Consideration and Adoption of First Annual Report for SCV-GSA

SCV GSA Special Board Meeting
March 30, 2022
Item No. 3.1

Report Overview

- Required by SGMA
- Regular update describing status of GSP implementation and basin conditions
- Stakeholder Involvement, Board Adoption, Provision of Report to DWR
- Nine Sections Relating to Basin Conditions, Sustainability, and Implementation

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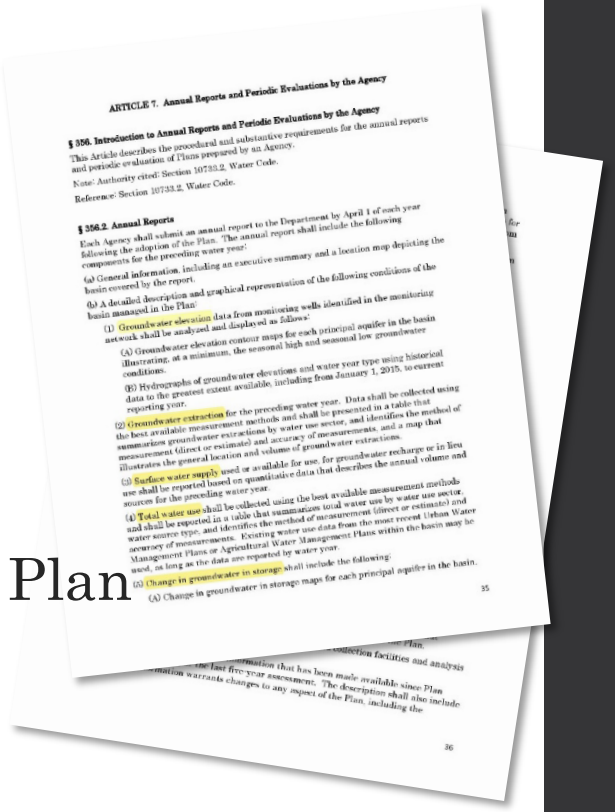
DWR Requirements for Annual Reports

1. Groundwater elevation
2. Groundwater extraction
3. Surface water supply
4. Total water use
5. Change in groundwater in storage
6. Progress towards implementing the Plan



ARTICLE 7. Annual Reports and Periodic Evaluations by the Agency

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

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

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 356.2. Annual Reports

Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:

(a) General information, including an executive summary and a location map depicting the basin covered by the report.

(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:

(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:

(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.

(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.

(3) Surface water supply used or available for use, for groundwater recharge or in lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.

(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

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

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

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Scope of Report

- Water Years 2020 and 2021 (2 years)
  - Bridging the gap between the Plan (1981 – 2019) and the most recent water year (2021)
- Summarizes data collected through the most recent water year (September 2021)
- Describes progress towards implementing the Plan

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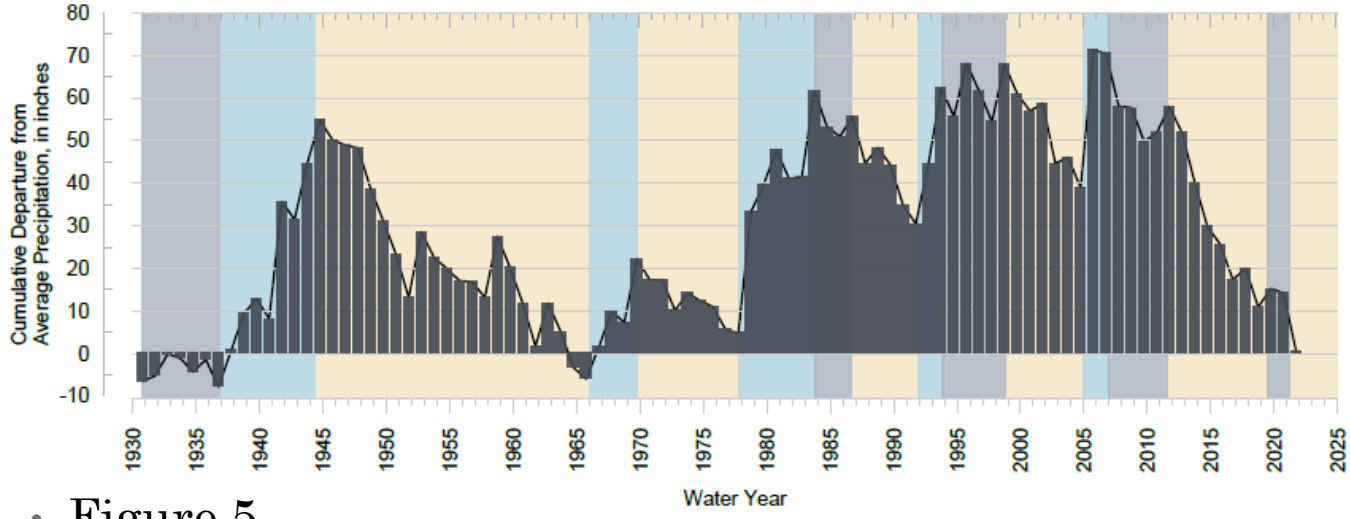
Basin Setting

- Alluvial Aquifer
- Saugus Aquifer
- Climatic Cycles- decreasing rainfall cumulative departure for many years, but recent increase in rainfall relative to 2019



- Figure 5

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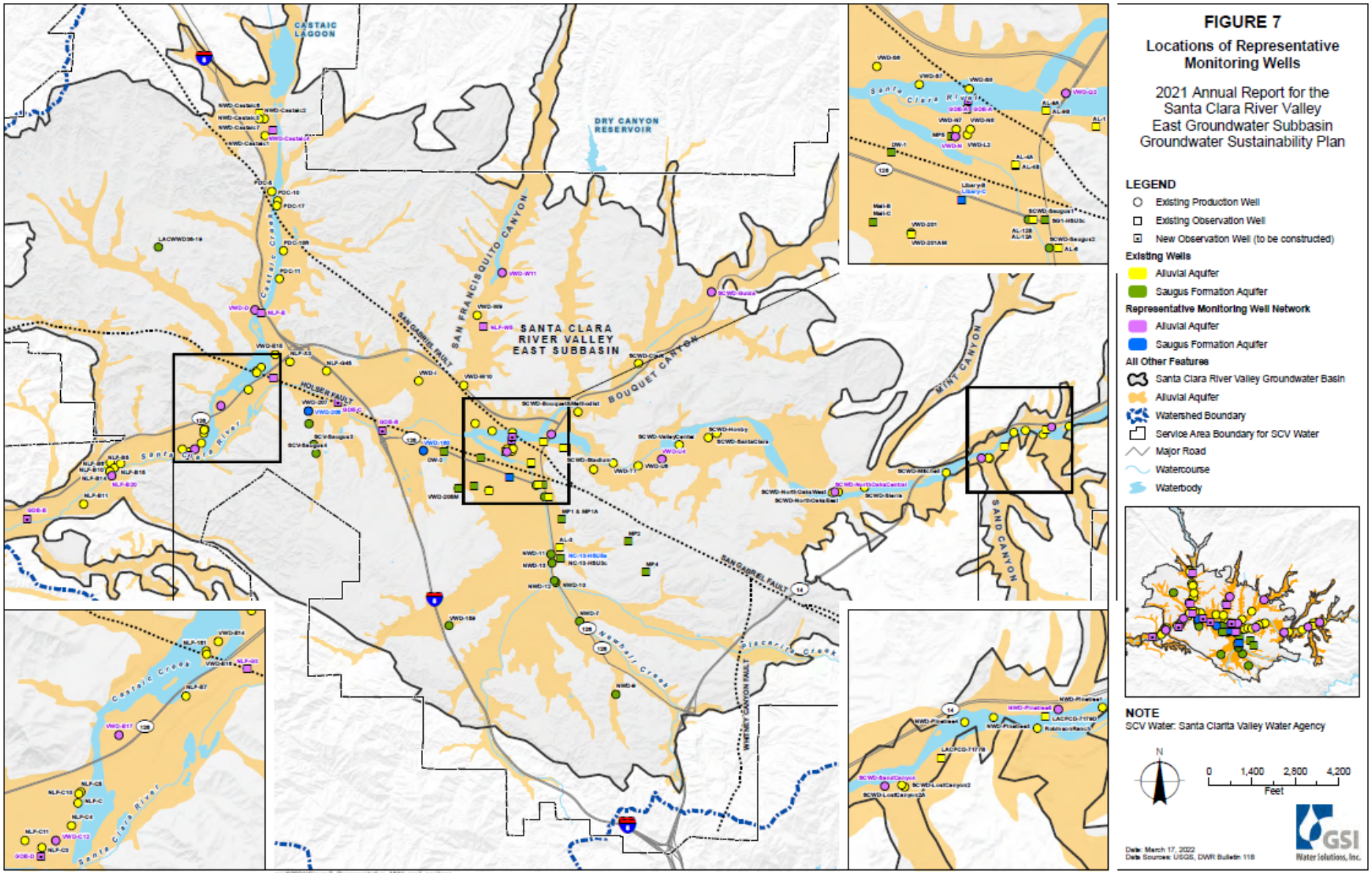
Basin Monitoring



Groundwater Elevation Maps

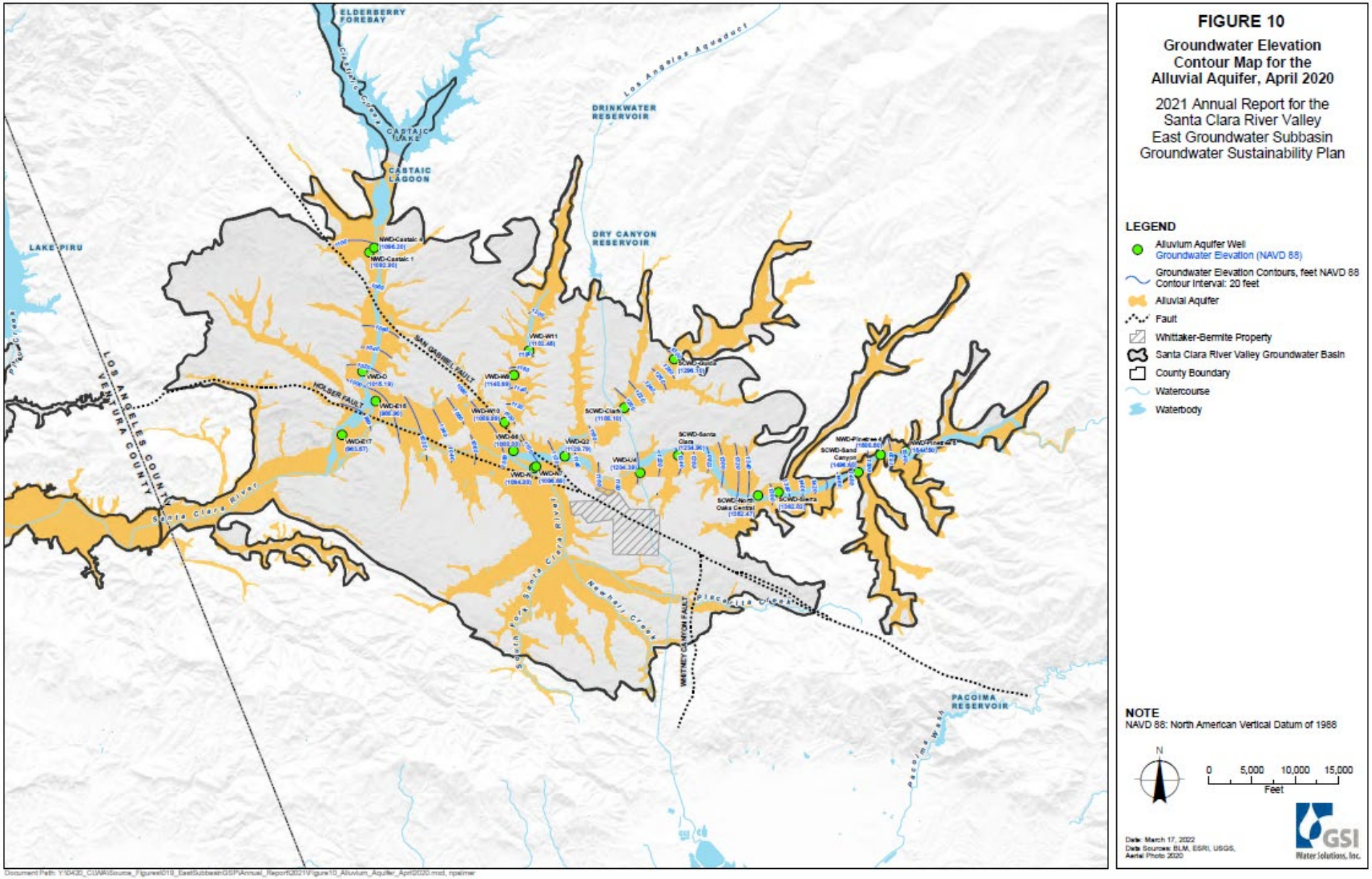


FIGURE 10

Groundwater Elevation Contour Map for the Alluvial Aquifer, April 2020

2021 Annual Report for the Santa Clara River Valley East Groundwater Subbasin Groundwater Sustainability Plan

LEGEND

- Alluvium Aquifer Well
  Groundwater Elevation (NAVD 88)
- Groundwater Elevation Contours, feet NAVD 88
  Contour Interval: 20 feet
- Alluvial Aquifer
- Fault
- Whittaker-Bermite Property
- Santa Clara River Valley Groundwater Basin
- County Boundary
- Watercourse
- Waterbody

NOTE

NAVD 88: North American Vertical Datum of 1988

N

0 5,000 10,000 15,000
Feet

Date: March 17, 2022
Data Sources: BLM, ESRI, USGS, Aerial Photo 2020

GSI Water Solutions, Inc.

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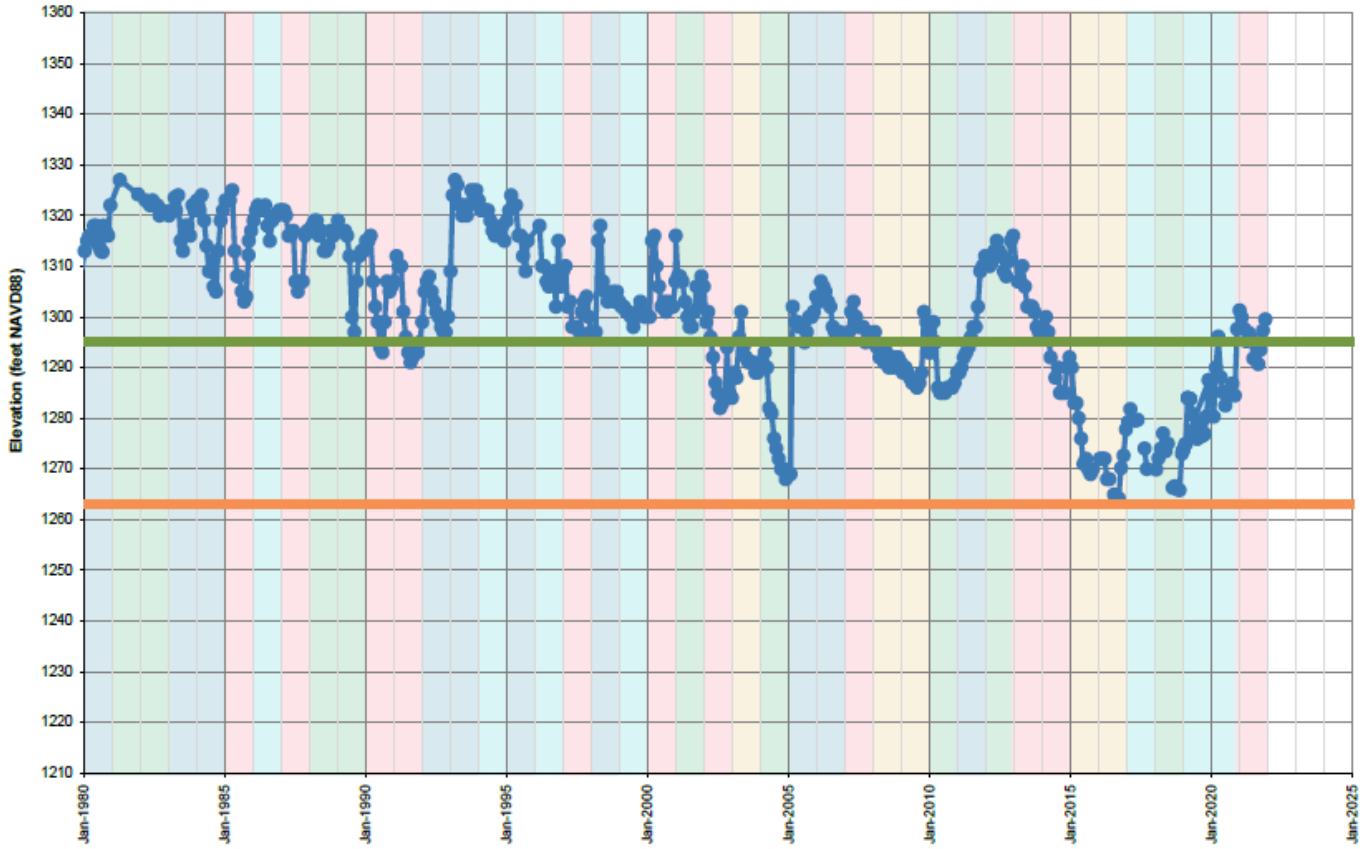
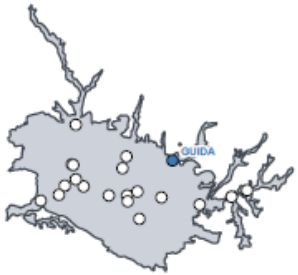
GW Elevation (alluvium)





LEGEND

- Measured Static Groundwater Elevation
- Initial Measurable Objective (MO)
- Initial Minimum Threshold (MT)

Water Year Type

- Wet
- Above Normal
- Below Normal
- Dry
- Critical

APPENDIX D

Measured Groundwater Elevations and Sustainable Management Criteria for the SCWD-Guida Production Well in the Alluvial Aquifer

Santa Clara River Valley

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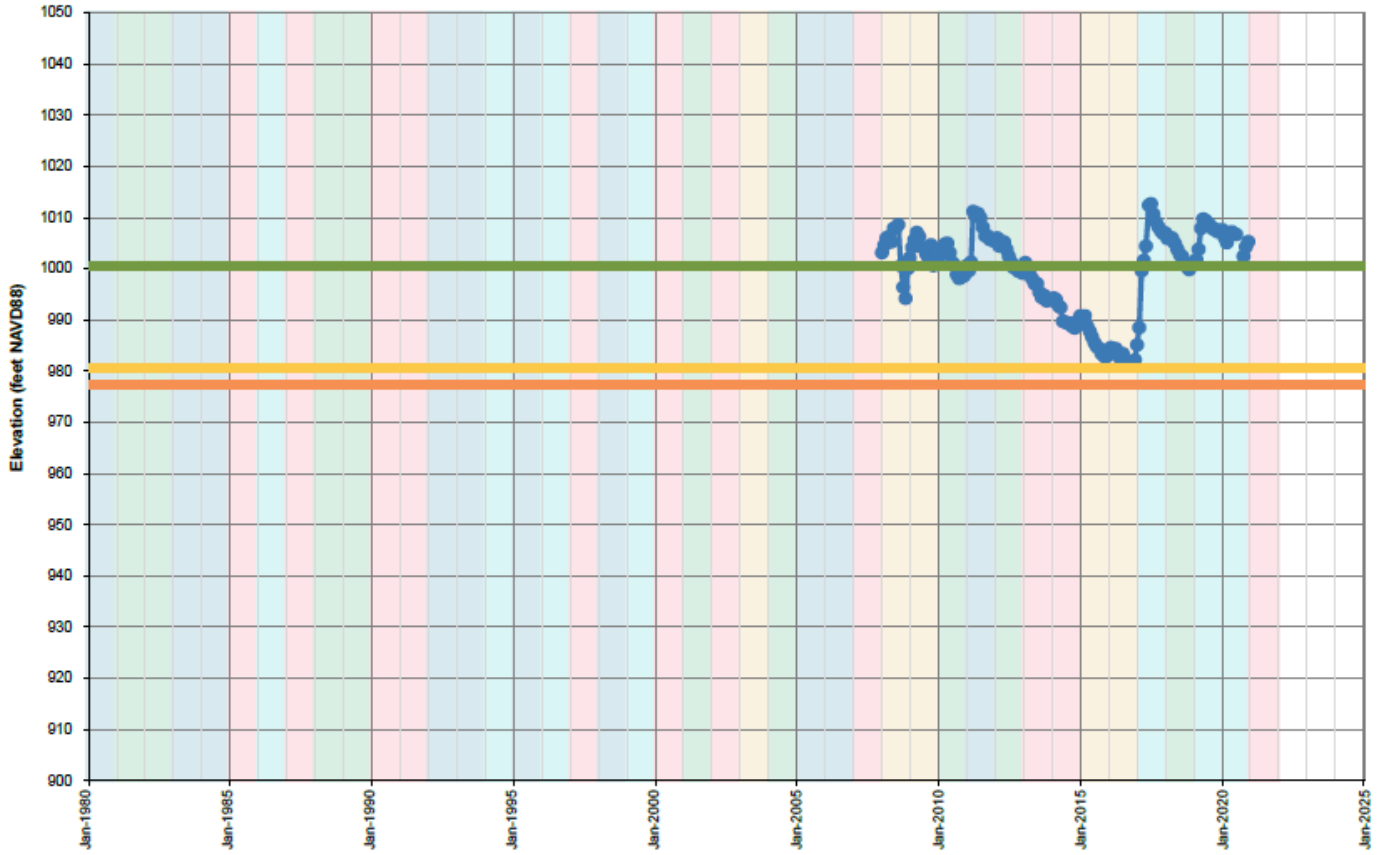
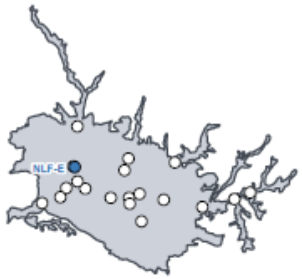
GW Elevation + Trigger





LEGEND

- Measured Static Groundwater Elevation
- Initial Measurable Objective (MO)
- Initial Minimum Threshold (MT)
- Initial GDE Trigger Level

Water Year Type

- Wet
- Above Normal
- Below Normal
- Dry
- Critical

APPENDIX D

Measured Groundwater Elevations, GDE Trigger Levels, and Sustainable Management Criteria at Existing GDE Monitoring Well NLF-E in the Alluvial Aquifer

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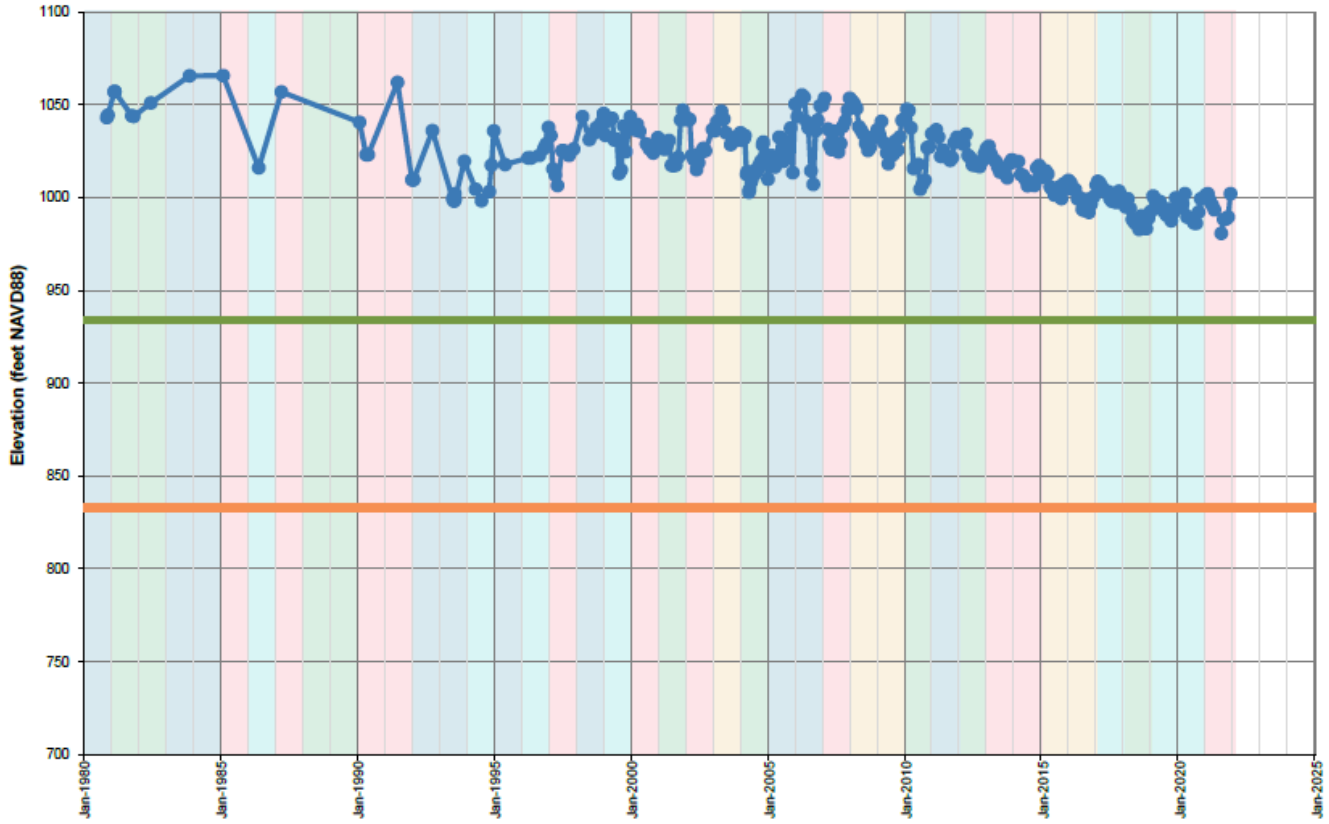
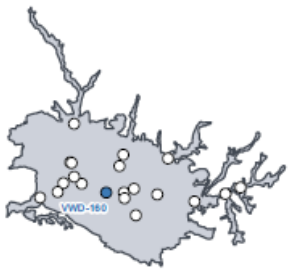
GSI Water Solutions, Inc.

GW Elevation Saugus Aquifer





LEGEND

- Measured Static Groundwater Elevation
- Initial Measurable Objective (MO)
- Initial Minimum Threshold (MT)

Water Year Type

- Wet
- Above Normal
- Below Normal
- Dry
- Critical

APPENDIX D

Measured Groundwater Elevations and Sustainable Management Criteria for the VWD-160 Production Well in the Saugus Formation

Santa Clara River Valley

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Groundwater Extractions

- Utilizes Data from Meters, estimates where not metered or if data not available.
- Total Water demand higher in 2021

Table 8. Total Groundwater Extractions by Water Use Sector

Water Year	Municipal[1]	Rural Domestic	Small PWS[2]	Golf Courses[3]	Agricultural[4]	Whittaker-Bermite	Total
2020	19,024	500	1,338	723	8,013	469	30,067
2021	24,752	500	1,431	1,048	7,610	483	35,824
Method of Measure	Metered	Estimated	Metered	Metered	Metered	Metered	–
Level of Accuracy	High	Low to Medium	High	Medium to High	High in WY 2020, Low in WY 2021	Medium to High	–

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Use of Surface Water and Imported Supplies

- State Water Project Water
- Two Water Banks and Two Water Exchange Programs
- Yuba Accord

Table 9. Use of Imported, Recycled, and Other Surface Water Supplies

Water Year	Imported Water	Recycled Water	Other Surface Water	Total
2020	45,550	496	0	46,046
2021	46,292	466	0	46,758
Method of Measure	Metered	Metered	—	—
Level of Accuracy	High	High	—	—

Note

All use volumes are in units of acre-feet.

— = not applicable

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Total Water Use

- Imported water use was greater than municipal groundwater pumping

Table 11. Total Water Use for All Water Use Sectors

Water Year	Municipal[1]	Rural Domestic	Small PWS[2]	Golf Courses[3]	Agricultural[4]	Whittaker-Bermite	Total
2020	65,070	500	1,338	723	8,013	469	76,113
2021	71,510	500	1,431	1,048	7,610	483	82,582
Method of Measure	Metered	Estimated	Metered	Metered	Metered	Metered	–
Level of Accuracy	High	Low to Medium	High	Medium to High	High in WY 2020, Low in WY 2021	Medium to High	–

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Annual Change in Groundwater in Storage

- Groundwater elevation changes reflect climate and groundwater extraction and are within the ranges we expected for the climate conditions observed in the past
- Between 2015 and 2021, Annual Changes in Storage Basin Wide ranged from +32,500 AF (2019) to -25,500 AF (2021)
- Dryer climate is driver for decrease of groundwater in storage values

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Cumulative Change in Groundwater in Storage

- Between 2015 and 2021, Cumulative Changes in Storage Basin Wide have ranged from +4,000 AF (2019) to -30,500 AF (2016).
- Cumulative Changes in the Saugus Aquifer trending downward
- Cumulative Changes in the Alluvial Aquifer trending upward

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Change in Alluvial Groundwater in Storage

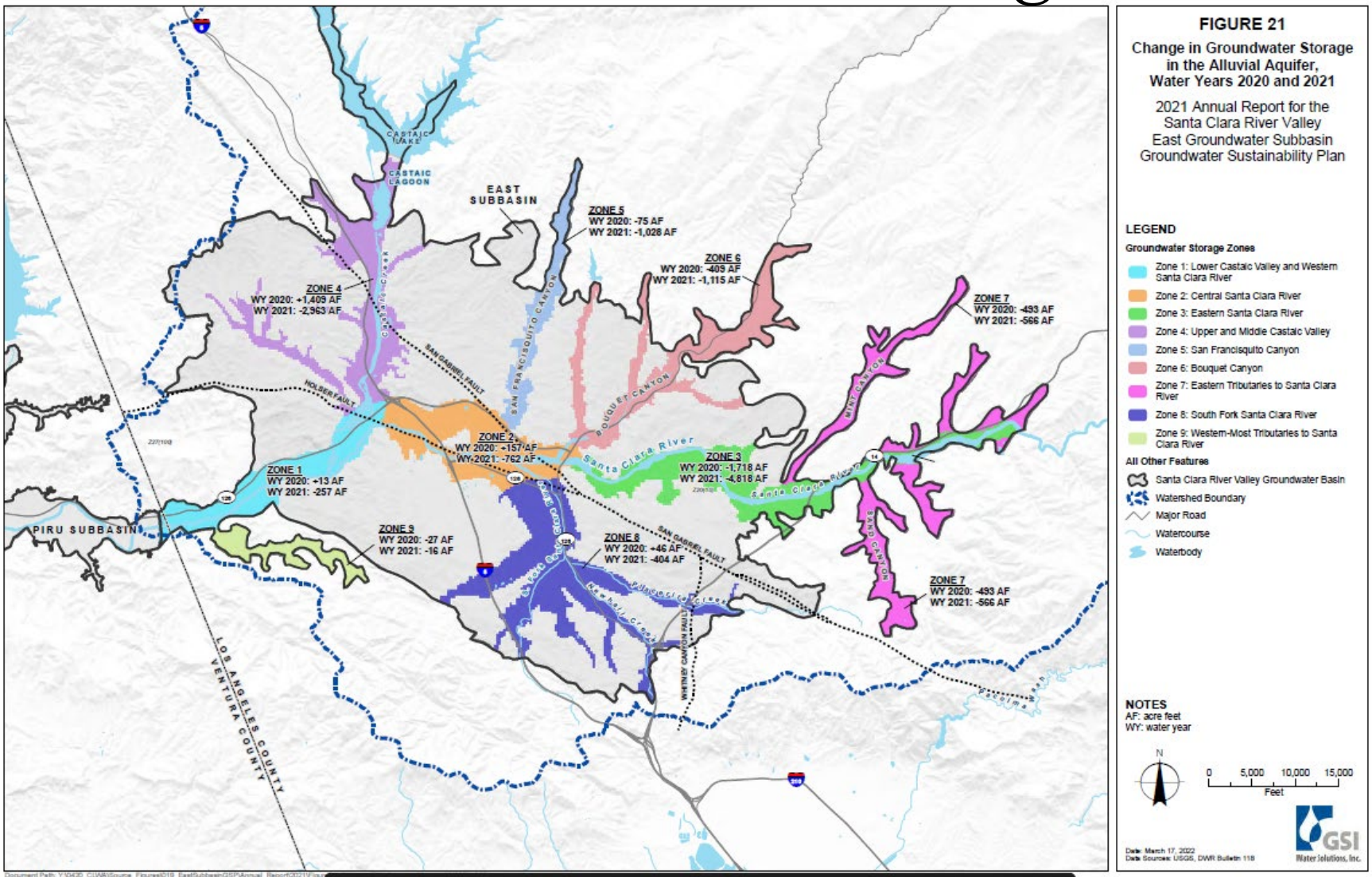


FIGURE 21

Change in Groundwater Storage in the Alluvial Aquifer, Water Years 2020 and 2021

2021 Annual Report for the
Santa Clara River Valley
East Groundwater Subbasin
Groundwater Sustainability Plan

LEGEND

Groundwater Storage Zones

- Zone 1: Lower Castaic Valley and Western Santa Clara River
- Zone 2: Central Santa Clara River
- Zone 3: Eastern Santa Clara River
- Zone 4: Upper and Middle Castaic Valley
- Zone 5: San Francisquito Canyon
- Zone 6: Bouquet Canyon
- Zone 7: Eastern Tributaries to Santa Clara River
- Zone 8: South Fork Santa Clara River
- Zone 9: Western-Most Tributaries to Santa Clara River

All Other Features

- Santa Clara River Valley Groundwater Basin
- Watershed Boundary
- Major Road
- Watercourse
- Waterbody

NOTES

AF: acre feet
WY: water year

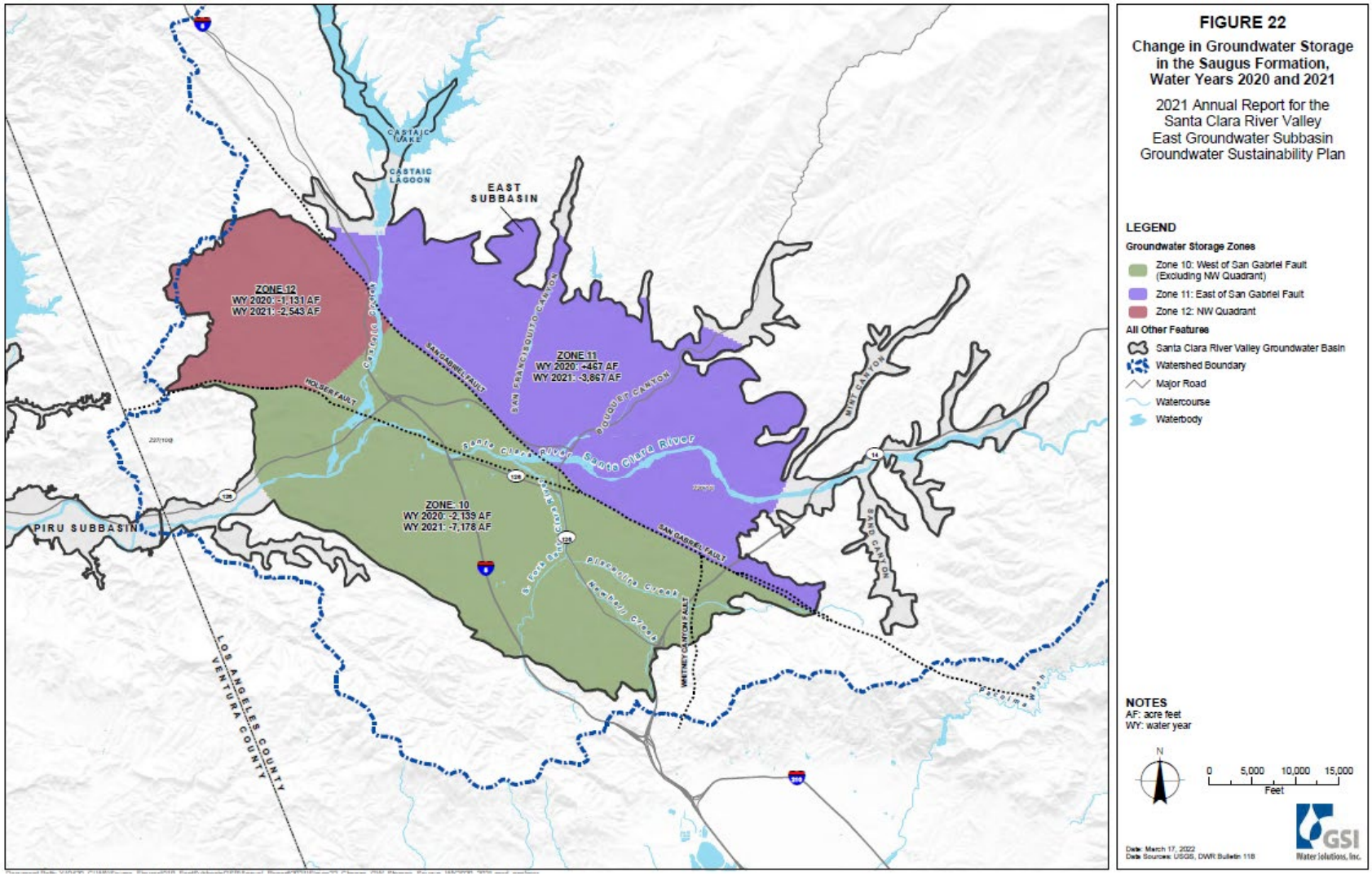
N

0 5,000 10,000 15,000
Feet

Date: March 17, 2022
Data Sources: USGS, DWR Bulletin 118

GSI Water Solutions, Inc.

Change in Saugus Aquifer Groundwater in Storage



Summary of Conclusions Regarding Sustainability

Sustainability Indicator	Above Minimum Thresholds and/or Triggers = Yes
Groundwater Elevation	Yes
Groundwater Storage	Yes
Land Subsidence	Yes
Depletion of Interconnected Surface Water	Yes
Degraded Groundwater Quality	Data Gap- report back to Board next time

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Summary of Conclusions Regarding Sustainability

- 4/5 Basin conditions are above the minimum thresholds and the basin is being operated sustainably.
- The fifth basin condition, the Degraded Groundwater Quality Sustainability Indicator could not be evaluated ahead of today's meeting.
  - Expect data evaluation in April 2022 upon completion of the Salt and Nutrient Management Plan data review by SCV Water.
  - An update to your Board will be provided thereafter.

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Progress Towards Implementation

- In progress:
  - Addressing data gaps – water quality in domestic and private wells
  - Ongoing water level and extraction data collection
  - Installation of GDE monitoring wells and data loggers
  - Development of a biological monitoring approach for GDE areas
  - Planning for reference point elevation survey
  - Planning for subsidence monitoring stations

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Recommendation

- Open item for discussion
- That the SCV-GSA Board of Directors adopt the SCV-GSA Annual Report

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GDE Drilling

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GDE Drilling

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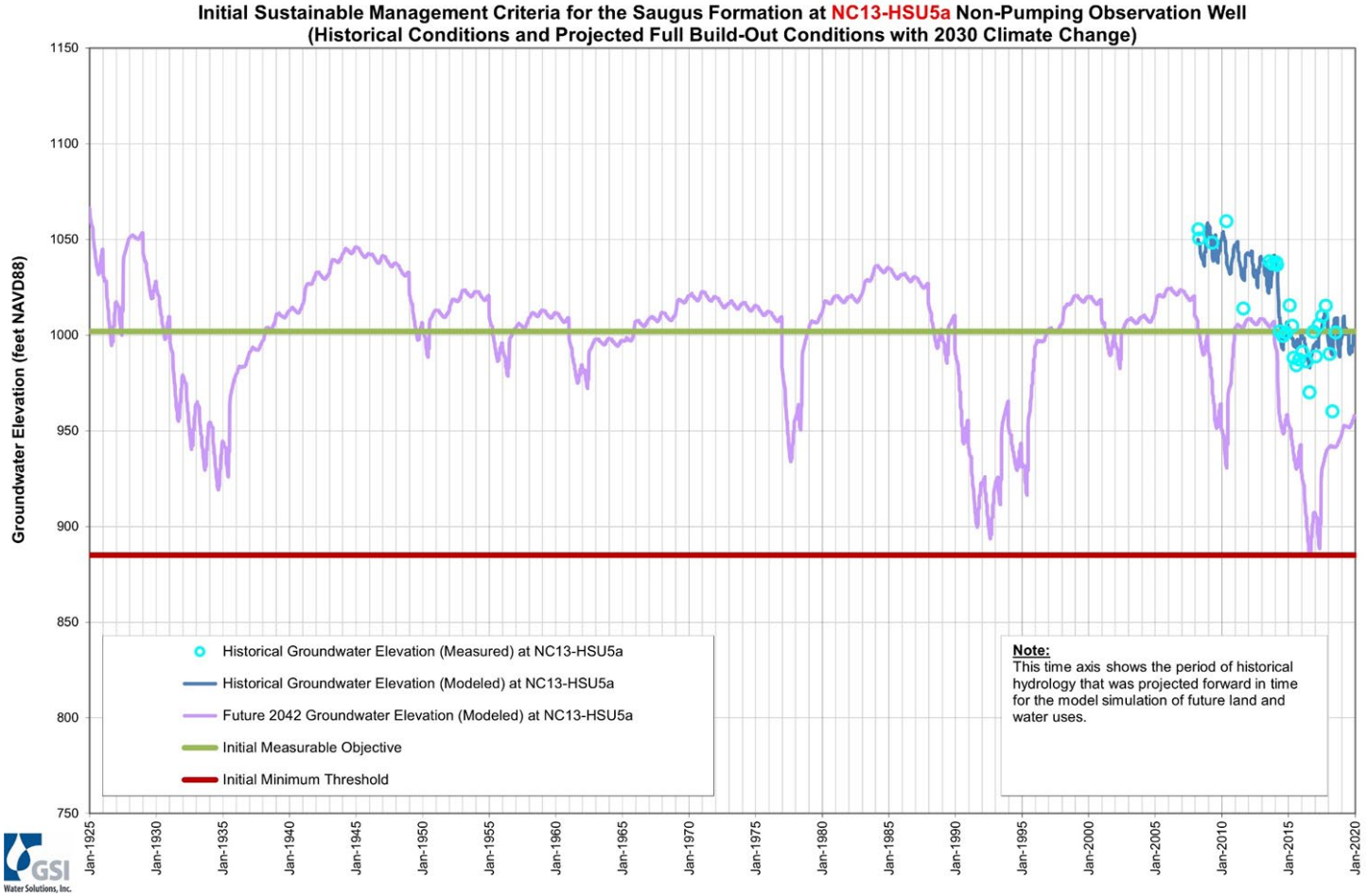
Future Water Levels in Saugus Formation



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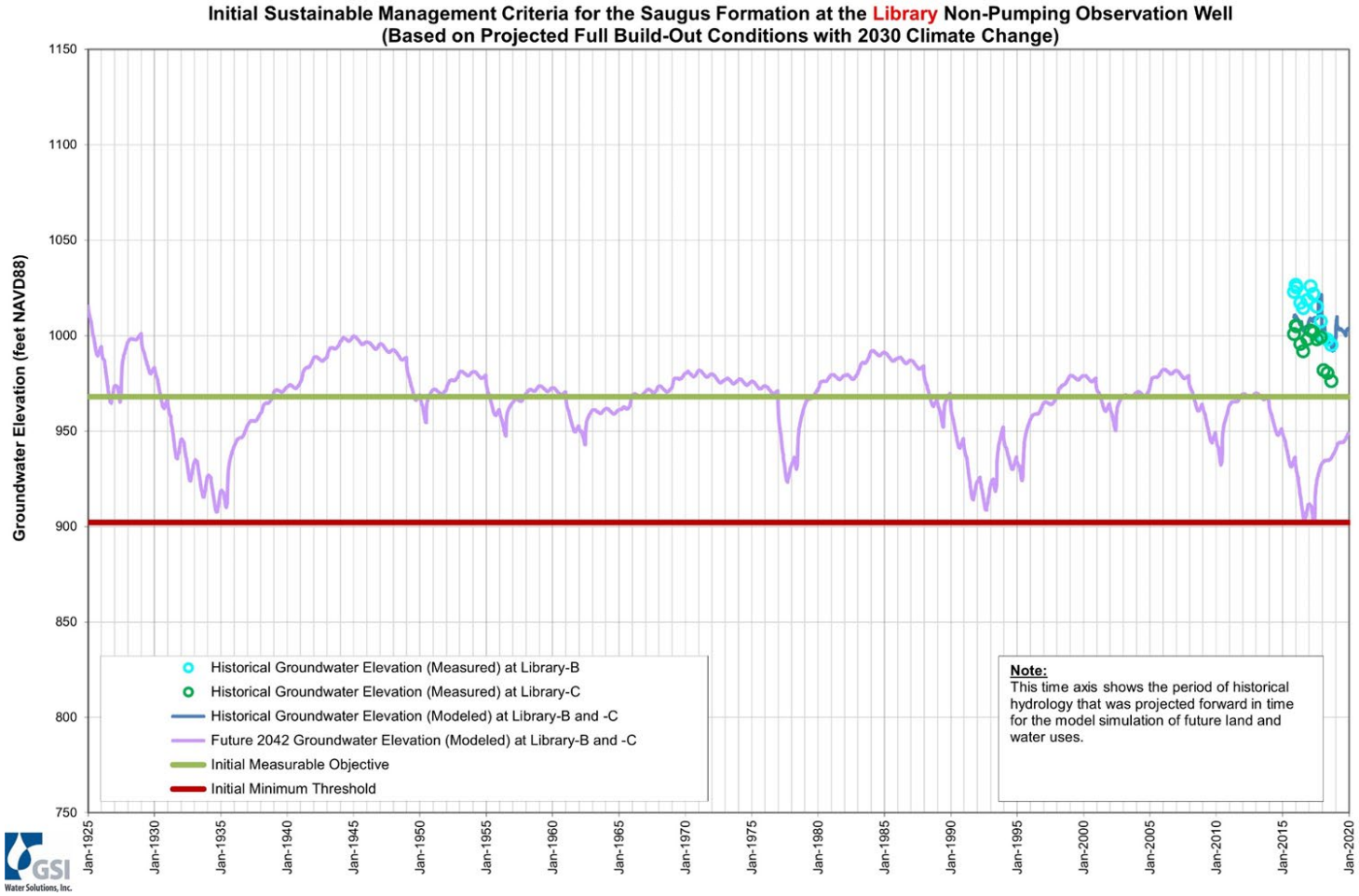
Future Water Levels in Saugus Formation



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