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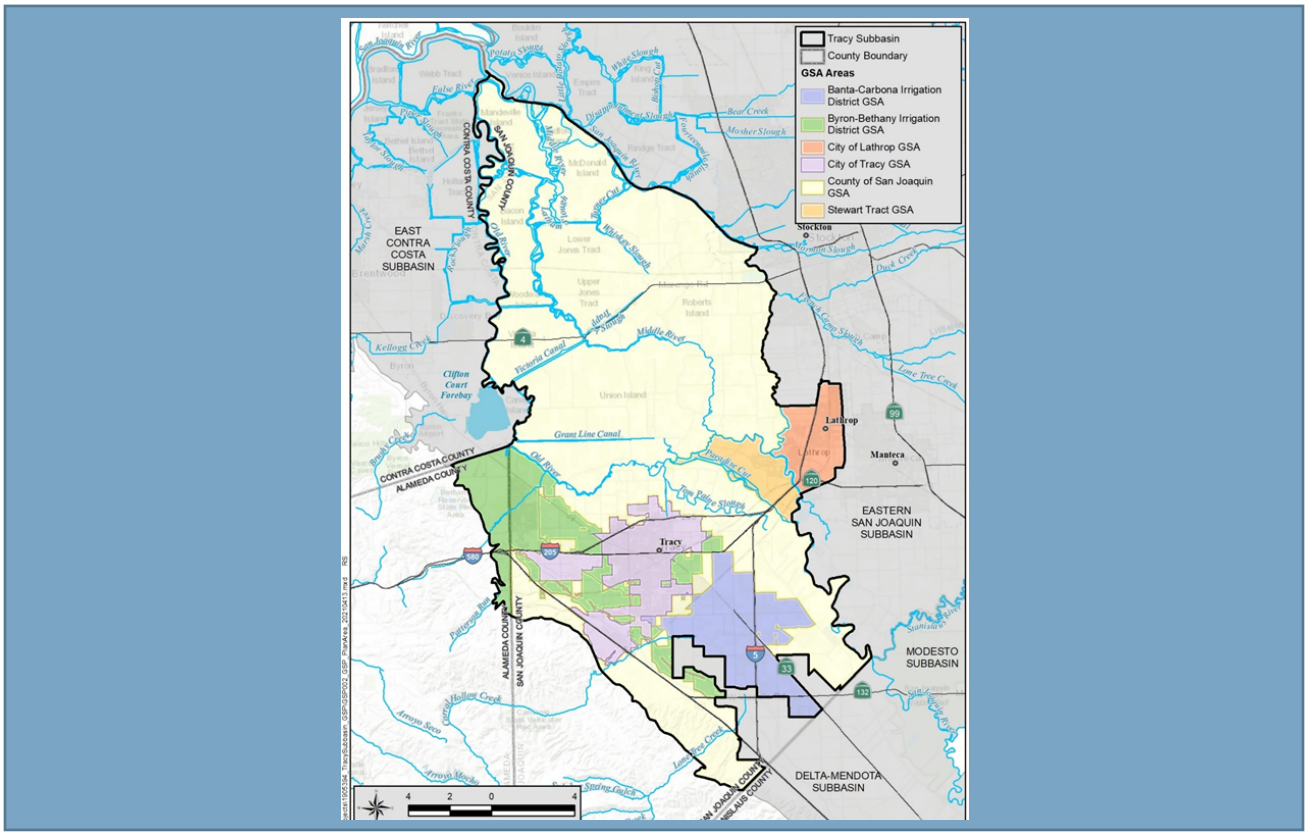
Water Year 2024

Annual Report for the Tracy Subbasin

March 2025



Prepared for the Tracy Subbasin GSAs:

- Byron-Bethany Irrigation District
- Banta-Carbona Irrigation District
- City of Lathrop
- City of Tracy
- San Joaquin County
- Stewart Tract

Water Year 2024

Annual Report for the Tracy Subbasin

Prepared for:

Tracy Subbasin GSAs

Prepared by:

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March 2025

WATER YEAR 2024
ANNUAL REPORT FOR THE
GROUNDWATER SUSTAINABILITY PLAN FOR THE TRACY SUBBASIN

Certifications and Seals

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Abbreviations and Acronyms

AF	acre-feet
AFY	acre-feet per year
amsl	above mean sea level
BBID	Byron-Bethany Irrigation District
BCID	Banta-Carbona Irrigation District
CVP	Central Valley Project
DWR	California State Department of Water Resources
GDE	Groundwater Dependent Ecosystem
GEI	GEI Consultants Inc.
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
InSAR	Interferometric Synthetic-Aperture Radar
msl	mean sea level
MTs	Minimum Thresholds
MOs	Measurable Objective
SJCEHD	San Joaquin County Environmental Health Department
SJRI	San Joaquin River Index
SGMA	Sustainable Groundwater Management Act
SSJID	South San Joaquin Irrigation District
SWP	State Water Project
TSb	Tracy Subbasin
WY	Water Year

Executive Summary

This report summarizes Water Year (WY) 2024 (October 1, 2023 – September 30, 2024) groundwater conditions, water supply and groundwater management actions and projects in the Tracy Subbasin (Subbasin). The Tracy Subbasin Groundwater Sustainability Agencies (GSAs) submitted the adopted Groundwater Sustainability Plan (GSP) for review by the California Department of Water Resources (DWR) on January 27, 2022. DWR approved the GSP on January 18, 2024. This report represents the fourth required Annual Report under the Sustainable Groundwater Management Act (SGMA) of 2014.

The Subbasin encompasses an area of about 370 square miles in San Joaquin and Alameda counties. The Subbasin was divided into two management areas during preparation of the GSP, the Delta Management Area and the Non-Delta Management Area. The Delta Management Area consists of numerous islands within an area of about 190 square miles. Waterways surrounding each island provide a constant source of recharge to the groundwater system. The Delta Management Area is being managed by the Delta Protection Commission and therefore the GSP did not attempt to manage groundwater in this area. The Non-Delta Management Area is about 180 square miles and generally consists of the upland areas south of the delta and includes the cities of Lathrop, Mountain House and Tracy along with agricultural areas serviced by Byron-Bethany Irrigation District (BBID), Banta-Carbona Irrigation District (BCID), and Naglee Burk Irrigation District **Figure ES-1** shows the GSA areas. This report contains monitoring data and interpretations of only the Non-Delta Management Area, as shown on **Figure ES-2**.

Groundwater levels, groundwater extractions, surface water diversions, total water usage measurements, and change in groundwater storage estimates are presented in this report. The measurements and information presented demonstrate the groundwater in the Subbasin is sustainable, consistent with the GSP findings, and no undesirable results were present, even though one well exceeded its minimum threshold for chronic lowering of groundwater levels.

Water supplies to the Subbasin consisted of groundwater, surface water, and recycled water. The annual water use, quantified by acre-feet and estimates are shown in **Table ES-1**. Managed groundwater recharge was also evaluated as this replenishes pumped groundwater. The city of Tracy provided direct recharge to the aquifers with surface water through its aquifer storage and recovery Well #8. Within the Lathrop GSA area, the Occidental Chemical Corporation is injecting treated groundwater into the Upper and Lower Aquifers. About 2,700 acre-feet (AF) of water was recharged in WY 2024. Groundwater recharge from applied surface water in BBID and BCID areas also likely provided groundwater recharge, but this could not be quantified. Precipitation also provided water in the Subbasin but also was not quantified.

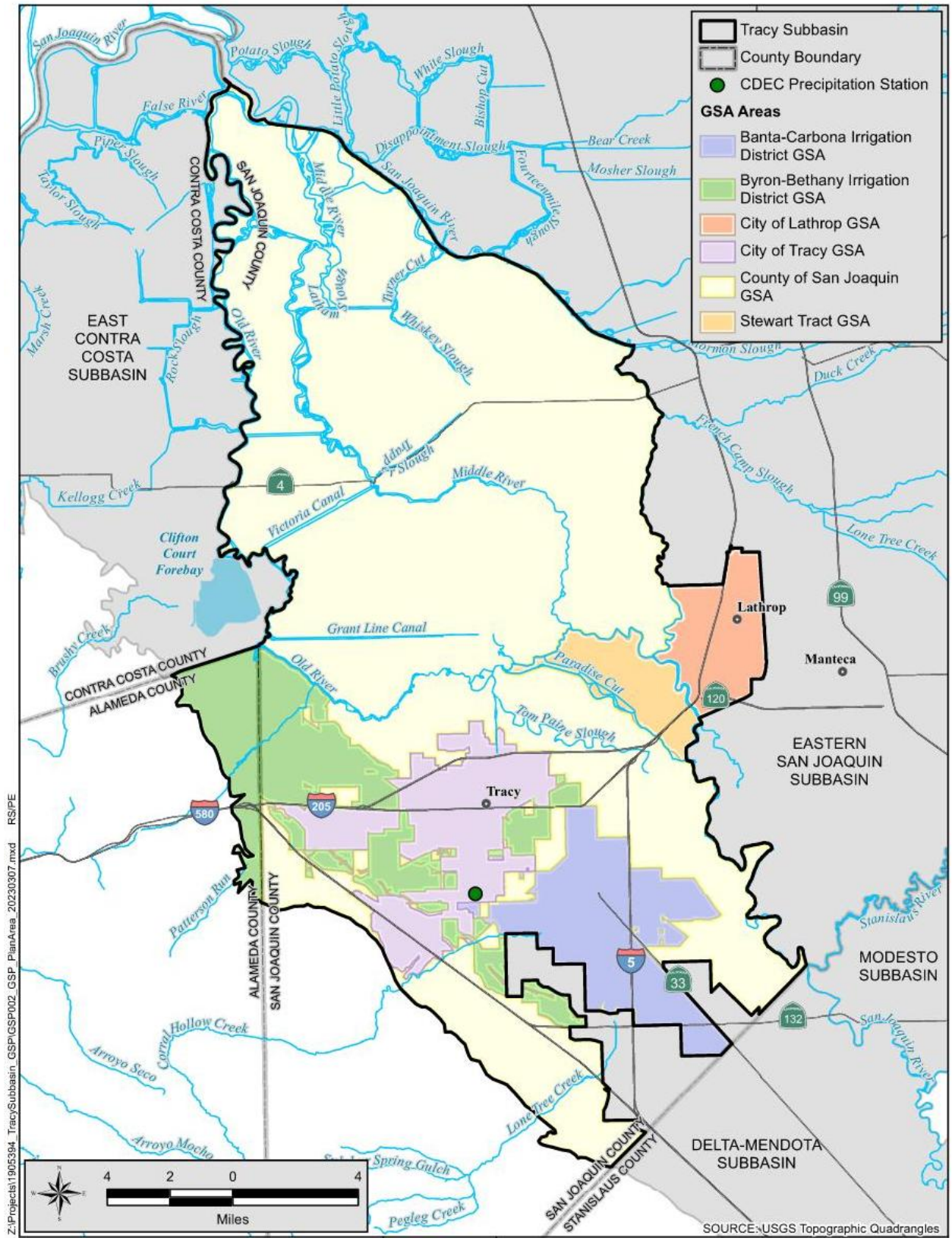

Figure ES-1. Tracy Subbasin

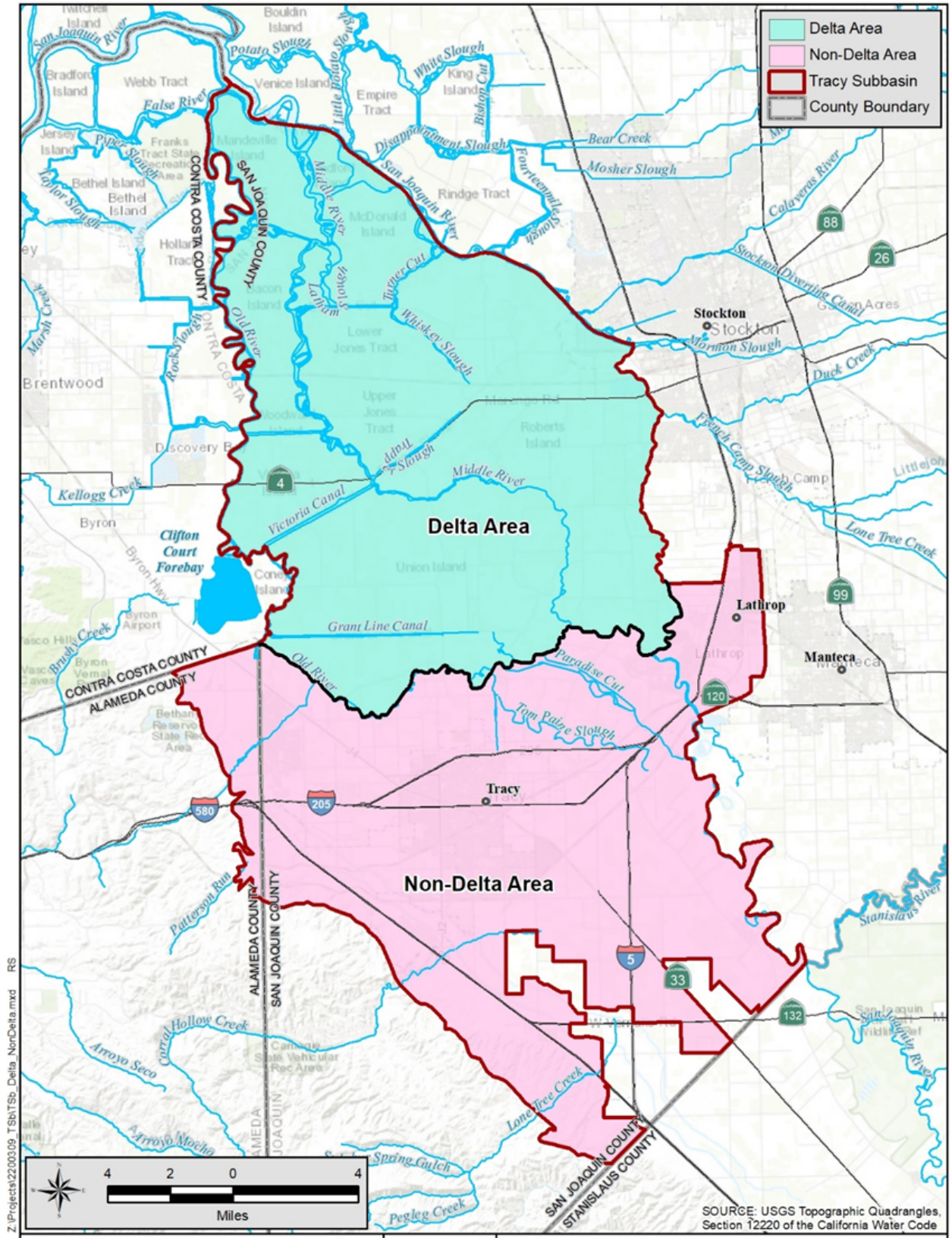

Figure ES-2. Tracy Subbasin Management Areas

Table ES-1. Tracy Subbasin Non-Delta Management Area Water Use

GSA Area	In Acre-Feet					
	Groundwater Pumping	Groundwater Recharge	Groundwater Subtotal	Surface Water	Recycled Water	Total
BBID	700	0	700	28,500	0	29,200
BCID	1,000	700	300	33,200	0	33,500
City of Lathrop	5,100	1,800	3,300	4,500	900	8,700
City of Tracy	1,200	200	1,000	20,900	0	21,900
San Joaquin County	6,100	0	6,100	52,500	0	58,600
Stewart Tract	0	0	0	1,000	300	1,300
Total	14,000	2,700	11,300	140,700	1,200	153,200
Percent			*7%*	*92%*	*1%*	

Notes: The total volumes of water extracted should only be considered accurate to the nearest 1,000 AF
Volumes summed in Table ES-1 are from Appendix B which contains metered and estimated volumes by source in each GSA area
Groundwater Subtotal = Groundwater Pumping minus Groundwater Recharge
Total = Groundwater Subtotal plus Surface Water plus Recycled Water

The Subbasin has sufficient surface water rights and uses surface water as its predominant source of water supply. Groundwater is used to supplement these supplies. Treated wastewater is recycled, although there is currently minimal reuse, but it is expected to expand in the future.

The water supply to the Subbasin consisted of about 7 percent groundwater and 92 percent surface water. The accuracy of the total groundwater use in the Subbasin is about 50 percent metered and 50 percent is estimated. For surface water, about 70 percent is metered and 30 percent is estimated. Estimated groundwater pumping was derived by using satellite-based estimates of crop evapotranspiration minus surface water deliveries with the residual being groundwater pumping. The estimates were also adjusted based on local knowledge of irrigation practices relative to harvest times.

Groundwater conditions in the WY 2024 showed a slight lowering of groundwater elevations across the Subbasin. In the Upper Aquifer groundwater levels declined on average by about 0.8 feet Subbasin wide. The Lower aquifer experienced a greater decline of averaging about 4 feet Subbasin wide. In both aquifers the declines were not uniform across the Subbasin with some areas experiencing greater declines while some areas experienced positive changes. Part of these changes may be due to the addition of new monitoring wells in areas not previously monitored. It is typical for positive and negative changes to occur in groundwater elevations from year to year in various parts of the Subbasin. Seasonal trends of higher spring groundwater elevations compared with fall levels are observed annually. One well in the Upper Aquifer and no wells in the Lower Aquifer had groundwater levels that exceeded their minimum thresholds.

The change in storage in the Non-Delta Management Area of the Subbasin was estimated using the difference of groundwater contours from fall 2023 to fall 2024. In WY 2024, groundwater storage declined by about 14,200 acre-feet (AF) even though precipitation was about normal. Again, the potential decline may be being influenced by having additional measurements, new monitoring wells, in areas not previously monitored. The Subbasin lost about 4,500 AF in the Upper Aquifer and about 9,700 AF in the Lower Aquifer. Overall, the storage change in the entire subbasin over the past 9 years remains in surplus.

A review of other sustainability indicators including surface water depletion, subsidence and degraded water quality found that all remained above their minimum thresholds.

The GSP identified several implementation activities consisting of one project, one management action and filling of data gaps. Portions of the project have already been implemented that reduced groundwater pumping by about 700 AF in WY 2024. A $10 million grant has been obtained from DWR to fund design and construction of a supplemental project by BCID to reduce groundwater pumping and is expected to be completed by October 2025. Implementation of the management action to modify the San Joaquin County Well Ordinance to create surface water protection zones is still in progress. Filling of data gaps has proceeded with assistance from DWR and local efforts.

Progress has been made toward achieving Subbasin's sustainability goals. Groundwater levels and water quality at most wells are currently above measurable objectives to be obtained by 2042, but still need improvement.

1. Introduction

1.1 Purpose

The Tracy Subbasin Groundwater Sustainability Agencies (GSAs) each adopted the Tracy Subbasin Groundwater Sustainability Plan (GSP). The GSP was submitted to California Department of Water Resources (DWR) for approval on January 27, 2022. DWR approved the GSP in WY 2024 on January 18, 2024, with seven conditional actions that are to be addressed in the GSP 5-year update in 2027. In October 2023, DWR also released a guidance document for preparation of Annual Reports but did not prescribe specific methods GSAs must use. This report has been modified to incorporate portions of the suggested components compliant with SGMA and still remain within the budget for report preparation. This report represents the fourth required Annual Report under the Sustainable Groundwater Management Act (SGMA) of 2014.

1.2 Tracy Subbasin

The Tracy Subbasin (Subbasin) is identified by DWR in Bulletin 118 as Subbasin No. 5-022.15 (DWR 2020). The Subbasin is part of the greater San Joaquin Valley region of California **Figure 1-1** shows the location of the Subbasin and surrounding subbasins. The Subbasin encompasses an area of 238,429 acres (about 370 square miles) in San Joaquin and Alameda counties, primarily between the eastern extent of the Coast Ranges on the south and the San Joaquin River on the north and east. The Subbasin is bounded on the southeast by the San Joaquin-Stanislaus counties border and the irregular northern boundary outline of the Del Puerto Water District (the Delta-Mendota subbasin). The San Joaquin, Old, and Middle rivers are the principal rivers within or bordering the Subbasin. Within the Subbasin are the cities of Lathrop, Mountain House and Tracy. In 2018, DWR designated the Subbasin as a medium priority subbasin.

As described in the GSP, the Subbasin was subdivided into the Delta Management Area (managed by the Delta Protection Commission) and the Non-Delta Management Area as shown on **Figure 1-2**. The Delta Management Area consists of the Delta islands, which is a unique area in the state of California, where groundwater has to be drained or pumped away to maintain groundwater levels below ground surface. Most of the Delta island's ground surfaces are below sea level. The water is pumped back from the islands into the adjacent waterways. There is always a direct and constant connection between surface water and groundwater, requiring management of groundwater levels (dewatering) within the islands. There are hundreds of diversions that divert surface water from the adjacent waterways surrounding the islands for agricultural purposes. Because there have been no undesirable results for each of the sustainability indicators in the Delta Management Area and none are likely to occur in the future, groundwater monitoring is not necessary in this portion of the Subbasin for it to remain sustainable. As such, minimum thresholds and measurable objectives were not established for the Delta Management Area. The GSP identified the Non-Delta Management Area to be managed as the cities and agriculture in this area use some groundwater. This report documents the groundwater conditions and water supply for just the Non-Delta Management Area.

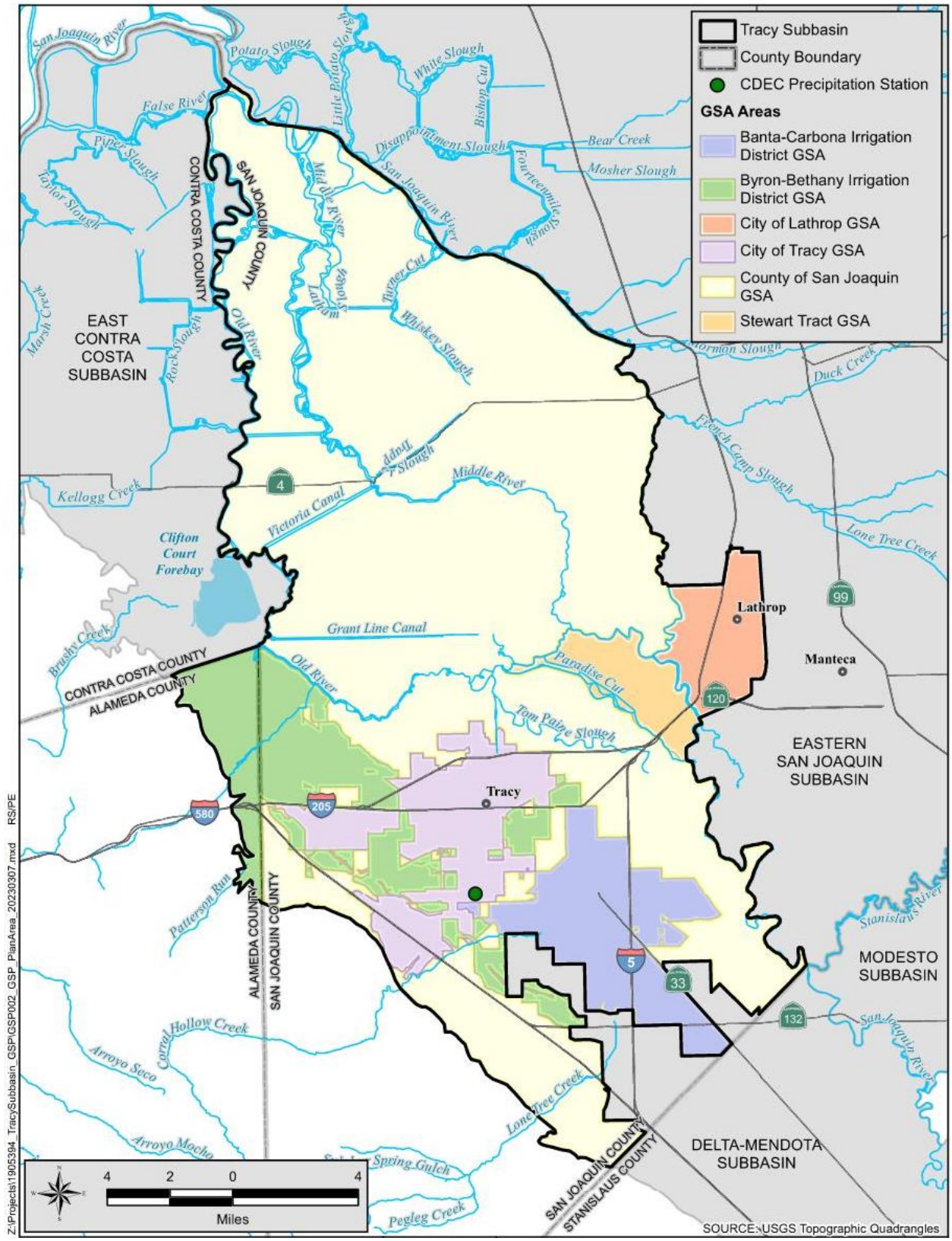

Figure 1-1. Tracy Subbasin

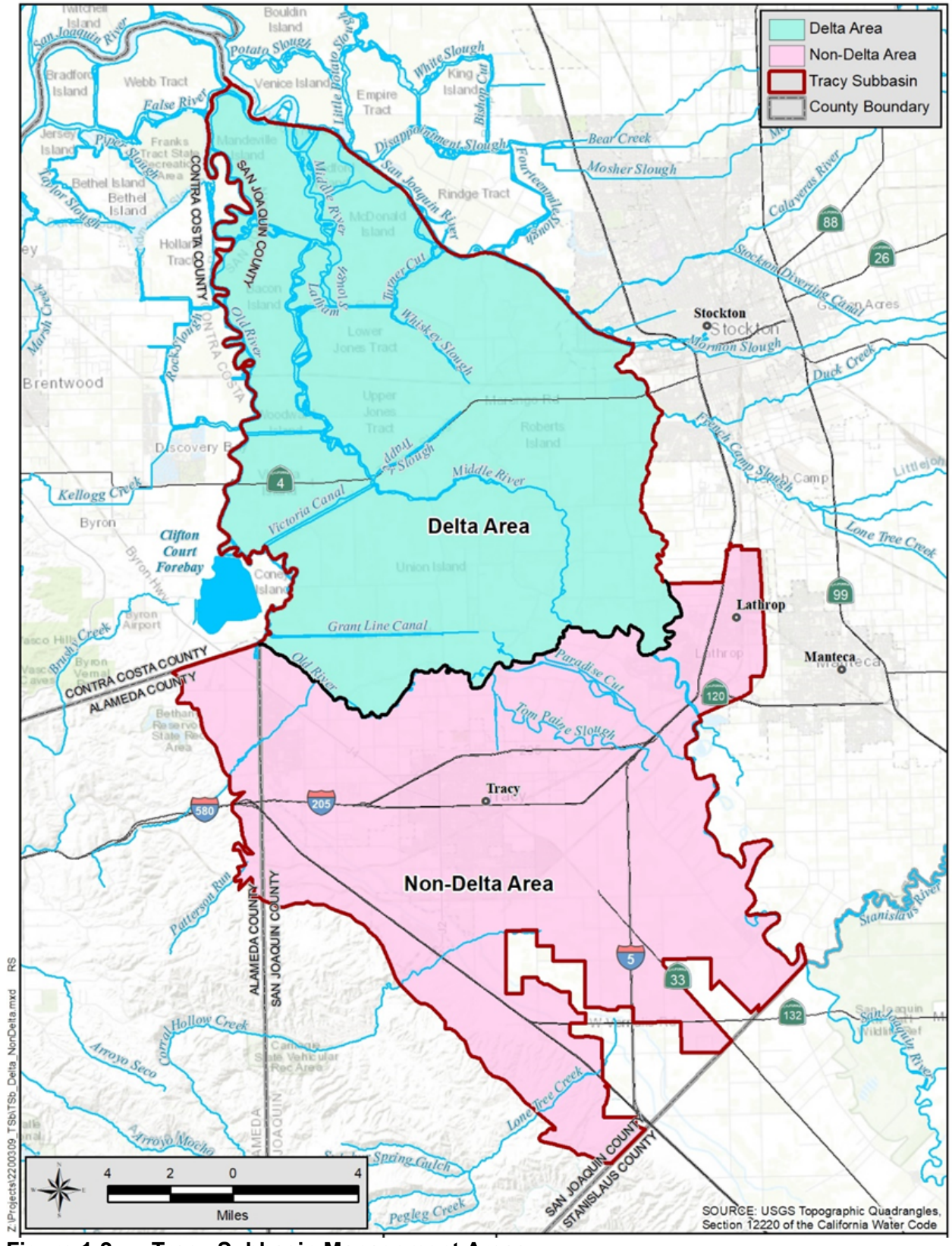

Figure 1-2. Tracy Subbasin Management Areas

1.3 Principal Aquifers

Water-bearing sand and gravel beds are generally grouped together into zones that are referred to as aquifers. The aquifers can be vertically separated by fine-grained sediment zones that can impede the movement of groundwater between aquifers. The Subbasin has two principal aquifers: an Upper unconfined to semi-confined aquifer and a Lower confined aquifer. The two aquifers are separated by the low permeability Corcoran Clay.

Groundwater level extraction and managed recharge information in this report is provided by principal aquifer. However, some of the groundwater extraction data could not be sorted by principal aquifer because: 1) of having to estimate the groundwater pumping by agriculture using land use methods, 2) well construction details were not available including filter pack surrounding the well, or 3) where the well screens crossed the Corcoran Clay.

1.4 Tracy Subbasin GSAs

The Subbasin is managed by six GSAs which cover the entire Subbasin (**Figure 1-1**) and include:

- Byron-Bethany Irrigation District (BBID)
- Banta-Carbona Irrigation District (BCID)
- City of Lathrop
- City of Tracy
- San Joaquin County
- Stewart Tract

2. Data Analysis Summary

This section provides a brief description of the Subbasin setting and the groundwater management monitoring programs described in the GSP, as well as any notable events affecting monitoring activities or the quality of monitoring results for WY 2024. Much of the background information reported in this WY 2024 Annual Report was taken from the GSP prepared by GEI Consultants Inc (GEI 2021) and previous Annual Reports.

2.1 Hydrologic Conditions and Water Year Type

WY 2024 (October 1, 2023 – September 30, 2024) was slightly below average year in terms of precipitation.

WY 2024 followed the sixth wettest year in California. The first two months of WY 2024 had few rain events. Most precipitation occurred between January and May, and little to no precipitation occured for the remainder of the water year.

The precipitation data from the Tracy Carbona Rainfall station (Index Number 04-899-05) is the Subbasin's longest and most continuous record of precipitation, from 1949 through present, and is located near the center of the Non-Delta Management Area as shown on **Figure 1-1**. The average annual precipitation was 9.81 inches, (NOAA); during WY 2024, precipitation was 9.68 inches, slightly below average. **Figure 2-1** shows the long-term average and the WY 2024 precipitation number. Average to above average rain fell in 6 out of the 9 months with precipitation. **Figure 2-2** shows the monthly distribution of rain.

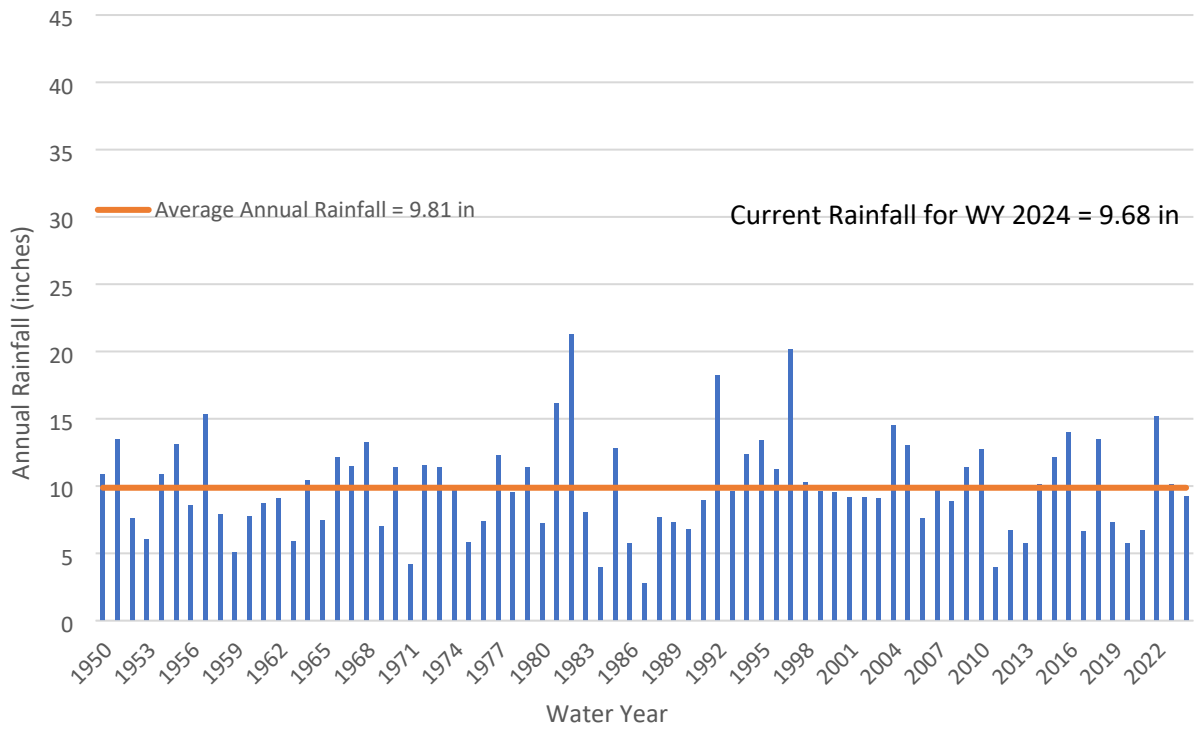

Figure 2-1. Tracy Carbona Station Annual Precipitation Record

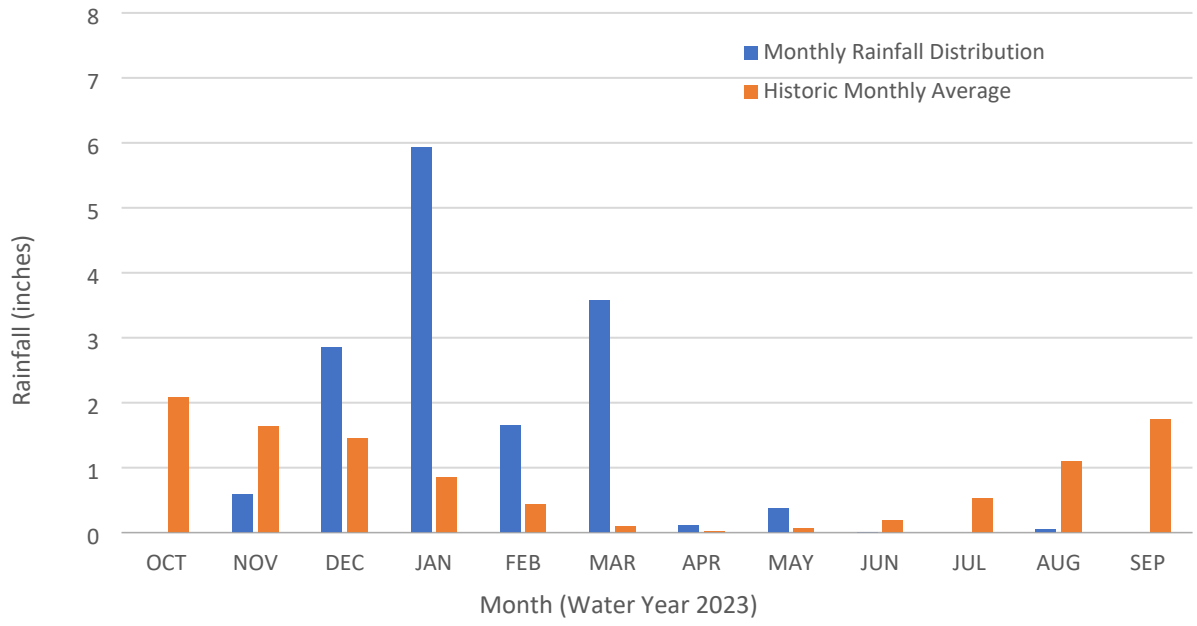

Figure 2-2. Tracy Carbona Station Monthly Precipitation Record

The San Joaquin River (SJR) Index is calculated by DWR on a water year basis. DWR has yet to release the official or preliminary classifications for WY 2024 at the time of this report. WY 2024 was 5 to 6 inches below California's historical average based on statewide runoff on record (DWR 2024), suggesting the SJR index for WY 2024 may be classified as a below normal year.

2.2 Groundwater Elevations

This section provides groundwater level monitoring results displayed as hydrographs and groundwater contours. All of the data are presented as groundwater elevations. The groundwater levels were obtained by various entities including: DWR, most GSAs and from various agencies with groundwater monitoring programs overseen by the Central Valley Regional Water Quality Control Board. Groundwater levels for WY 2024 were uploaded to the Sustainable Groundwater Management Act (SGMA) Portal[1] and are contained in the Subbasin data management system.

The Subbasin has two principal aquifers; an Upper unconfined to semi-confined aquifer and a Lower confined aquifer that are separated by the Corcoran Clay. Groundwater level information in this report is provided by principal aquifer.

Positive and negative changes in groundwater elevations from year to year are observed in various parts of the Subbasin and have been observed historically. Seasonal trends of slightly higher spring groundwater elevations compared with fall levels are typically observed.

Appendix A contains the location of the monitoring networks by principal aquifer and hydrographs downloaded from DWR's SGMA Data Viewer for all wells in the Subbasin's monitoring network. For representative monitoring wells minimum thresholds and measurable objectives are shown on the hydrographs. Groundwater levels generally were stable from the previous water year across the subbasin. There are a few monitoring wells where groundwater levels were not measured, for various reasons, as shown on **Table A-1** in **Appendix A**. New monitoring wells constructed in WY 2024 by DWR under their Technical Support Services program have been included in the table and hydrographs have been provided.

2.3 Groundwater Contours

Spring (seasonal high) and fall (seasonal low) water-level elevation contours were prepared for each of the principal aquifers for WY 2024 to illustrate groundwater conditions in the Subbasin. The seasonal low groundwater contours were developed using October 2024 groundwater level measurements, even though they are outside of the defined water year because they represent groundwater conditions based on pumping during WY 2024. Groundwater elevation measurements to develop the WY 2024 contours for each principal aquifer were obtained from SGMA Data Viewer.

Groundwater level data from 16 wells within the Subbasin were used to create the Upper Aquifer groundwater elevation contour maps with another seven wells from surrounding subbasins. Groundwater level data from 14 wells within the Subbasin were used to create the Lower Aquifer groundwater elevation contour maps with another six wells from surrounding subbasins. Groundwater level data from two recently constructed new monitoring wells (MW-203A and MW-

[1] https://sgma.water.ca.gov/portal/

204A) were added to the Upper Aquifer and three new wells were added to the Lower Aquifer (MW-202B, MW-203B and MW-204B).

2.3.1 Upper Aquifer Groundwater Contours

Groundwater contours for the Upper Aquifer in the Non-Delta Management Area for spring and fall WY 2024 show very little difference as shown on **Figure 2-3** and **Figure 2-4**. The groundwater is at a higher elevation, about 260 feet above mean sea level (amsl) near the foothills and lower elevations (about 0-10 feet amsl) near the rivers, suggesting the groundwater in the Upper Aquifer is discharging into the rivers and waterways. Groundwater levels remained at about the same elevation between spring and fall (less than 5 feet difference). Recharge to Upper Aquifer appears to be near Corral Hollow Creek, as a groundwater mound is present. Near the city of Lathrop, the groundwater contours are lower near the San Joaquin River and are higher to the east, into the Eastern San Joaquin Subbasin, suggesting the Upper Aquifer is discharging to the river in this area.

2.3.2 Lower Aquifer Groundwater Elevation Contours

Groundwater contours were developed for the Lower Aquifer for spring and fall 2024 as shown on **Figure 2-5** and **Figure 2-6**. Two new monitoring wells were used for the spring contours and three new monitoring wells were used to develop the fall groundwater contours. Overall, groundwater conditions in the Subbasin in the spring were higher than in the fall, a typical seasonal trend for the Subbasin.

Groundwater flow direction is generally from the east and southeast to the northwest over most of the Subbasin during the spring. In the fall, a broad and shallow pumping depression was present near the center of the Subbasin, likely due to the city of Tracy having five municipal supply wells in this area and agricultural usage. This pumping depression has been present since at least 2007 (GEI 2007). A small pumping depression was also present in the southeastern edge of the Subbasin near one of the new monitoring wells (MW-204). The groundwater flow direction in the fall was similar to that observed in the spring

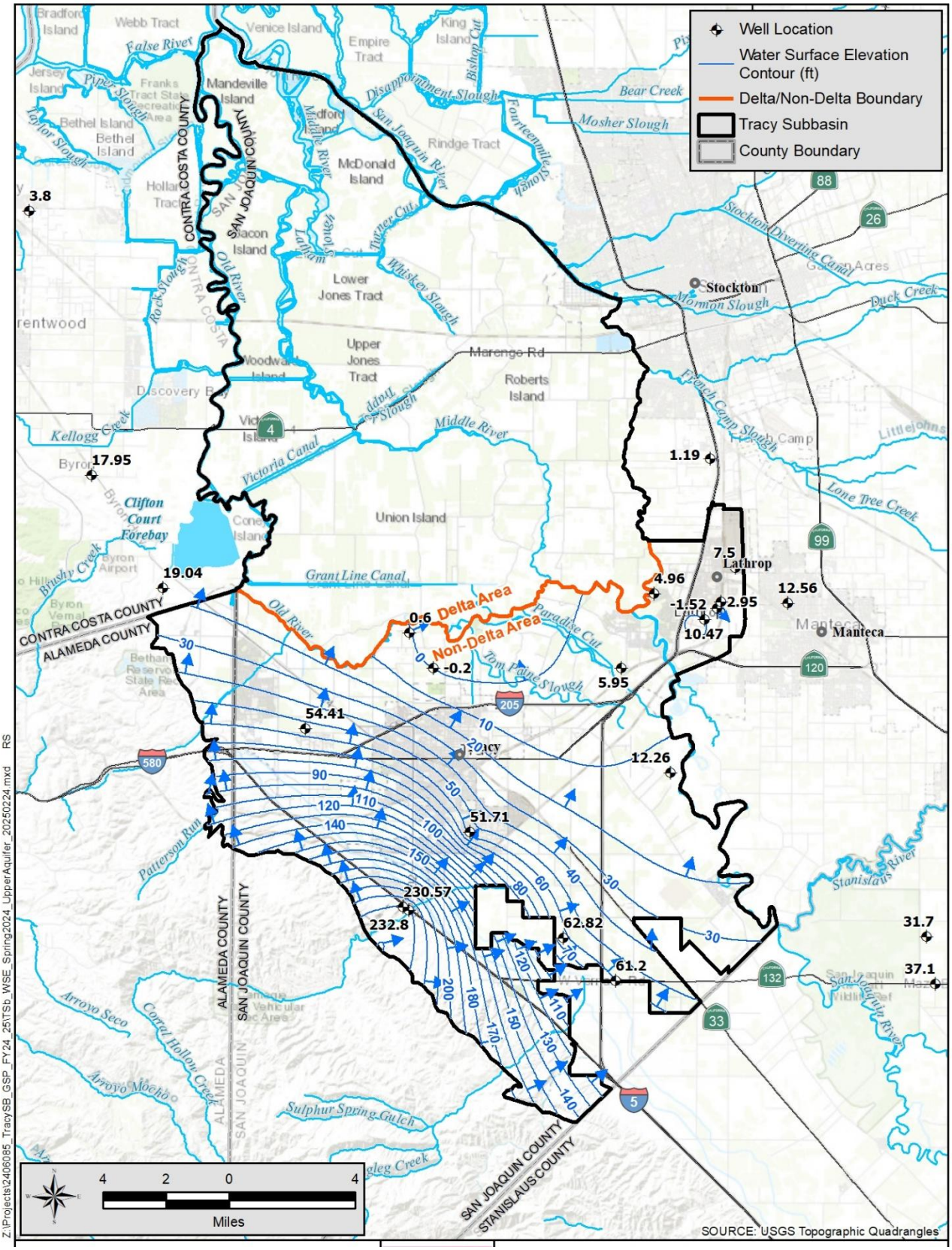

Figure 2-3. Upper Aquifer Spring 2024

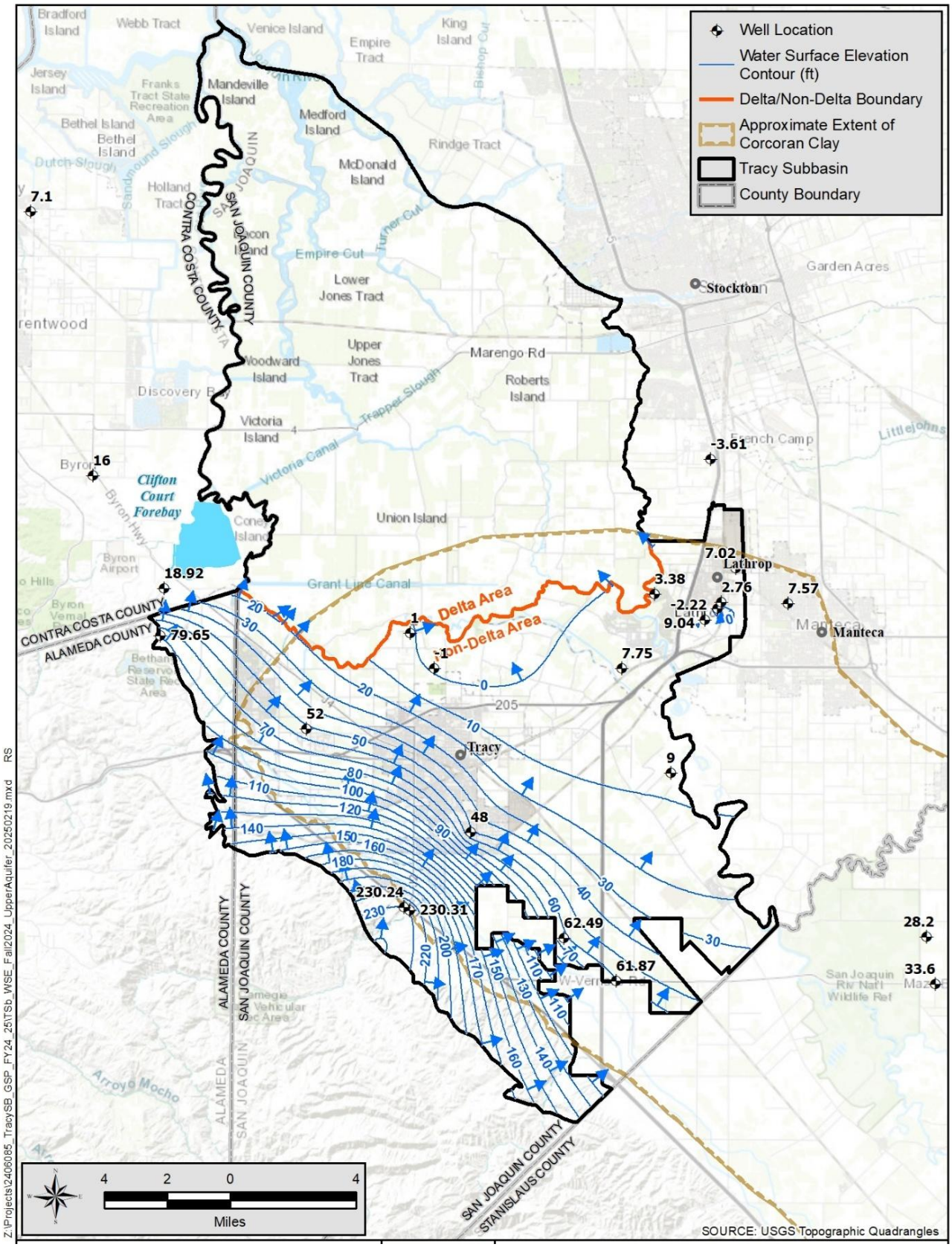

Figure 2-4. Upper Aquifer Fall 2024

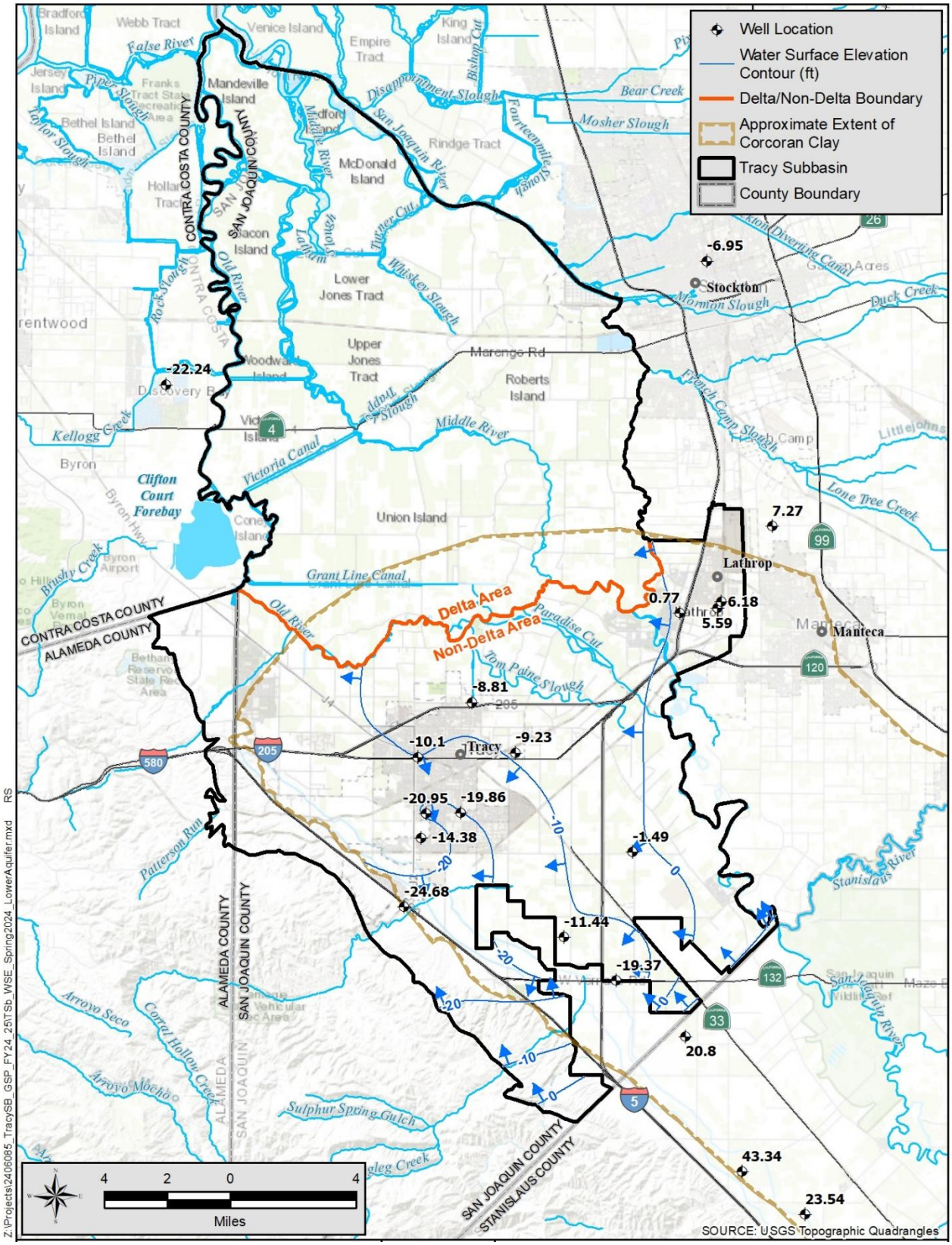

Figure 2-5. Lower Aquifer Spring 2024

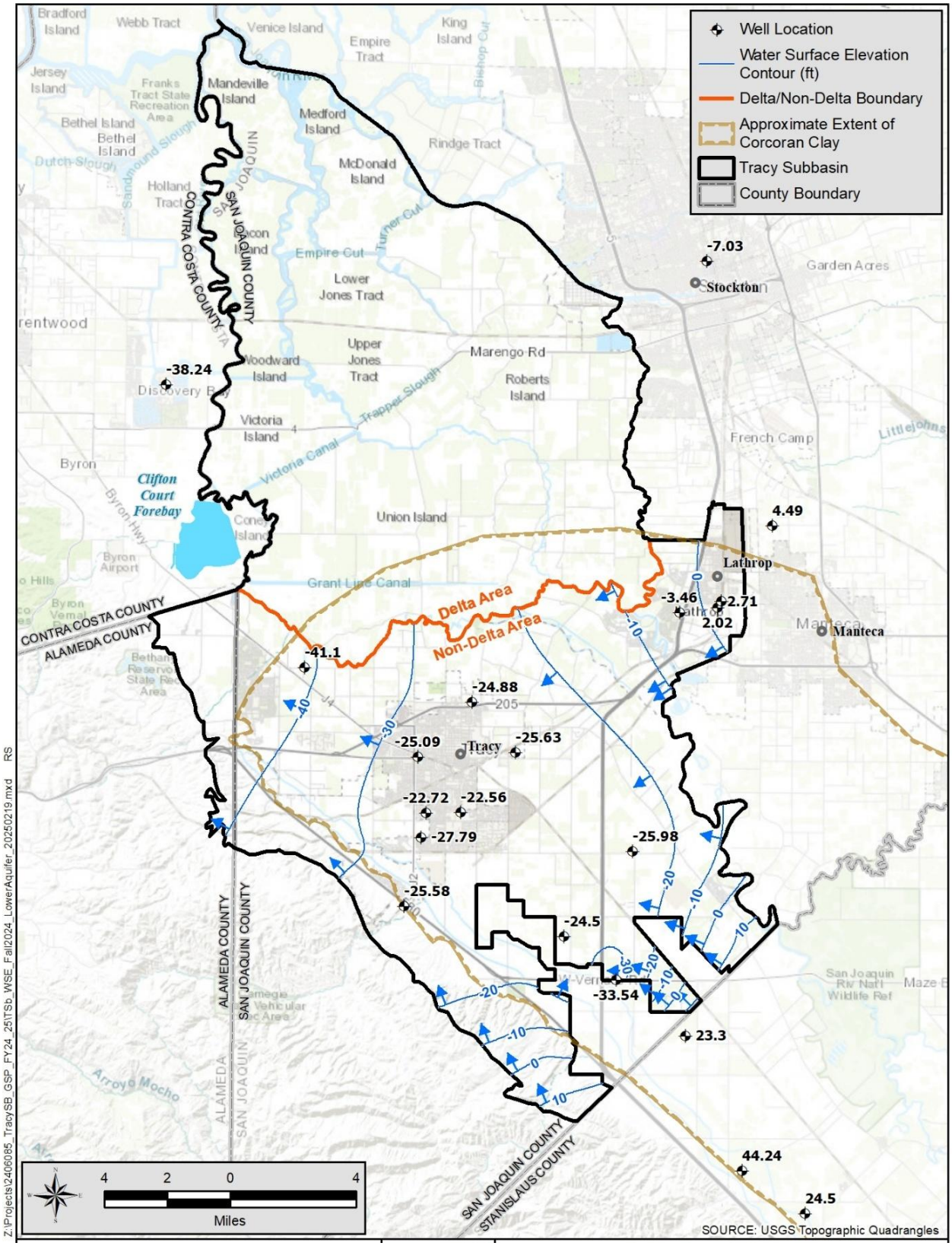

Figure 2-6. Lower Aquifer Fall 2024

2.4 Groundwater Extractions

This section presents the metered and estimated groundwater extractions from the Subbasin for WY 2024. The types of groundwater extraction by water use sector include agricultural, urban (municipal and small public water systems), industrial, managed wetlands and native vegetation. All groundwater extractions are provided in acre-feet (AF).

Metered groundwater extractions account for about 7,000 AF and have an accuracy of about 95 percent. Estimated groundwater extractions account for about 7,000 AF of pumping in the Subbasin. The estimated extractions have an accuracy of 40 percent, an improvement from previous years due to obtaining additional surface water diversions records and a reduction of estimated riparian diversions as detailed in **Appendix C**.

Groundwater extractions from the Subbasin are metered in urban areas by community water agencies and at a few agricultural wells. **Appendix B** contains the detailed water accounting provided by each GSA and for metered groundwater extractions.

Groundwater extractions were estimated for urban (small community water systems) and agricultural uses. Estimates for small community water systems (about 500 AF) were estimated based on average water uses for categories of small systems times the population served or by annual water deliveries averaged over a 12-month period and then converted to water year accounting months. Groundwater extractions for most agricultural well owners are not metered and had to be estimated. Direct evapotranspiration was estimated by using field boundaries for the area (obtained from the 2023 provisional LandIQ crop data available from DWR), OpenET (satellite data), and the ee-METRIC approach to estimate crop evapotranspiration. **Appendix C** provides a summary of the approach used to estimate groundwater extractions for agricultural areas. In general, to estimate the groundwater pumping in agricultural areas, water supplies (precipitation, metered groundwater pumping, meter surface water diversions) were subtracted from the total crop evapotranspiration with the residual being estimated groundwater pumping for agriculture.

Groundwater extractions for domestic well owners were not included in the estimated groundwater pumping as these are de-minimus users, typically each well using less than two AF of water per year.

The groundwater extraction volumes for WY 2024 by principal aquifer and previous water years for each water sector are provided in **Table 2-1.** In WY 2021 and WY 2022 most groundwater extractions were not summarized by aquifer. All values in this table have been rounded and therefore do not match exactly to those detailed account values contained in **Appendix B**. For the WY 2024, total groundwater pumping (metered and estimated) was about 14,000 AF. In comparison to previous water years, this is about one-half of the amount pumped during drought years and about double the amount of last water year which was a wet year. Agricultural pumping was the largest component of total groundwater pumping and accounts for 51 percent of total pumping during WY 2024. Urban (community and small community water districts) account for 32 percent of the groundwater use. Industrial pumping accounts for two (2) percent of groundwater use. Groundwater pumping for remedial activities was 15 percent of the total.

In comparison to the sustainable yield for both aquifers, groundwater extractions minus recharge were under the sustainable yield by about 48,000 AF, indicating groundwater storage should have increased this water year.

Figure 2-7 illustrates the general location and volume of extractions (total extractions minus managed recharge), from **Table 2-1**, in each GSA to correlate the pumping presented with the locations shown within the Subbasin. The precise locations of the urban groundwater extractions are known but the estimated groundwater extractions by agriculture are not known; therefore, only the total amounts within each GSA are shown. Also, the aquifers that the wells extract water from is unknown or are not fully known.

Table 2-1. Total Groundwater Extraction by Water Use Sector and Aquifer

Upper Aquifer (Metered and Estimated)				
Groundwater Extraction Sector	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)
Agricultural	---	---	0	0
Urban	---	---	900	2,100
Industrial	---	---	600	200
Managed Wetlands	---	---	0	0
Native Vegetation	---	---	0	0
Other - Remediation	---	1,000	2,000	2,200
Managed Recharge	---	---	4,400	1,500
Total Extractions	---	**1,000**	**3,500**	**4,500**
Total = Extractions - Managed Recharge	---	---	**-900**	**3,000**
Sustainable Yield	---	---	**---**	**---**

Lower Aquifer (Metered and Estimated)				
Groundwater Extraction Sector	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)
Agricultural	---	---	0	600
Urban	6,800	3,800	1,300	2,000
Industrial	---	---	0	0
Managed Wetlands	---	---	0	0
Native Vegetation	---	---	0	0
Other - Remediation	---	---	0	0
Managed Recharge	---	250	1,400	1,200
Total Extractions	**6,800**	**3,800**	**1,300**	**2,600**
Total = Extractions - Managed Recharge	---	**3,550**	**-100**	**1,400**
Sustainable Yield	---	---	---	**---**

Both Aquifers or Unknown Aquifer (Metered and Estimated)				
Groundwater Extraction Sector	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)
Agricultural (See Appendix C)	22,000	21,700	3,500	6,500
Urban (small community water systems)	0	0	300	300
Industrial	1,000	500	100	100
Managed Wetlands	0	0	0	0
Native Vegetation	0	0	0	0
Other - Remediation	1,000	0	0	0
Managed Recharge	600	0	0	0
Total Extractions	**24,000**	**22,200**	**3,900**	**6,900**
Total = Extractions - Managed Recharge	**23,400**	**22,200**	**3,900**	**6,900**

Total Extraction - All Aquifers (Metered and Estimated)				
Groundwater Extraction Sector	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)
Agricultural	22,000	21,700	3,500	7,100
Urban	6,800	3,800	2,500	4,400
Industrial	1,000	500	700	300
Managed Wetlands	0	0	0	0
Native Vegetation	0	0	0	0
Other - Remediation	1,000	1,000	2,000	2,200
Managed Recharge	600	1,500	5,800	2,700
Subtotal Extractions	**30,800**	**27,000**	**8,700**	**14,000**
Total = Extractions - Recharge	**30,200**	**25,500**	**2,900**	**11,300**
Sustainable Yield (Upper + Lower Aquifers)	**62,100**	**62,100**	**62,100**	**62,100**

WY 2021 and 2022 values from Part A DWR Submittal

Sustainable Yield from GSP Section 6.7, Not subdivided by Aquifer

Sustainable Yield from GSP Section 6.7, Not subdivided by Aquifer

Notes: The total volumes of water extracted (metered and estimated) should only be considered accurate to the nearest 1,000 AF
WY 2021, 2022, and 2023 values from Part A DWR Submittal
Sustainable Yield from GSP Section 6.7, Not subdivided by aquifer

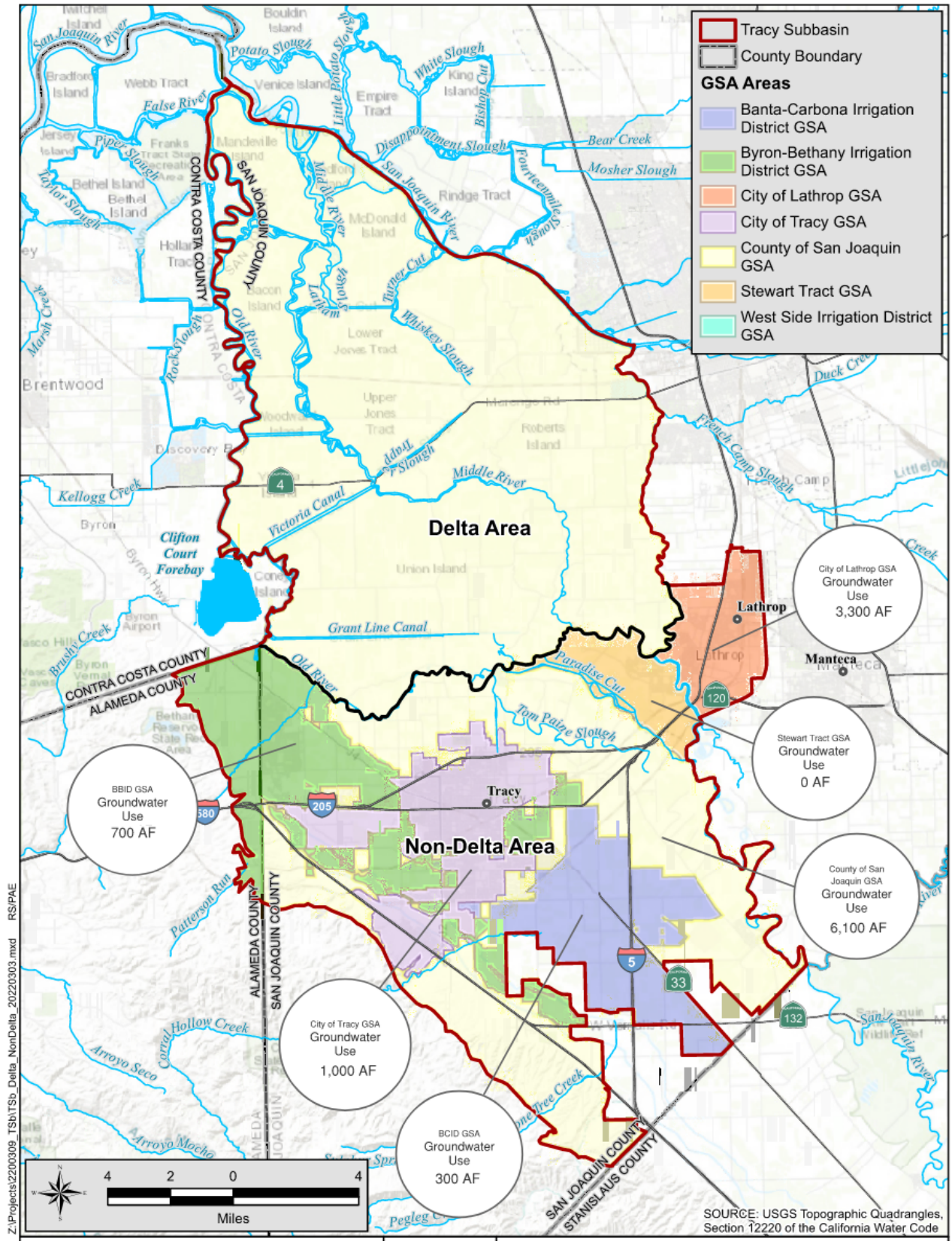

Figure 2-7. Location and Volume of Groundwater Extractions

2.5 Surface Water Supply

The Non-Delta Management Area relies on three surface water source types: imported supplies include South San Joaquin Irrigation District (SSJID), Central Valley Project (CVP) supplies, and local supplies (from the San Joaquin River and Old River). A small amount of water (about 600 AF) is being used from the State Water Project (SWP) under a water exchange with CVP water rights. Brief descriptions of each of the sources of supply and water use sectors are provided below. Surface water use by sector is summarized in **Table 2-2** and surface water use by source is summarized in **Table 2-3**, along with data from previous water years.

The accuracy of the metered water is 95 percent while the accuracy of the estimated water supplies is lower (about 80 percent) since the surface water diversion from Open ET had to be used to estimate diverted surface water for Reclamation District 2058. Diversion records from the State Water Resources Control Board's eWRIMS system were downloaded in February 2025. **Appendix B** contains the detailed water accounting provided for each GSA and for both metered and estimated surface water use.

2.5.1 Local Imported Supplies

The cities of Tracy and Lathrop import treated surface water from the Stanislaus River. SSJID treated and delivered the water to the cities. During WY 2024, the cities imported and used 14,000 AF, similar to previous water years.

2.5.2 Central Valley Project Supplies

The city of Tracy and BBID use water supplied from the Delta-Mendota Canal which is part of the CVP. The city of Mountain House receives water from BBID. The water is collected from the Old River into the Clifton Forebay, located just west of the Subbasin (*refer to* **Figure 2-7**). The amount of imported water used during WY 2024 from the CVP was about 16,800 AF, within the range of diversions from previous water years.

2.5.3 Managed Local Supplies

Local surface water supplies include surface water from the San Joaquin River, Old River, and other adjacent waterways. BBID and BCID divert water from the rivers. Riparian landowners also diverted water from the waterways. During WY 2024, the total local supply was 109,300 AF.

2.5.4 Total Surface Water Supplies

Local surface water supplies include surface water flows that entered the Subbasin from San Joaquin, Old River, and other adjacent waterways. Although water was supplied from the CVP aqueduct (Delta-Mendota Canal) the water was diverted from the Old River through the Clifton forebay, so this water could be considered a local source. Water was also imported into the Subbasin from SSJID. **Table 2-2 and 2-3** provide a summary of the total surface water use by sector and sources.

Table 2-2. Surface Water Use by Sector

Total Surface Water Sector (Metered and Estimated)					
Surface Water Supply Sectors	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)	Method Used to Determine
Agricultural	97,900	101,800	109,300	112,800	Metered and Estimated
Urban	24,800	25,900	27,000	27,300	Metered
Industrial	0	0	600	600	Metered
Managed Wetlands	0	0	0	0	
Native Vegetation	0	0	0	0	
Other - Recycled	400	500	500	1,200	
Total	**123,100**	**128,200**	**137,400**	**140,700**	

Note: --- = information not available
WY 2021 and 2022 values from DWR Annual Report Submittals, Part C
Managed Local Supplies increased in WY2023 due to obtaining additional surface water diversion data from SWRCB, for Naglee Burke ID and RD 2058
The total volumes of water should only be considered accurate to the nearest 100 AF
226 AF of Tracy urban water from SSJID used for recharge

Table 2-3. Surface Water Use by Source (Acre-Feet)

Total Surface Water Source (Metered and Estimated)					
Surface Water Supply Sources	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)	Method Used to Determine
Central Valley Project	16,800	9,700	15,000	16,800	Metered
State Water Project	0	0	600	600	Metered
Colorado River Project	0	0	0	0	
Managed Local Supplies	91,100	103,400	106,500	109,300	Metered, Estimated (Open ET derived estimateds)
Local Imported Supplies	14,800	14,600	14,800	14,000	Metered
Recycled Water	400	500	500	1,200	Metered
Reused Water	---	---	---	---	
Desalination	0	0	0	0	
Other	0	0	0	0	
Total	**123,100**	**128,200**	**137,400**	**140,700**	

Notes: The total volumes of water extracted should only be considered accurate to the nearest 1,000 AF
226 AF of Tracy urban surface water from SSJID used for Groundwater Recharge

2.6 Managed Recharge

Managed recharge is being performed by multiple entities and at various locations around the Subbasin. All of the managed recharge is metered and has an accuracy of 95 percent. Managed recharge is included in **Table 2-1**, per DWRs guidance document, as the recharge could reduce the total groundwater extracted

Managed groundwater recharge (about 200 AF) through the city of Tracy's aquifer storage and recovery well is injected into the Lower Aquifer. About 500 AF of the water from previous years remains in storage for the City's use in the future.

As part of BCID's conjunctive use program, roughly 700 AF of surface water was used instead of groundwater pumping.

Groundwater was also recharged through various percolation ponds by Sharpe Defense Distribution Depot into the Upper aquifer. Treated remedial water from Occidental Chemical Corporation was injected into both the Upper and Lower Aquifers.

Combined, the total managed recharge in WY 2024 was about 2,700 AF. Additional managed recharge is occurring in small community water systems where wastewater is placed into individual septic systems. This recharge is not included in the managed recharge.

2.7 Recycled Water Supplies

Treated wastewater was used by the city of Lathrop for irrigation of some public landscape areas within the Lathrop GSA area and in the Stewart Tract GSA area. California Natural Products, located within the city of Lathrop, treats their own wastewater and discharges to designated agricultural areas. The treated wastewater is a combination from both groundwater and surface water. The total recycled water was about 1,200 AF, which is higher compared to previous years.

2.8 Change in Groundwater Storage

Groundwater change in storage was estimated from the California Central Valley Groundwater-Surface Water Simulation Model (C2VSim-FG_v1.0) groundwater flow model for the period of WY 1974 through WY 2015. Changes in storage for WY 2016 through WY 2024 were estimated using fall groundwater contours to coincide with previous water year estimates made using the groundwater model. For consistency purposes, the same wells, to the extent possible, each year were used for contouring and to estimate the change in groundwater elevations. As previously discussed in **Section 2-2**, some wells had missing measurements during WY 2024 and recently constructed monitoring wells were added to the contouring data set, so a similar set of wells used for WY 2016 through WY 2023 could not be used to calculate change in storage in WY 2024. The addition of new monitoring wells likely affected change in storage estimates.

Raster files of the change in groundwater elevation maps were used to calculate an average change in groundwater levels in each principal aquifer. The average change in groundwater levels were then multiplied by the average specific yield or storage coefficient for each aquifer. The volume change depicted represents a total volume, including the volume displaced by the aquifer material and the volume of groundwater stored within the void space of the aquifer. The portion of void space in the aquifer that can be utilized for groundwater storage is represented by the aquifer storage coefficient (S), a unitless factor, which is multiplied by the total volume change to derive the change in groundwater in storage. The average storativity, or specific yield, is about 0.05 for the Upper Aquifer and was used to estimate the change in storage for the Upper Aquifer (Hotchkiss and Balding 1971). The storage coefficient, obtained through aquifer testing at a Well #8 and nearby observation wells in the city of Tracy, was estimated as 0.0001 (Padre and Associates 2004). The specific storage (storativity times the average aquifer thickness of 200 feet) or 0.02 was used to estimate the change in storage for the Lower Aquifer (Fetter 1988).

The total change in storage in the aquifers for WY 2024 decreased by about 14,200 AF. The groundwater elevation change maps for fall 2024, **Figure 2-8** and **Figure 2-9**, correspond to the areas where changes in storage occurred. Groundwater levels/elevations for the Upper Aquifer decreased (-0.77 feet) by about -4,500 AF. A small area of decline occurred near Lathrop due to increased pumping for groundwater remediation. The change in groundwater elevations in the Lower Aquifer was slightly larger. The average change in groundwater elevation was (-4.15 feet) resulting in a change in storage of about -9,700 AF in the Lower Aquifer. The greatest changes are occurring in the northwest and southeast areas where the new monitoring wells (MW-201, MW-203, and MW-204) are present so the change in storage may be inflated.

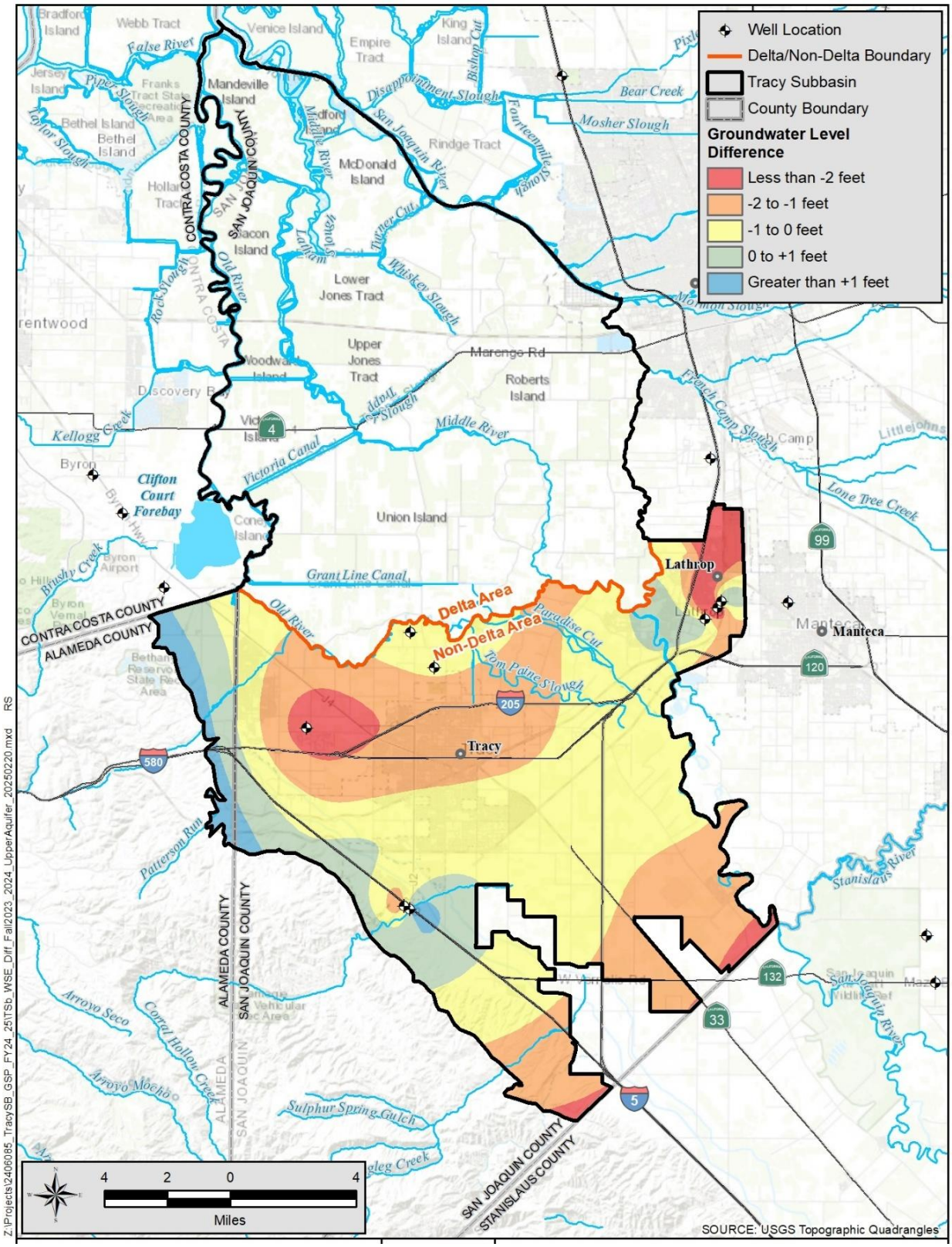

Figure 2-8. Upper Aquifer Change in Groundwater Levels for WY 2024

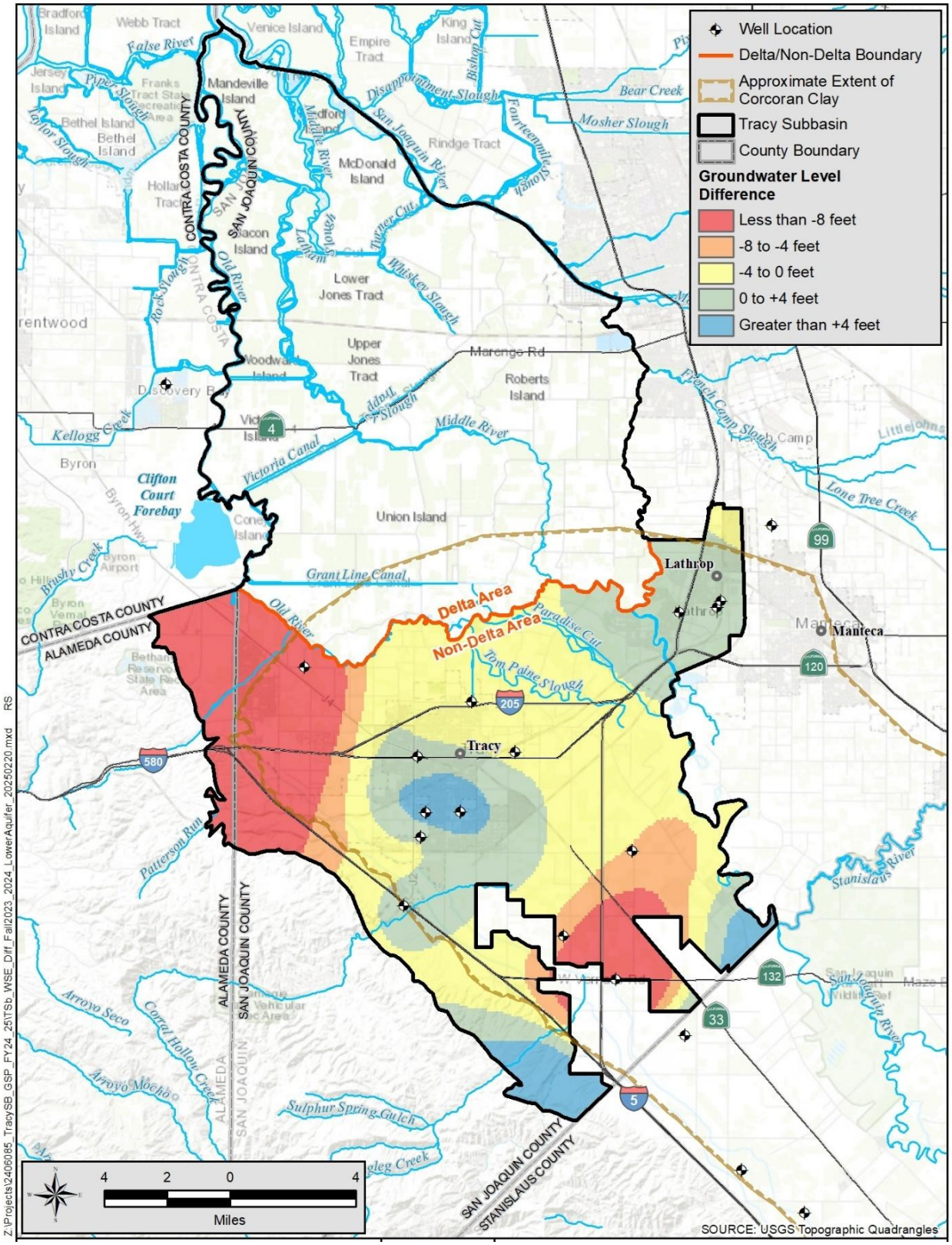

Figure 2-9. Lower Aquifer Change in Groundwater Levels for WY 2024

Table 2-4 provides fall change in storage (fall–fall) measurements for comparison along with the water year classification. Groundwater elevations and change in storage in the Upper Aquifer have remained similar with the slight differences due to the water year type (amount of recharge). As shown the fall change in storage correlates well with the water year classifications and that aquifers generally refill to the seasonal high during wet years, indicating the Subbasin is within its sustainable yield.

Overall, the Upper and Lower Aquifers from 2016 (the end of the last drought), refilled during WY 2017 through WY 2019 wetter years, but declined through WY 2020 through WY 2022 drought years. In WY 2023, groundwater in storage increased after the wet year. Although the storage apparently decreased in WY 2024, due to having slightly below normal precipitation, it is suspected the decline in part is due to the addition of new monitoring wells.

Table 2-4. Annual Change in Groundwater in Storage

Water Year	SJR Water Year Classification	Upper Aquifer Annual Fall Change (AF)	Lower Aquifer Annual Fall Change (AF)	Combined Net Change (AF)
2016	dry	-2,200	-7,800	-10,000
2017	wet	600	23,800	24,400
2018	below normal	-2,300	5,400	3,100
2019	wet	3,000	0	3,000
2020	dry	-6,100	-3,000	-9,100
2021	critical	-2,500	-23,500	-26,000
2022	critical	-8,800	-6,500	-15,300
2023	wet	23,500	30,200	53,700
2024	not available	-4,500	-9,700	-14,200
Cumulative Change in Storage		**700**	**8,900**	**9,600**

There was a total decrease of about 14,200 AF (combined fall total of Upper and Lower aquifers) in groundwater in storage in WY 2024. **Table 2-4** shows that over the last eight water years the Subbasin has gained about 9,600 AF of storage.

Figure 2-10 is a graph demonstrating the cumulative change in storage for the Upper Aquifer from both the C2VSim groundwater model and the calculated change in storage using the groundwater contour differences. **Figure 2-11** is a graph demonstrating the cumulative change in storage for the Lower Aquifer. The change in storage for the Upper Aquifer has a much smaller magnitude of change in storage using the calculated change in storage from groundwater contours in comparison to the groundwater model predications. This is possibly related to the groundwater model having an average pumping of 250,000 AF per year (AFY) rather than the average groundwater pumping of about 20,100 AF as shown in **Table 2-1**. The Lower Aquifer has about the same magnitude of change in storage between CV2Sim and those made using groundwater contours.

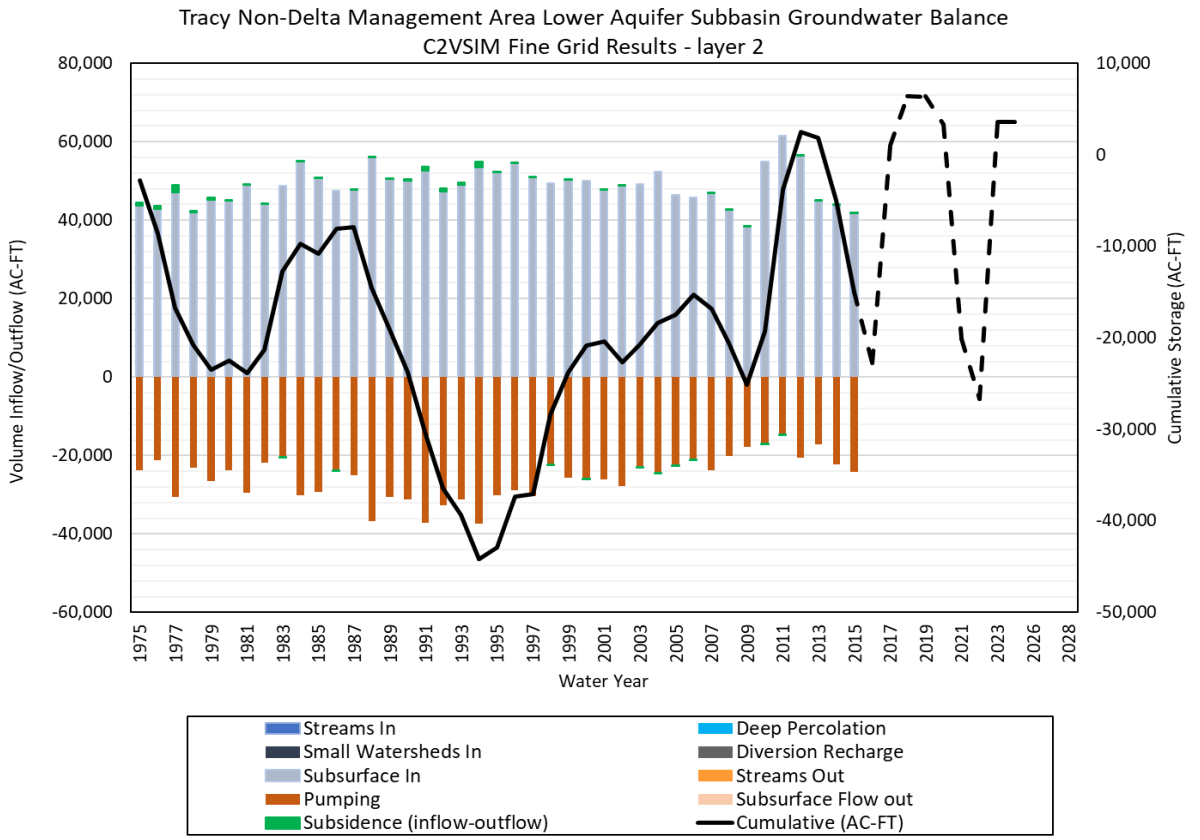

Figure 2-10. Upper Aquifer - Cumulative Change in Storage

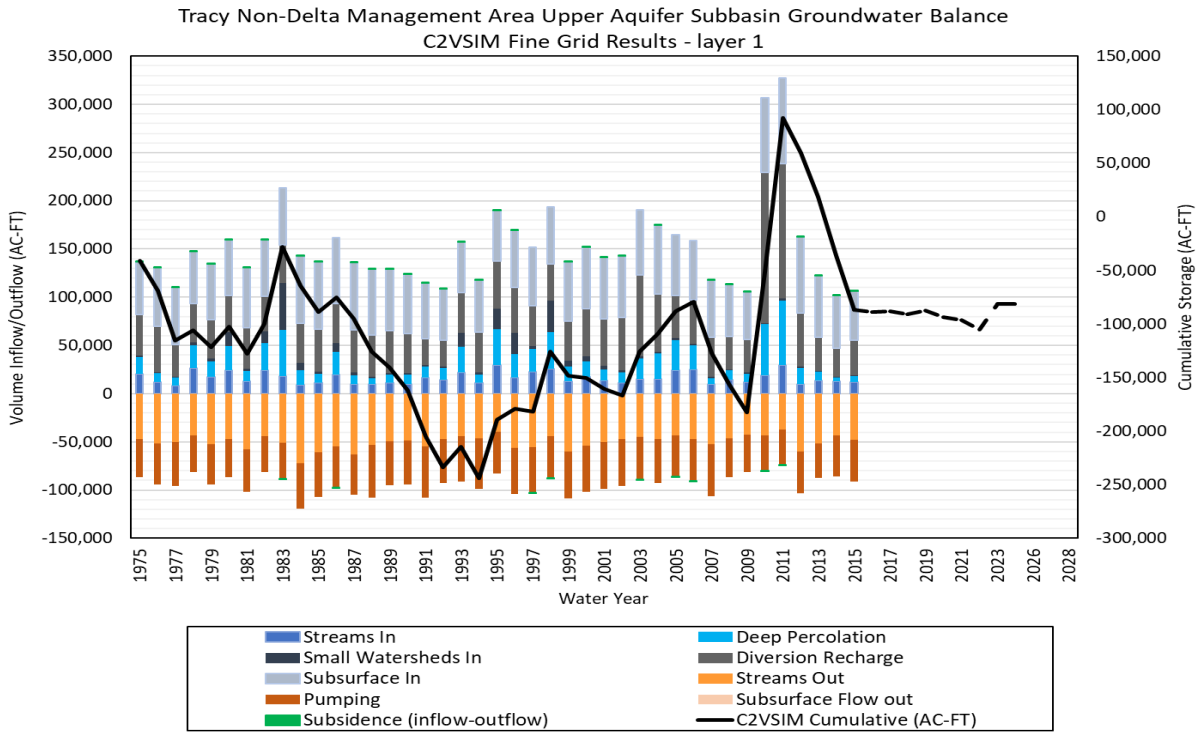

Figure 2-11. Lower Aquifer - Cumulative Change in Storage

2.9 Total Water Use

This section summarizes the total annual groundwater and surface water used to meet agricultural, urban, rural, and industrial demands including remedial cleanup activities in the Non-Delta Management Area. **Error! Reference source not found.Table 2-5** and **Table 2-6** provides a summary, along with the method used to determine the volumes of these water sources and water sectors for WY 2024.

For WY 2024, the quantification of total water use was completed from reported metered municipal water production and metered surface water delivery, and from models used to estimate agricultural and rural water demand.

Table 2-5. Total Water Use by Sector

Water Use Sector	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)	Method Used to Determine
Urban	39,700	29,700	29,600	31,800	Metered and Population Estimated
Industrial	1,100	500	1,200	800	Metered
Agricultural	119,700	124,000	113,400	121,100	Metered and Land Use Estimated
Managed Wetlands	0	0	0	0	
Managed Recharge	0	1,500	5,800	2,700	Metered
Native Vegetation	0	0	0	0	
Other - Remediation	1,500	1,000	2,000	2,200	Metered
Total	**162,000**	**156,700**	**140,400**	**153,200**	

Notes: The total volumes of water extracted should only be considered accurate to the nearest 1,000 AF
Metered estimated accuracy is about 95%
Estimated urban and agricultural is about 70%
WY 2024 subtracts Managed Recharge from total

Table 2-6. Total Water Use by Source

Water Use Source	WY2021 (AF)	WY2022 (AF)	WY2023 (AF)	WY2024 (AF)	Method Used to Determine
Groundwater	29,500	27,600	2,900	9,100	Metered and Land Use Estimated
Surface Water	130,800	127,600	137,000	140,700	Metered and Estimated
Recycled Water	200	500	500	1,200	Metered
Reused Water	0	0	0	0	
Other - Remediation	1,500	1,000	2,000	2,200	Metered
Total	**162,000**	**156,700**	**140,400**	**153,200**	

Notes: The total volumes of water rounded to nearest 1,000 AF where combination of metered and estimated, or just estimated
The total volumes of water rounded to nearest 100 AF where only metered
Metered estimated accuracy is about 95%
Estimated urban and agricultural is about 70%
Groundwater total shown in this table for WY 2024 is the total pumping minus managed recharge
In other tables, Groundwater totals for WY 2024 includes Remediation totals; in this table the two values are reported separately

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3. Progress Toward GSP Implementation

The previous sections of this report provided information to evaluate the sustainability of the Subbasin. This section evaluates sustainable management criteria including chronic lowering of groundwater levels, reduction of groundwater storage, subsidence, groundwater quality, and surface water depletion. The GSAs furthered the assessment by evaluation of subsidence, groundwater quality and surface water depletion.

3.1 Chronic Lowering of Groundwater Levels

In general, the groundwater elevations observed in the Subbasin during WY 2024 show a mixture of increases and decreases across the Subbasin; largely due to the average hydrologic conditions in WY2024 and the addition of new monitoring wells.

Significant and undesirable results for chronic lowering of groundwater levels is defined in the GSP as:

> When 25 percent or more of the representative monitoring wells (5 out of 21 wells) record groundwater levels that exceed the minimum thresholds for more than 2 consecutive years that are categorized as non-dry years (below-normal, above-normal, or wet), according to the San Joaquin Valley Water Year Hydrologic Classification. The lowering of groundwater levels during consecutive dry or critically-dry years is not considered to be unreasonable, and would therefore not be considered an undesirable result, unless the levels do not rebound to above the thresholds following those consecutive non-dry years.

In WY 2024, 18 wells were monitored in the fall in both the Upper and Lower aquifers. Fall measurements are used for comparison to minimum thresholds (MTs). All representative monitoring wells were above their MTs except one well in the Upper Aquifer as shown in **Table 3-1**. No domestic wells were reported to be dry in the Subbasin in WY 2024, providing additional confirmation that no undesirable results occurred.

Of the 16 wells with spring measurements, averages were developed to provide a general sense as to whether the Subbasin groundwater levels would conservatively be above their measurable objectives (MOs) in 2042. Spring measurements are used for comparison to MOs. The average is including two drought years, one wet year and one likely being slightly below normal (WY 2024). Ten wells are still below the MOs, all within 6 feet, an improvement from last year when 1 well was within 10 feet of reaching its MOs.

Table 3-1. Groundwater Elevations at Representative Monitoring Wells

Representative Wells				Groundwater Elevations (ft msl)								Average Spring (ft msl)	Above/Below MO (ft)
CASGEM ID	Local Name	Selected MTs (ft msl)	Selected MOs (ft msl)	Spring WY2021	Fall WY2021	Spring WY2022	Fall WY2022	Spring WY2023	Fall WY2023	Spring WY2024	Fall WY2024		
Upper Aquifer Wells													
377341N1213039W001	Well N	**5**	**7**	NM	NM	8.86	NM	15.86	NM	12.26	9	12.33	5.33
377061N1214199W001	Well Q	**55**	**57**	NM	NM	50.91	47.11	51.31	51.41	51.71	48	51.31	-5.69
377951N1216011W001	02S03E01D001M	**73**	**80**	78	77.1	77.77	NM	NM	NM	NM	79.65	78.5	-1.53
377813N1214420W001	02S05E08B001M	**-7**	**0**	-0.7	-1.2	NM	-3.2	0.3	-0.2	-0.2	-1	-0.2	-0.20
377976N1214560W001	01S05E31R002M	**-1**	**0**	0.2	0.6	NM	-1.4	1.1	1.1	0.6	1	0.63	0.63
376388N1213233W001	03S06E28N001M	**58**	**64**	62.54	61.44	60.14	NM	NM	NM	NM	NM	61.34	-2.66
377528N1215156W001	02S04E15R001M	**43**	**48**	55.41	NM	59.41	51.41	53.91	54.41	54.41	52	55.79	7.79
377979N1215800W001	01S04E31P005M	**41**	**45**	40.99	41.54	41.06	NM	NM	NM	NM	NM	41.03	-3.97
378103N1215449W001	ORL-1W	**-3**	**-1**	NM	NM	NM	NM	NM	NM	NM	NM	--	--
378165N1213145W001	MWM-24	**-1**	**3**	3.86	2.91	3.15	3.89	6.78	3.38	4.96	3.38	4.69	1.69
377823N1213330W001	MWR-25	**3**	**4**	4.37	4.99	4.46	5.02	13.45	7.75	5.95	7.75	7.06	3.06
378287N1212673W001	SAD MW-402D	**-2**	**3**	3.79	0.3	3.24	1.67	5.16	1.67	7.5	7.02	4.92	1.92
378116N1212841W001	PW11-031	**0**	**4**	3.59	1.69	2.28	1.5	3.14	5.33	NM	5.71	3.00	-1.00
378130N1212758W001	PW16-216	**-19**	**0**	-5.43	0.79	-3.83	-3.34	3.55	2.65	2.95	2.76	-0.69	-0.69
Lower Aquifer Wells													
376713N1214581W001	Corral MW-6	**-60**	**-38**	-24.76	-28.08	-32.63	-36.56	-35.95	-30.59	-24.68	-25.58	-29.51	8.50
377402N1214508W002	MW-1B	**-69**	**-20**	-23.72	-39.81	-31.20	-40.41	-18.78	-26.99	-10.1	-25.09	-20.95	-0.95
377031N1214485W002	MW-3B	**-40**	**-22**	-21.84	-47	-30.83	-43.34	-20.89	-28.36	-14.38	-27.79	-21.99	0.02
377427N1213943W002	MW-5B	**-60**	**-17**	-17.34	-37.61	-25.84	-39.53	-14.66	-26.46	-9.23	-25.98	-16.77	0.23
377656N1214199W002	MW-6B	**-67**	**-20**	-24.4	-34.85	-29.87	-35.4	-15.86	-24.24	-8.81	-24.88	-19.74	0.27
376974N1213258W001	03S06E05R001M	**-33**	**-7**	-23.81	-43	-20.81	-47.11	-5.65	-21.61	-1.49	-25.98	-12.94	-5.94
378076N1212997W001	PW20-500	**-10**	**0**	0.31	-4	-2.33	-6.18	-3.14	-3.88	0.77	-3.46	-1.10	-1.10

Notes: Yellow highlight indicates Minimum Treshold exceeded
msl = mean sea level

3.2 Depletion of Storage

In general, the groundwater elevations observed in the Subbasin during WY 2024 were a mixture of increases and decreases across the Subbasin; due to WY 2024 precipitation being slightly below normal. The most significant declines in groundwater in storage occurred where new wells were added to the network, likely resulting in most of the reported decline in storage.

The reduction of groundwater storage would be considered significant and undesirable result in the Tracy Subbasin if:

> Groundwater storage volumes are insufficient to satisfy beneficial uses within the Subbasin over the planning and implementation horizon of this GSP. Chronic lowering of groundwater levels is used as a proxy for this sustainable condition.

As discussed in Section 2.2 and shown on Figures in Section 2.8, groundwater in storage decreased in WY 2024 but no dry wells have been reported.

3.3 Subsidence

Land subsidence is the lowering of the land surface. As described in the GSP, several human-induced and natural causes of subsidence exist, but the only process applicable to the SGMA are those due to lowered ground surface elevations caused by groundwater pumping. As described in Section 2.4 groundwater extractions in WY 2024 were about one-half of those during the drought WY 2021 and WY 2022 and therefore the potential for subsidence in WY 2024 is unlikely.

Subsidence would be considered significant and undesirable, as defined in the GSP, as:

> An increase from historic rates of subsidence in the Non-Delta Management Area caused by lowering of groundwater levels that impact infrastructure. The minimum threshold for land subsidence in the Subbasin is set at no more than 0.03 feet in any

single year (October 1 – October 1 to match the water year) and a cumulative -0.13 feet in any 5-year period. The cumulative amount would exceed the estimation error in the InSAR data of 0.1 foot and would therefore be valid.

Land subsidence in the Subbasin is monitored using interferometric synthetic-aperture radar (InSAR) data collected *via* microwave satellite imagery provided by DWR. Historical subsidence was estimated using InSAR data provided by DWR. InSAR measures ground elevation using microwave satellite imagery data.

The GSP documents no subsidence in the Subbasin using data provided by DWR depicting the difference in InSAR measured ground surface elevations between October 1, 2023 through September 30, 2024 as processed by DWR.[2] These data show that subsidence of -0.1 to +0.1 feet occurred in the Subbasin as shown in **Figure 3-1**. The estimation error of the InSAR data is 0.1 foot. Therefore, undesirable results have not occurred during WY 2024 or in the previous two water years as they had similar rates of +0.1 to -0.1 feet/year.

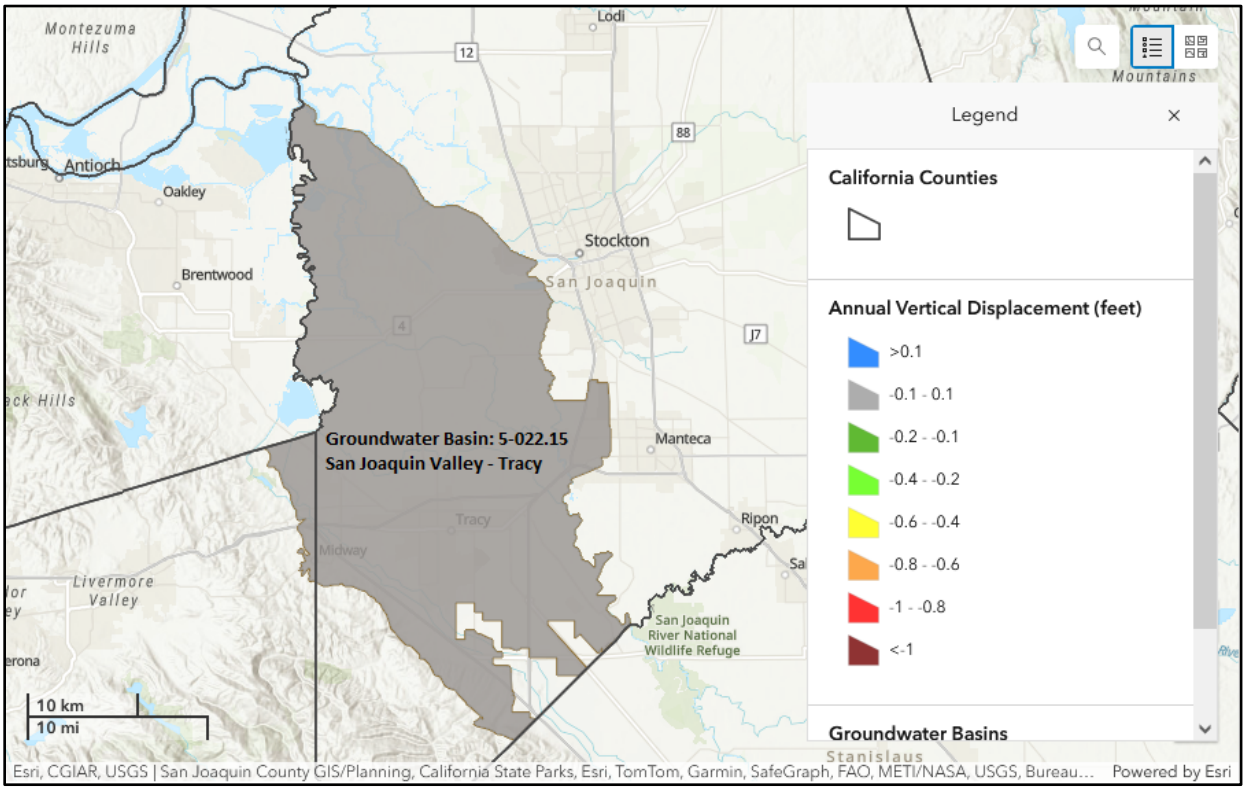

Figure 3-1. Lower Aquifer – InSAR Subsidence

2 https://storymaps.arcgis.com/stories/41574a6d980b4e5d8d4ed7b90f9698d2?utm_medium=email&utm_source=govdelivery

3.4 Interconnected Surface Water

Surface water depletion was based on exceedances of groundwater level minimum thresholds established at representative wells.

Surface water depletion would be considered significant and undesirable results if:

> Groundwater levels in 25 percent of the representative monitoring wells in normal years, excluding drought years, would decline below the minimum thresholds for 2 consecutive years.

Minimum thresholds were established at 10 representative monitoring wells in both the Upper and Lower Aquifers for surface water depletion. Fall measurements are used for comparison to MTs. Representative monitoring wells were established in the Lower Aquifer due to the unknown extent of the Corcoran Clay beneath the Delta Management Area. Two wells were not monitored in 2024, wells ORL-1W and 01S04E31P005M. **Table 3-2** shows a comparison of MTs and fall 2024 groundwater elevations. No wells exceeded the MTs in WY 2024.

Spring measurements are used for comparison to MOs. Of the 8 wells with spring measurements, spring averages were developed to obtain a general sense as to whether the Subbasin groundwater levels would conservatively be above their MOs in 2042. The average is including two drought years, one wet year, and one slightly below average precipitation year. One well in the Upper aquifer and one in the Lower aquifer are below their MOs but by less than 4 feet, as shown in **Table 3-2**.

Table 3-2. Summary of Surface Water Depletion

Representative Wells for Surface Water Depletion													
CASGEM ID	Local Name	Minimum Thresholds (ft amsl)	Selected MOs (ft msl)	Spring WY2021	Fall WY2021	Spring WY2022	Fall WY2022	Spring WY2023	Fall WY2023	Spring WY2024	Fall WY2024	Average Spring (ft msl)	Above/ Below MO (ft)
Upper Aquifer Wells													
377341N1213039W001	Well N	5	7	NM	NM	8.86	NM	15.86	NM	12.26	9.1	12.33	5.33
377813N1214420W001	02S05E08B001	-7	0	-0.7	-1.2	NM	-3.2	30	-0.2	-0.2	-1	9.70	9.70
377976N1214560W001	01S05E31R002	-1	0	0.2	0.6	NM	-1.4	1.1	1.1	0.6	1	0.63	0.63
378165N1213145W001	MWM-24	-1	3	3.86	2.91	3.15	3.89	6.78	3.38	4.96	2.98	4.69	1.69
377823N1213330W001	MWR-25	3	4	4.37	4.99	4.46	5.02	13.45	7.75	5.95	4.1	7.06	3.06
378103N1215449W001	ORL-1W	-3	-1	NM	NM	NM	NM	NM	NM	NM	NM	---	---
377979N1215800W001	01S04E31P005M	41	45	40.99	41.54	41.06	NM	NM	NM	NM	NM	41.03	-3.97
Lower Aquifer Wells													
377402N1214508W002	MW-1B	-69	-20	-23.72	-39.81	-31.2	-40.41	-18.78	-26.99	-10.1	-25.09	-20.95	-0.95
377427N1213943W002	MW-5B	-60	-17	-17.34	-37.61	-25.84	-39.53	-14.66	-26.46	-9.23	-25.63	-16.77	0.23
377656N1214199W002	MW-6B	-67	-20	-24.4	-34.85	-29.87	-35.4	-15.86	-24.24	-8.81	-24.88	-19.74	0.27

Notes: Cells highlighted in yellow are those that exceed the MT
ORL-1W not measured in WY 2022 by DWR or GSAs due to transfer of well

3.5 Groundwater Quality

Evaluation of the water quality sustainability indicator is achieved through monitoring of an existing network of supply wells in the Subbasin. Constituents of concern identified in the GSP that have the potential to impact suitability of water for public supply or agricultural use include salinity (as indicated by total dissolved solids), nitrate, and boron. Eight representative wells with

construction details were selected to monitor water quality and have minimum thresholds established. Six of the wells are public water supply wells and two wells were selected from the Irrigated Regulatory Lands Program water quality monitoring network.

Undesirable results, which were determined to be significant and unreasonable for degraded water quality are:

- The average TDS concentration in representative monitoring wells increases and exceeds the secondary upper drinking water MCL of 1,000 mg/L unless the concentration is already above the MCL
- The average nitrate concentration in representative monitoring wells to exceed the primary MCL of 10 mg/L
- The average boron concentrations to exceed the Long-Term Health Advisory level of 2.0 mg/L, in representative monitoring wells unless concentrations already are above this level
- When concentrations of TDS and nitrate in more than 25% of the representative monitoring wells increase above the MCL, agricultural water objective or Health Advisory level, unless the concentration already have been exceeded

Although groundwater quality is not a primary focus of SGMA, actions or projects undertaken by GSAs to achieve sustainability cannot degrade water quality to the extent that they would cause undesirable results. As stated in the GSP, groundwater quality in the Subbasin is generally poor, with few areas of good water quality. Eight wells were identified as representative monitoring wells with 6 of the wells being municipal water supply wells, which may only sample for some constituents once every three years. **Table 3-3** provides a list of the wells and any water quality data that was available during WY 2024. None of the water quality constituents exceeded the MTs in WY 2024.

An average concentration for four years was developed to compare to the MOs. **Table 3-3** provides a comparison of the average water quality to MOs. Two to three wells for each constituent in the Upper Aquifer are above their MOs. Groundwater management activities, implementing projects, are in the initial stages, so exceeding the MOs and MTs are not related to these activities.

Table 3-3. Summary of Groundwater Quality

TDS

PWS Code	Local Name	MT (mg/L)	MO (mg/L)	WY 2021 (mg/L)	WY 2022 (mg/L)	WY 2023 (mg/L)	WY 2024 (mg/L)	Average (mg/L)	Above/Below MO (mg/L)
Upper Aquifer									
	SJCDW00032	1,210	1100	--	1300	--	--	1300	200
	SJCDW00034	1,320	1200	--	1430	--	--	1430	230
3910015-005	WELL 06	500	470	--	--	500	--	500	30
Lower Aquifer									
3910702-006	WSW009	1,000	733	521	535	494	511	515	218
3910011-003	PRODUCTION WELL 01	1,000	910	870	--	--	870	870	40
3910011-018	WELL 04R -NEW LINCOLN	1,000	850	750	--	--	810	780	70
3910011-032	PRODUCTION WELL 06	1,000	760	690	--	--	620	655	105
3910011-034	PRODUCTION WELL 07	1,000	830	760	--	--	730	745	85

Nitrate

PWS Code	Local Name	MT (mg/L)	MO (mg/L)	WY2021 (mg/L)	WY 2022 (mg/L)	WY2023 (mg/L)	WY 2024 (mg/L)	Average (mg/L)	Above/Below MO (mg/L)
Upper Aquifer									
	SJCDW00032	10	7.8	11.0	11.0	11.0	--	11.0	3.2
	SJCDW00034	14	13.0	15.0	15.0	17	--	15.7	2.7
3910015-005	WELL 06	10	6.3	5.4	4.6	4.1	5.3	4.7	1.6
Lower Aquifer									
3910702-006	WSW009	10	2.0	1.3	0.81	0.73	0.79	0.9	1.1
3910011-003	PRODUCTION WELL 01	10	4.6	2.2	2.2	3	2.4	2.5	2.2
3910011-018	WELL 04R -NEW LINCOLN	10	3.0	2.1	1.3	--	1.8	1.7	1.3
3910011-032	PRODUCTION WELL 06	10	1.3	1.0	0.78	0.84	0.75	0.8	0.5
3910011-034	PRODUCTION WELL 07	10	1.9	1.6	1.5	1.3	1.5	1.5	0.4

Boron

PWS Code	Local Name	MT (mg/L)	MO (mg/L)	WY2021 (mg/L)	WY 2022 (mg/L)	WY2023 (mg/L)	WY 2024 (mg/L)	Average (mg/L)	Above/Below MO (mg/L)
Upper Aquifer									
	SJCDW00032	4.2	3.8	--	4.7	--	--	4.7	0.9
	SJCDW00034	1.0	0.9	--	1.6	--	--	1.6	0.7
3910015-005	WELL 06	0.7	0.2	--	--	<0.1	--	0.1	0.1
Lower Aquifer									
3910702-006	WSW009	1.7	1.5	0.89	0.88	0.70	0.86	0.8	0.7
3910011-003	PRODUCTION WELL 01	2.9	2.6	2.4	--	--	--	2.4	0.2
3910011-018	WELL 04R -NEW LINCOLN	1.4	1.3	1.2	--	--	--	1.2	0.1
3910011-032	PRODUCTION WELL 06	1.5	1.4	1.2	--	--	--	1.2	0.2
3910011-034	PRODUCTION WELL 07	2.0	1.8	1.4	--	--	--	1.4	0.4

Note: NA = Not analyzed, no sample taken; TDS = total dissolved solids.
Cells highlighted in yellow are those that exceed the MT

3.6 Projects and Management Actions

The hydrologic conditions and hydrogeologic setting of the Subbasin and ongoing proactive water management have demonstrated the resilient nature of the Subbasin and avoidance of groundwater overdraft conditions. As a result, DWR has designated the Subbasin as medium priority. The groundwater modeling with climate change and projections over the next 50 years showed that the Upper Aquifer could have a deficit of 800 AFY, while the Lower Aquifer could have a surplus of about 1,000 AFY (GEI 2021).

One project was identified to expand BCID service area to maintain sustainability of the Upper Aquifer. One management action was included in the GSP to evaluate and consider revising the San Joaquin County well ordinance to provide more protection for domestic wells, GDEs, and surface water.

The status of each project and management action is described below.

3.6.1 Project #1: Reduction of Groundwater Pumping

This conjunctive use project consists of expansion of the BCID distribution facilities to provide surface water to up to 2,000 acres of agricultural land that is currently solely reliant on groundwater. The project requires construction of new lateral pipelines, establishment of new turnouts to deliver water to the agricultural properties, and enlargement of a pump station tied to an existing main lift canal. The expansion of the distribution facilities project is currently under review by BCID Board of Directors. Construction was began in 2022 and be completed by 2030.

In WY 2022, BCID sought to improve groundwater levels by construction of Phase 1 of the project, which included about 6,800 linear feet of 36-inch diameter pipeline to serve 340 acres of farmland with surface water and began providing surface water in July 2022. This portion of the project was projected to reduce pumping by an average of 600 AFY over a ten-year period. In the last two years the project has reduced groundwater pumping by 530 AF in WY 2022 (only a partial year) and by 710 AF in WY 2024, meeting a portion of the forecasted future overdraft deficit.

3.6.2 Management Action #1: Modify Well Ordinance

This management action consists of revising the San Joaquin County Well Ordinance to create surface water protection zones near rivers, canals, and sloughs in the Non-Delta Management Area. Minimum sanitary seal and screen depth requirements could be developed to limit wells from using shallow aquifers directly connected to surface water. The management action will require development of technical information to support the development of protection zones and modification of the Well Ordinance. Exemptions may be allowed for replacement of existing wells. The well ordinance may also be modified to include special study requirements for high-capacity wells to assess their potential effects on nearby domestic wells.

San Joaquin County Environmental Health Department (SJCEHD) well permitting agency developed an approach to the Governor's Executive N-7-22, Action 9.a and 9.b, which required implementation of temporary requirements for approval of well permits. To address Action 9.b requirements, SJCEHD developed a simple distance-drawdown curve with various pumping rates to assess whether nearby wells could be affected by pumping of a new well. Additional meetings with SJCEHD are planned for WY 2025 to continue to explore long-term potential improvements, potentially keeping the develop approach after the EO is rescinded and using it for new wells near surface water. On February 13, 2023, Governor Newsom signed Executive Order N-3-23 (the "Order"), which aims to enhance water supply resilience in the state and modified slightly Order N-7-22. This order has since been rescinded.

New California Well Standards were expected to be originally released in Spring 2023 with the final in Fall 2023 which will require adoption of local well ordinances to meet the minimum standards. The revised schedule is for release of a public draft in Winter 2025. SJCEHD could potentially include a permanent version of rescinded Action 9.b along with proposed surface water protection zones and special studies into their well ordinance at that time. The GSAs do not have authority to permit wells or adopt ordinances pertaining to them.

3.7 Other Information on Implementing Progress

The GSA agencies in the Subbasin have agreed to work together to protect the groundwater resources of the Subbasin to meet the current and future beneficial uses in the Subbasin. The GSP identified two Supplemental Projects that would only be implemented if groundwater level monitoring were to show levels are declining and have a potential to exceed MTs.

Supplemental Project #1 was to further expand BCID's conjunctive use program, by extending their surface water delivery system to about 1,600 acres of agricultural land that historically has relied solely on groundwater. The project is anticipated to reduce groundwater pumping by an average of 2,400 AFY. BCID in WY 2023 submitted and was awarded $10 million through a Proposition 1, Round 2, DWR sponsored grant program to help to fund the project. This funding will provide about 17,000 linear feet of additional pipeline to expand the conjunctive use program. The project is to be completed by April 2026, four years earlier than the projected completion date in the GSP.

BCID informed the public about the project and funding award at their monthly Board meetings and also during the public workshop to present the WY 2023 Annual Report. Additional outreach is planned in WY 2025.

Supplemental Project #2 was to expand the City of Tracy's aquifer storage and recovery (ASR) program from one existing well to another seven wells. No activity has occurred on this supplemental project.

3.8 Public Involvement

The Tracy Subbasin GSAs held eight regular Coordination Committee meetings during WY 2024. The Coordination Committee meetings are open to the public and held monthly over Zoom from January through June, and quarterly during the second half of the year. Meetings are publicly noticed in compliance with Brown Act requirements.

The agendas for these meetings primarily focus on:

- Approval of the minutes from the previous meetings;
- Round robin updates from each GSA representative on the status of GSP implementation, including updates on projects and management actions, efforts to pursue funding and resources to support sustainable groundwater management activities, updates on local groundwater conditions, and other coordination needs;
- Presentations from the technical consultant staff on progress towards GSP implementation; and
- Inter-basin coordination updates from neighboring subbasins on GSP implementation activities.

The agendas, minutes, and supporting materials can be found on the Tracy Subbasin website.[3]

The WY 2023 Draft Annual Report was presented and discussed with the GSAs during the January 18, February 15, and March 21, 2024, Coordination Committee Meetings. The document was approved by the Subbasin GSAs in March under the condition that comments and edits discussed during the meeting or received via email from the GSA representatives would be incorporated prior to finalization and submittal to DWR by April 1. The final Annual Report was presented to the GSAs during the April 18, 2024, Coordination Committee meeting.

The Public Outreach and Engagement Table included within **Appendix D** summarizes all outreach and engagement activities that occurred in the Tracy Subbasin during WY 2024.

3.9 Progress Toward Corrective Actions

The GSP was submitted to California Department of Water Resources (DWR) for approval on January 27, 2022. DWR approved the GSP in WY 2024 on January 18, 2024, with seven conditional actions that are to be addressed in the GSP 5-year update in 2027. The corrective actions were reviewed and a schedule to complete the corrective actions was developed as outlined in **Table 3-4**. The progress towards addressing the actions is also provided in the table.

Table 3-4. Corrective Action Implementation Progress

#	Summary of Recommended Corrective Action	GSP Section	Proposed Timeline			Implementation Progress Actions
			WY2024	WY2025	WY2026	
1	Revise the current water budget information to include the most recent available conditions	Update water budget				C2VSIM obtained Feb 2025.
2a	Clarify and expand the rationale for concluding no undesirable results are likely to occur in the Delta Management Area within Plan implementation horizon.	SMC				Formulated approach.
2b	Develop a plan to monitor for changes in conditions, land use, new information or regulatory parameters impacting the Delta Management Area, and overall increases in groundwater use within the Delta Management Area and reassess in each periodic evaluation of the GSP the continuing appropriateness of the assumptions supporting the GSP's determination that undesirable results have not occurred and are not likely to occur.	Filling data gap				Conceptual approach developed.
2c	Work with adjacent basins towards developing a common approach for groundwater management within the legal Delta that considers how actions within each basin affect the ability of adjacent basins to implement their Plans.	Interbasin Coordination				Meet with Eastern San Joaquin Subbasin GSAs to discuss their approach.
3a	Remove the water-year type requirement from the GSP's undesirable result definition to be consistent with sustainable groundwater management under SGMA.					No progress in WY 2024.
3b	Revise the GSP to include and describe in detail specific projects and management actions the GSAs would implement to offset drought-year groundwater level declines.	Filling data gap				No progress in WY 2024.
3c	Consider the extent of potential impacts to domestic well users throughout the Subbasin, and not just at select representative monitoring sites, and document the percentage, number, and location of all potentially impacted wells in the Subbasin at the proposed minimum thresholds for chronic lowering of groundwater levels.	Filling data gap				WCRs downloaded from DWR and listed edited to just domestic wells. Next steps create raster maps of top of well screens and MT levels.
4a	Revise the definition of undesirable results so that exceedances of minimum thresholds caused by groundwater extraction or other factors are considered in the assessment of undesirable results in the Subbasin.	SMC				No progress in WY 2024.
4b	Define criteria that will be used to determine whether undesirable results due to degraded water quality associated with boron are occurring, which should be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the Subbasin.	SMC				No progress in WY 2024.
5	Define criteria that will be used to determine whether undesirable results due to land subsidence are occurring, which should be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects (e.g., impairment of the operation or functioning of canals, levees, and other surface uses) in the Subbasin.	SMC				No progress in WY 2024.
6a	The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. Department understands that estimating the location, quantity, and timing of stream depletions is a complex task and that developing suitable tools may take additional time; however, it is critical piece for evaluations of whether GSP implementation is on track to achieve sustainable groundwater management.	SMC				Reviewed of DWR Papers 1 thru 3. Waiting for guidance documents to be released.
6b	Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.	Data collection				Two new shallow aquifer monitoring wells constructed.
6c	Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletions within the GSA's jurisdictional area.	Stakeholder outreach				No progress in WY 2024.
6d	Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.	SMC				No progress in WY 2024.
7a	Provide well construction information, monitoring frequencies, and constituents to be sampled for the overall groundwater quality monitoring network.	Filling data gap				Small community water systems wells construction details were assessed and recommendations made to add new wells to the water quality monitoring network.
7b	Explore the feasibility of including surface flow gaging stations in the interconnected surface water monitoring network or identify groundwater level objectives that would be protective of surface water flows.	SMC				No progress in WY 2024.

Note: Full description of Corrective Actions contained in DWR's Letter of Determination
SMC = Sustainable Management Criteria

[3] Meetings – Tracy Subbasin

3.10 Progress Toward Filling Data Gaps

The GSAs identified in the GSP data gaps in their monitoring network, hydrogeologic conceptual model, and uncertainties in the groundwater model.

3.10.1 Expanded Groundwater Monitoring Network

Five new monitoring well locations have been selected, and applications were submitted to DWR's Technical Support Services in September 2022. In WY 2024, landowners entered into agreements to allow DWR to construct the wells on their lands. Land for a sixth well may be acquired as part of Supplemental Project #1 described above and is being explored to potentially include in the monitoring network.

DWR constructed one nested monitoring well (MW-203) near the end of WY 2023. DWR constructed nested monitoring wells MW-101, MW-201, and MW-204 in WY 2024. Drilling of the pilot hole for MW-202 was completed in WY 2024, but the wells were completed in October 2024, in WY2025.

3.10.2 Purchase and Install Transducers

Purchase of transducers for three wells to improve the correlation of groundwater to surface water. The transducers have not been purchased or installed.

3.10.3 Groundwater Dependent Ecosystems

The California Natural Resources Agency has compiled a Natural Communities Commonly Associated with Groundwater dataset (commonly known as NCCAG dataset) which identifies potential Groundwater Dependent Ecosystems (GDEs). The potential GDE areas have not been validated in the GSP. Evaluation of potential GDEs with the depth to groundwater was completed in WY 2024 (GEI, 2024).

3.10.4 Improve Groundwater Quality Monitoring Network

The GSP, identified 125 community and small community water supply wells in the Subbasin with water quality data, but only 50 of the wells had well construction details to identify which aquifer they extract water from. The GSP indicated that within the next five years, construction details will be located so that water quality results can be sorted by principal aquifers to improve the distribution of representative monitoring wells for water quality and trend assessment in the Subbasin. A revised list of small community water systems was obtained from Division of Drinking Water and San Joaquin County Environmental Health Department. Seventy-one active small community water supply systems were found and investigated. Well construction details were obtained from the Division of Drinking Water and San Joaquin County Environmental Health Department and DWR to assign small community water system wells by aquifer. Twelve wells were identified that could be used to supplement the existing water quality monitoring network. The evaluation was completed in WY2024 (GEI, 2024).

3.10.5 C2VSim Improvements

The GSAs, in their GSP, identified multiple items that could potentially improve C2VSim-FG_v1.0 and make the model more useful for the Subbasin. In January 2023, the GSAs met with DWR to discuss the updates to the C2VSim-FG_v1.0. The GSAs provided DWR with water supply information to use in the model update. The revised model was not released in WY 2024, so no progress was accomplished. The model was released in January 2025.

4. Summary of Progress toward Meeting Subbasin Sustainability

The GSAs have begun to resolve data gaps by having DWR, through their Technical Support Services program, constructed four new nested sets of monitoring wells with a fifth monitoring well in progress. The GSAs began groundwater level monitoring in some of these wells. A GDE evaluation to identify likely GDE areas and an assessment of small community well construction details and assignments to aquifers to further assess groundwater quality was accomplished in WY2024.

Groundwater levels had mixed response across the Subbasin with groundwater levels increasing and declining. Part of the changes in levels is due to inclusion of groundwater level data from the new monitoring wells. Groundwater MTs for chronic lowering of groundwater levels were exceeded at one well in the Non-Delta Management Area in fall 2024, but this did not produce undesirable results as defined in the GSP. No dry wells were reported in the Subbasin. There was an associated decrease in groundwater in storage. The evaluation of other sustainability indicators did not result in any exceedances of MTs.

Progress has been made toward implementing Project #1: Reduction of Groundwater Pumping (*refer to* **Section 3.6.1**). Partial implementation to provide surface water to areas that were solely reliant on groundwater was completed in WY 2022. This has reduced groundwater pumping in the Upper Aquifer by about 700 AFY in WY 2024, almost fully resolving the projected deficit of 800 AFY in WY 2042.

Actions are underway to collect data, improve the monitoring and data collection networks, address corrective actions and continued coordination with adjacent GSAs.

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Appendix A Hydrographs

New wells being added to the network

Table A-1 TSb Groundwater Monitoring Network

CASGEM ID	Local Name	Latitude	Longitude	Reference Point Elevation (ft)	Screened Interval (ft bgs)	Total Depth (ft bgs)	Period of Record	Well Type	Current Monitoring Frequency	**Hydrographs Provided in This Appendix**
Upper Aquifer Wells										
377341N1213039W001	Well N	37.7341	-121.3039	23.36	Unknown	40	1960-2019	R	Semi-Ann	X
377061N1214199W001	Well Q	37.7061	-121.4199	121.41	120-140	140	1972-2020	R	Semi-Ann	X
377951N1216011W001	02S03E01D001M	37.795122	-121.60111	90	40-80	80	2014-2020	I	Semi-Ann	X
377813N1214420W001	02S05E08B001M	37.7813	-121.442	4.3	50-80	80	1960-2019	R	Semi-Ann	X
377976N1214560W001	01S05E31R002M	37.7976	-121.456	4.6	Unknown	92	1960-2019	R	Semi-Ann	X
376388N1213233W001	03S06E28N001M	37.6388	-121.3233	148.24	107-128	128	2012-2020	O	Semi-Ann	X
377528N1215156W001	02S04E15R001M	37.7528	-121.5156	63.41	0.1-45	45	2011-2019	U	Semi-Ann	X
378103N1215449W001	ORL-1W	37.810306	-121.54489	16.6	86-106	106	2005-2018	O	None	X
377979N1215800W001	01S04E31P005M	37.797914	-121.58003	60	8-23	24	2014-2020	O	Semi-Ann	X
376713N1214580W001	Corral MW-5	37.671344	-121.45799	297.89	71-81	87	2015-2019	O	Active	X
376700N1214547W001	Corral MW-4	37.669968	-121.45466	243.74	16.5-26.5	27	2015-2019	O	Active	X
	Glori MW-2	37.680557	-121.34394	77.83	20-35	35	2020-future	O	Quarterly/Cont.	
	DV MW-16-BP	37.749268	-121.32764	18	60-85	85	1995-2020	O	Quarterly	
	MWM-24	37.816573	-121.31459	16.88	10-20	21	2005-2020	O	Quarterly	X
	MWR-25	37.782319	-121.33303	16.25	11-21	22	2005-2020	O	Quarterly	X
	PW11-031	37.811634	-121.28417	20.42	23-28	31	1980-2019	O	Quarterly	X
	PW16-216	37.813046	-121.27582	23.26	208-213	216	1980-2019	In	Quarterly	X
	SJCDW00034	37.6891	-121.3607		Unknown	180	2018-2020	O	Annual	X
	SJCDW00032	37.766	-121.5308		Unknown	125	2018-2020	O	Annual	X
	SAD MW-438D	37.852531	-121.27371	21.42	260-280	280	Unknown	O	Semi-Ann	
	SAD MW-401D	37.82681	-121.26346	24.46	230.25-240	240	Unknown	O	Semi-Ann	
	SAD MW-402D	37.828719	-121.26737	24.52	260-270	270.5	2004-2020	O	Semi-Ann	X
Lower Aquifer Wells										
376713N1214581W001	Corral MW-6	37.67127	-121.45809	303.33	455-475	477	2015-2018	O	Quarterly	X
376664N1214612W001	Corral MW-7	37.666448	-121.46123	304.97	310-330, 360-380, 410-430	430	2015-2019	O	Quarterly	X
377402N1214508W001	MW-1A	37.740187	-121.45076	49.25	428-468	480	2012-2019	O	Semi-Ann	X
377402N1214508W003	MW-1C	37.740187	-121.45076	51.2	748-788	800	2012-2019	O	Semi-Ann	X
377402N1214508W002	MW-1B	37.740187	-121.45076	50.09	618-658	670	2012-2019	O	Semi-Ann	X
377143N1214459W001	MW-2A	37.714305	-121.44591	92.58	426-466	480	2012-2019	O	Semi-Ann	X
377143N1214459W002	MW-2B	37.714305	-121.44591	92.53	634-674	690	2012-2019	O	Semi-Ann	X
377143N1214459W003	MW-2C	37.714305	-121.44591	92.53	770-810	820	2012-2019	O	Semi-Ann	X
377031N1214485W001	MW-3A	37.703055	-121.44854	137.86	382-402	415	2012-2019	O	Semi-Ann	X
377031N1214485W002	MW-3B	37.703055	-121.44854	138.08	540-580	595	2012-2019	O	Semi-Ann	X
377031N1214485W003	MW-3C	37.703055	-121.44854	138.22	770-810	820	2012-2019	O	Semi-Ann	X
377149N1214257W001	MW-4A	37.714872	-121.42567	104.08	450-490	505	2012-2019	O	Semi-Ann	X
377149N1214257W002	MW-4B	37.714872	-121.42567	102.75	680-700	715	2012-2019	O	Semi-Ann	X
377149N1214257W003	MW-4C	37.714872	-121.42567	103.11	770-810	820	2012-2019	O	Semi-Ann	X
377427N1213943W001	MW-5A	37.742656	-121.39432	48.39	406-446	460	2012-2019	O	Semi-Ann	X
377427N1213943W002	MW-5B	37.742656	-121.39432	47.82	576-616	640	2012-2019	O	Semi-Ann	X
377427N1213943W003	MW-5C	37.742656	-121.39432	48.06	770-810	820	2012-2019	O	Semi-Ann	X
377656N1214199W001	MW-6A	37.765631	-121.41992	26.52	410-450	465	2012-2019	O	Semi-Ann	X
377656N1214199W002	MW-6B	37.765631	-121.41992	26.65	590-630	645	2012-2019	O	Semi-Ann	X
377656N1214199W003	MW-6C	37.765631	-121.41992	26.8	755-795	810	2012-2019	O	Semi-Ann	X
376444N1213980W001	03S05E26M001M	37.6444	-121.398	234.09	Unknown	782	2012-2020	I	Semi-Ann	X
376974N1213258W001	03S06E05R001M	37.6974	-121.3258	59.69	252-275, 295-340, 395-436, 487-537, 589-597, 623-698, 724-749	775	1959-2020	U	Semi-Ann	X
376470N1213162W001	03S06E28F003M	37.647	-121.3162	119.82	331-715, 726-745	745	1999-2020	I	Semi-Ann	X
	PW12-315	37.810059	-121.2779	21.62	307-312	315	2009-2019	O	Quarterly	X
	PW16-329	37.813046	-121.27582	23.25	321-326	329	2009-2019	O	Quarterly	X
	PW20-500	37.807602	-121.2997	15.82	300-500	497.5	2009-2019	O	Quarterly	X
	MW-201 (shallow or A)	37.78058025	-121.51701	81.07	250-260	260	2025-future	O	Semi-Ann	
	MW-201 (mid-shallow)	37.78058126	-121.51701	24.36	495-505	505	2024-future	O	Semi-Ann	
	MW-201 (mid-deep)	37.78058096	-121.517	24.25	605-615	615	2024-future	O	Semi-Ann	
	MW-201 (deep)	37.78058224	-121.51701	24.00	690-710	710	2024-future	O	Semi-Ann	

New wells being added to the network

Table A-1 TSb Groundwater Monitoring Network

CASGEM ID	Local Name	Latitude	Longitude	Reference Point Elevation (ft)	Screened Interval (ft bgs)	Total Depth (ft bgs)	Period of Record	Well Type	Current Monitoring Frequency	**Hydrographs Provided in This Appendix**
	MW-203 (mid-shallow or B)				470-480	480	2024-future	O	Monthly	**X**
	MW-203 (mid-deep or C)				710-720	720	2024-future	O	Monthly	**X**
	MW-203 (deep or D)				1040-1060	1060	2024-future	O	Monthly	**X**
376382N12113347W002	MW-204 (B)	37.63826	-121.33475	173.56	490-500		2024-future	O	Monthly	**X**
376382N12113347W003	MW-204 (C)	37.63826	-121.33475	173.19	790-800		2024-future	O	Monthly	**X**
376382N12113347W004	MW-204 (D)	37.63826	-121.33475	172.75	905-915	925	2024-future	O	Monthly	**X**

Notes:

I = Irrigation well

In = Industrial

O = Observation/Monitoring well

R = Residential well

U = Unknown

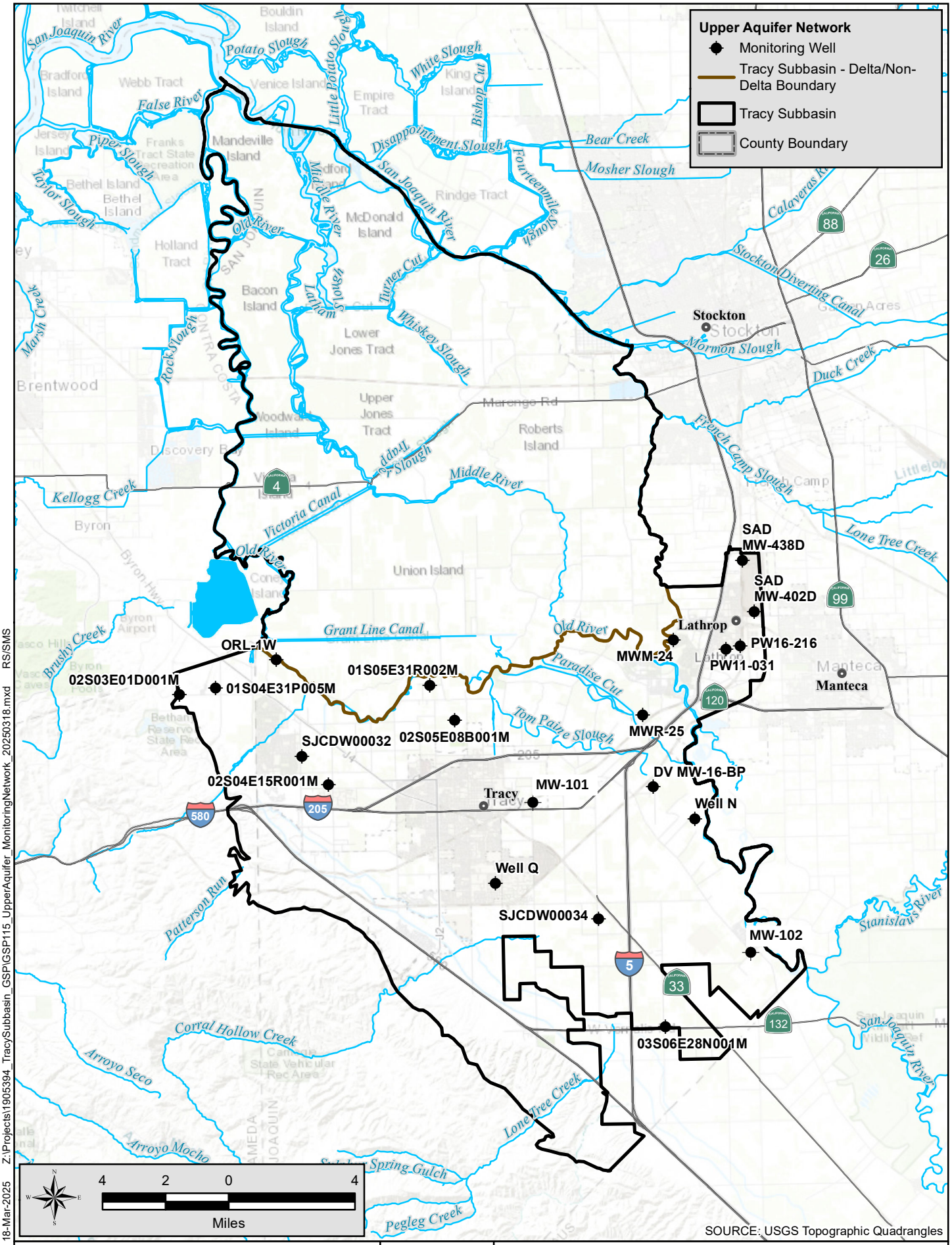
MW-202 has yet to be established in the CASGEM monitoring network.

ORL-1W, in processed of being transferred from DWR to BBID

02S03E01D001M well owner has not been identified and therefore no access to the well

DV MW-16-BP information has not been obtained from the Delta Mendota Subbasin.

Remediation montioring wells SAD MW-401D and SAD MW-402D measruements have not been obtained from Occidental



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18-Mar-2025

Tracy Subbasin
San Joaquin and Alameda Counties

Tracy Subbasin

GEI Consultants

Upper Aquifer Monitoring Network

MARCH 2025

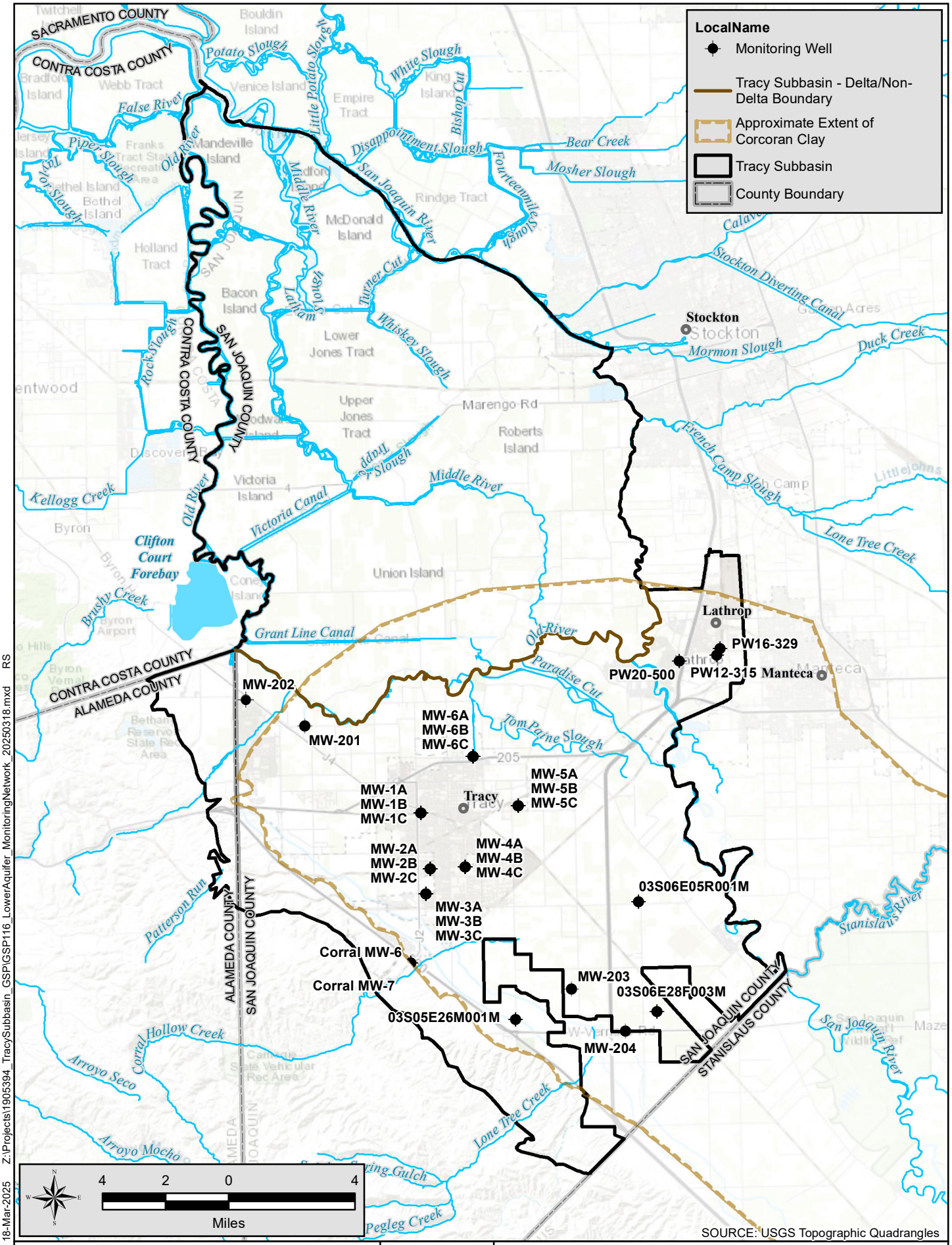
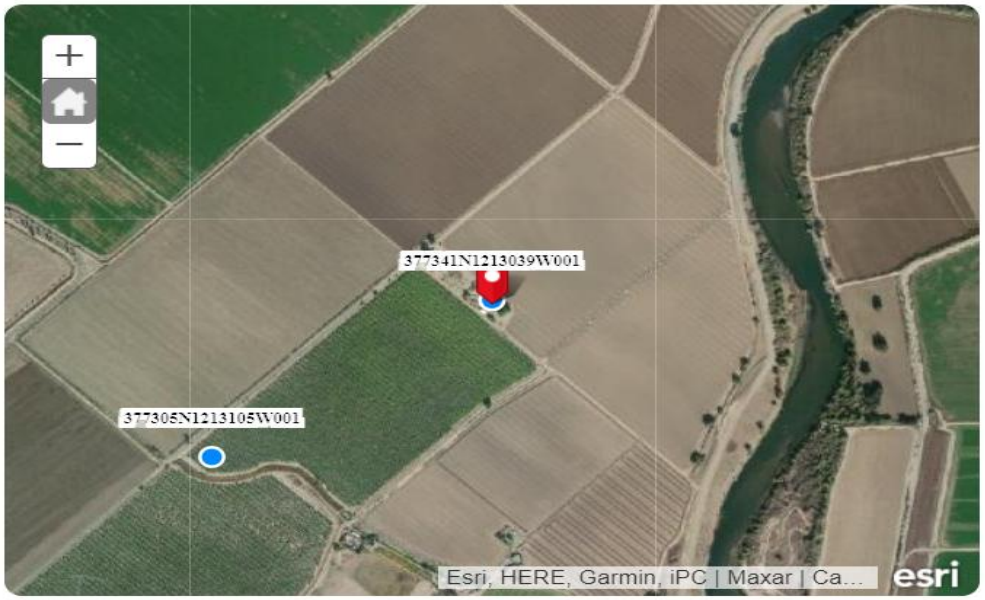

LocalName
Monitoring Well
Tracy Subbasin - Delta/Non-Delta Boundary
Approximate Extent of Corcoran Clay
Tracy Subbasin
County Boundary
SACRAMENTO COUNTY
CONTRA COSTA COUNTY
ALAMEDA COUNTY
SAN JOAQUIN COUNTY
STANISLAUS COUNTY
Clifton Court Forebay
Stockton
Lathrop
Manteca
Tracy
MW-202
MW-201
MW-6A
MW-6B
MW-6C
MW-1A
MW-1B
MW-1C
MW-5A
MW-5B
MW-5C
MW-2A
MW-2B
MW-2C
MW-4A
MW-4B
MW-4C
MW-3A
MW-3B
MW-3C
Corral MW-6
Corral MW-7
03S05E26M001M
03S06E05R001M
MW-203
03S06E28F003M
MW-204
PW16-329
PW20-500
PW12-315
Old River
Middle River
Grant Line Canal
Victoria Canal
Paradise Cut
Tom Paine Slough
Stockton Diverting Canal
French Camp Slough
Mormon Slough
Duck Creek
Lone Tree Creek
Corral Hollow Creek
Arroyo Seco
Arroyo Mocho
Patterson Run
Pegleg Creek
San Joaquin River
Stanislaus River
Union Island
Roberts Island
Upper Jones Tract
Lower Jones Tract
Bacon Island
McDonald Island
Mandeville Island
Victoria Island
Holland Tract
Bethel Island
Empire Tract
Ringdre Tract
Marengo Rd
4 2 0 4
Miles
SOURCE: USGS Topographic Quadrangles
Z:\Projects\1905394_TracySubbasin_GSP\GSP116_LowerAquifer_MonitoringNetwork_20250318.mxd RS
18-Mar-2025
Tracy Subbasin
San Joaquin and Alameda Counties
Tracy Subbasin
GEI Consultants
Lower Aquifer
Monitoring Network
MARCH 2025

Figure A-1. Well N

Site Code: 377341N1213039W001 **State Well Number:** 02S06E27E001M **Local Well Name:** Well N

Site Code: 377341N1213039W001
Local Well Name: Well N
State Well Number: 02S06E27E001M
Station ID: 6755
WCR Number:
Latitude: 37.73410
Longitude: -121.30390
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Residential
Well Completion Type: Single Well
Well Depth (feet bgs): 40
Top Perforation (feet bgs):
Bottom Perforation (feet bgs):
Ground Surface Elevation: 22.36
Reference Point Elevation: 23.36
Reference Point Description: None Provided
Station Comments: WELL CONSTRUCTION INFORMATION CONFIRMED AS OF: 2/1/2011



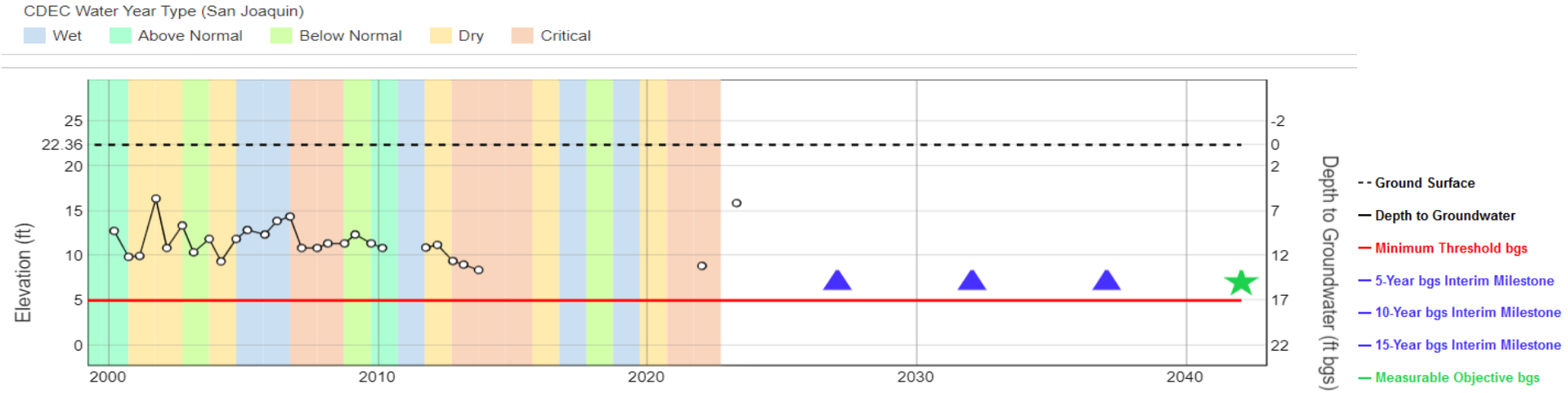
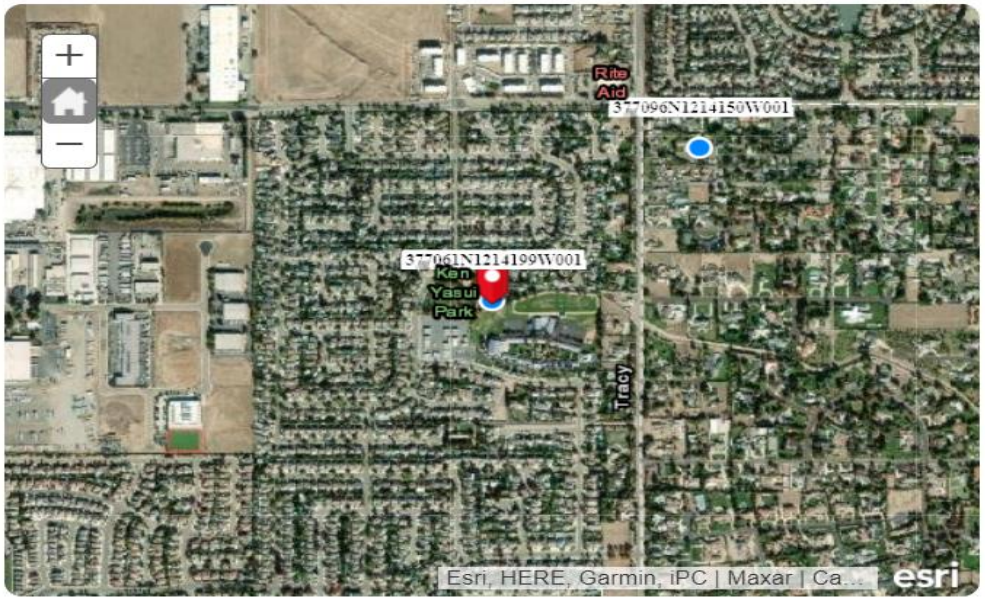


Figure A-2. Well Q

Site Code: 377061N1214199W001 **State Well Number:** 03S05E04H001M **Local Well Name:** Well Q

Site Code: 377061N1214199W001
Local Well Name: Well Q
State Well Number: 03S05E04H001M
Station ID: 2411
WCR Number:
Latitude: 37.70610
Longitude: -121.41990
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Residential
Well Completion Type: Single Well
Well Depth (feet bgs): 140
Top Perforation (feet bgs): 120
Bottom Perforation (feet bgs): 140
Ground Surface Elevation: 120.41
Reference Point Elevation: 121.41
Reference Point Description: None Provided
Station Comments: WELL CONSTRUCTION INFORMATION CONFIRMED AS OF: 4/23/2014 by TRB



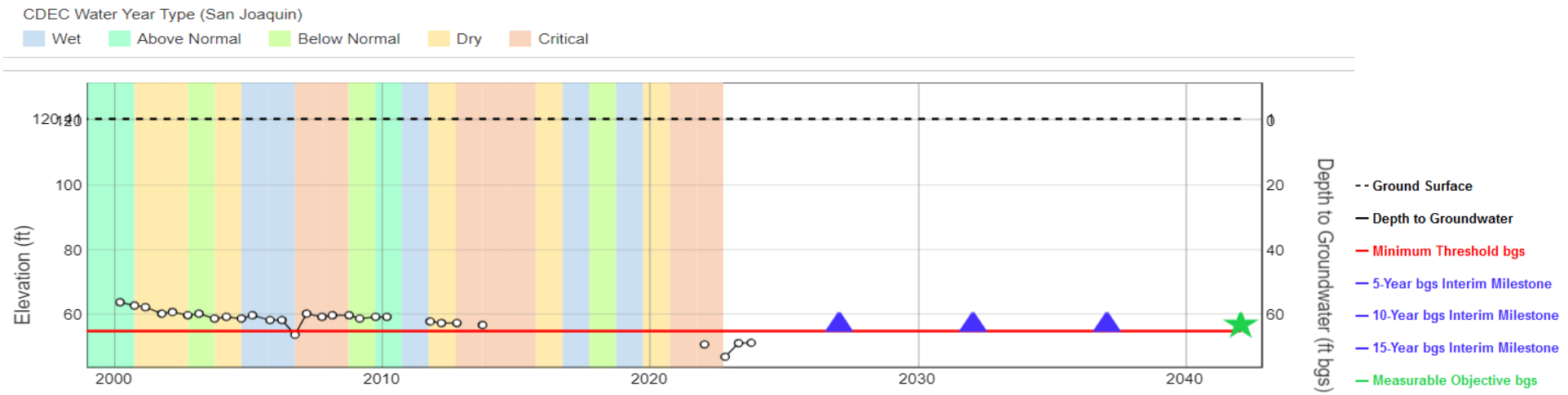


Figure A-3. 02S03E01D001

Site Code: 377951N1216011W001 **State Well Number:** 02S03E01D001M **Local Well Name:** 2S3E01D001

Site Code: 377951N1216011W001
Local Well Name: 2S3E01D001
State Well Number: 02S03E01D001M
Station ID: 50456
WCR Number:
Latitude: 37.79512
Longitude: -121.60111
Station Organization ID:
Station Organization Name:
Well Location Description: KELSO RD & BRUNS RD
Well Use Type: Irrigation
Well Completion Type: Single Well
Well Depth (feet bgs): 80
Top Perforation (feet bgs): 40
Bottom Perforation (feet bgs): 80
Ground Surface Elevation: 90
Reference Point Elevation: 90
Reference Point Description: Top of casing
Station Comments: IRRIGATION

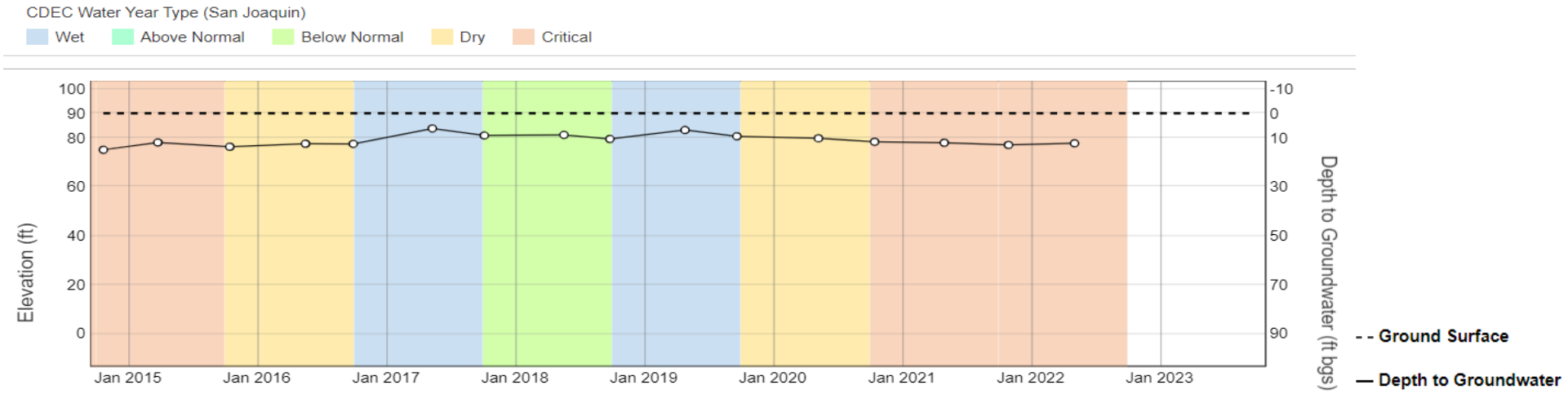
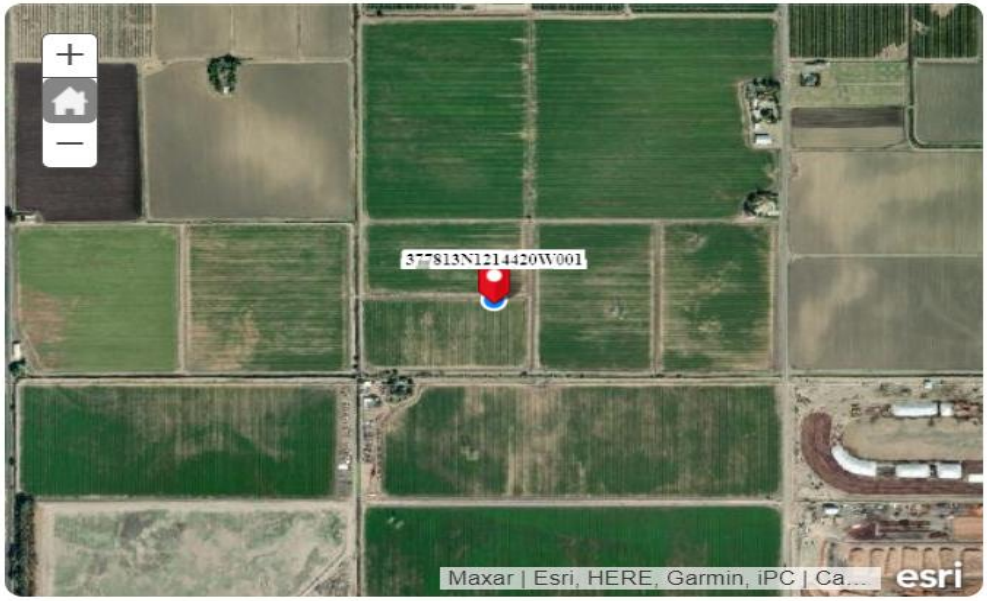


Figure A-4. 02S05E08B001

Site Code: 377813N1214420W001 **State Well Number:** 02S05E08B001M **Local Well Name:** 02S05E08B001

Site Code: 377813N1214420W001
Local Well Name: 02S05E08B001
State Well Number: 02S05E08B001M
Station ID: 3016
WCR Number:
Latitude: 37.78130
Longitude: -121.44200
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Residential
Well Completion Type: Single Well
Well Depth (feet bgs): 80
Top Perforation (feet bgs): 50
Bottom Perforation (feet bgs): 80
Ground Surface Elevation: 4
Reference Point Elevation: 4.3
Reference Point Description: None Provided
Station Comments: WELL CONSTRUCTION INFORMATION CONFIRMED AS OF: 2/1/2011



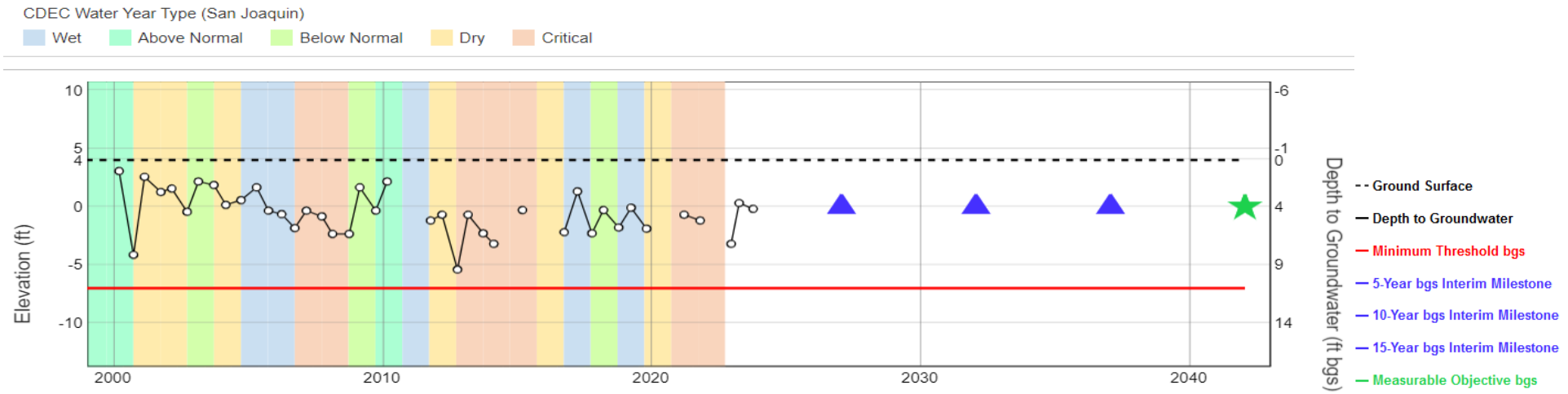
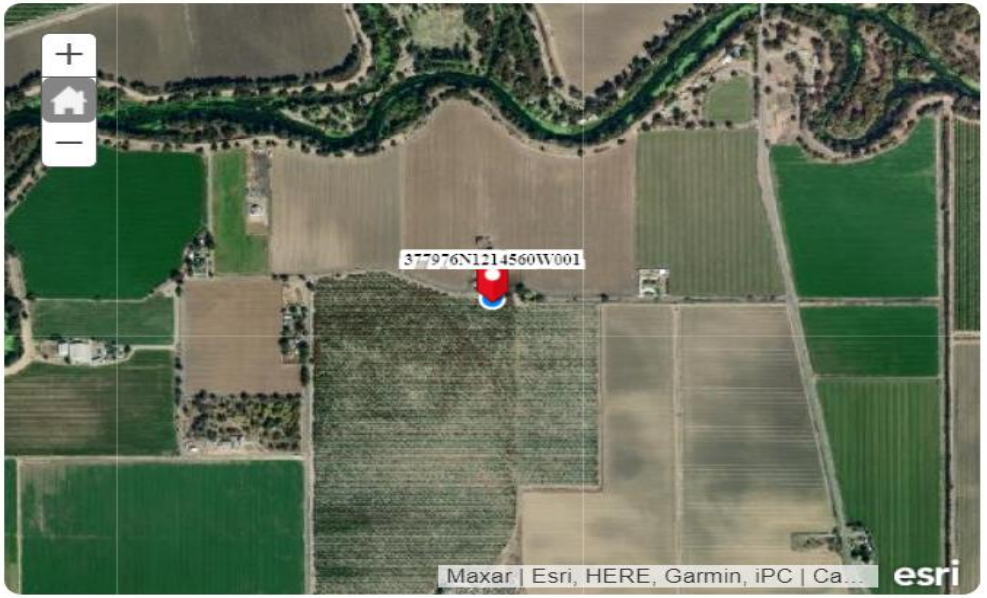


Figure A-5. 01S05E31R002

Site Code: 377976N1214560W001 **State Well Number:** 01S05E31R002M **Local Well Name:** 01S05E31R002

Site Code: 377976N1214560W001
Local Well Name: 01S05E31R002
State Well Number: 01S05E31R002M
Station ID: 26597
WCR Number:
Latitude: 37.79760
Longitude: -121.45600
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Residential
Well Completion Type: Single Well
Well Depth (feet bgs): 92
Top Perforation (feet bgs):
Bottom Perforation (feet bgs):
Ground Surface Elevation: 4
Reference Point Elevation: 4.6
Reference Point Description: None Provided
Station Comments: WELL CONSTRUCTION INFORMATION CONFIRMED AS OF: 2/1/2011



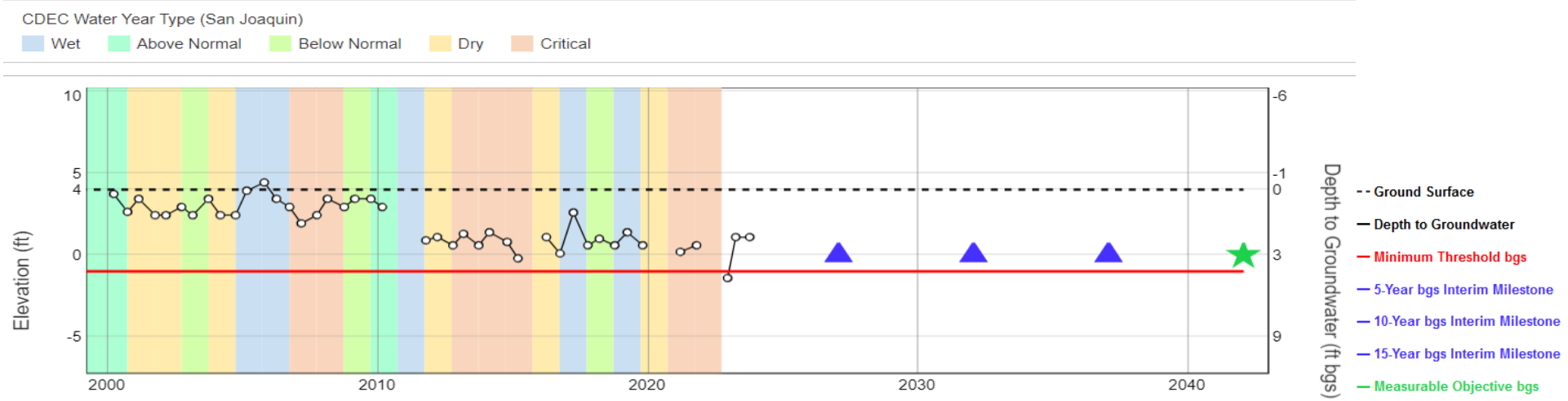
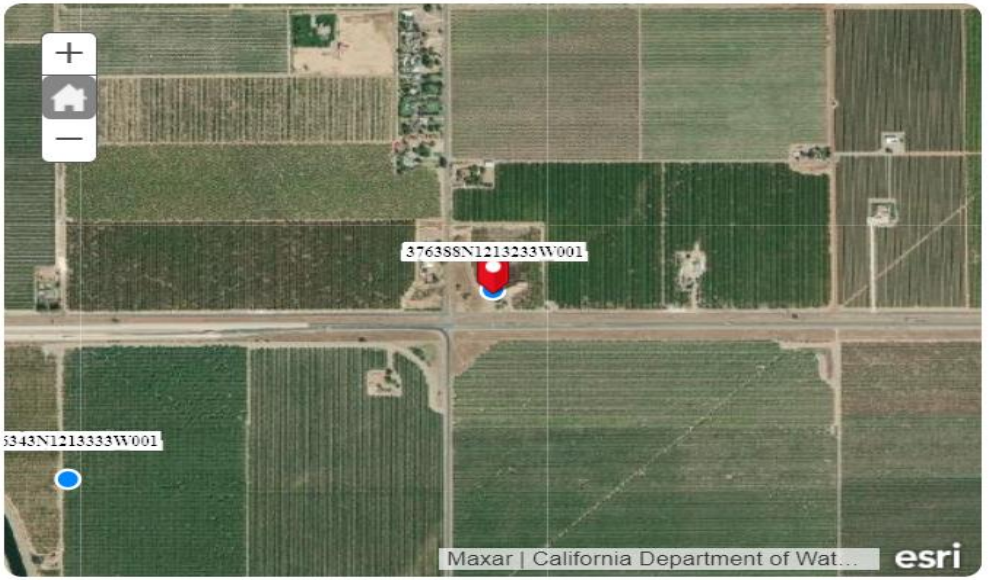


Figure A-6. 03S06E28N001M

Site Code: 376388N1213233W001 **State Well Number:** 03S06E28N001M **Local Well Name:** 03S06E28N001M

Site Code: 376388N1213233W001
Local Well Name: 03S06E28N001M
State Well Number: 03S06E28N001M
Station ID: 3132
WCR Number:
Latitude: 37.63880
Longitude: -121.32330
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Unknown
Well Completion Type: Single Well
Well Depth (feet bgs): 128
Top Perforation (feet bgs):
Bottom Perforation (feet bgs):
Ground Surface Elevation: 147.34
Reference Point Elevation: 148.24
Reference Point Description: None Provided
Station Comments: WELL CONSTR. INFO CONFIRM AS OF: 2/1/2011 Well was removed in Nov 2020 from DWR network due to lack of well constr details.



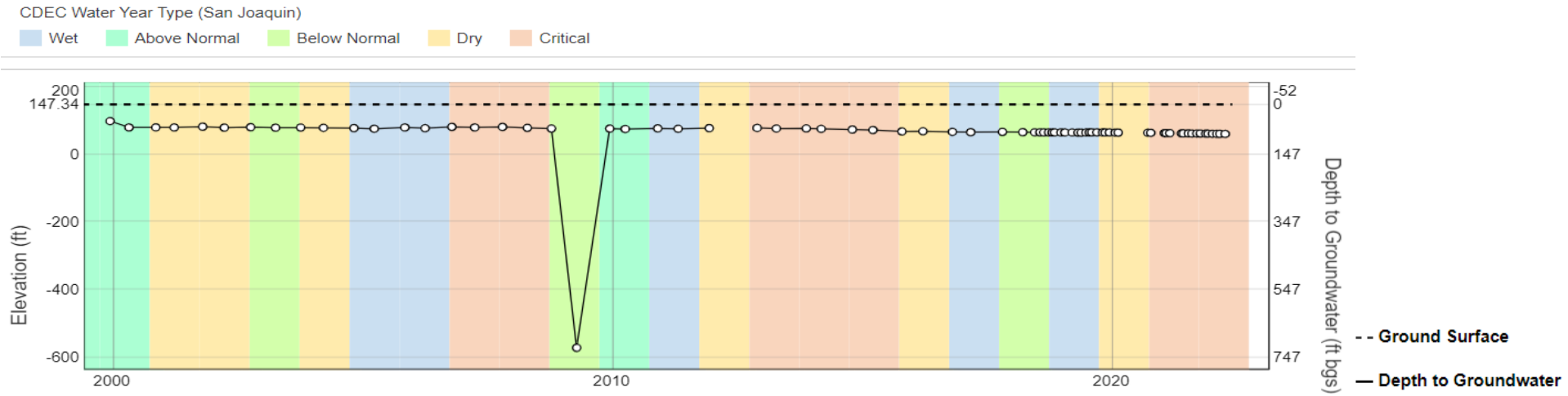
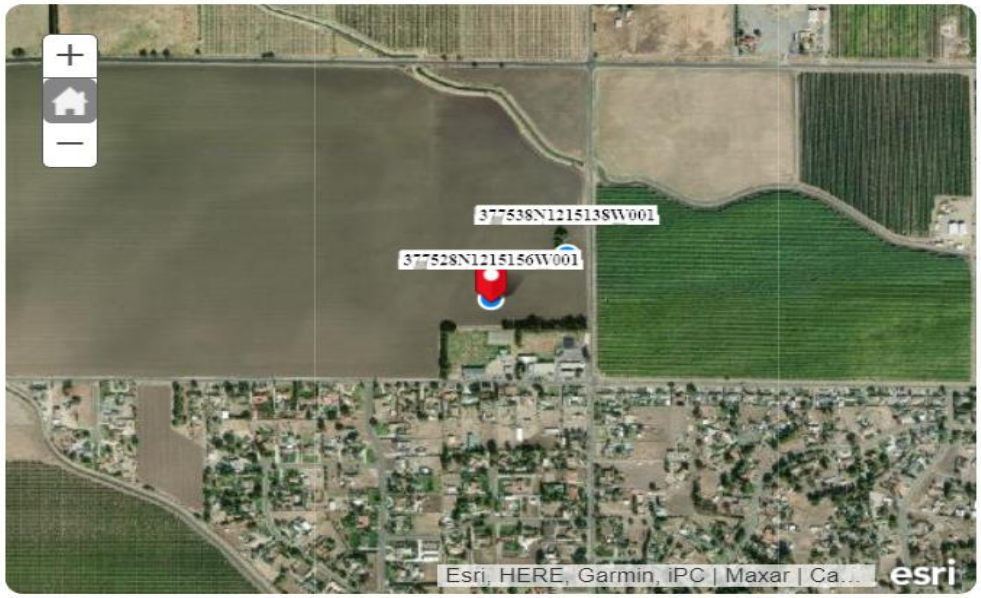


Figure A-7. 02S04E15R001

Site Code: 377528N1215156W001 **State Well Number:** 02S04E15R001M **Local Well Name:** 02S04E15R001

Site Code: 377528N1215156W001
Local Well Name: 02S04E15R001
State Well Number: 02S04E15R001M
Station ID: 2999
WCR Number:
Latitude: 37.75280
Longitude: -121.51560
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Other
Well Completion Type: Single Well
Well Depth (feet bgs): 45
Top Perforation (feet bgs):
Bottom Perforation (feet bgs): 45
Ground Surface Elevation: 62.41
Reference Point Elevation: 63.41
Reference Point Description: None Provided
Station Comments: WELL CONSTRUCTION INFORMATION CONFIRMED AS OF: 2/1/2011



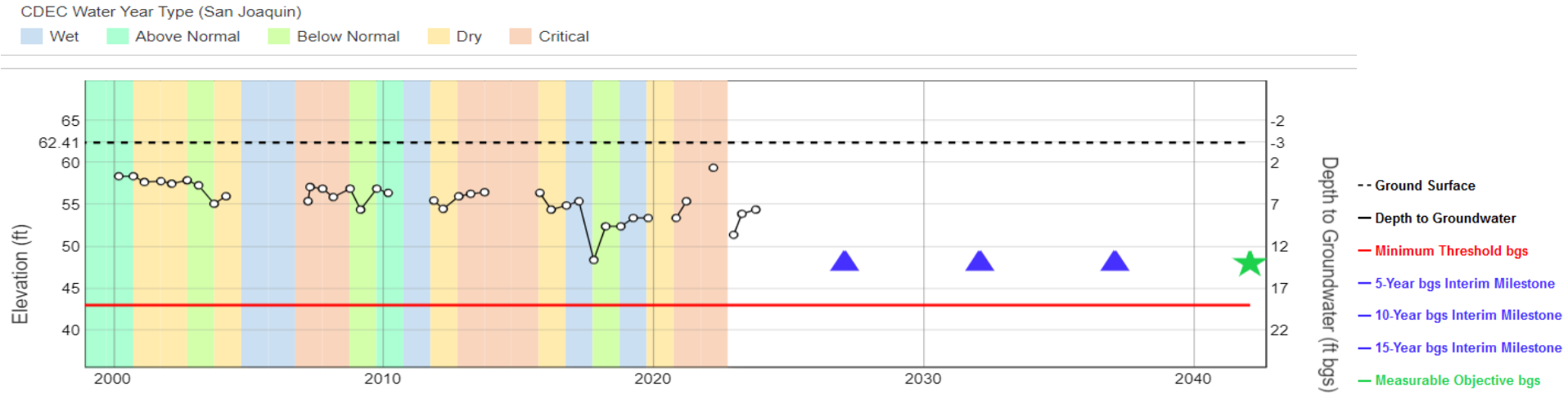


Figure A-8. 01S04E31P005

Site Code: 377979N1215800W001 **State Well Number:** 01S04E31P005M **Local Well Name:** 1S4E31P005

Site Code: 377979N1215800W001
Local Well Name: 1S4E31P005
State Well Number: 01S04E31P005M
Station ID: 50455
WCR Number:
Latitude: 37.79713
Longitude: -121.57940
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 24
Top Perforation (feet bgs): 8
Bottom Perforation (feet bgs): 23
Ground Surface Elevation: 60
Reference Point Elevation: 60
Reference Point Description: Top of casing
Station Comments:

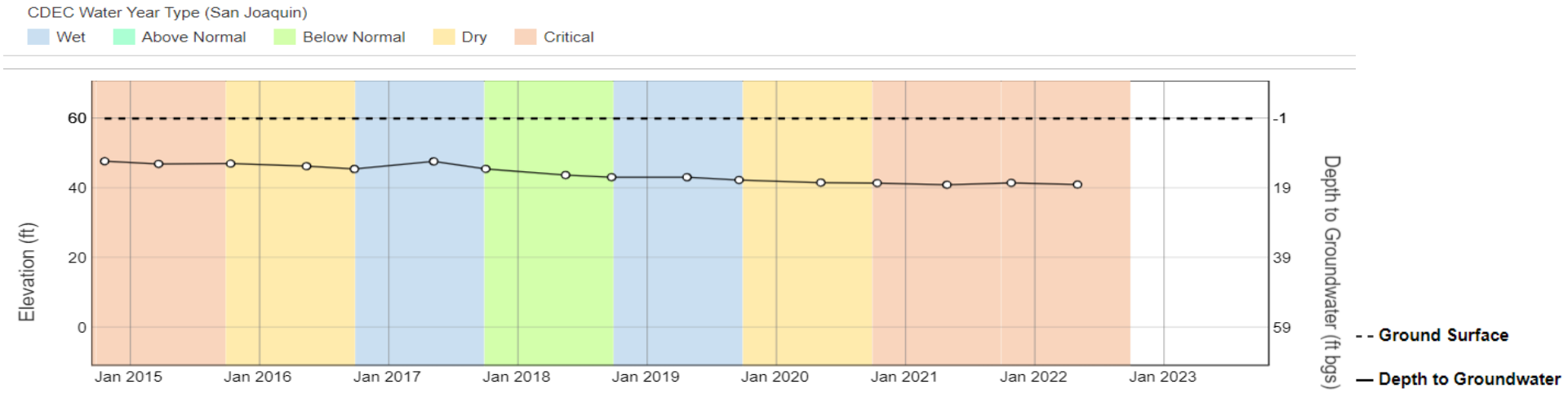


Figure A-9. ORL-1W

Site Code: 378103N1215449W001 **State Well Number:** 01S04E28P002M **Local Well Name:** ORL-1W

Site Code: 378103N1215449W001
Local Well Name: ORL-1W
State Well Number: 01S04E28P002M
Station ID: 49536
WCR Number:
Latitude: 37.81031
Longitude: -121.54489
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 106
Top Perforation (feet bgs): 86
Bottom Perforation (feet bgs): 106
Ground Surface Elevation: 13.7
Reference Point Elevation: 16.6
Reference Point Description: Top of Casing
Station Comments:

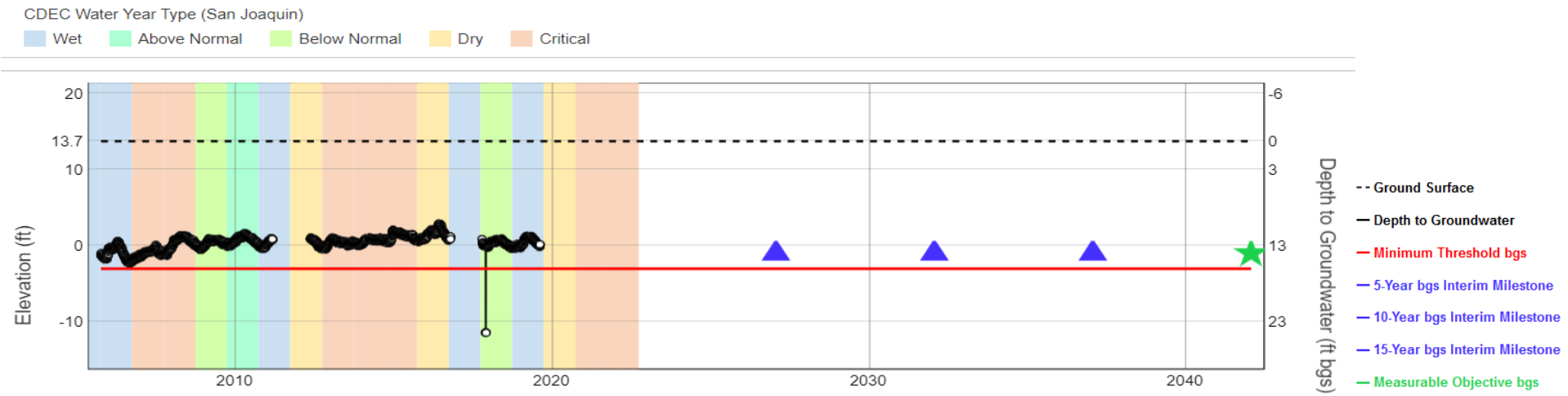


Figure A-10. MWM-24

Site Code: 378165N1213145W001 **State Well Number: Local Well Name:** MWM-24

Site Code: 378165N1213145W001
Local Well Name: MWM-24
State Well Number:
Station ID: 57576
WCR Number:
Latitude: 37.81657
Longitude: -121.31459
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 21
Top Perforation (feet bgs): 10
Bottom Perforation (feet bgs): 20
Ground Surface Elevation: 16.75
Reference Point Elevation: 16.88
Reference Point Description: Top of Casing
Station Comments: GSE obtained through Google Earth on 1/20/2022

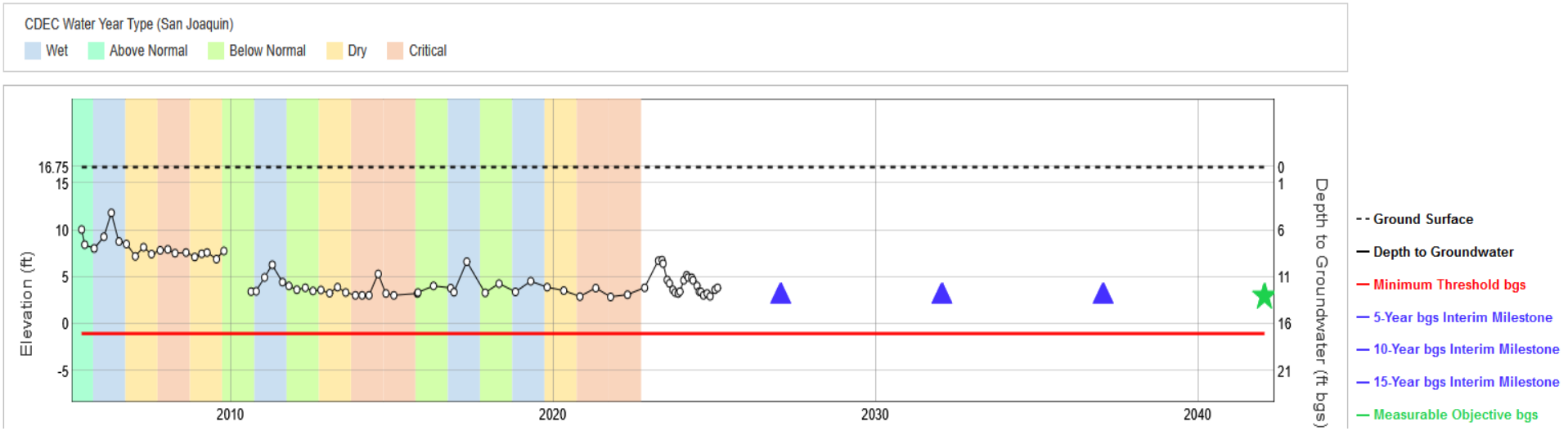
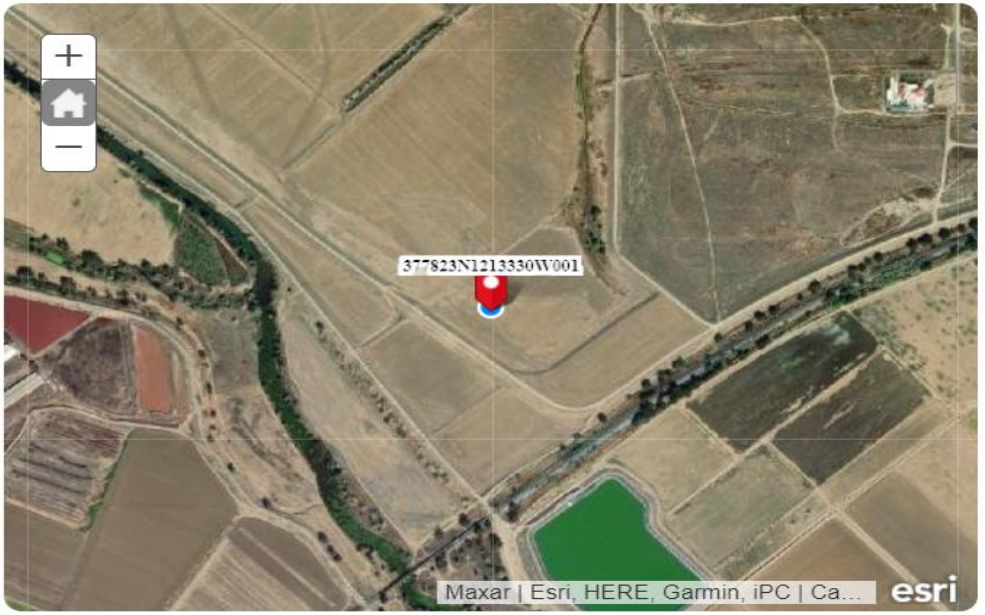


Figure A-11. MWR-25

Site Code: 377823N1213330W001 **State Well Number: Local Well Name:** MWR-25

Site Code: 377823N1213330W001
Local Well Name: MWR-25
State Well Number:
Station ID: 57577
WCR Number:
Latitude: 37.78232
Longitude: -121.33303
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 22
Top Perforation (feet bgs): 11
Bottom Perforation (feet bgs): 21
Ground Surface Elevation: 16.15
Reference Point Elevation: 16.25
Reference Point Description: Top of Casing
Station Comments: GSE obtained through Google Earth on 1/20/2022



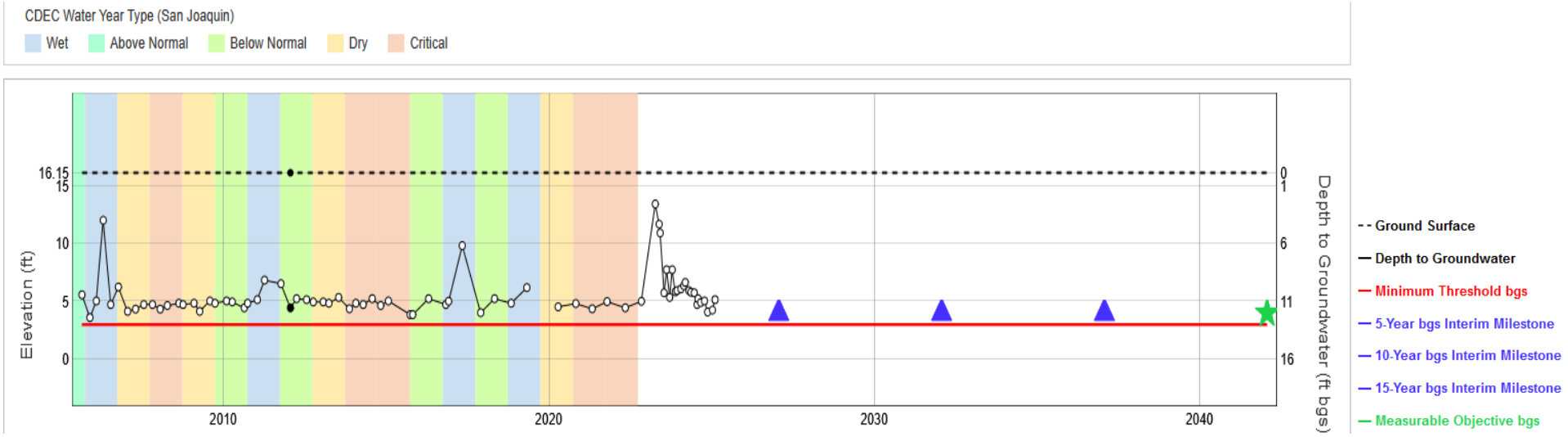
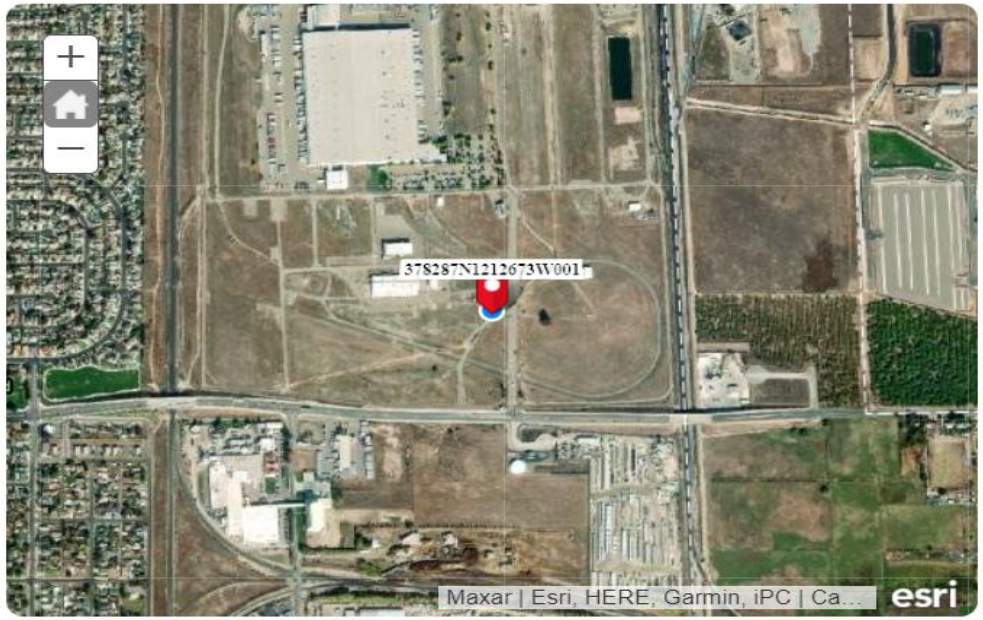


Figure A-12. SAD MW-402D

Site Code: 378287N1212673W001 **State Well Number: Local Well Name:** SAD MW-402D

Site Code: 378287N1212673W001
Local Well Name: SAD MW-402D
State Well Number:
Station ID: 57580
WCR Number:
Latitude: 37.82872
Longitude: -121.26737
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 271
Top Perforation (feet bgs): 260
Bottom Perforation (feet bgs): 270
Ground Surface Elevation: 24.52
Reference Point Elevation: 24.52
Reference Point Description: Top of Casing
Station Comments: GSE obtained through Google Earth on 1/20/2022



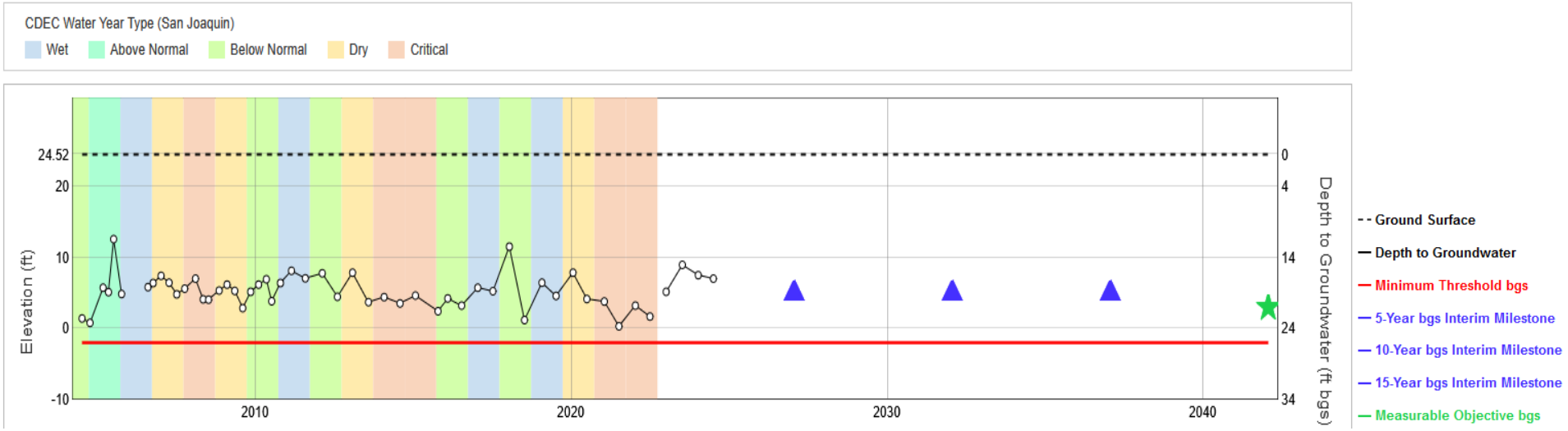


Figure A-13. PW11-031

Site Code: 378116N1212841W001 **State Well Number:** **Local Well Name:** PW11-031

Site Code: 378116N1212841W001
Local Well Name: PW11-031
State Well Number:
Station ID: 57578
WCR Number:
Latitude: 37.81163
Longitude: -121.28417
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 31
Top Perforation (feet bgs): 23
Bottom Perforation (feet bgs): 28
Ground Surface Elevation: 20
Reference Point Elevation: 18.5
Reference Point Description: Top of Casing
Station Comments: GSE obtained through Google Earth on 1/20/2022

Figure A-14. PW16-216

Site Code: 378130N1212758W001 **State Well Number:** **Local Well Name:** PW16-216

Site Code: 378130N1212758W001
Local Well Name: PW16-216
State Well Number:
Station ID: 57579
WCR Number:
Latitude: 37.81305
Longitude: -121.27582
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Industrial
Well Completion Type: Part of a nested/multi-completion well
Well Depth (feet bgs): 216
Top Perforation (feet bgs): 208
Bottom Perforation (feet bgs): 213
Ground Surface Elevation: 23
Reference Point Elevation: 23.26
Reference Point Description: Top of Casing
Station Comments: GSE obtained through Google Earth on 1/20/2022

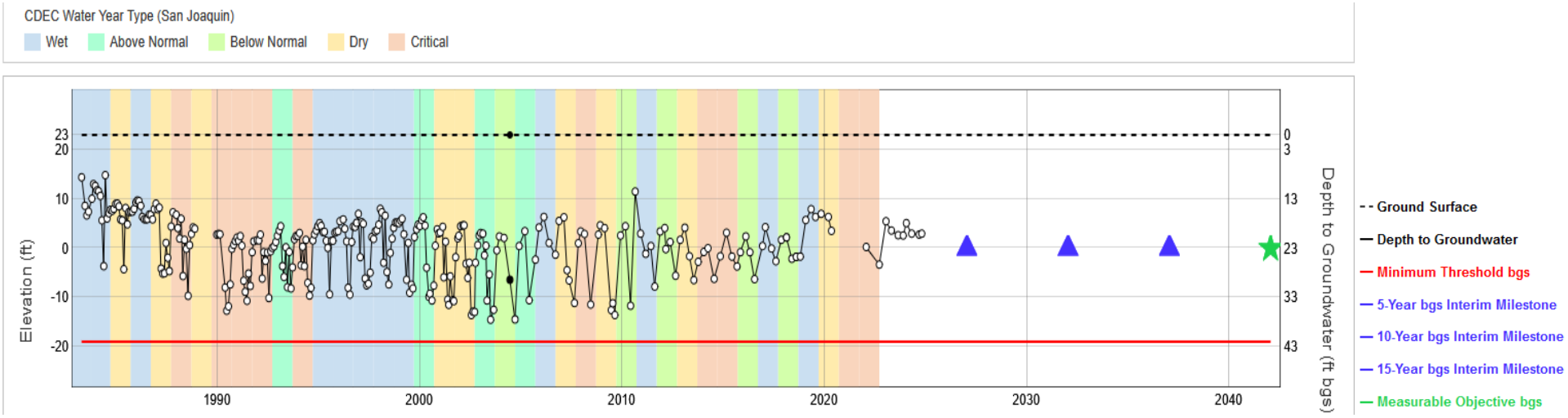


Figure A-15. Corral MW-6

Site Code: 376713N1214581W001 **State Well Number:** **Local Well Name:** Corral MW-6

Site Code: 376713N1214581W001
Local Well Name: Corral MW-6
State Well Number:
Station ID: 50727
WCR Number:
Latitude: 37.67127
Longitude: -121.45809
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 477
Top Perforation (feet bgs): 455
Bottom Perforation (feet bgs): 475
Ground Surface Elevation: 300.33
Reference Point Elevation: 303.33
Reference Point Description: Top of casing
Station Comments:

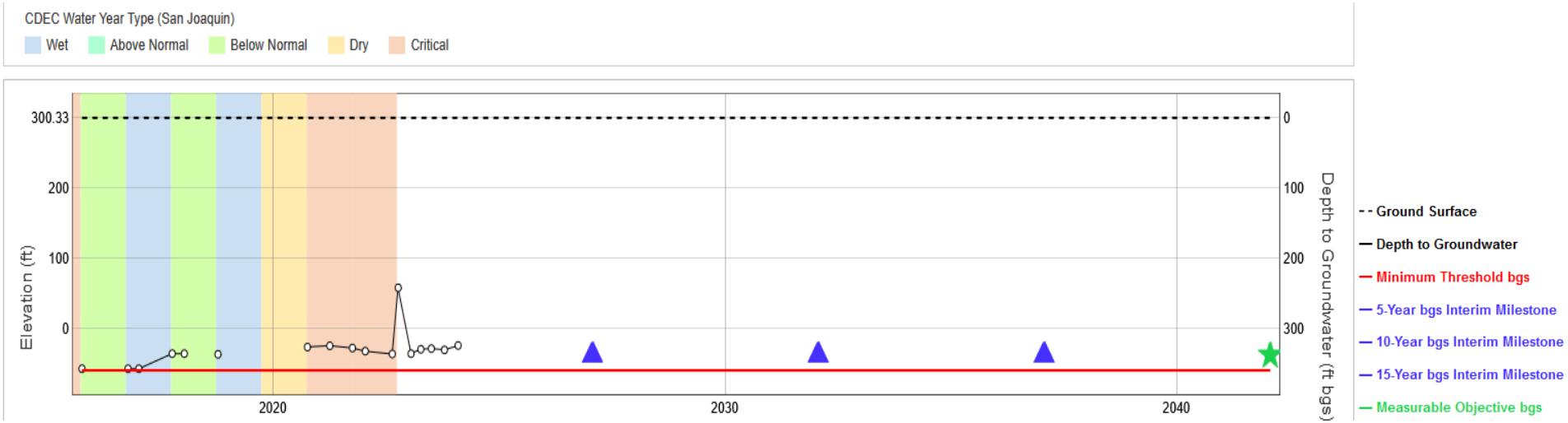
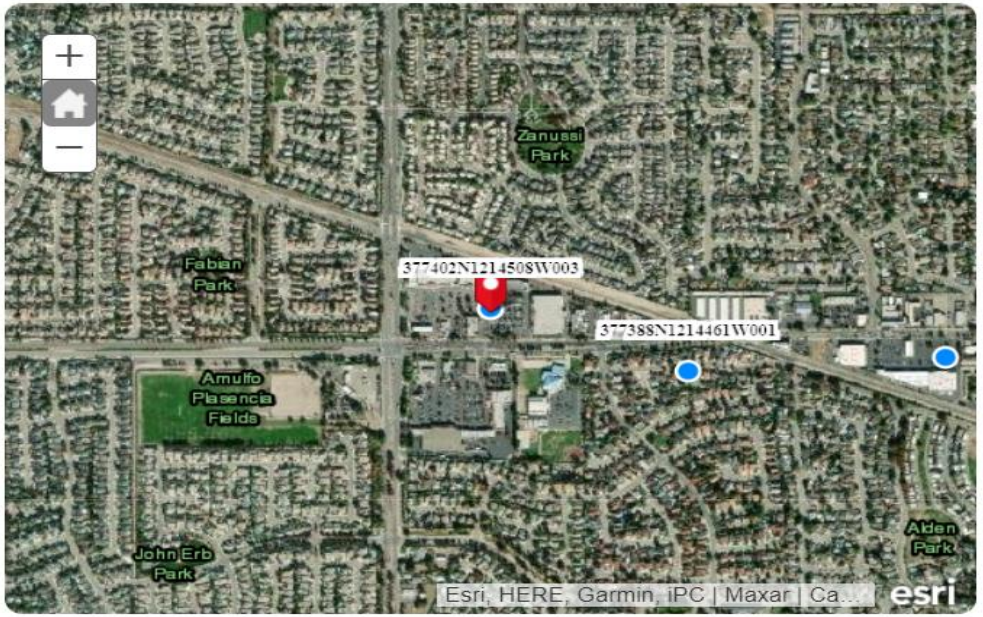


Figure A-16. MW-1B

Site Code: 377402N1214508W002 **State Well Number:** **Local Well Name:** MW-1B

Site Code: 377402N1214508W002
Local Well Name: MW-1B
State Well Number:
Station ID: 49252
WCR Number:
Latitude: 37.74019
Longitude: -121.45076
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Part of a nested/multi-completion well
Well Depth (feet bgs): 670
Top Perforation (feet bgs): 618
Bottom Perforation (feet bgs): 658
Ground Surface Elevation: 48.86
Reference Point Elevation: 50.09
Reference Point Description: Top of pipe
Station Comments:



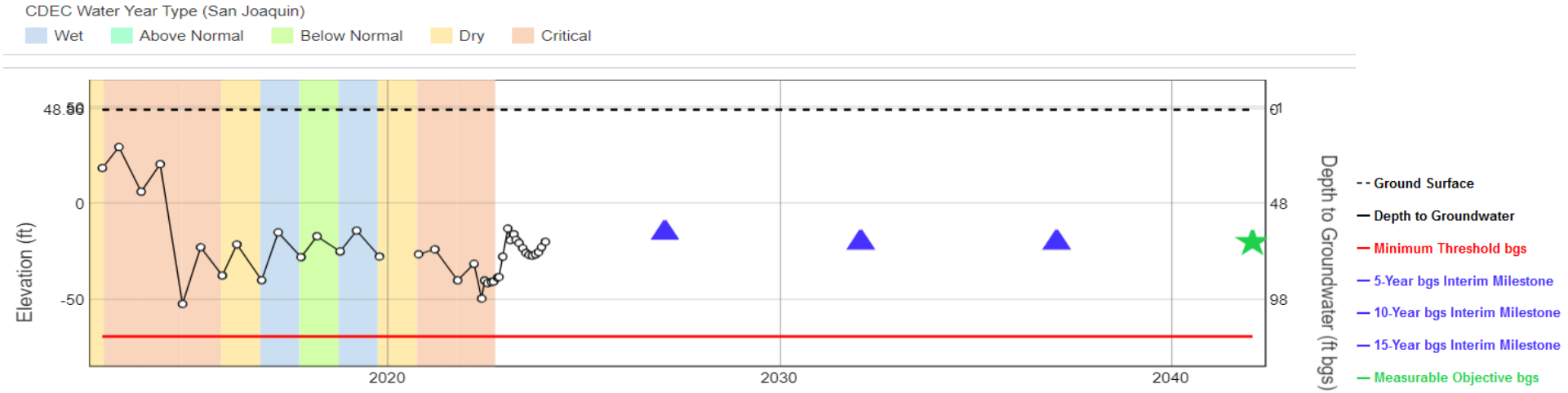
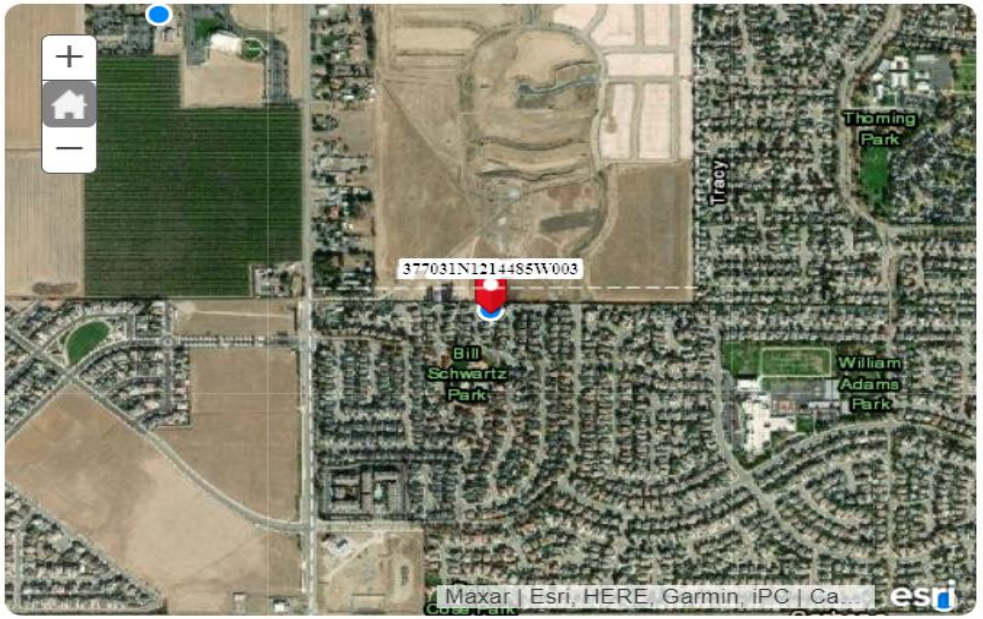


Figure A-17. MW-3B

Site Code: 377031N1214485W002 **State Well Number:** **Local Well Name:** MW-3B

Site Code: 377031N1214485W002
Local Well Name: MW-3B
State Well Number:
Station ID: 49258
WCR Number:
Latitude: 37.70306
Longitude: -121.44854
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Part of a nested/multi-completion well
Well Depth (feet bgs): 595
Top Perforation (feet bgs): 540
Bottom Perforation (feet bgs): 580
Ground Surface Elevation: 136.37
Reference Point Elevation: 138.08
Reference Point Description: Top of pipe
Station Comments:



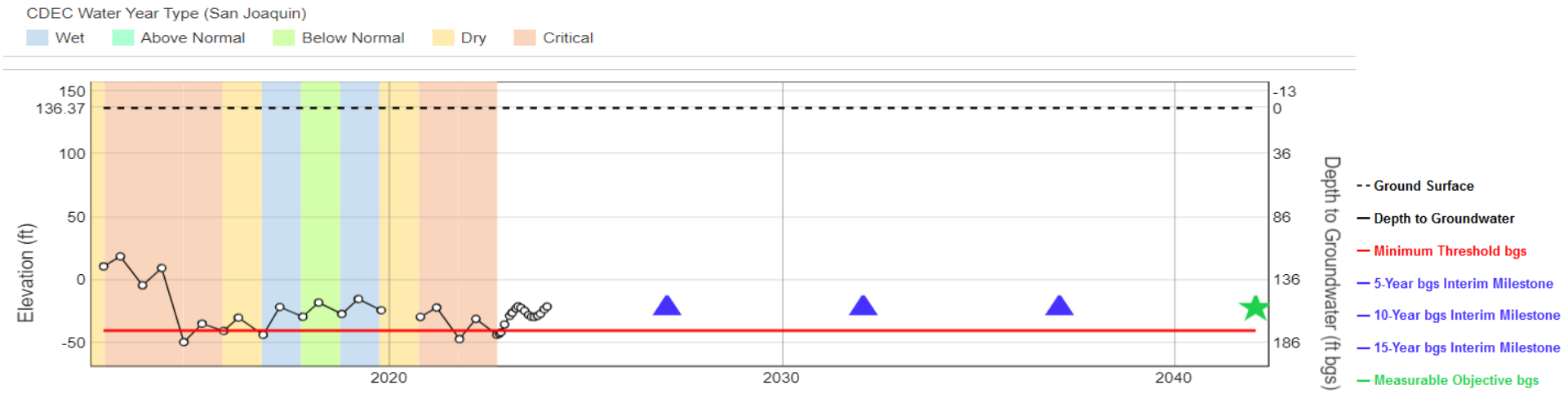


Figure A-18. MW-5B

Site Code: 377427N1213943W002 **State Well Number: Local Well Name:** MW-5B

Site Code: 377427N1213943W002
Local Well Name: MW-5B
State Well Number:
Station ID: 49264
WCR Number:
Latitude: 37.74266
Longitude: -121.39432
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Part of a nested/multi-completion well
Well Depth (feet bgs): 640
Top Perforation (feet bgs): 576
Bottom Perforation (feet bgs): 616
Ground Surface Elevation: 45.94
Reference Point Elevation: 47.82
Reference Point Description: Top of pipe
Station Comments:

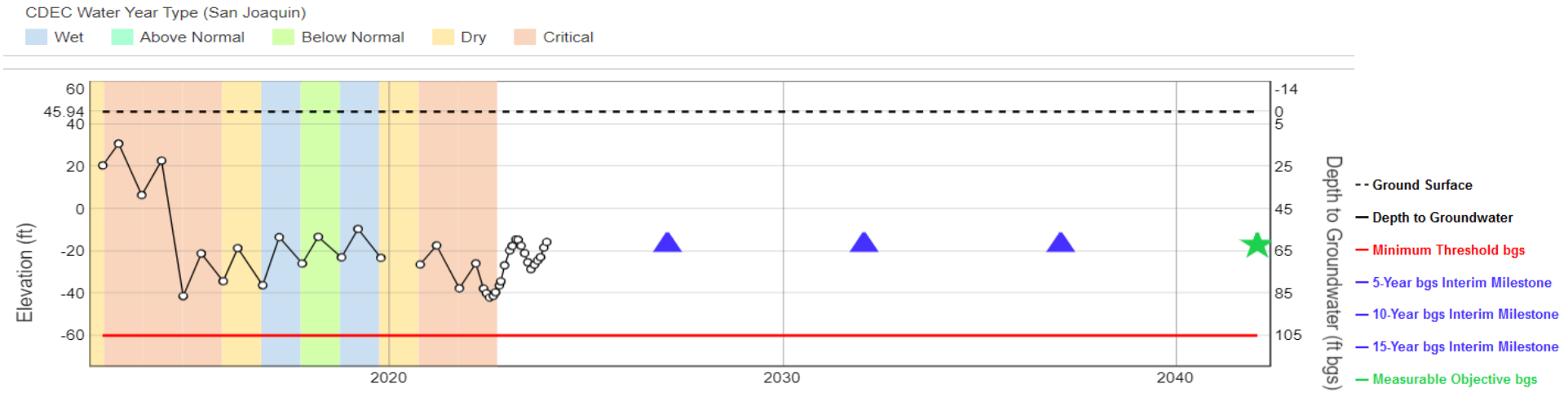


Figure A-19. MW-6B

Site Code: 377656N1214199W002 **State Well Number:** **Local Well Name:** MW-6B

Site Code: 377656N1214199W002
Local Well Name: MW-6B
State Well Number:
Station ID: 49267
WCR Number:
Latitude: 37.76563
Longitude: -121.41992
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Part of a nested/multi-completion well
Well Depth (feet bgs): 645
Top Perforation (feet bgs): 590
Bottom Perforation (feet bgs): 630
Ground Surface Elevation: 24.15
Reference Point Elevation: 26.65
Reference Point Description: Top of pipe
Station Comments:

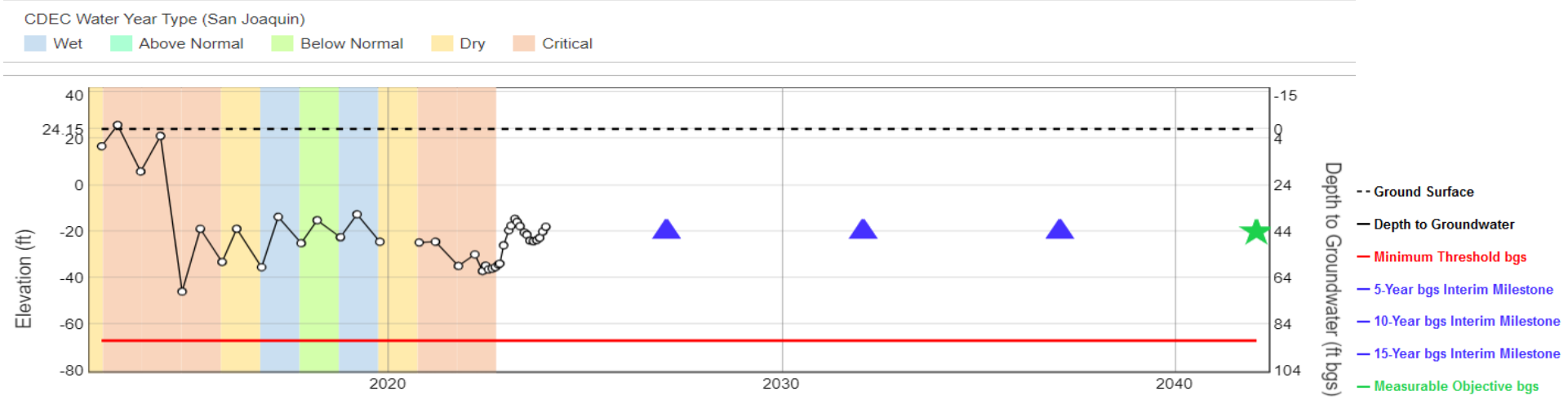


Figure A-20. 03S06E05R001M

Site Code: 376974N1213258W001 **State Well Number:** 03S06E05R001M **Local Well Name:** 03S06E05R001M

Site Code: 376974N1213258W001
Local Well Name: 03S06E05R001M
State Well Number: 03S06E05R001M
Station ID: 2441
WCR Number: WCR0089819
Latitude: 37.69725
Longitude: -121.32598
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Unknown
Well Completion Type: Single Well
Well Depth (feet bgs): 775
Top Perforation (feet bgs): 252
Bottom Perforation (feet bgs): 749
Ground Surface Elevation: 59.09
Reference Point Elevation: 59.69
Reference Point Description: None Provided
Station Comments: WELL CONSTRUCTION INFORMATION CONFIRMED AS OF: 5/22/2014 by TRB. DWR Surveyed well in 2022.

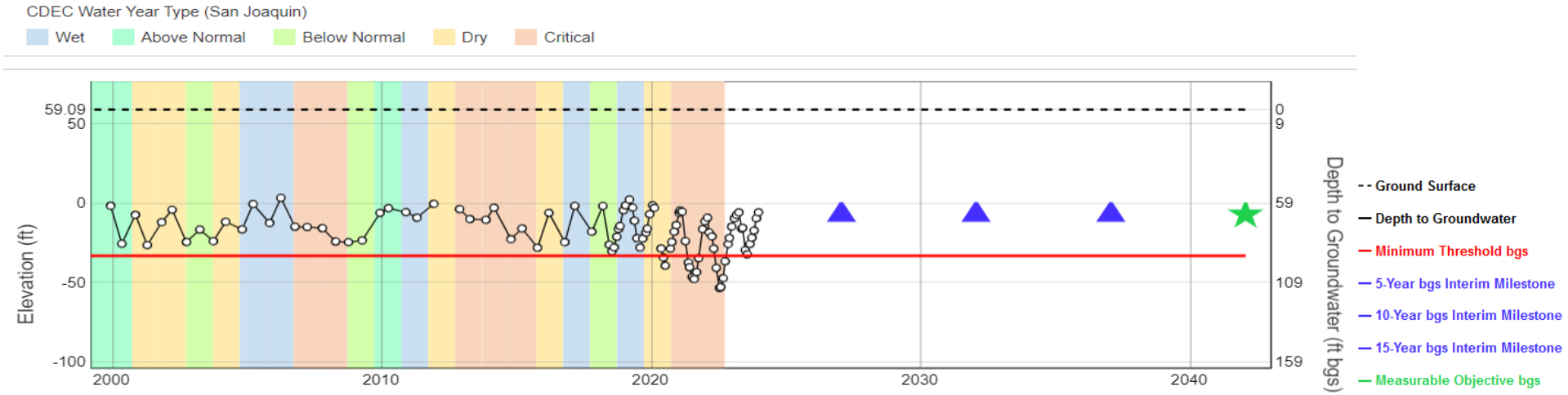
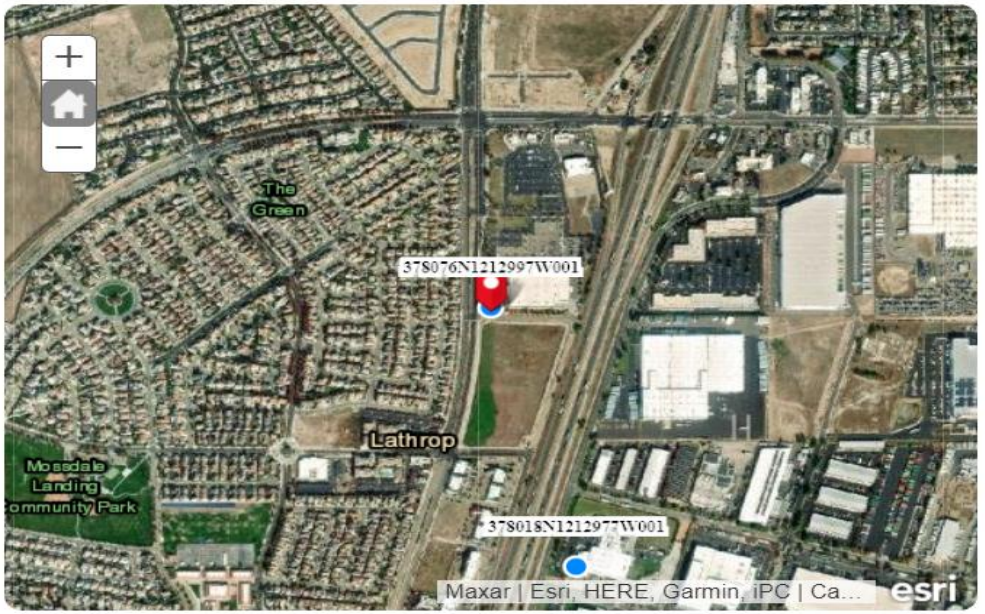
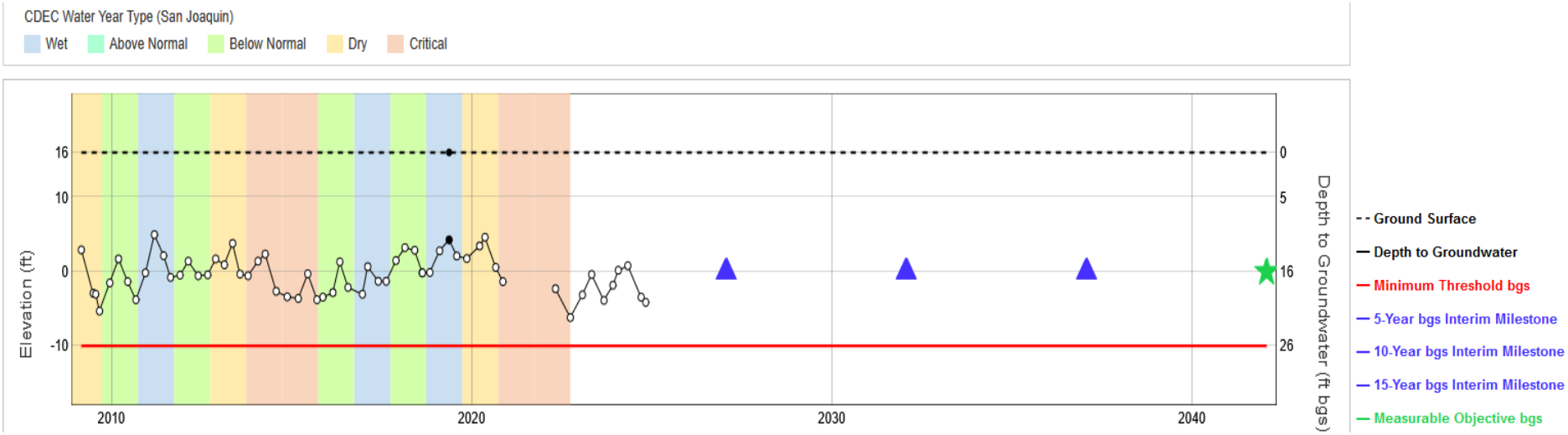


Figure A-21. PW20-500

Site Code: 378076N1212997W001 **State Well Number:** **Local Well Name:** PW20-500

Site Code: 378076N1212997W001
Local Well Name: PW20-500
State Well Number:
Station ID: 57581
WCR Number:
Latitude: 37.80760
Longitude: -121.29972
Station Organization ID:
Station Organization Name:
Well Location Description:
Well Use Type: Observation
Well Completion Type: Single Well
Well Depth (feet bgs): 498
Top Perforation (feet bgs): 321
Bottom Perforation (feet bgs): 326
Ground Surface Elevation: 16
Reference Point Elevation: 15.82
Reference Point Description: Top of Casing
Station Comments: GSE obtained through Google Earth on 1/20/2022





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Appendix B Detailed Water Supply Accounting

Estimated Groundwater Extractions for Water Year 2024 (acre-feet)

	2023			2024									
Water Use Sector/Agency	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY Total
Agricultural [1]													
BBID Area (Unknown Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
BCID Area (Unknown Aquifer)	0	0	0	0	0	203	584	0	0	192	0	0	979
BCID (Yamasaki Property)	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Lathrop Area (Unkown Aquifer)	0	0	0	0	0	36	112	212	212	266	0	0	838
City of Tracy Area (Unknown Aquifer)	0	0	0	0	0	298	0	0	0	0	0	0	298
SJ County Area (Unknown Aquifer)	0	0	0	0	0	0	0	779	1,648	1,997	0	0	4,424
Stewart Track (Unknown Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Agricultural Extractions	**6,539**
Urban/Municipal/Rural													
Lathrop (Upper Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
Tracy (Upper Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
San Joaquin County - Small Community Water Systems:													
ARP Minimart Corp WS (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Banta Inn Water System (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	4
Bradshaw Cristian School (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	45
Carbona Food & Liquor (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	57
Carmelo Industrial Park (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	1
Corral Hollow PWS (Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
Corral Hollow PWS (Upper Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
Country Mart Diesel & Gas (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	2
Currier Estates Water Corp (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	37
Darrigos Water System (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	6
Defense Distrib. Depot - Tracy Site (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	54
Defense Distrib. Depot - Tracy Site (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Defense Distrib. Depot - Tracy Site (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocational Inst. - Well 03 (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocational Inst. - Well 04 (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocational Inst. - Well 05 (Both Aquifers)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocational Inst. - Well 06 (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocational Inst. - Well 09 (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
PWS #44 Fairoaks - Well 2 (Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
PWS #44 Fairoaks - Well 3 (Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
PWS #44 Fairoaks - Well 4 (Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
French Camp (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	2
La Torres Park (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	10
Morehead Park - Well 2 (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	75
Morehead Park - Well 3 (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Navarra Water System (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	41
New Jerusalem School (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	9
New Jerusalem School (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Northwest Pipe Co. (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	4
Old River Golf Course (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	1
Pallet King (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	3
Par Country Estates (Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
CSA #16 Par County Estates (Both Aquifers)	0	0	0	0	0	0	0	0	0	0	0	0	0
San I PAK (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	1
San Joaquin River Club (Both Aquifers)	---	---	---	---	---	---	---	---	---	---	---	---	150
San Joaquin River Club (Both Aquifers)	---	---	---	---	---	---	---	---	---	---	---	---	0
CSA#35 Santos Ranch - Well #2 Standby) PWS#5 -(Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
CSA#35 Santos Ranch Well 1 WS#5 (Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwinds Church of Tracy (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	1
Star Motel (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	2
Tracy Islamic Center (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	1
W. 11th St Chevron (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	1
CSA 50 Patterson Irrigation Park	---	---	---	---	---	---	---	---	---	---	---	---	0
Domestic Well Owners	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Urban Extractions	**507**
Industrial													
SJ-County - Deuel Vocational Institution	0	0	0	0	0	0	0	0	0	0	0	0	0
Lathrop - JR Simplot (Upper Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
SJ County- Tracy Army Defense Distribution Depots (Unknown Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Industrial Extractions	**0**
Managed Wetlands													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Wetlands Extractions	**0**

Estimated Groundwater Extractions for Water Year 2024 (acre-feet)

	2023			2024									
Water Use Sector/Agency	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY Total
Native Vegetation													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Native Vegetation Extractions	**0**
Other Water Use Sector - Groundwater Remediation													
Lathrop - Occidental (Upper Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
Lathrop - Sharpe Army Defense Distribution Depot (Upper Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
SJ County - Tracy Army Defense Distribution Depot (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
SJ County - Deuel Vocational Institution (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Remediation Extractions	**0**
												Total Estimated Groundwater Extractions	**7,046**
Managed Recharge													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Recharge Extractions	**0**
												Total Estimated Groundwater Extractions minus Recharge	**7,046**

Notes:

[1] Estimated Groundwater Pumping for Agriculture (see Appendix C, Table C-11)

--- Information not available

Urban/Municipal/Rural estimates develop by using = number of people served *0.25 acre-feet per person

Industrial water use is only based on public water system number of people served and may not include industrial uses.

Other water use estiamtes are from average annual pumping as documented in the GSP

Metered Groundwater Extraction Reported for Water Year 2024 (acre-feet)

	2023			2024									
Water Use Sector/Agency	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY Total
Agricultural													
BBID (Lower Aquifer)	0	0	0	0	0	0	4	470	123	0	0	0	596
BCID [1] (Lower Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
SJ County (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Stewart Tract (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Agricultural Extractions	**596**
Urban/Small Community/Rural													
City of Lathrop (Upper Aquifer)	176	177	112	110	95	94	126	244	278	293	211	142	2,057
City of Tracy (Lower Aquifer)	31	1	5	0	0	0	14	20	161	222	295	76	824
San Joaquin County - Small Community Water Systems:													
ARP Minimart Corp WS (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Banta Inn Water System (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Bradshaw Cristian School (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Carbona Food & Liquor (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Carmelo Industrial Park (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Corral Hollow PWS (Lower Aquifer)	9	5	3	2	2	3	5	10	12	14	12	10	86
Corral Hollow PWS (Upper Aquifer)	0	0	0	0	0	0	0	0	0	0	0	0	0
Country Mart Diesel & Gas (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Currier Estates Water Corp (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Darrigos Water System (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Defense Distrib. Depot - Tracy Site (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Defense Distrib. Depot - Tracy Site (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Defense Distrib. Depot - Tracy Site (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocationial Inst. - Well 03 (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocationial Inst. - Well 04 (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocationial Inst. - Well 05 (Both Aquifers)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocationial Inst. - Well 06 (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Deuel Vocationial Inst. - Well 09 (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
PWS #44 Fairoaks - Well 2 (Lower Aquifer)	0	0	0	0	5	6	0	0	0	1	0	0	12
PWS #44 Fairoaks - Well 3 (Lower Aquifer)	54	0	0	0	0	17	44	93	105	137	114	104	668
PWS #44 Fairoaks - Well 4 (Lower Aquifer)	16	40	25	19	10	6	0	0	0	0	0	0	116
French Camp (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
La Torres Park (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Morehead Park - Well 2 (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Morehead Park - Well 3 (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Navarra Water System (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
New Jerusalem School (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
New Jerusalem School (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Northwest Pipe Co. (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Old River Golf Course (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Pallet King (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Par Country Estates (Lower Aquifer)	1	1	0	0	0	1	1	2	3	3	4	2	18
CSA #16 Par County Estates (Both Aquifers)	10	6	5	4	3	4	5	9	11	13	10	10	89
San I PAK (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
San Joaquin River Club (Both Aquifers)	---	---	---	---	---	---	---	---	---	---	---	---	0
San Joaquin River Club (Both Aquifers)	---	---	---	---	---	---	---	---	---	---	---	---	0
CSA#35 Santos Ranch - Well #2 Standby) PWS#5 -(Lower Aquifer)	16	8	5	4	3	5	9	20	9	8	7	7	101
CSA#35 Santos Ranch Well 1 WS#5 (Lower Aquifer)	0	0	0	0	0	0	0	0	14	20	17	14	65
Southwinds Church of Tracy (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Star Motel (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Tracy Islamic Center (Unknown Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
W. 11th St Chevron (Lower Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
Domestic Well Owners	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Urban Extractions	**4,037**
Industrial													
SJ County - Deuel Vocational Institution (Unknown Aquifers)	---	---	---	---	---	---	---	---	---	---	---	---	0
Lathrop - JR Simplot (Upper Aquifer)	27	20	25	7	3	3	3	4	4	3	3	2	105
SJ County - Tracy Army Defense Distribution Depots (Unknown Aquifer)	5	4	3	2	2	1	4	8	6	11	8	8	62
												Subtotal Industrial Extractions	**166**
Managed Wetlands													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Wetlands Extractions	**0**
Native Vegetation													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Native Vegetation Extractions	**0**
Other Water Use Sector - Groundwater Remediation													
Lathrop - Occidental (Upper Aquifer)	87	108	136	124	118	134	127	133	33	111	136	119	1,366
Lathrop - Sharpe Army Defense Distribution Depot (Upper Aquifer)	69	66	69	74	69	65	72	62	60	73	53	64	797
North Balloon	26.57	27.68	25.16	26.13	25.80	25.15	26.69	25.21	23.31	28.72	14.00	24.58	
Central	21.1131	16.718	27.9977	32.32038	27.957	26.384	31.0309	25.3459	25.9101	32.0658	26.5682	28.6073	
South Balloon	21.6035	21.546	15.6228	15.8189	15.5237	13.7253	13.9734	11.3211	10.9732	12.3016	12.7967	11.156	
SJ County - Tracy Army Defense Distribution Depots (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
SJ County - Deuel Vocational Institution (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Remediation Extractions	**2,163**
												Total Metered Groundwater Extractions	**6,963**
Managed Recharge													
Tracy (Lower Aquifer - Well 8)	0	0	0	0	0	124	102	0	0	0	0	0	226
BCID - Yamasaki Property - (Upper Aquifer - Conjunctive Use)	0	0	0	0	0	0	15	153	157	183	179	23	711
Lathrop - Sharpe Army Defense Distribution Depot (Upper Aquifer - S. Perc Pond)	4	23	27	34	43	18	25	22	17	19	22	21	274
Lathrop - Sharpe Army Defense Distribution Depot (Upper Aquifer - N. Perc Pond)	0	0	0	0	0	26	27	22	22	33	27	20	179
Lathrop - Sharpe Army Defense Distribution Depot WWTF (Upper Aquifer)	---	---	---	---	---	---	---	---	---	---	---	---	0
City of Lathrop CTF (Upper Aquifer - percolation ponds)	0	0	0	0	0	0	0	0	0	0	0	0	0
Lathrop - Occidental (Upper Aquifer injected treated remediation)	24	29	44	35	28	41	38	41	10	25	41	37	393
Lathrop - Occidental (Lower Aquifer injected treated remediation)	62	77	91	87	89	90	89	92	23	85	93	81	959
												Subtotal Recharge Extractions	**2,741**
												Total Metered Groundwater Extractions minus Recharge	**4,222**

Notes:

--- Information not available

[1] Groundwater pumping exported to the North and Central Delta-Mendota subbasin

Small Community Water System Well Construction Details and Assignments to Aquifers, see GEI Water Quality Report, 2024

Estimated Surface Water Diversions for Water Year 2024 (acre-feet)

	2023			2024									
Water Use Sector/Agency	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY Total
Agricultural Use - Local - San Joaquin River/Old River													
BBID Area	0	0	0	0	0	3	0	0	0	0	0	0	3
BCID Area	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Lathrop Area	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Tracy Area	0	0	0	0	0	0	0	0	0	0	0	0	0
SJ County Area (Total SWRCB Reported Diversions)	1,694	875	471	535	1,077	1,724	2,043	3,282	4,581	5,367	3,365	2,645	27,659
POD_ID 52190 (NBID)	---	---	---	---	---	---	---	---	---	---	---	---	
POD_ID 52191 (NBID)	---	---	---	---	---	---	---	---	---	---	---	---	
POD_ID 52192 (NBID)	---	---	---	---	---	---	---	---	---	---	---	---	
POD_ID 52194 (NBID)	---	---	---	---	---	---	---	---	---	---	---	---	
POD_ID 52195 (NBID)	---	---	---	---	---	---	---	---	---	---	---	---	
POD_ID 52271 (NBID)	---	---	---	---	---	---	---	---	---	---	---	---	
POD_ID 005116 (Paradise MWC)	---	---	---	---	---	---	---	---	---	---	---	---	
POD_ID 001156 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 002704 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54937 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54952 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54565 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54596 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 55135 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54919 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54930 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54951 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 54904 (RD2058)	154	80	43	49	98	157	186	228	267	306	306	240	
POD_ID 55018 (SWRCB)- SJCo GSA	---	---	---	---	---	---	---	---	---	---	---	---	0
SJ County Area (Costa-Campbell, POD_ID 55018)	---	---	---	---	---	---	---	---	---	---	---	---	0
Stewart Tract Area	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Agricultural Diversions	**27,662**
Agricultural Use Riparian [1] - Local (from Appendix C)													
BBID Area	34	37	19	26	51	98	101	102	98	85	74	26	752
BCID Area	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Lathrop Area	51	22	12	17	28	34	44	48	66	83	99	82	586
City of Tracy Area	0	0	0	0	0	0	0	0	0	0	0	0	0
SJ County Area	458	270	133	159	298	490	631	820	997	1,169	1,056	818	7,298
Stewart Tract Area	66	29	16	26	45	77	98	129	138	145	129	111	1,009
												Subtotal Riparian Agricultural Diversions	**9,645**
Urban/Municipal/Rural													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Urban Diversions	**0**
Industrial													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Industrial Diversions	**0**
Managed Wetlands													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Wetlands	**0**
Native Vegetation													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Native Vegetation	**0**
Other													
	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Other	**0**
Managed Recharge													
Tracy (Well 8 injected SSJID imported water)	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Fallowed Land	**0**
												Total Estimated Diversions	**37,307**

Notes:

[1] Estimated based on land parcels immediately adjacent to rivers or waterways

--- Information not available

From SWRCB Diversion filling WY2017, diverison data for WY2023 not avaiable at the time of preparation of this report.

Estimated accuracy to be plus or minus 50%

Metered Surface Water Diversions Reported for Water Year 2024 (acre-feet)

	2023			2024									
Water Use Sector/Agency	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY Total
Agricultural Use - CVP													
BBID Area	169	87	2	3	5	103	268	661	618	744	530	328	3,518
BCID Area (inside District)	--	--	--	--	--	--	--	--	--	--	--	--	0
												Subtotal Agricultural Diversions Reported	**3,518**
Agricultural Use - Local - San Joaquin River/Old River													
BBID Area	1,122	252	99	33	13	366	1,648	3,860	3,833	3,374	2,198	1,872	18,669
BCID Area (inside District)	1794	947	5	0	0	533	1239	5580	6809	6872	4946	3750	32,476
BCID (Yamasaki Property)	0	0	0	0	0	0	15	153	157	183	179	23	711
City of Tracy (Sugar Cut)	0	0	0	0	0	0	228	440	492	509	472	360	2,501
SJ County Area (BCID Kasson area)	289	74	0	0	0	97	145	1,277	1,436	1,408	1,233	937	6,895
SJ County Area (Naglee-Burke, POD_ID 52194)	---	---	---	---	---	---	---	---	---	---	---	---	0
SJ County Area (Costa-Campbell, POD_ID 19069)	16	6	3	6	8	18	26	25	28	24	21	13	195
POD_ID 52190 (NBID)	49	28	16	21	36	61	78	101	114	118	93	79	794
POD_ID 52191 (NBID)	---	---	---	---	---	---	---	---	---	---	---	---	0
POD_ID 52192 (NBID)	48	27	14	14	32	58	82	85	103	116	117	80	778
POD_ID 52194 (NBID)	129	61	35	60	115	185	224	301	297	382	374	278	2,442
POD_ID 52195 (NBID)	72	29	19	37	66	110	150	191	202	207	193	160	1,439
POD_ID 52271 (NBID)	326	155	90	126	240	425	572	628	608	680	661	527	5,038
SJ County Area (RD 2058 Pescador)	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Local Agricultural Diversions Reported	**71,936**
Urban/Municipal - CVP													
Mountain House	464	334	243	204	191	235	333	470	563	657	678	578	4,951
Tracy (CVP)	1,101	874	639	519	387	0	83	615	1,019	988	1,049	1,063	8,337
												Subtotal Urban CVP Diversions Reported	**13,288**
Urban/Municipal - Imported													
Lathrop (SSJID)	341	217	226	234	198	253	275	346	408	454	507	497	3,956
Tracy (SSJID) [1]	660	448	448	436	528	1203	1335	1185	916	1090	994	829	10,071
												Subtotal Urban Imported Reported	**14,027**
Industrial - SWP													
BBID Area (Musco Olive)	91	61	37	32	54	54	58	51	50	58	42	46	634
												Subtotal Industrial Extractions	**634**
Managed Wetlands													
	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Industrial Extractions	**0**
Native Vegetation													
	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Native Vegetation	**0**
Other													
	---	---	---	---	---	---	---	---	---	---	---	---	0
												Subtotal Other	**0**
Managed Recharge (imported SSJID surface water)[1]													
Tracy (Well 8 injected SSJID imported water)	0	0	0	0	0	0	0	0	0	0	0	0	0
												Subtotal Recharge Extractions	**0**
												Total Diversions Reported[2]	**103,403**

Notes:

--- Information not available

[1] = 791 AF of SSJID used by Tracy for recharge

[2] Managed Recharge not included in Total Diversion

Metered Recycled Water to Agriculture for Water Year 2024 (acre-feet)

	2023			2024									
Water Use Sector/Agency	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY Total
Agricultural and Urban (parks and street scapes) Use - Recycled													
City of Lathrop Area (Total)	56	57	49	45	66	34	52	103	142	74	131	129	938
CA Natural Products	33	34	30	26	29	27	29	31	64	58	64	71	
CTF - Agricultural Irrigation	---	---	---	---	---	---	---	---	---	---	---	---	---
CTF - Landscape Irrigation	---	---	---	---	---	---	---	---	---	---	---	---	---
CTF - Urban	23	23	19	19	36	7	24	72	78	16	67	58	
City of Tracy Area	0	0	0	0	0	0	0	0	0	0	0	0	0
SJ County Area	0	0	0	0	0	0	0	0	0	0	0	0	0
Tracy Army Defense Distribution Depot Wastewater (Shallow Aquifer)	1	1	1	2	1	1	2	1	1	1	1	1	15
Stewart Tract (CTF)	43	5	4	0	0	11	9	7	21	102	45	40	287
												Subtotal Recycled Agriculture	**1,240**
												Total Recycled	**1,240**

Notes:

--- Information not available

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Appendix C Estimated Groundwater Pumping

APPENDIX C

ESTIMATING AGRICULTURAL GROUNDWATER PUMPING

Groundwater is used for agricultural purposes, in some areas as their sole source of supply and in others to augment surface water supplies. Most agricultural wells are not metered so alternative methods were employed to estimate groundwater pumping in agricultural areas. The water use by agriculture was estimated for the Non-Delta Management Area portion of the Tracy Subbasin (Subbasin) (*see* **Figure C-1, Non-Delta Management Area)**. **Figure C-2, Irrigated Agricultural Fields,** shows the agricultural fields in the Non-Delta Management Area by Groundwater Sustainability Agency (GSA) area.

Evapotranspiration

Actual crop evapotranspiration (ETc) in the Non-Delta of the Subbasin was obtained from OpenET as calculated by eeMETRIC for Water Year (WY) 2024 between October 1, 2023 through September 30, 2024. The eeMETRIC process depends upon both accurate and frequent LandSAT satellite thermal images. Evapotranspiration was estimated using LandSAT 8 and LandSAT 9 satellites, available from the United States Geological Survey on 16-day-intervals, and ground-based weather data available from various sources.

An important benefit of using eeMETRIC process to determine actual evapotranspiration (ETc) is that land use/crop type information is not needed. Therefore, inaccuracies of determining land use are not part of the uncertainty in ETc output.

The eeMETRIC process calculated ETc for each GSA area in the Non-Delta Management Area portions of the Subbasin. **Table C-1** provides these estimates.

The total ETc for irrigated fields was calculated using the ETc raster data and the most recent available field boundaries for the area (obtained from the 2023 provisional LandIQ crop data available from DWR). This ETc volume for irrigated fields was subtracted from the volume for the entire area within the boundaries to estimate ETc from non-irrigated areas, provided in **Table C-2**. The total ETc was processed to remove urban areas where water is supplied by municipal entities and is metered. Because of rapid development and changing land use conditions, GEI closely assessed the city of Tracy and Stewart Tract areas in coordination with the GSAs, resulting in further reductions to the total agricultural irrigated acreage. The volume of all agricultural fields ETc by GSA are provided in **Table C-3**.

The Non-Delta Management Area portion of the Subbasin is bounded by the San Joaquin River, Middle River, Old River, Tom Paine Slough, and various other canals and water ways. About 70 diversions have been documented as shown on **Figure C-3** (DWR 1995). In previous Annual Reports, to attempt to quantify these surface water supplies a search of riparian diversion reports was performed through the State Water Resources Control Board Water (Water Board), however, only three filings were present. Irrigation diversions may be reported under other diversion types (appropriative or statement of diversions) but due to the

limited time and funding an alternative approach was used. Parcels immediately adjacent to the rivers and waterways were identified as potential users of surface water and the ETc estimates for these parcels were assumed to be met by surface water. The estimated ETc volume from these parcels was not included in the ETc volume supplied with groundwater. **Figure C-3** shows the parcels assumed to have riparian water rights. **Table C-4** provides a summary of the ETc for the riparian areas/fields. **Table C-5** provides an estimate of ETc volume for irrigated agricultural lands without riparian water supplies.

Water Supplies

Water supplies to the Non-Delta Management Area consist of surface water deliveries by Byron-Bethany Irrigation District and Banta-Carbona Irrigation District. Both agencies provided metered diversions totals for WY 2024. Former West Side Irrigation District is now consolidated with the Byron Bethany Irrigation District. This area is now referred to as the West Side Service Area, same Wicklund Cut Pump Station, which diverts surface water from Wicklund Cut via Old River. This diversion is added to the Byron Bethany Irrigation District surface water diversion. Statement of use filings were obtained from eWRIMS for Naglee Burke Irrigation District. Diversions by RD2058 were not reported but in WY 2023 this was about 23,000 acre-feet (AF). Therefore, to estimate diversions not available for WY 2024 the diversions from WY 2023 were used. No other diversion data was reported to eWRIMS. Water supplies also include metered agricultural wells and precipitation.

Table C-6 contains the metered and estimated surface water diversions to non-riparian fields (Naglee Burk Irrigation District and Pescadero Reclamation District 2058 supplies listed under the San Joaquin County GSA area).

Byron-Bethany Irrigation District and Banta-Carbona Irrigation District both have a few wells that are used to supplement water supplies. These wells are metered. In WY 2024 no metered wells were used. **Table C-7** contains the metered groundwater pumping to non-riparian agricultural fields. No other Reported Riparian Diversions were found this year as indicated in **Table C-8**.

Total precipitation was measured at the Tracy Carbona precipitation station and reported as inches and converted to feet. The total Non-Riparian Field ETc acres were then multiplied to obtain an estimate of the volume of precipitation that helped to meet ETc estimates. An effective precipitation of 80 percent was assumed to more accurately estimate the water supplied by precipitation. **Table C-9** contains the estimated contribution of precipitation to all Non-Riparian fields.

Estimated Groundwater Pumping

The Non-Riparian Field ETc monthly data was then processed by subtracting water supplies (metered surface water, metered groundwater pumping diversions, reported riparian diversions and precipitation) with the residual being estimated groundwater pumping for agriculture. **Table C-10** provides the estimated groundwater pumping, with negative values indicating the lack of adequate water to meet ETc demands and therefore groundwater may have been used make up the residual. The estimated groundwater pumping is about 15,600 acre-feet (AF) in WY 2024.

The estimated groundwater pumping was reviewed by the GSAs and with local knowledge of agricultural practices modified the estimated groundwater pumping estimates. **Table C-11**, provides these modified estimates of groundwater pumping based on the following considerations:

- Although ETc occurs during August, September, and October irrigation stops during this timeframe as this is harvest time for trees, almonds and walnuts, and many other crops as well. So even though plants continue to transpire it doesn't mean the plant needs water as it dries down for harvest in those months, essentially obtaining/depleting water in the soil pores. Also, the tree roots may extend down to the groundwater surface and use groundwater during this period. Lima beans are grown in the area. Irrigation stops in mid-August and the plants rely on water in the soil to finish the development of the seed and then in September spend most of the month drying down (to the wilting point) to be ready for cutting them off at the ground. All of this time they are transpiring and are intentionally in water deficit to prep for harvest. Alfalfa is a crop that doesn't normally get irrigated in October but is continually transpiring all of October. Therefore, even though there was estimated groundwater pumping during these 3 months, no groundwater pumping likely occurred during these months.
- The estimated groundwater pumping between November and January were also removed as crops are dormant, not grown or irrigated during these months.
- The Stewart Tract GSA area is surrounded entirely by surface water, (*see* **Figure C-4**) and has numerous diversions points suggesting any ETc would be met with surface water. Therefore, groundwater pumping in this area was removed.

As a result of these modifications, the estimated groundwater pumping in the Non-Delta Management Area of the Subbasin was about 6,500 AF during WY 2024. This volume is slightly less than last year, likely due to the slight increase in surface water diversions in WY 2024.

Conclusions and Recommendations

The modified estimate of groundwater pumping (is about 2,100 AF) should be used for reporting estimated groundwater pumping for agriculture, because it considers local agricultural practice knowledge.

The information contained in this report can be used to reduce uncertainties in the C2VSim groundwater model used to develop the water budgets for the Groundwater Sustainability Plan. Water supply information used in this report and historic information provided to DWR's C2VSim modeling group in January 2023 should be updated.

In future water years, the following improvements may help to better quantify the estimated groundwater pumping:

- Attempt to refine the assigned riparian areas by obtaining appropriative and statements of diversions reporting's to locate these fields.
- Perform an irrigation well canvas in the Byron-Bethany Irrigation District and Banta-Carbona Irrigation District areas to document location of wells. An inventory of wells using DWR's well logs database was insufficient to locate wells in these areas requiring field well canvases.

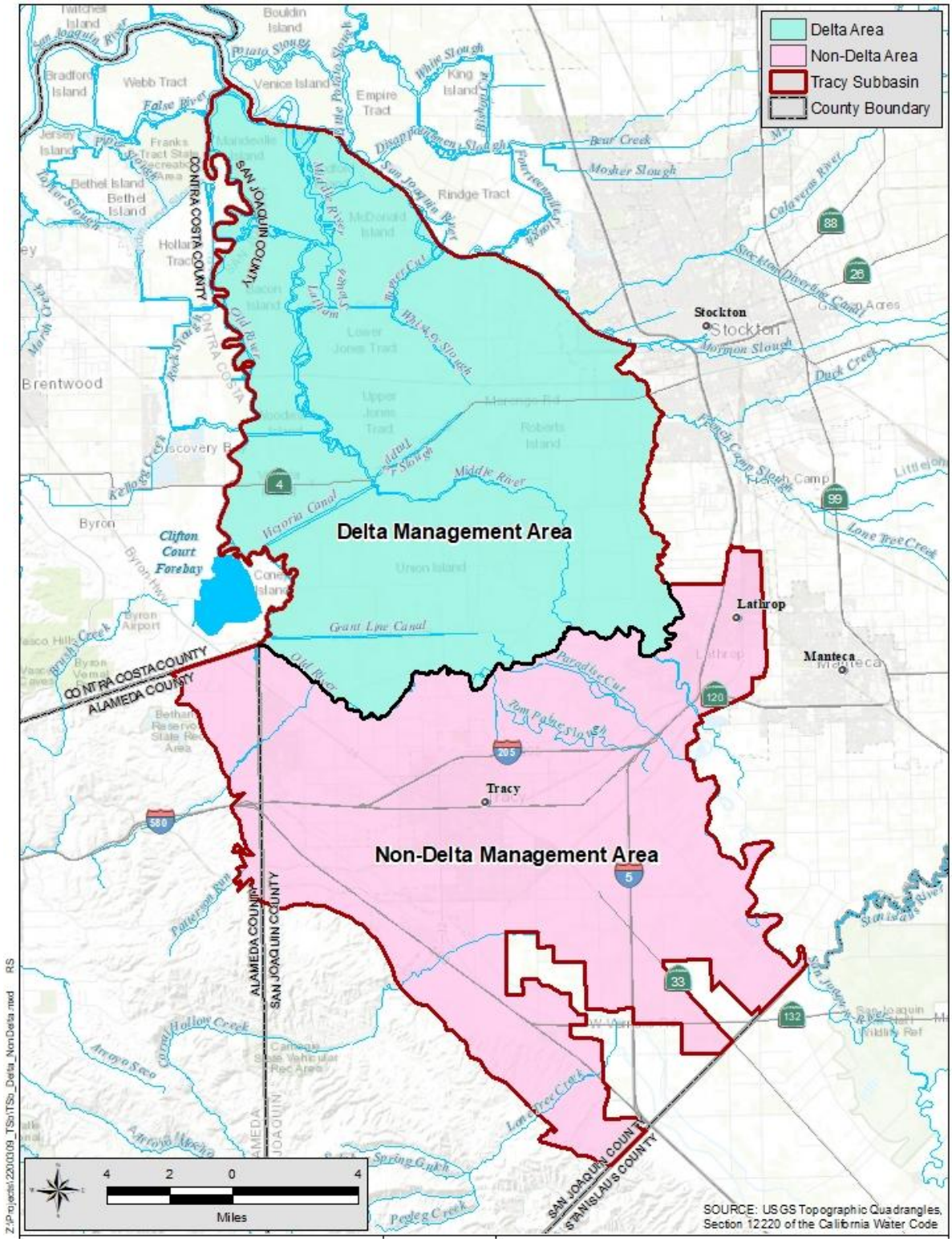

Figure C-1 Non-Delta Management Area

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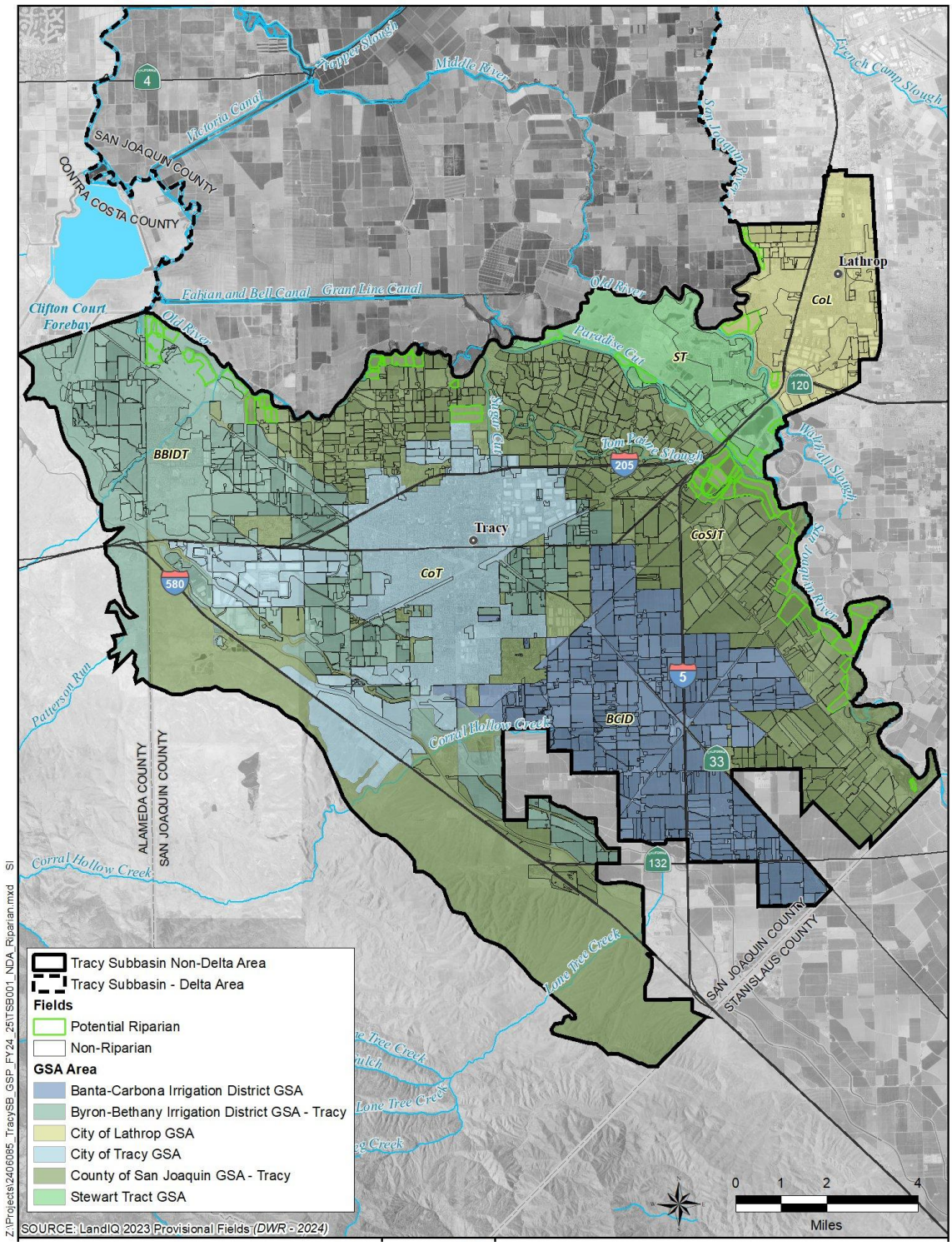

Figure C-2 Identified Agricultural Fields

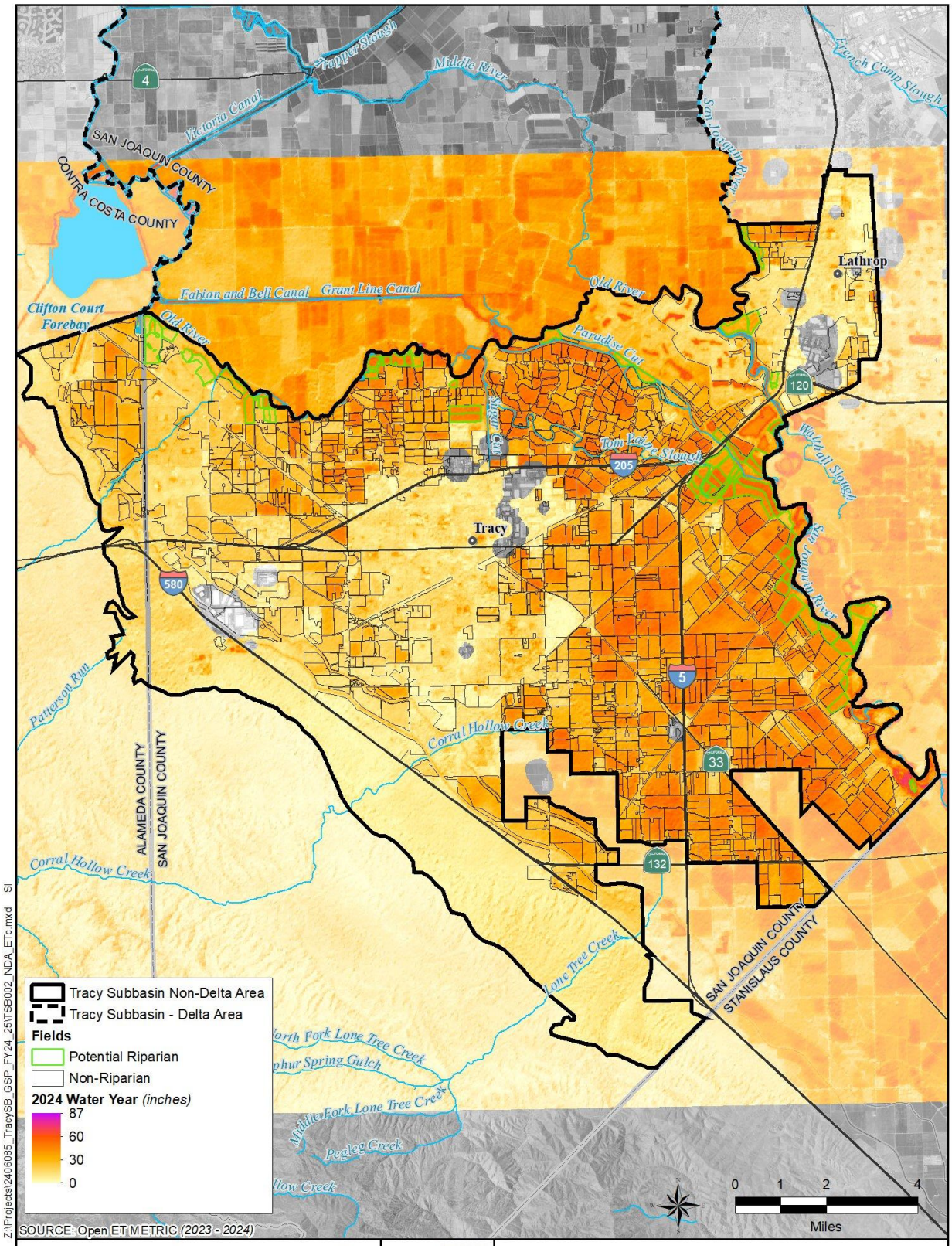

Figure C-4 ETc by Field and Estimated Riparian Parcels

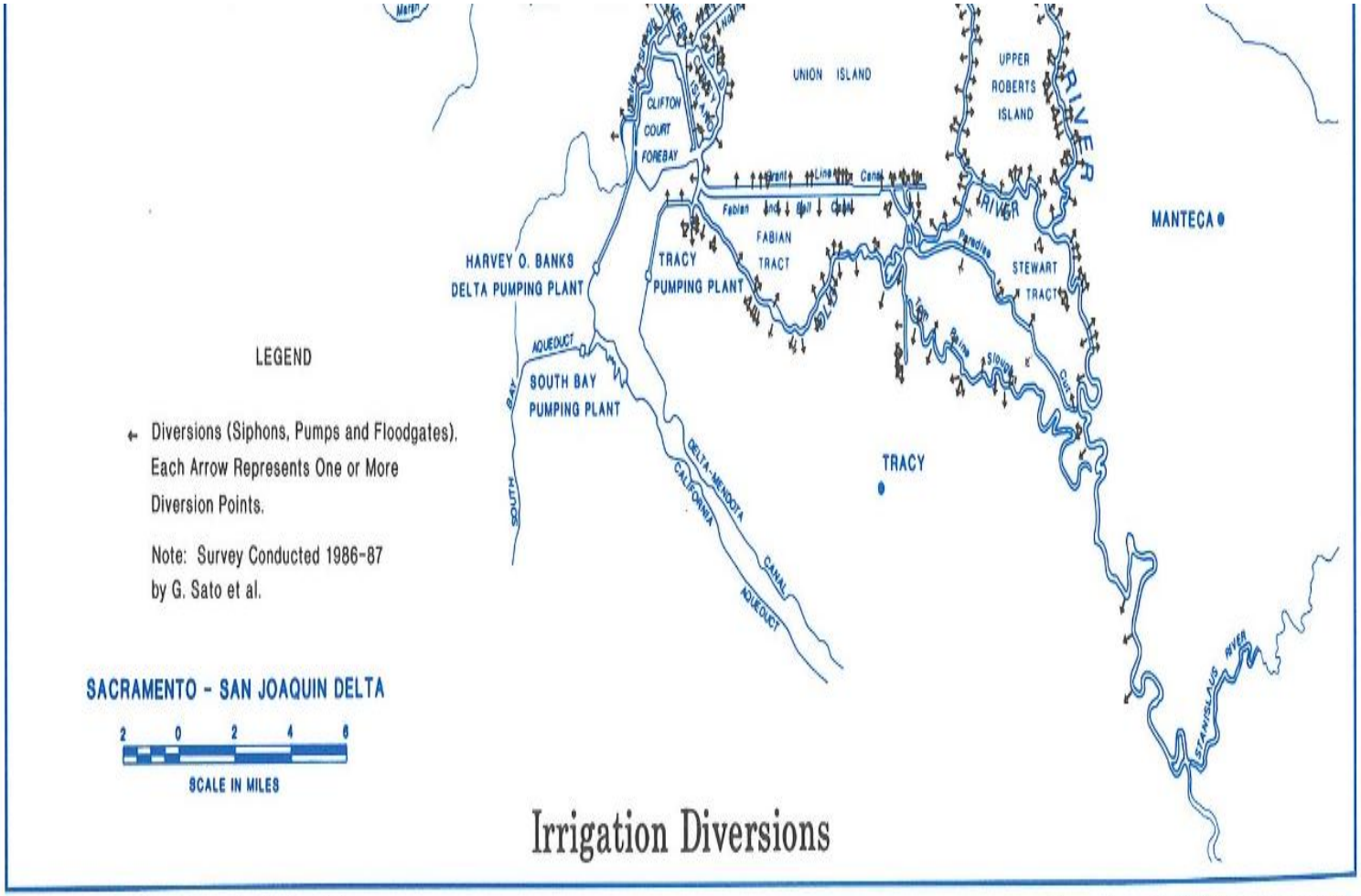

Figure C-3 Surface Water Diversion

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Table C-1. Overall Boundary ETc

Table C-1

OVERALL BOUNDARY ETc (INCHES)													
GSA	ACRES	2023-2024											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Banta-Carbona ID GSA	16,629	2.61	1.82	0.88	0.63	1.00	1.71	2.46	3.76	5.12	5.75	4.65	3.90
Byron-Bethany ID GSA - TSb	22,179	1.58	1.01	0.56	0.53	0.90	1.91	1.86	2.36	2.59	2.64	2.34	1.76
City of Lathrop GSA	7,637	1.29	0.88	0.45	0.40	0.65	0.92	1.23	1.60	1.86	2.42	1.89	1.63
City of Tracy GSA	16,538	1.15	0.71	0.38	0.26	0.49	1.07	0.95	1.23	1.31	1.57	1.32	1.24
County of San Joaquin GSA - TSb	49,445	1.77	1.05	0.57	0.62	1.25	2.28	2.55	2.70	3.14	3.47	3.16	2.56
Stewart Tract GSA	6,068	2.08	1.41	0.72	0.82	1.34	2.13	2.76	3.56	3.75	4.03	3.42	2.82

OVERALL BOUNDARY ETc (AF)														
GSA	ACRES	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	16,629	3,619	2,520	1,214	867	1,382	2,373	3,403	5,204	7,089	7,963	6,443	5,408	**47,486**
Byron-Bethany ID GSA - TSb	22,179	2,929	1,864	1,038	976	1,655	3,525	3,441	4,364	4,778	4,872	4,333	3,250	**37,026**
City of Lathrop GSA	7,637	821	561	285	257	414	587	782	1,019	1,181	1,540	1,201	1,037	**9,683**
City of Tracy GSA	16,538	1,585	983	523	352	681	1,479	1,304	1,702	1,802	2,160	1,824	1,703	**16,098**
County of San Joaquin GSA - TSb	49,445	7,287	4,329	2,329	2,566	5,133	9,383	10,524	11,110	12,939	14,279	13,029	10,548	**103,456**
Stewart Tract GSA	6,068	1,052	711	366	414	678	1,079	1,396	1,798	1,899	2,039	1,730	1,427	**14,587**
Total	**118,496**	**17,292**	**10,968**	**5,756**	**5,432**	**9,942**	**18,426**	**20,850**	**25,197**	**29,688**	**32,853**	**28,560**	**23,372**	**228,336**

Notes: The tables above include ETc within the urban areas including cities of Lathrop, Tracy and Mountain House

Table C-2. Non-Irrigated Areas ETc

Non-Irrigated Areas ETc (AF)														
GSA	ACRES	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	2,882	365	267	128	93	149	271	345	454	616	717	562	602	4,570
Byron-Bethany ID GSA - TSb	12,128	1,094	655	369	419	728	1,668	1,447	1,722	1,715	1,670	1,572	1,145	14,202
City of Lathrop GSA	6,592	640	452	224	197	305	413	522	723	868	1,151	853	768	7,116
City of Tracy GSA	14,567	1,316	834	429	251	464	985	856	1,239	1,391	1,825	1,504	1,491	12,584
County of San Joaquin GSA - TSb	28,339	2,485	1,537	871	1,100	2,366	4,736	4,697	3,751	4,115	4,235	3,665	3,159	36,717
Stewart Tract GSA	5,486	926	653	337	365	595	951	1,233	1,587	1,651	1,766	1,470	1,209	12,744
Total	**69,994**	**6,826**	**4,398**	**2,358**	**2,424**	**4,609**	**9,024**	**9,101**	**9,475**	**10,356**	**11,364**	**9,625**	**8,374**	**87,933**

Table C-3. All Agricultural Field ETc

ALL AGRICULTURAL FIELD ETc (INCHES)													
GSA	ACRES	2023-2024											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Banta-Carbona ID GSA	13,747	2.84	1.97	0.95	0.68	1.08	1.83	2.67	4.15	5.65	6.33	5.13	4.19
Byron-Bethany ID GSA - TSb	10,051	2.19	1.44	0.80	0.67	1.11	2.22	2.38	3.15	3.66	3.82	3.30	2.51
City of Lathrop GSA	1,045	2.07	1.25	0.70	0.69	1.24	1.99	2.98	3.41	3.59	4.46	4.00	3.09
City of Tracy GSA	1,971	1.64	0.91	0.58	0.61	1.32	3.01	2.73	2.82	2.50	2.04	1.95	1.30
County of San Joaquin GSA - TSb	21,107	2.73	1.59	0.83	0.83	1.57	2.64	3.31	4.18	5.02	5.71	5.32	4.20
Stewart Tract GSA	582	2.60	1.19	0.59	1.01	1.70	2.64	3.35	4.35	5.11	5.63	5.36	4.48

ALL AGRICULTURAL FIELD ETc (AF)														
GSA	ACRES	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	13,747	3,254	2,253	1,086	774	1,233	2,101	3,057	4,750	6,473	7,246	5,882	4,805	**42,916**
Byron-Bethany ID GSA - TSb	10,051	1,835	1,209	669	557	927	1,858	1,994	2,642	3,063	3,202	2,761	2,105	**22,824**
City of Lathrop GSA	1,045	180	109	61	60	108	174	260	297	313	389	348	269	**2,568**
City of Tracy GSA	1,971	269	150	95	100	216	494	449	462	411	335	320	213	**3,514**
County of San Joaquin GSA - TSb	21,107	4,801	2,793	1,458	1,466	2,767	4,647	5,827	7,359	8,823	10,044	9,365	7,389	**66,739**
Stewart Tract GSA	582	126	58	29	49	82	128	163	211	248	273	260	217	**1,844**
Total	**48,502**	**10,465**	**6,571**	**3,398**	**3,007**	**5,333**	**9,402**	**11,750**	**15,722**	**19,332**	**21,489**	**18,936**	**14,998**	**140,403**

Notes: The tables have the monthly ETc for fields summarized for each GSA - ETc for areas classified as Urban have been removed as these are supplies are me

Table C-4. Riparian Areas ETc

POTENTIAL RIPARIAN FIELD ETc (AF)														
GSA	ACRES	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	0	-	-	-	-	-	-	-	-	-	-	-	-	**0**
Byron-Bethany ID GSA - TSb	192	34	37	19	26	51	98	101	102	98	85	74	26	**752**
City of Lathrop GSA	237	51	22	12	17	28	34	44	48	66	83	99	82	**586**
City of Tracy GSA	0	-	-	-	-	-	-	-	-	-	-	-	-	**0**
County of San Joaquin GSA - TSb	2,148	458	270	133	159	298	490	631	820	997	1,169	1,056	818	**7,298**
Stewart Tract GSA	163	66	29	16	26	45	77	98	129	138	145	129	111	**1,009**
Total	**2,740**	**609**	**358**	**179**	**228**	**422**	**698**	**874**	**1,099**	**1,299**	**1,483**	**1,359**	**1,037**	**9,645**

Table C-5. Non- Riparian Field ETc

NON-RIPARIAN FIELD ETc (INCHES)													
GSA	ACRES	2023-2024											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Banta-Carbona ID GSA	13,747	2.84	1.97	0.95	0.68	1.08	1.83	2.67	4.15	5.65	6.33	5.13	4.19
Byron-Bethany ID GSA - TSb	9,859	2.19	1.43	0.79	0.65	1.07	2.14	2.30	3.09	3.61	3.79	3.27	2.53
City of Lathrop GSA	808	1.92	1.29	0.74	0.64	1.19	2.08	3.21	3.69	3.67	4.53	3.70	2.78
City of Tracy GSA	1,971	1.64	0.91	0.58	0.61	1.32	3.01	2.73	2.82	2.50	2.04	1.95	1.30
County of San Joaquin GSA - TSb	18,959	2.75	1.60	0.84	0.83	1.56	2.63	3.29	4.14	4.95	5.62	5.26	4.16
Stewart Tract GSA	419	2.69	1.27	0.59	1.03	1.67	2.31	2.91	3.69	4.92	5.76	5.88	4.78

NON-RIPARIAN FIELD ETc (AF)														
GSA	ACRES	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	13,747	3,254	2,253	1,086	774	1,233	2,101	3,057	4,750	6,473	7,246	5,882	4,805	**42,916**
Byron-Bethany ID GSA - TSb	9,859	1,801	1,172	650	531	876	1,760	1,893	2,540	2,965	3,117	2,687	2,080	**22,072**
City of Lathrop GSA	808	130	87	50	43	80	140	216	248	247	305	249	187	**1,981**
City of Tracy GSA	1,971	269	150	95	100	216	494	449	462	411	335	320	213	**3,514**
County of San Joaquin GSA - TSb	18,959	4,343	2,523	1,325	1,307	2,469	4,157	5,196	6,539	7,827	8,875	8,309	6,571	**59,440**
Stewart Tract GSA	419	94	44	21	36	58	81	101	129	172	201	205	167	**1,309**
Total	**45,762**	**9,891**	**6,228**	**3,226**	**2,792**	**4,932**	**8,733**	**10,912**	**14,669**	**18,095**	**20,080**	**17,652**	**14,022**	**131,233**

Table C-6. Surface Water Supplies to Fields (AF)

Surface Water Supplies to Agricultural Fields (AF)														
GSA		2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA		1,794	947	5	0	0	533	1,255	5,733	6,966	7,054	5,125	3,774	33,186
Byron-Bethany ID GSA - TSb		1846	734	381	272	263	759	2307	5042	5064	4833	3448	2824	27,771
City of Lathrop GSA		46	25	0	0	0	0	11	26	36	39	33	11	228
City of Tracy GSA		269	0	0	0	0	0	449	462	411	335	320	213	2,459
County of San Joaquin GSA - (BCID+NBID+RD2058)		2798	1336	697	883	1730	2937	3663	5550	6178	6878	6587	5123	44,360
Stewart Tract GSA (recycled)		30	48	95	61	0	69	0	0	0	0	0	0	303
Total		**6,783**	**3,090**	**1,178**	**1,216**	**1,993**	**4,298**	**7,684**	**16,813**	**18,656**	**19,139**	**15,513**	**11,945**	**108,307**

Note: City of Lathrop surface water deliveries are from treated wastewater.

Table C-7. Metered Groundwater Pumping to Fields (AF)

Metered Groundwater Pumping to Fields (AF)														
GSA		2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Byron-Bethany ID GSA - TSb		0	0	0	0	0	0	0	0	0	0	0	0	0
City of Lathrop GSA		0	0	0	0	0	0	0	0	0	0	0	0	0
City of Tracy GSA		0	0	0	0	0	0	0	0	0	0	0	0	0
County of San Joaquin - TSb		0	0	0	0	0	0	0	0	0	0	0	0	0
Stewart Tract GSA (recycled)		0	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Table C-8. Other Reported Diversions (AF)

Other Reported Riparian Diversions - (AF)														
GSA		2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA														
Byron-Bethany ID GSA - TSb														
City of Lathrop GSA														
City of Tracy GSA														
County of San Joaquin GSA - TSb	12,757	2454	1240	683	847	1663	2732	3386	4083	4576	5237	5129	4025	36055
Stewart Tract GSA														
Total		2454	1240	683	847	1663	2732	3386	4083	4576	5237	5129	4025	36055

Table C-9. Total Precipitation

Total Precipitation - (inches)														
GSA		2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Total (inches)		1	0.34	2.45	2.69	2.8	1.49	1.33	0.15	0	0	0	0	12.25
Total (feet)		0.08	0.03	0.20	0.22	0.23	0.12	0.11	0.01	0.00	0.00	0.00	0.00	1.02

Total Effective Precipitation at 80% - (AF)														
GSA	Field Acres	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	13,747	916	312	2245	2465	2566	1365	1219	137	0	0	0	0	6,259
Byron-Bethany ID GSA - TSb	10,051	670	228	1642	1803	1876	998	891	101	0	0	0	0	7,210
City of Lathrop GSA	1,045	70	24	171	187	195	104	93	10	0	0	0	0	750
City of Tracy GSA	1,971	131	45	322	353	368	196	175	20	0	0	0	0	1,414
County of San Joaquin GSA - TSb	21,107	1407	478	3447	3785	3940	2097	1871	211	0	0	0	0	15,141
Stewart Tract GSA	582	39	13	95	104	109	58	52	6	0	0	0	0	417
Total	**48,502**	**3,233**	**1,099**	**7,922**	**8,698**	**9,054**	**4,818**	**4,301**	**485**	-	-	-	-	**31,191**

Table C-10. Estimated Groundwater Pumping (AF)

Estimated Agricultural Groundwater Pumping (AF)														
GSA	Acres	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	13,747	(544)	(994)	1,165	1,691	1,333	(203)	(584)	1,120	493	(192)	(756)	(1,032)	(4,305)
Byron-Bethany ID GSA - TSb	10,051	715	(210)	1,372	1,543	1,263	(3)	1,305	2,603	2,099	1,716	761	744	(213)
City of Lathrop GSA	1,045	(13)	(38)	121	144	116	(36)	(112)	(212)	(212)	(266)	(216)	(175)	(1,281)
City of Tracy GSA	1,971	131	(105)	227	253	152	(298)	175	20	-	-	-	-	(404)
County of San Joaquin GSA - TSb	21,107	(138)	(708)	2,819	3,361	3,201	877	339	(779)	(1,648)	(1,997)	(1,722)	(1,448)	(8,440)
Stewart Tract GSA	582	(25)	17	169	130	50	46	(50)	(123)	(172)	(201)	(205)	(167)	(944)
Total	48,502													**(15,586)**

Notes:

Negative values indicate groundwater pumping because deficient surface water suplies.

Estimated Groundwater Pumping (AF) = diversions + precip + surface water supply + metered groundwater pumping - Non-Riparian Fields ETc

Table C-11. Modified Estimated Groundwater Pumping (AF)

Modified Estimated Agricultural Groundwater Pumping (AF)														
GSA	Acres	2023-2024												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total
Banta-Carbona ID GSA	13,747	-	-	-	-	1,333	(203)	(584)	1,120	493	(192)	-	-	(979)
Byron-Bethany ID GSA - TSb	10,051	-	-	-	-	1,263	(3)	1,305	2,603	2,099	1,716	-	-	-
City of Lathrop GSA	1,045	-	-	-	-	169	(36)	(112)	(212)	(212)	(266)	-	-	(838)
City of Tracy GSA	1,971	-	-	-	-	152	(298)	175	20	-	-	-	-	(298)
County of San Joaquin GSA - TSb	21,107	-	-	-	-	3,201	877	339	(779)	(1,648)	(1,997)	-	-	(4,424)
Stewart Tract GSA	582	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	48,502	-	-	-	-	6,117	336	1,122	2,752	733	(739)	-	-	**(6,539)**

Negative values indicate groundwater pumping because deficient of surface water suplies. Water year total only summing negative values, no carry over from previous

Notes and Assumptions:

In Modified Estimate ETc for August, September and October are not valid as this is harvest time for trees, Almonds and Walnuts, and many other crops as well. So even though plants have evaportranspiration it doesn't mean the plant needs water as it dries down for harvest in those months. The tree roots may extend down to the groundwater surface and use groundwater during this period. Another example, are lima beans, grown in the area. Irrigation stops in mid August and the plants rely on water in the soil to finish the development of the seed and then in September spend most of the month drying down to be ready for cutting them off at the ground. All of this time they are transpiring and are intentionally in water deficit to prep for harvest. Alfalfa is a crop that doesn't normally get irrigated in October but is continually transpiring all of October. Therefore, although groundwater pumping was calculated for these months, no groundwater pumping occurred during these months.

In Modified Estimate: The April calculations include half of the March precipitation and irrigation carry over for the City of Lathrop and County of San Joaquin, all other months do not include carry over from the previous month irrigation.

In Modified Estimate: November, December and January = Etc removed as crops have been harvested and irrigation shut off for the season.

Estimated agricultural pumping was zeroed as the Stewater Tract GSA is an island with surface water intrusions providing all supply needed.

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Appendix D Public Outreach

Table D-1. Tracy Subbasin Outreach and Engagement Activities in WY2024

Entity	Outreach or Engagement Type	Agenda Item(s) Relevant to the Status of GSP Implementation	Relevant Links
Tracy Subbasin Coordination Committee (Committee)	December 2023 Committee Meeting	All agenda items.	December 2023 Committee Meeting Summary
Tracy Subbasin Coordination Committee (Committee)	January 2024 Committee Meeting	All agenda items.	January 2024 Committee Meeting Summary
Tracy Subbasin Coordination Committee (Committee)	February 2024 Committee Meeting	All agenda items.	February 2024 Committee Meeting Summary
Tracy Subbasin Coordination Committee (Committee)	March 2024 Committee Meeting	All agenda items.	March 2024 Committee Meeting Summary
Tracy Subbasin Coordination Committee (Committee)	April 2024 Committee Meeting	All agenda items.	April 2024 Committee Meeting Summary
Tracy Subbasin Coordination Committee (Committee)	May 2024 Committee Meeting	All agenda items.	May 2024 Committee Meeting Summary
Tracy Subbasin Coordination Committee (Committee)	June 2024 Committee Meeting	All agenda items.	June 2024 Committee Meeting Summary
Tracy Subbasin Coordination Committee (Committee)	September 2024 Committee Meeting	All agenda items.	September 2024 Committee Meeting Summary

Entity	Outreach or Engagement Type	Agenda Item(s) Relevant to the Status of GSP Implementation	Relevant Links
Banta-Carbona Irrigation District (BCID)	October 2023 BCID Board of Directors Meeting	ITEM 15 - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-October-11-2023-Webiste.pdf
Banta-Carbona Irrigation District (BCID)	November 2023 BCID Board of Directors Meeting	ITEM 14C - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Microsoft Word - Minutes NOVEMBER 15 2023 DRAFT REVISED
Banta-Carbona Irrigation District (BCID)	December 2023 BCID Board of Directors Meeting	ITEM 16C - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-December-13-2023-Website.pdf
Banta-Carbona Irrigation District (BCID)	January 2024 BCID Board of Directors Meeting	TEM 14C - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-January-17-2024-Webiste.pdf
Banta-Carbona Irrigation District (BCID)	February 2024 BCID Board of Directors Meeting	ITEM 17C - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-February-14-2024-Website.pdf
Banta-Carbona Irrigation District (BCID)	March 2024 BCID Board of Directors Meeting	ITEM 15C - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-Special-Meeting-March-13-2024-Website.pdf
Banta-Carbona Irrigation District (BCID)	April 2024 BCID Board of Directors Meeting	ITEM 14C - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-April-11-2024-Website.pdf
Banta-Carbona Irrigation District (BCID)	May 2024 BCID Board of Directors Meeting	ITEM 17 - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-MAY-15-2024-Website.pdf

Entity	Outreach or Engagement Type	Agenda Item(s) Relevant to the Status of GSP Implementation	Relevant Links
Banta-Carbona Irrigation District (BCID)	June 2024 BCID Board of Directors Meeting	ITEM 20 - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN.	Minutes-June-12-2024-Website.pdf
Banta-Carbona Irrigation District (BCID)	July 2024 BCID Board of Directors Meeting	ITEM 18 - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN AND RELATED ACTIVITIES.	Minutes-July-17-2024-Website.pdf
Banta-Carbona Irrigation District (BCID)	August 2024 BCID Board of Directors Meeting	ITEM 21 - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN AND RELATED ACTIVITIES.	Minutes-AUGUST-14-2024-ADOPTED.pdf
Banta-Carbona Irrigation District (BCID)	September 2024 BCID Board of Directors Meeting	ITEM 17 - UPDATE ON THE GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE TRACY SUBBASIN AND RELATED ACTIVITIES.	Minutes-SEPTEMBER-11-2024-ADOPTED.pdf

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