Santa Clarita Valley Groundwater Sustainability Plan
Groundwater Dependent Ecosystem Monitoring Protocol

SCV GSA Board Meeting
Item No. 3.1

March 6, 2023

GDE Evaluation Process Overview

- Groundwater Sustainability Plan (GSP) adopted January 2022 recognizes importance of Groundwater Dependent Ecosystems (GDE)
- Undesirable results to GDEs are described in the GSP
  - Permanent loss or significant degradation of existing native riparian or aquatic habitat due to lowered groundwater levels caused by groundwater pumping throughout the GDE area.
  - In areas that currently provide essential habitat to UTS and native fishes (sensitive aquatic species in the vicinity of I-5 Bridge), cessation of surface flow and pools during low-flow conditions in the river channel caused by groundwater extraction is an undesirable result.

GDE Evaluation Process Overview

- GSP requires that if groundwater elevations near GDEs are low, a GDE evaluation would be performed
  - If undesirable results to GDEs, the GSP calls for management actions
- The GDE evaluation must assess biological conditions coupled with groundwater level trends
- A GDE Monitoring Protocol was developed following a field meeting in March 2022
  - Protocol developed a 3-step process and potential GDE monitoring locations

Decision to initial GDE Data collection and GSP evaluation

- August GDE data collection performed to develop an understanding of current conditions.
  - Some drought stress seen (expected in August)

- Though no clear undesirable results were seen there was a technical issue with the trigger setting, but water levels were lower than trigger.

- Team determined moving forward with full GDE evaluation process should be done as one water level was below trigger, another approximately 1 foot above trigger.

Key GDE Evaluation Process Findings and Recommendations

- The first deployment of the new process was systematic and worked well
- No undesirable results to GDEs were identified in 2022, therefore no management actions are recommended.
- Trigger levels and minimum thresholds for both GDE-A and GDE-B should be refined to better reflect the approach in the GSP and the newly collected empirical data.
- Continue working with the downstream landowner to obtain biological and hydrogeological data from the remaining portions of the SCR.
- Continue collecting data from multiple sources

GDE Evaluation Process Overview

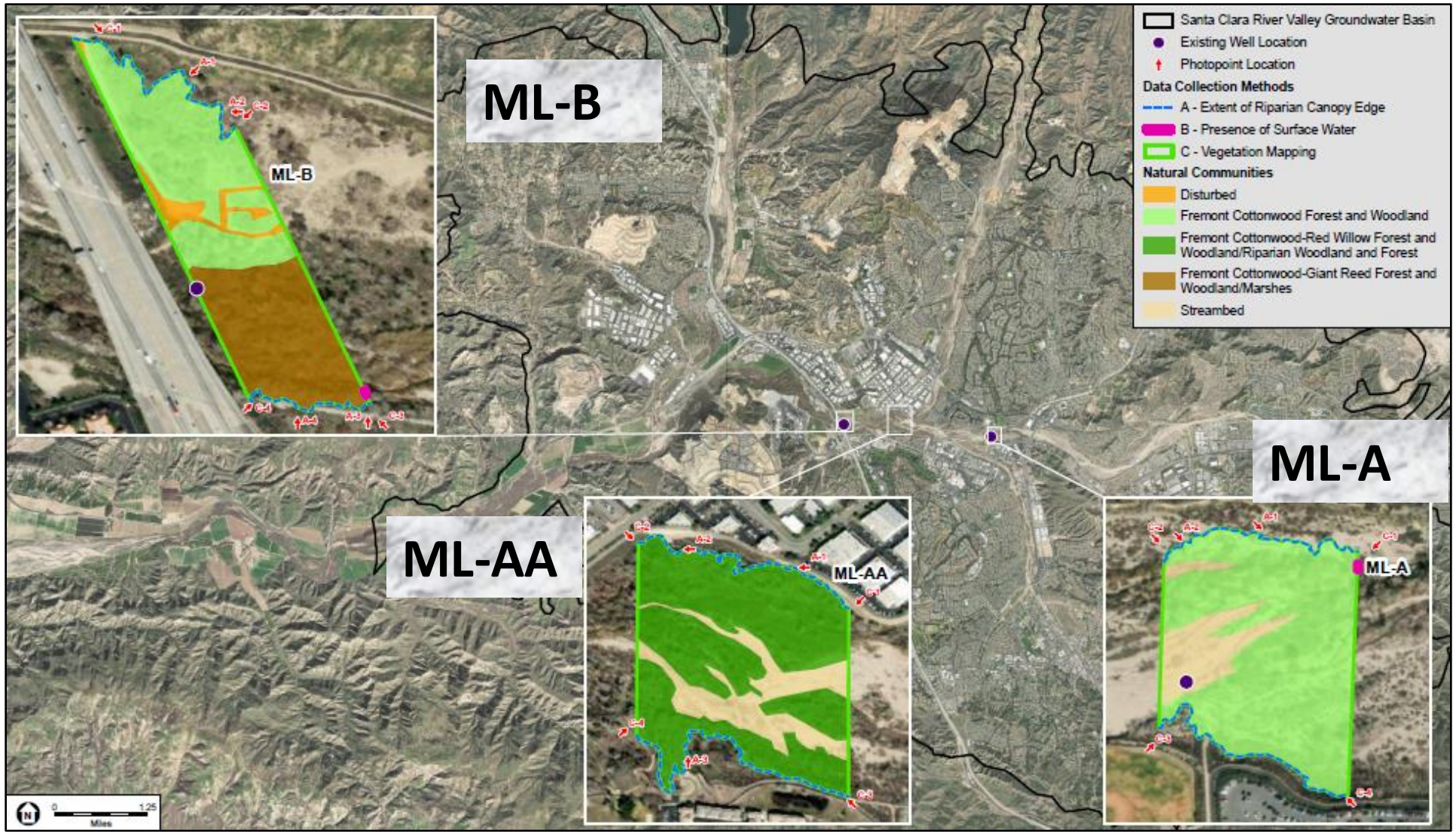
Method	Name	Minimum Frequency	Priority
A	Extent of Riparian Canopy Edge	When groundwater levels approach established trigger at the nearest GDE well. Second survey if needed.	High
B	Surface Water	When groundwater levels approach established trigger at the nearest GDE well. Second survey if needed.	High
C	Vegetation Mapping	Once every 5 years	Medium

Data Collection Locations and Methodology

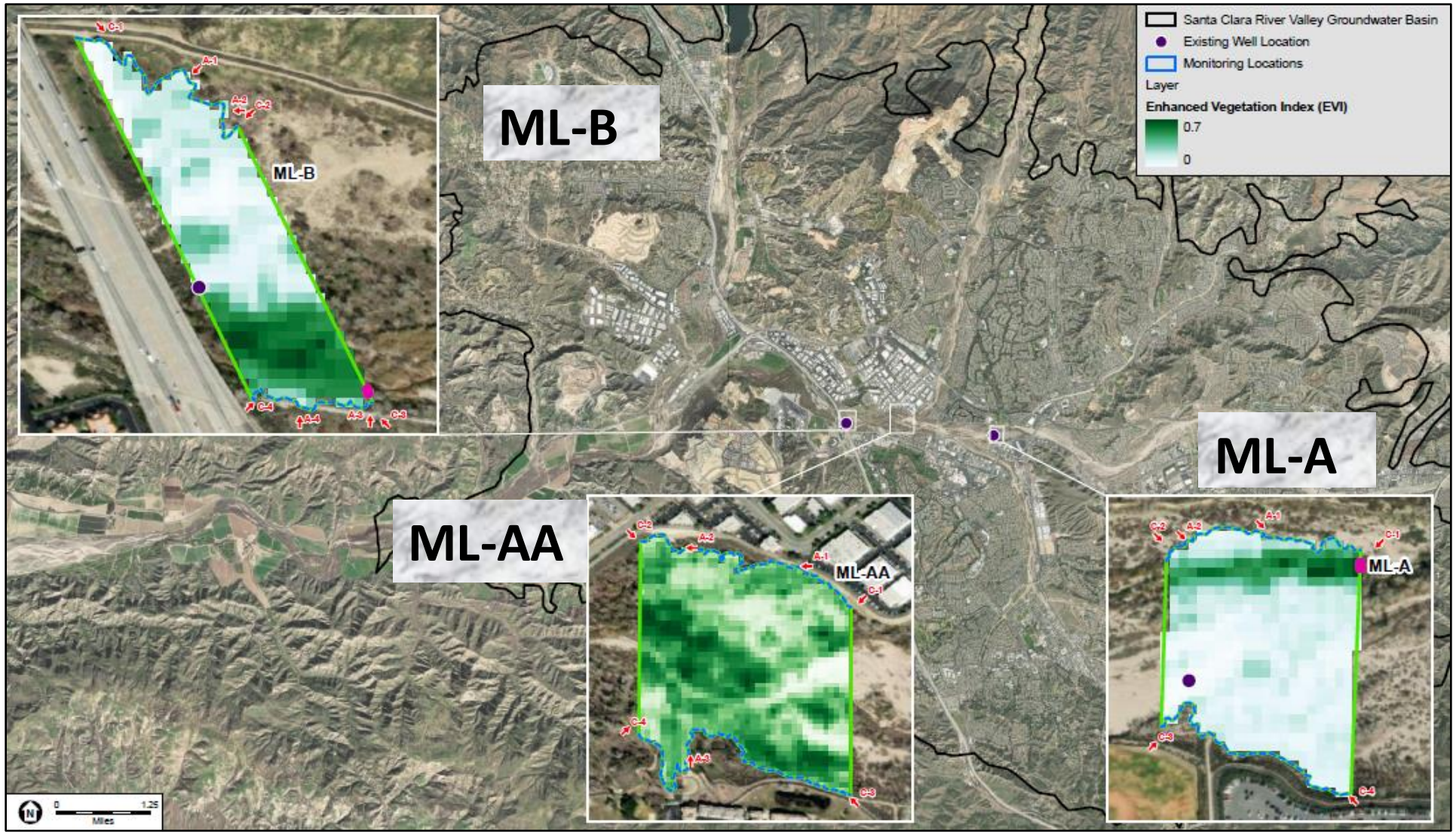
August Monitoring Event

- Three GDE monitoring locations upstream from I-5 were monitored in August 2022
- Weather was hot
- Monitoring Protocol was implemented including A, B, and C methods
- Report mapped vegetation and documented signs of minor water stress at edges of the mapped areas
- The Report concluded that the observed water stress was minor and expected for the time of year

Surveyed SCVGSA Monitoring Locations



Enhanced Vegetation Index Results



ML-A

- Method A – Photo Point 1 (A-1)
- Southeast

ML-A

- Method A – Photo Point 2 (A-2)
- Southeast

ML-AA

- Method A – Photo Point 1 (A-1)
- West

ML-AA

- Method C – Photo Point 1 (C-1)
- Southwest

ML-B

- Method C – Photo Point 3 (C-3)
- Northwest

ML-B

- Method C – Photo Point 2 (C-2)
- Southwest

Hydrographs and Cross Sections

- Two groundwater monitoring wells were installed in March 2022 at ML-A and ML-B (also named GDE-A and GDE-B)
- Key Findings ML-A (GDE-A)
  - Groundwater elevation at GDE-A is over 30 feet below the surface, well below root zone
  - No undesirable results anticipated
- Key Findings ML-B (GDE-B)
  - Groundwater elevation at GDE-B is relatively shallow and stable
  - Groundwater elevation began to rise slightly in September
  - No undesirable results anticipated

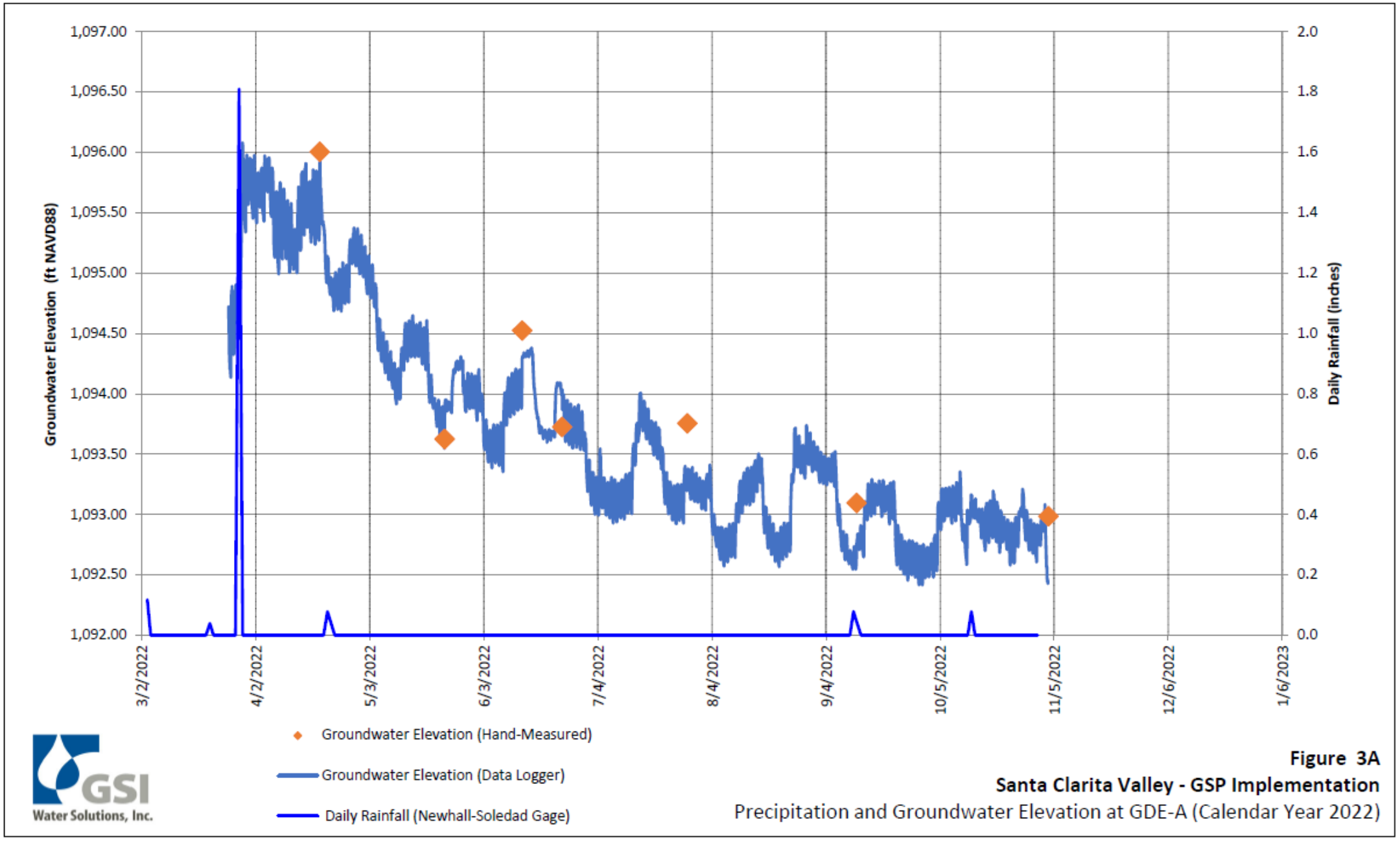


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Figure 3A

Santa Clarita Valley - GSP Implementation

Precipitation and Groundwater Elevation at GDE-A (Calendar Year 2022)

ESA

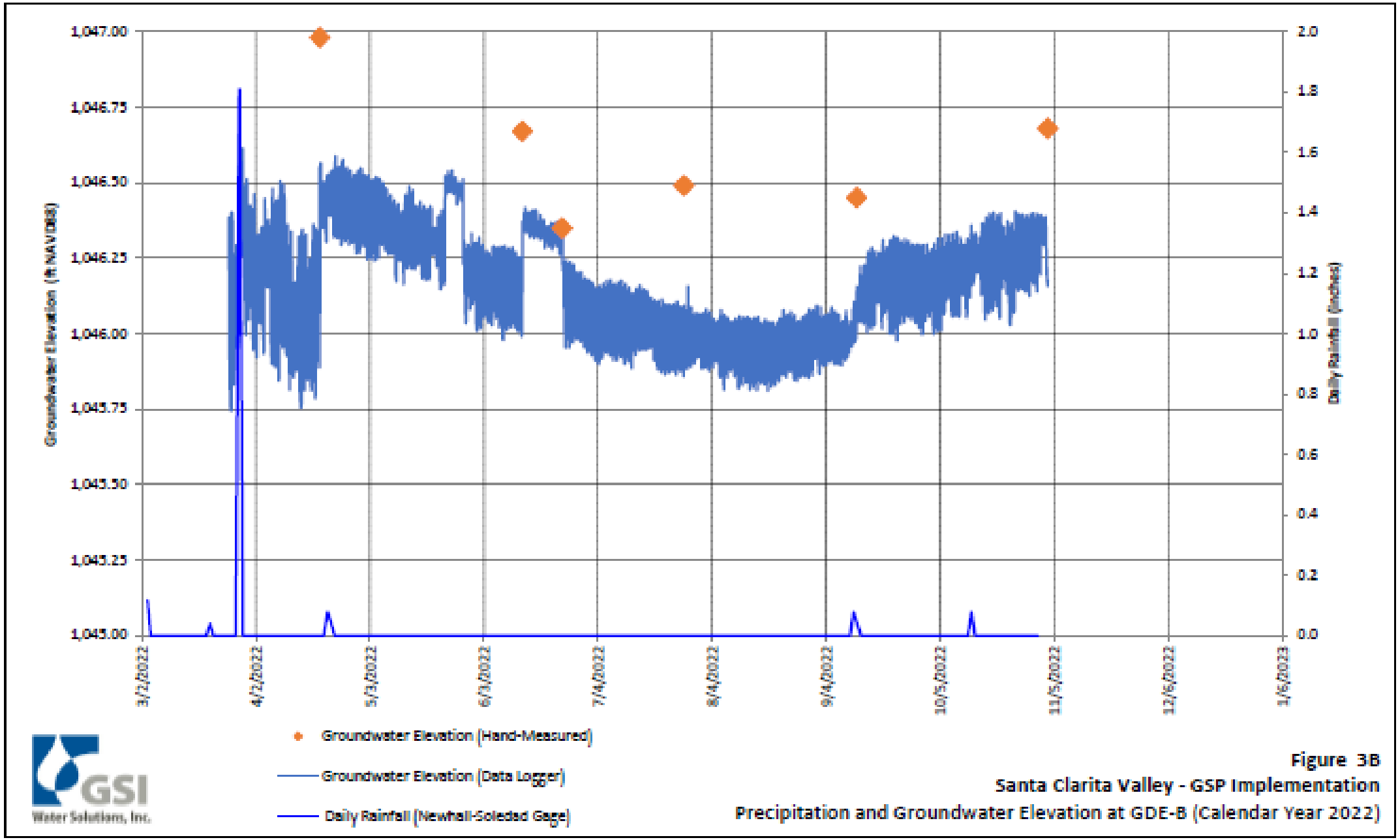

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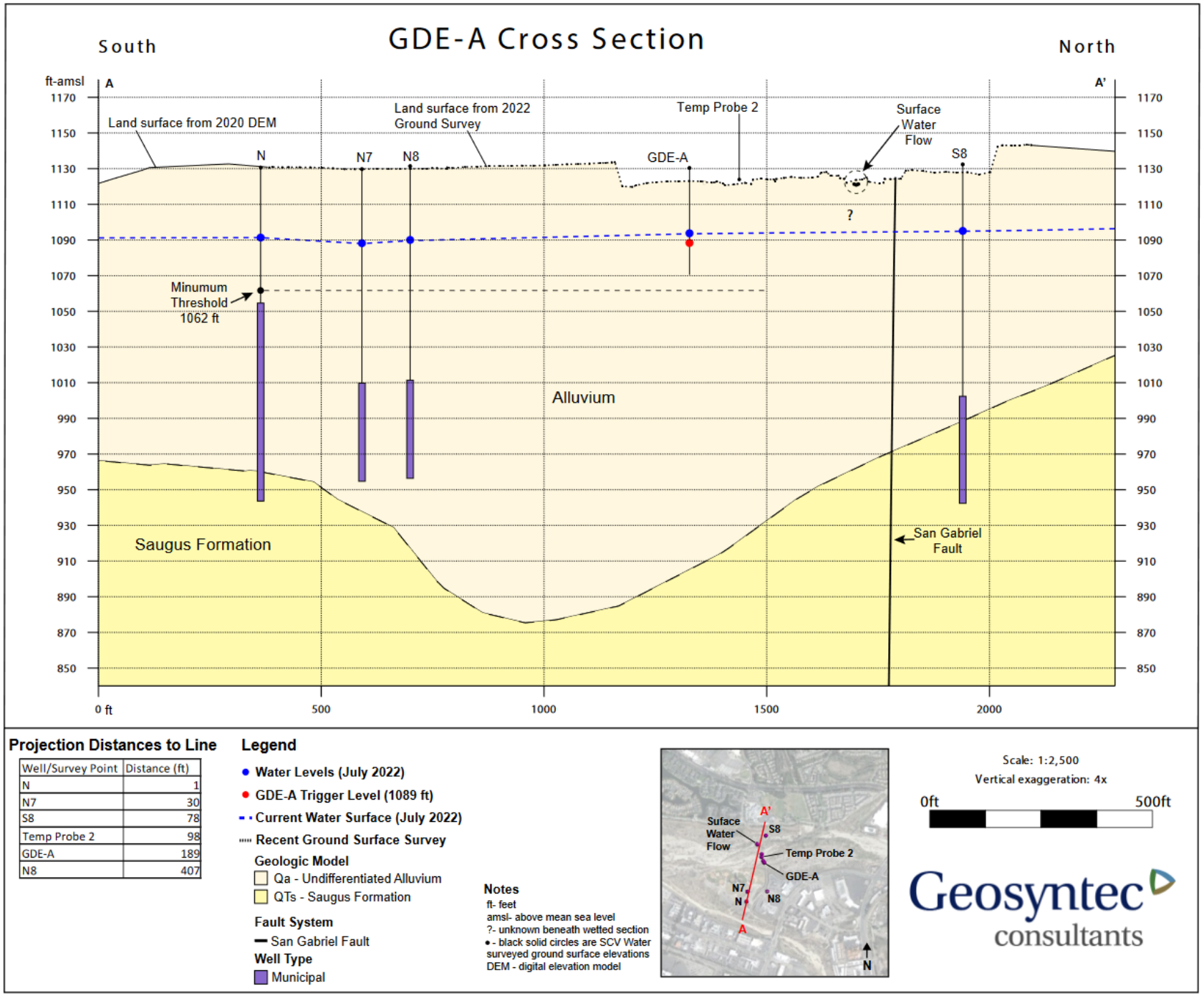
Figure 3B
Santa Clarita Valley - GSP Implementation
Precipitation and Groundwater Elevation at GDE-B (Calendar Year 2022)

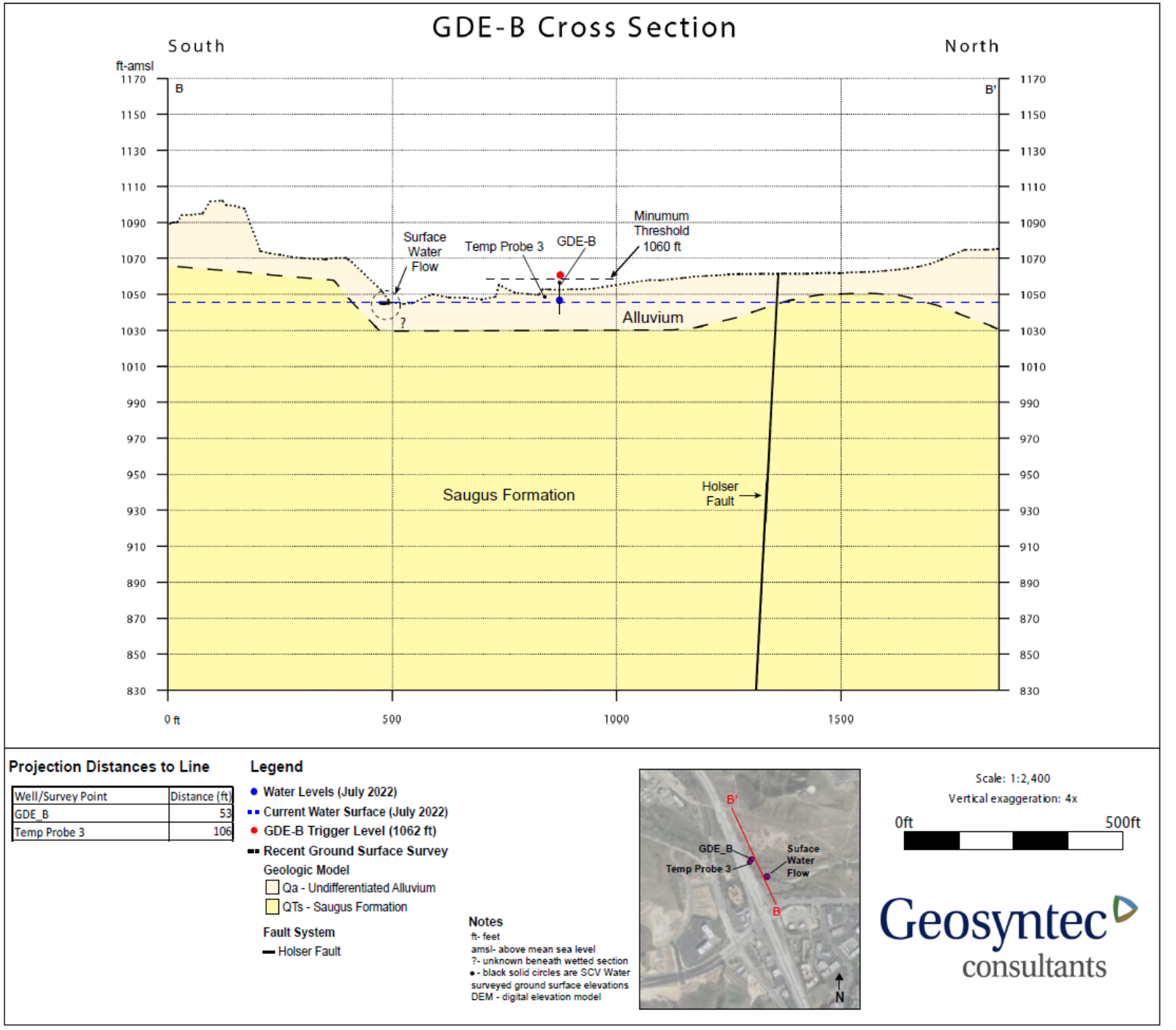
ESA

Next Steps

- Continue to work on the groundwater flow model calibration and return to your Board this year with recommendations for revisions to GDE triggers and minimum thresholds
- Continue working with Five Point with monitoring
- Continue to collect and review data

Questions


GDE-A Cross Section
South
North
ft-amsl
A
A'
Land surface from 2020 DEM
Land surface from 2022 Ground Survey
Temp Probe 2
Surface Water Flow
N
N7
N8
GDE-A
S8
?
Minumum Threshold 1062 ft
Alluvium
Saugus Formation
San Gabriel Fault
1170
1150
1130
1110
1090
1070
1050
1030
1010
990
970
950
930
910
890
870
850
0 ft
500
1000
1500
2000
Projection Distances to Line
Well/Survey Point | Distance (ft)
N | 1
N7 | 30
S8 | 78
Temp Probe 2 | 98
GDE-A | 189
N8 | 407
Legend
Water Levels (July 2022)
GDE-A Trigger Level (1089 ft)
Current Water Surface (July 2022)
Recent Ground Surface Survey
Geologic Model
Qa - Undifferentiated Alluvium
QTs - Saugus Formation
Fault System
San Gabriel Fault
Well Type
Municipal
Notes
ft- feet
amsl- above mean sea level
?- unknown beneath wetted section
• - black solid circles are SCV Water surveyed ground surface elevations
DEM - digital elevation model
Suface Water Flow
S8
Temp Probe 2
GDE-A
N7
N
N8
A
A'
N
Scale: 1:2,500
Vertical exaggeration: 4x
0ft
500ft
Geosyntec consultants


GDE-B Cross Section
South
North
ft-amsl
B
B'
1170
1150
1130
1110
1090
1070
1050
1030
1010
990
970
950
930
910
890
870
850
830
Surface Water Flow
Temp Probe 3
GDE-B
Minumum Threshold 1060 ft
?
Alluvium
Saugus Formation
Holser Fault
0 ft
500
1000
1500
Projection Distances to Line
Well/Survey Point | Distance (ft)
GDE_B | 53
Temp Probe 3 | 106
Legend
Water Levels (July 2022)
Current Water Surface (July 2022)
GDE-B Trigger Level (1062 ft)
Recent Ground Surface Survey
Geologic Model
Qa - Undifferentiated Alluvium
QTs - Saugus Formation
Fault System
Holser Fault
Notes
ft- feet
amsl- above mean sea level
?- unknown beneath wetted section
• - black solid circles are SCV Water surveyed ground surface elevations
DEM - digital elevation model
B'
GDE_B
Temp Probe 3
Suface Water Flow
B
N
Scale: 1:2,400
Vertical exaggeration: 4x
0ft
500ft
Geosyntec
consultants