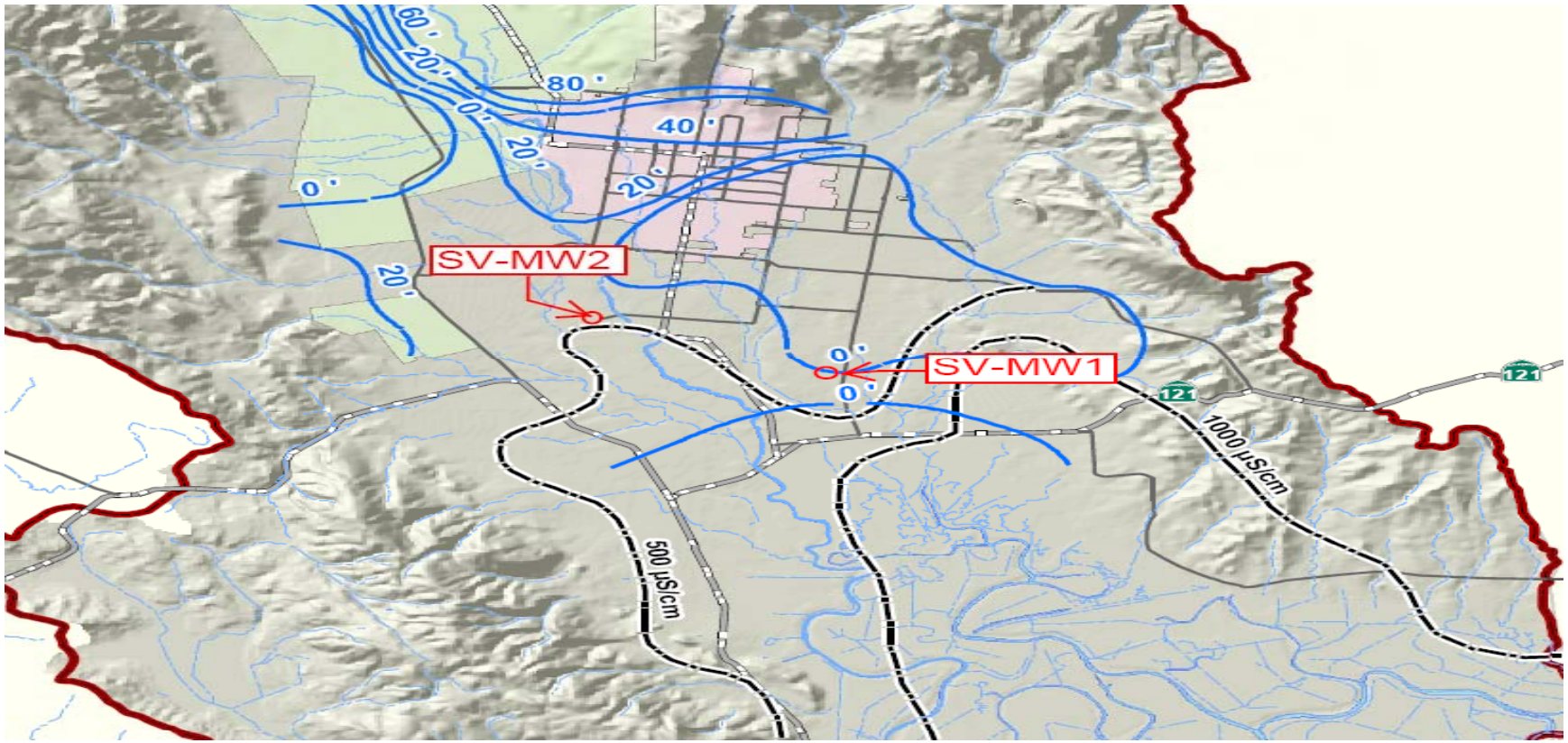
Nested Groundwater Monitoring Wells SV-MW1 and SV-MW2 Initial Results of Drilling & Data Collection

Sonoma Valley Groundwater Management Program

Project completed under California Department of Water Resources Local Groundwater Assistance Grant

DEPARTMENT OF WATER RESOURCES

Location of Nested Groundwater Monitoring Wells

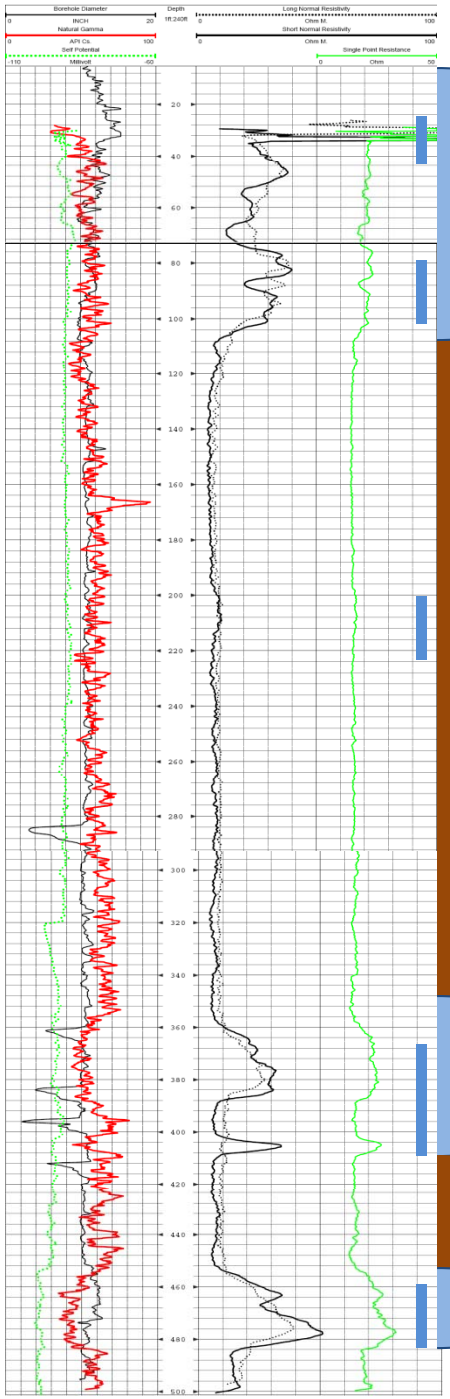


- At margins of groundwater-level pumping depression and region of elevated salinity concentrations
- SV-MW1 located along 8th St East just north of wastewater treatment plant
- SV-MW2 located along Watmaugh Rd within 400 feet of Sonoma Creek

Geologic Findings

- Permeable Sand and Gravel dominates shallow aquifer (less than 100 feet deep).
- Lots of Clay and relatively thin Sand/Gravel zones beneath 100 feet.
- Sand and Gravel aquifer zones and Clay aquitard zones correlate reasonably well between two locations and may be continuous.

SV-MW2 (Watmaugh)



0 to 100 feet: Sand and Gravel

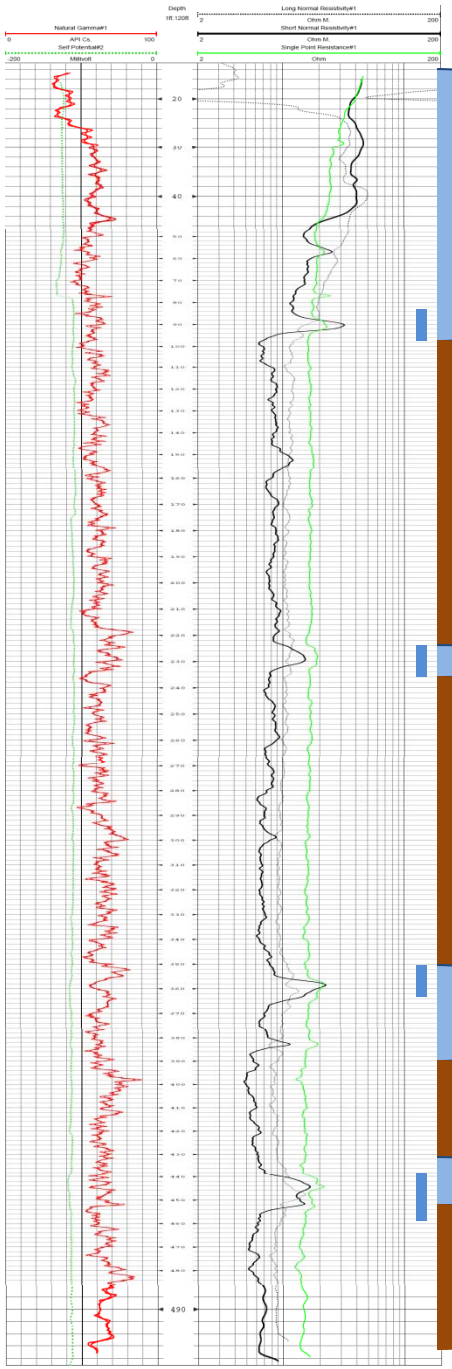
100 to 360 feet: Lots of Clay!

360 to 410 feet: Sand/Gravel zones with Clay interbed

410 to 450 feet: Clay

450 to 485 feet: Sand/Gravel

SV-MW1 (8th St. E)



0 to 100 feet: Sand and Gravel

100 to 220 feet: Mostly Clay

220 to 230 feet: Thin Sand/Gravel Zone

220 to 355 feet: Mostly Clay

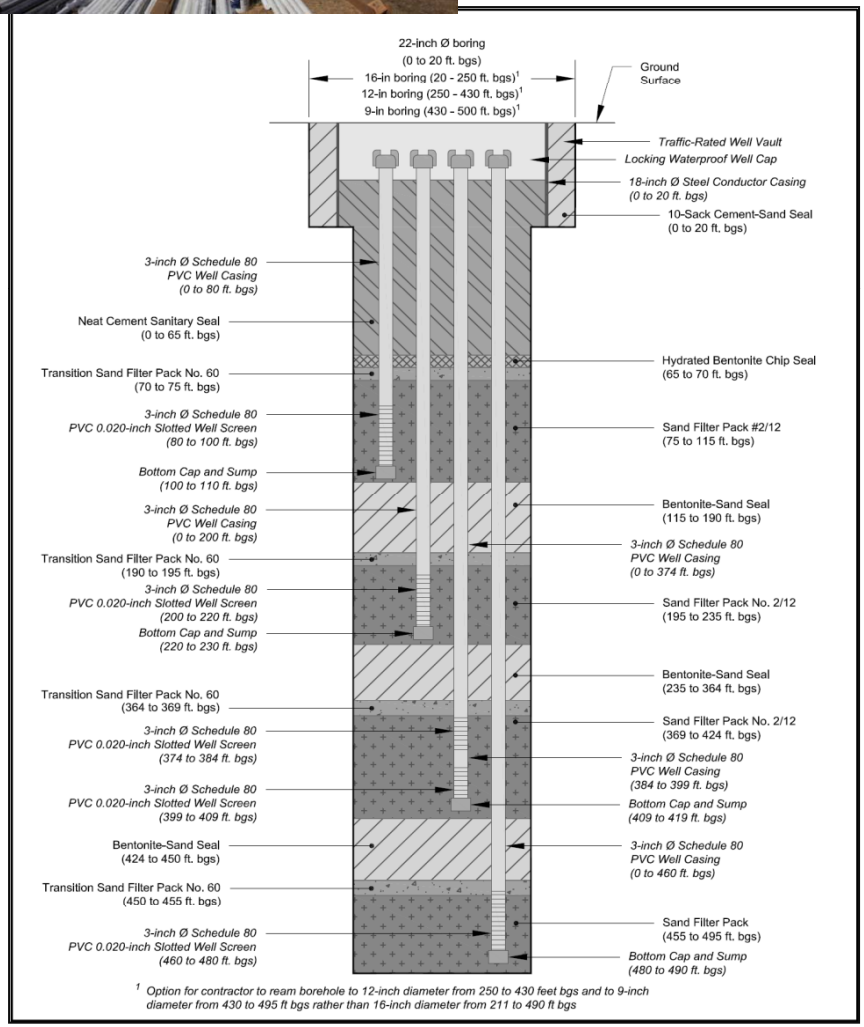
355 to 385 feet: Sand and Gravel

385 to 440 feet: Mostly Clay

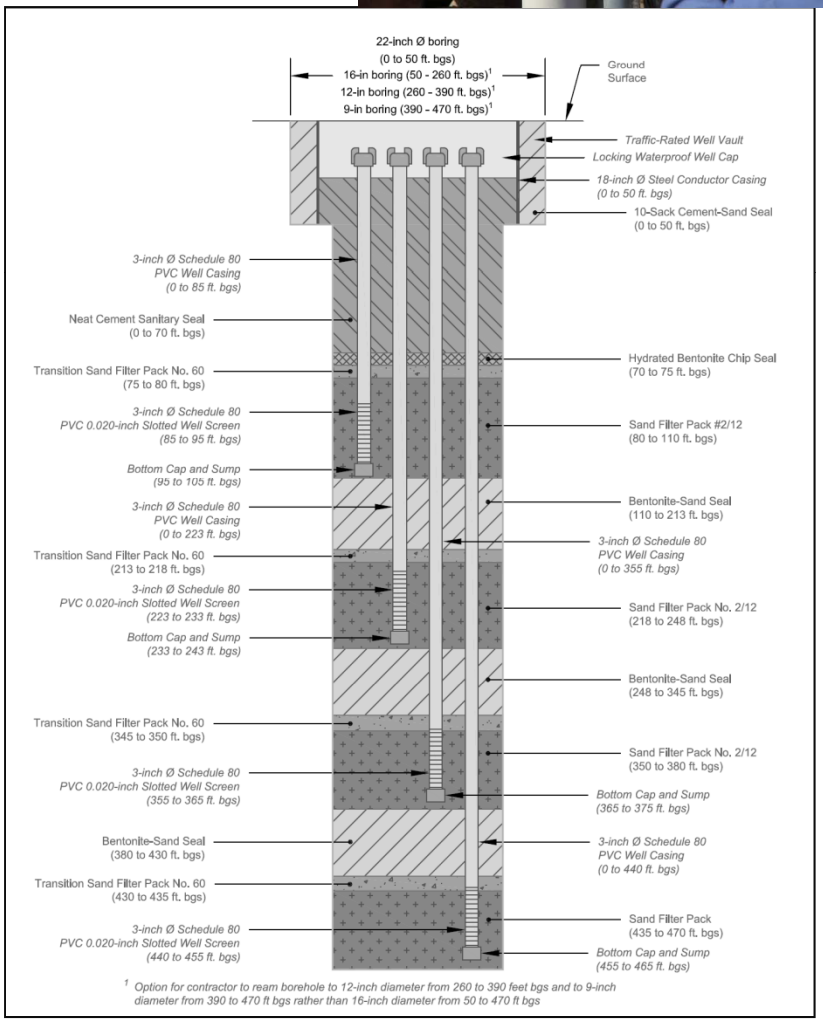
440 to 455 feet: Sand and Gravel

455 to 500 feet: Mostly Clay

Well Construction



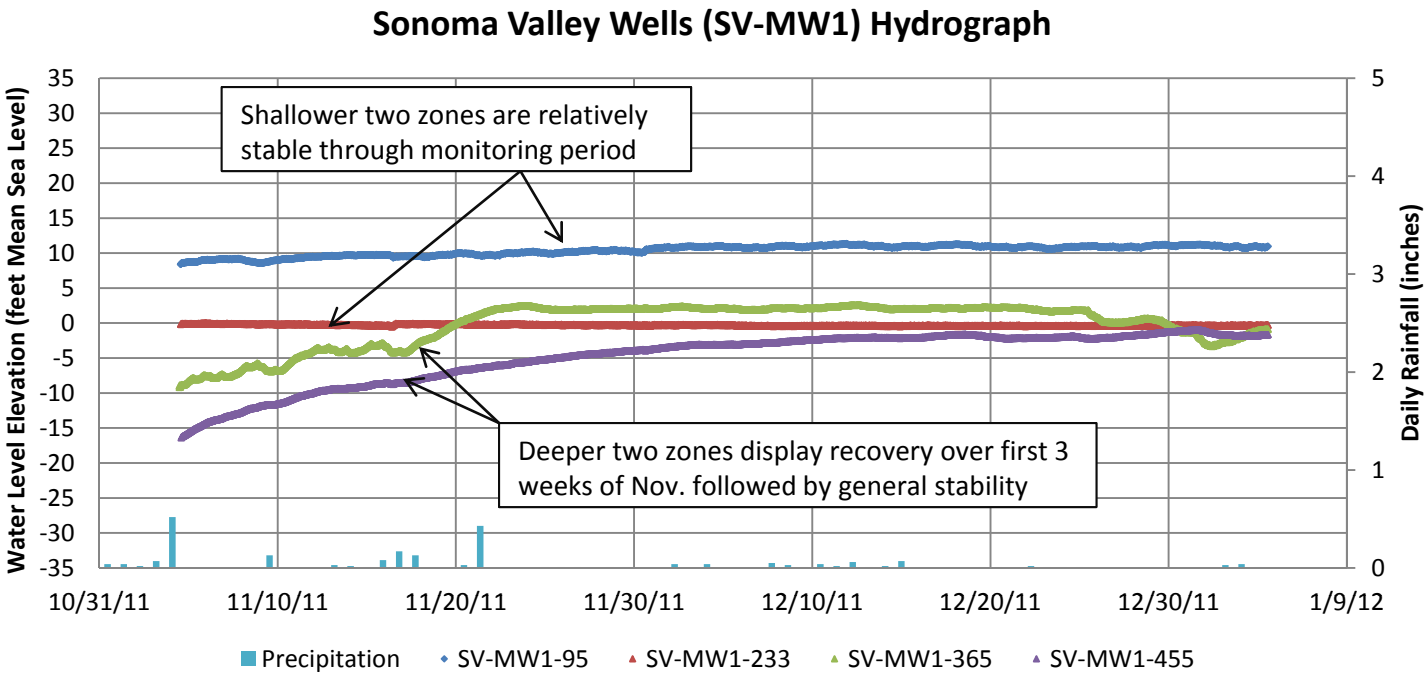
SV-MW2 (Watmaugh Rd)



SV-MW1 (8th Street E)

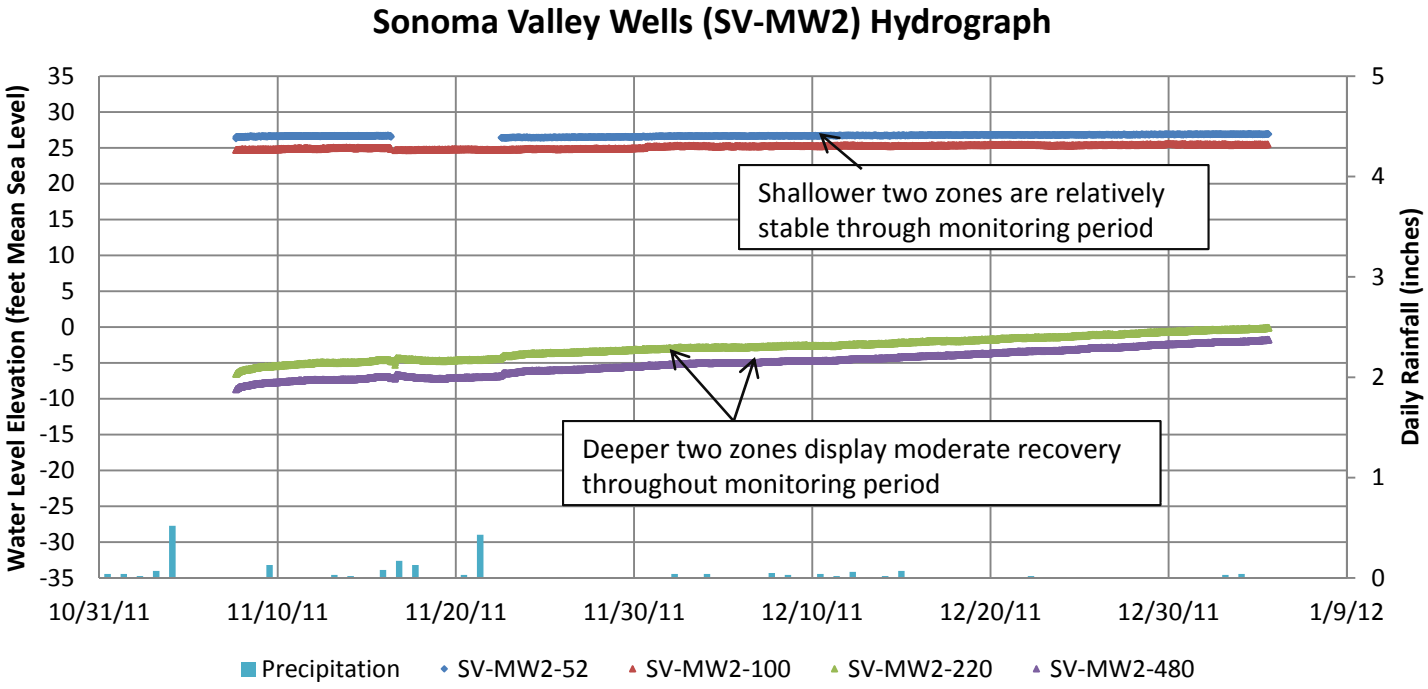
8th Street East

- Overall downward vertical gradient (except between 233 and 365 foot zones at times)
- Pumping influences appear most prominent in 365 foot zone and minor in 95 and 365 foot zones



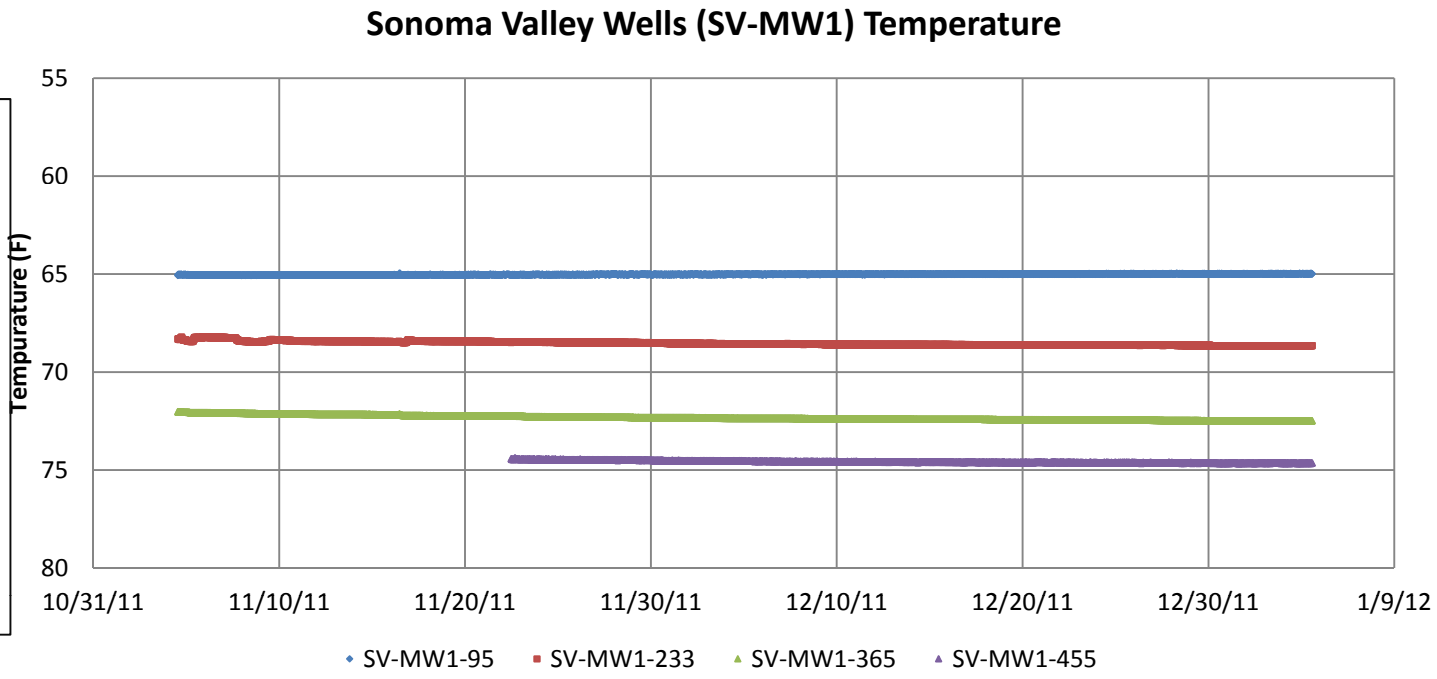
Watmaugh Rd

- Overall downward vertical gradient
- Greater separation between groundwater levels in shallower and deeper zones
- 409 foot zone will also be instumented
- Surface water probe being installed nearby in Sonoma Creek to assess surface water & groundwater interaction



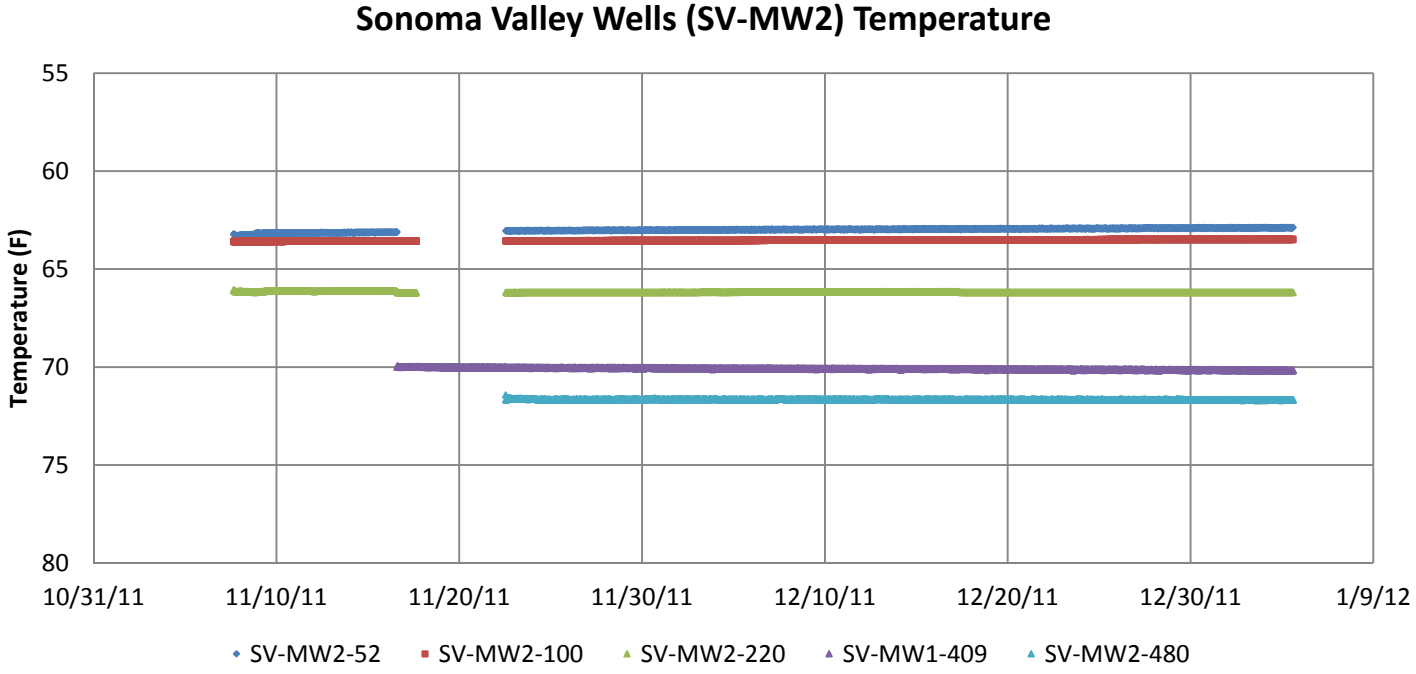
8th Street East

- Increasing temperature with depth
- Approximate geothermal gradient of 2.5˚F/100 feet (~1.4 ˚C) – slightly higher than average calculated by USGS
- Slightly higher temperatures for comparable depths compared to SV-MW-2 possibly due to proximity to Eastside Fault?



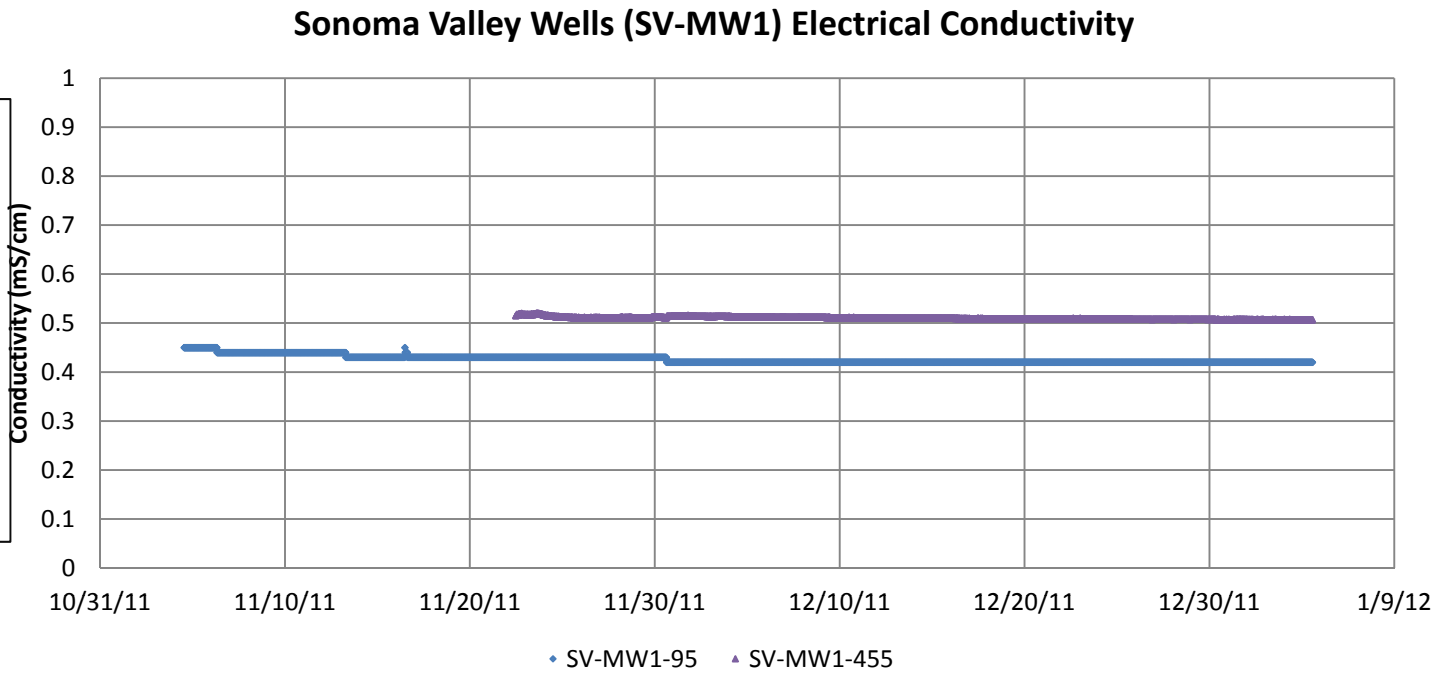
Watmaugh Rd

- Increasing temperature with depth
- Approximate geothermal gradient of 2.1˚F/100 feet (~1.2 ˚C) – corresponds to average calculated by USGS
- Changes and trends over entire year may provide insights into interaction between surface water and groundwater



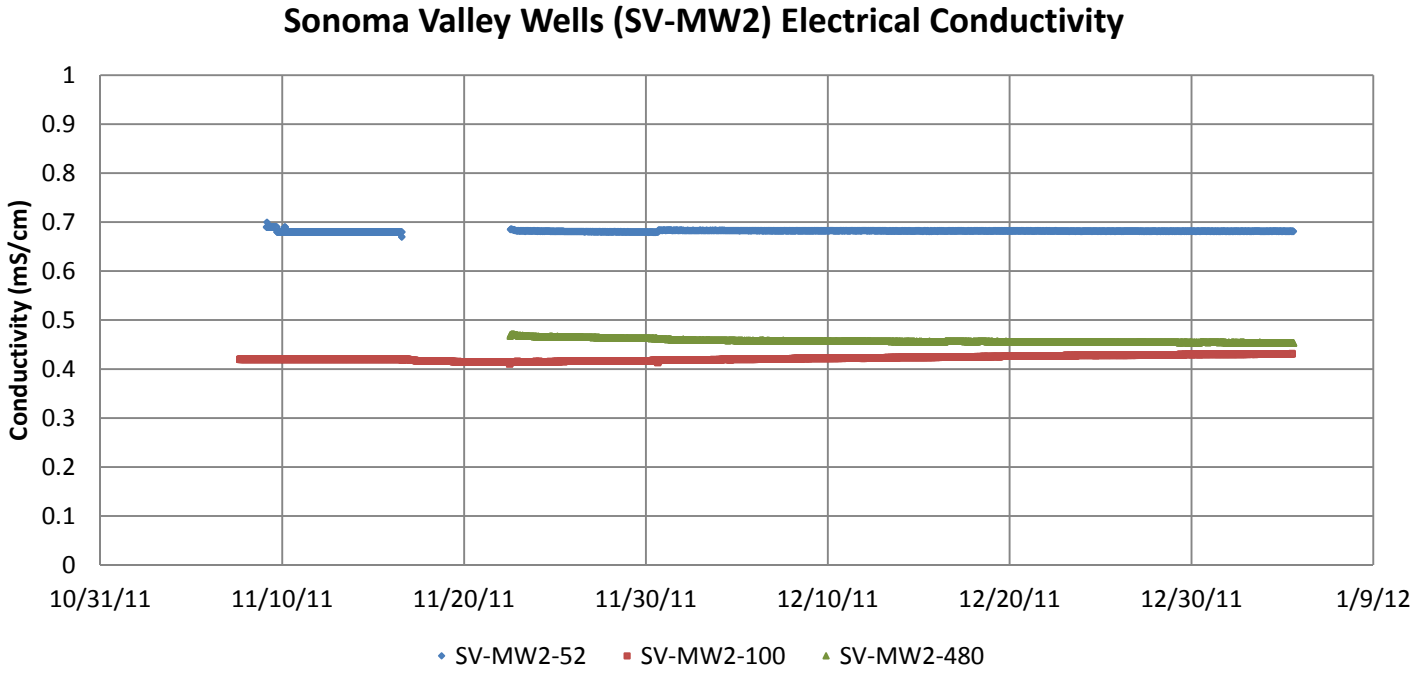
8th Street East

- EC slightly higher in deeper zone compared with shallow zone
- Concentrations consistent with findings from USGS study for this area
- Absence of short-term fluctuations



Watmaugh Rd

- EC highest in shallowest zone (potential influence from surface water?)
- Concentrations consistent with findings from USGS study for this area
- Absence of short-term fuluctuations



Next Steps

- Submit Final Report to DWR.
- Continue data collection and evaluation.
- Instrument and collect data from surface water in Sonoma Creek to assess surface water & groundwater interaction.
- Evaluate water quality samples collected from wells and assess potential need for additional well development.
- Incorporate detailed lithologic data into Hydrostratigraphic Framework update.
- Incorporate data into update of Groundwater Flow Model.