: SJRRP Subsidence Data

Hi Josh,

I am wondering when the December 2025 subsidence data is expected to be published on the SJRRP website?

Thanks!
Bernadette

Bernadette Boyle
Project Hydrogeologist
Luhdorff & Scalmanini, Consulting Engineers
Office (530) 661-0109
Direct (530) 207-5762
bboyle@lsce.com
https://link.edgepilot.com/s/56bda80d/hCj1vbkBvkSs8EclNJQWJQ?u=http://www.lsce.com/