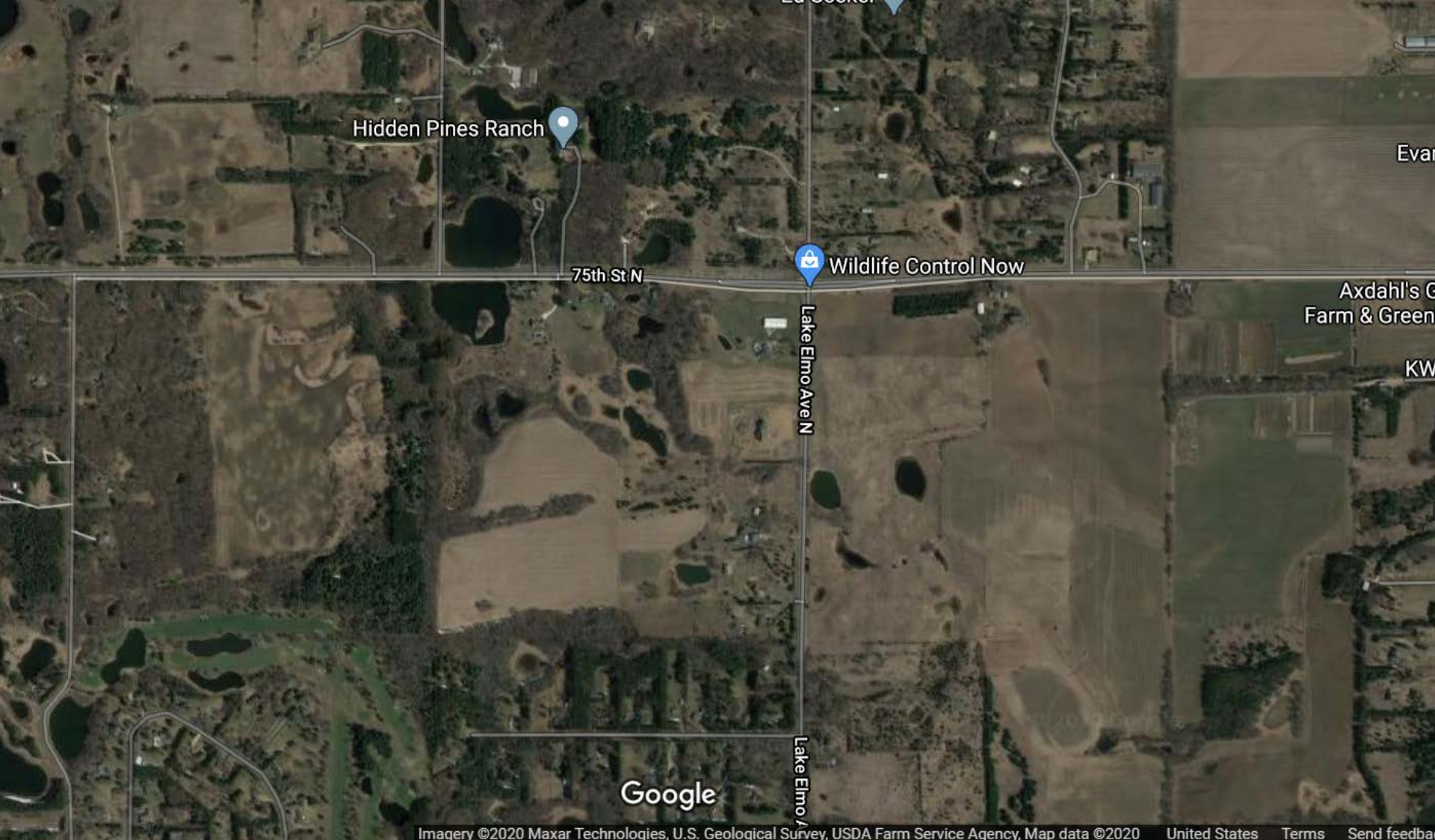


Board Update on Flooding of Kimbro Basin – 12/9/2020



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Flooding at Kimbro Ave & CSAH 12



Current Situation

- County Road 12 and Kimbro Avenue North have been raised and are currently open
- Adjacent landowner's home in danger of flooding – sandbag berm constructed in the spring + seepage into basement 6/30/2020
- Water levels have come down slightly from the peak
- BCWD wants to consider options for a longer-term solution to alleviating flooding



Current Situation: Roadways



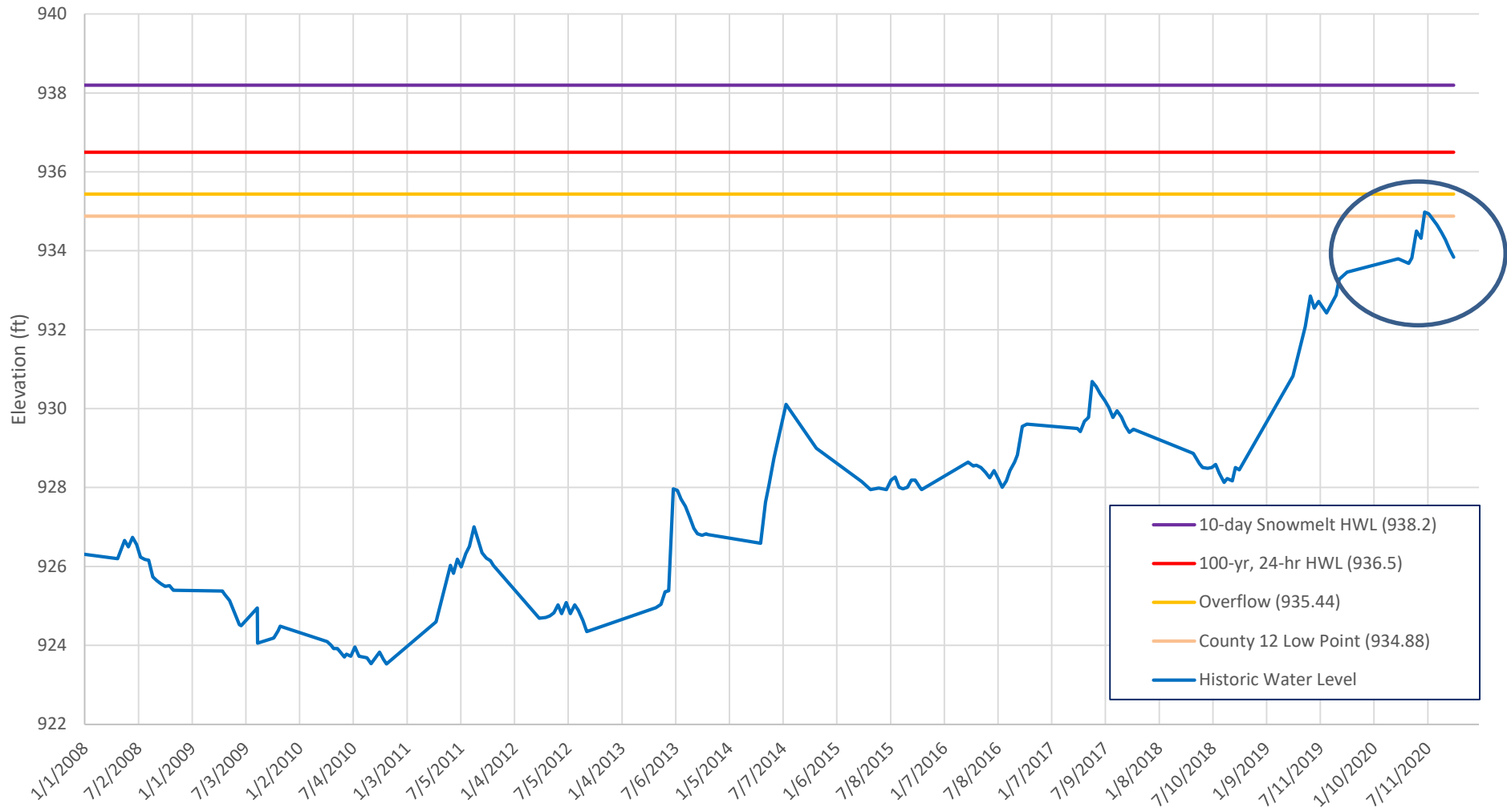
Flooding at Kimbro Ave & CSAH 12



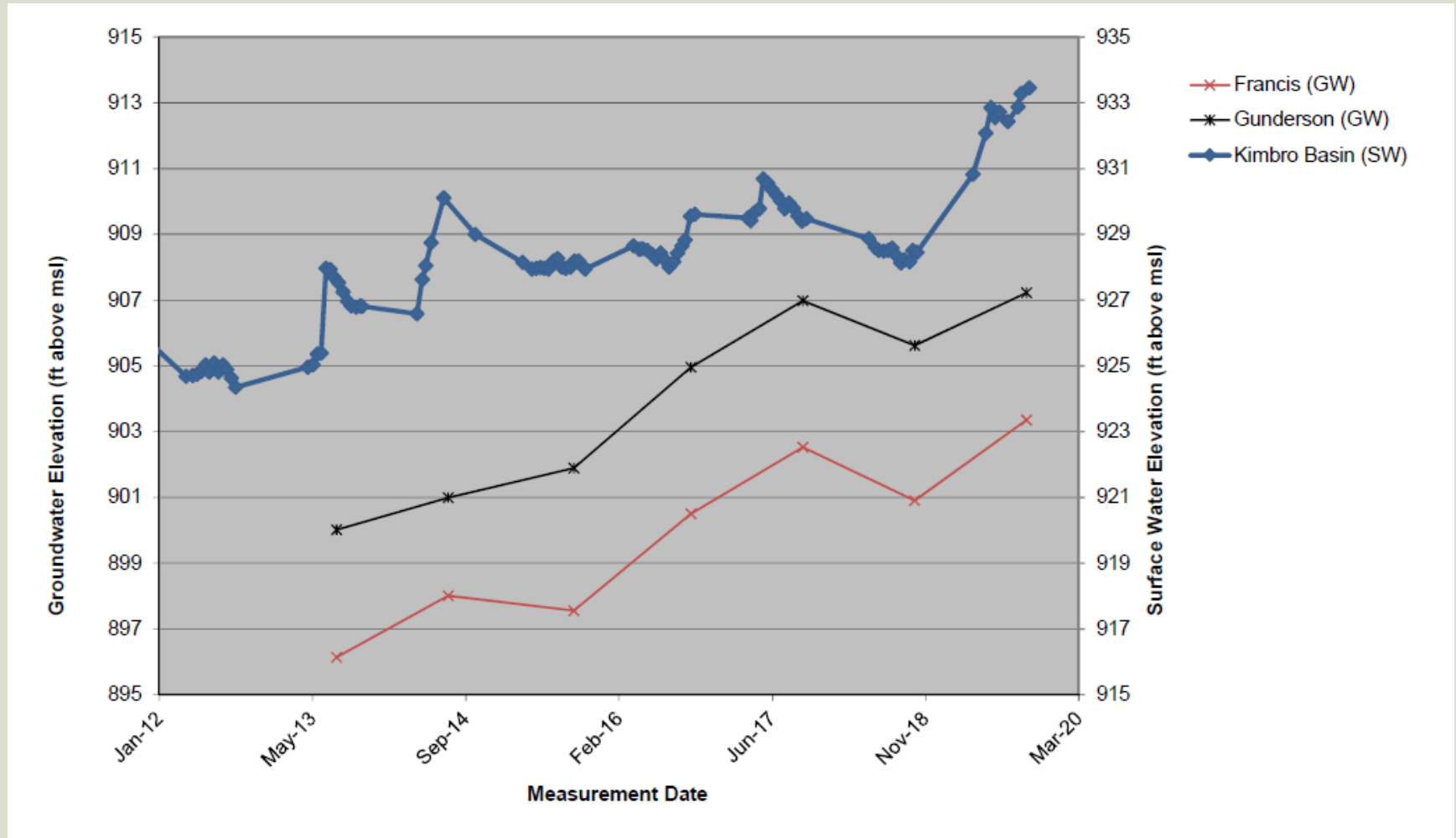
Current Situation: Adjacent Landowner



Water Level Trends: Kimbro Basin



Groundwater Elevations



Recent Activity – Groundwater Investigation

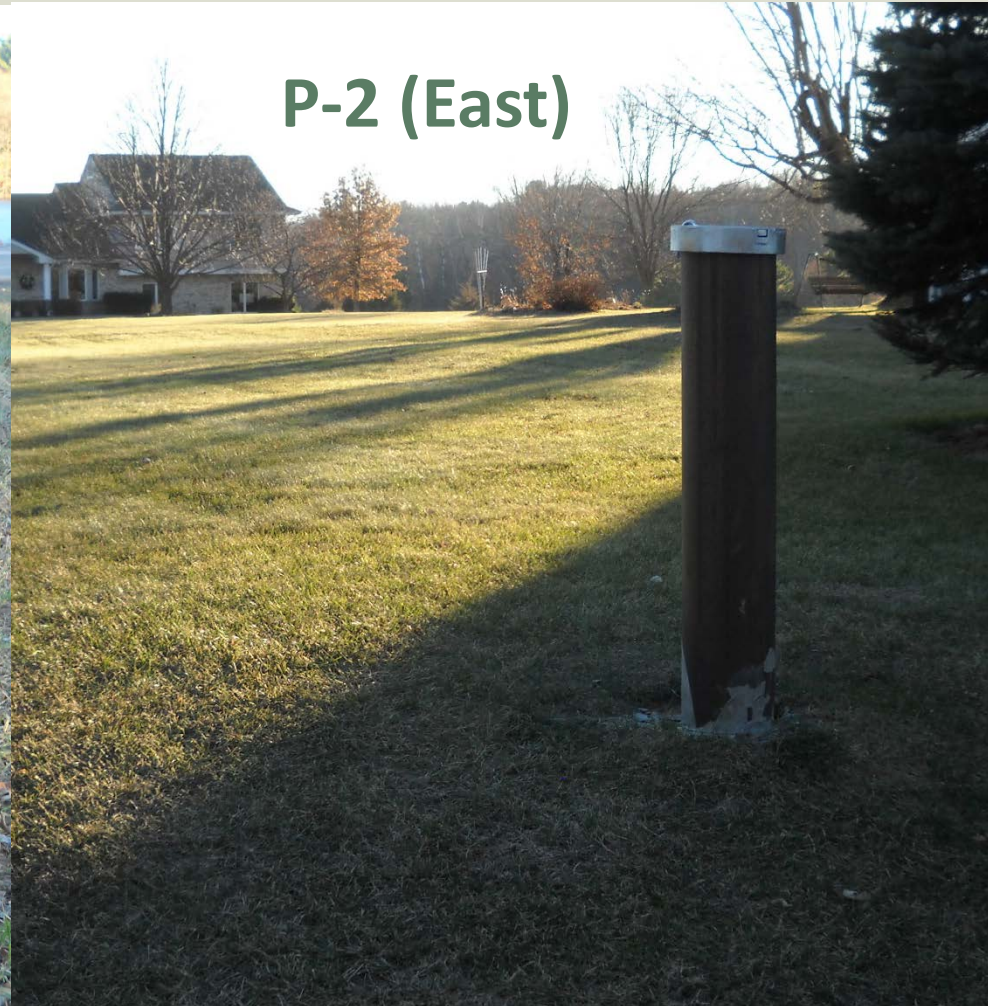
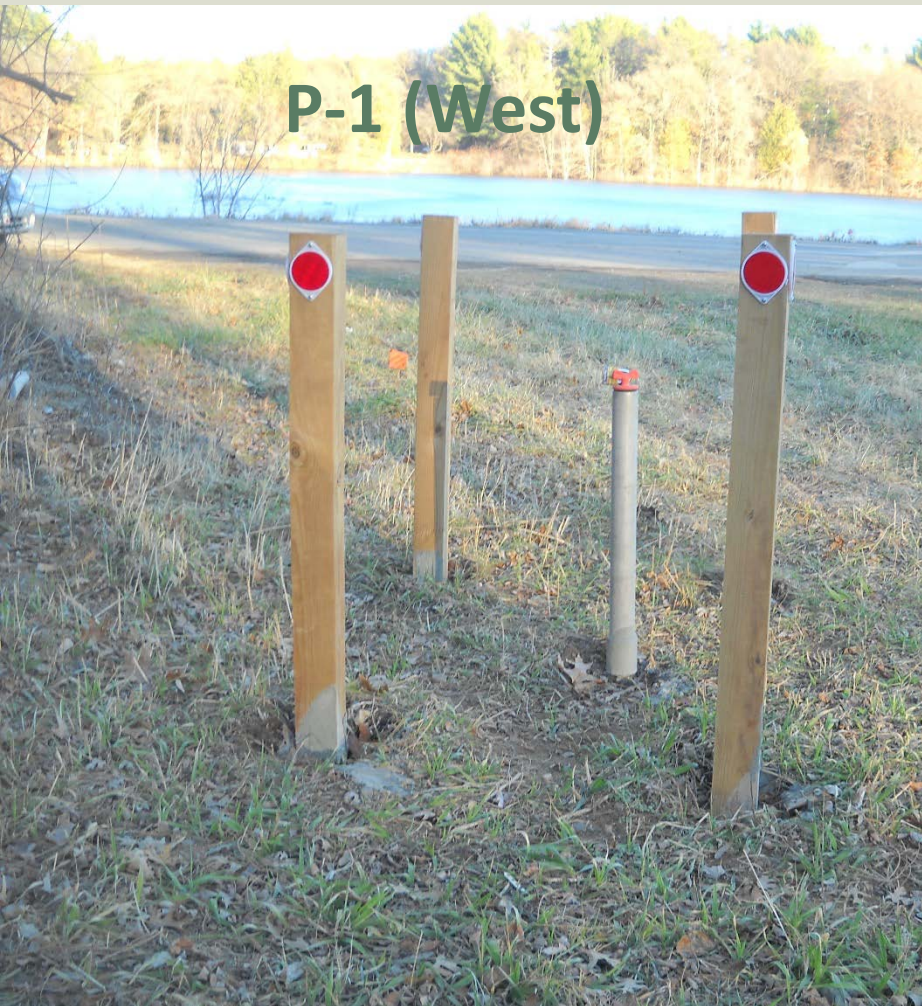
- Installed 2 piezometers
 - Each 15 ft deep
 - County Road Right-of-Way
- Measure groundwater levels
 - Data loggers in piezometers
 - Weekly measurements in residential wells
- Data Analysis



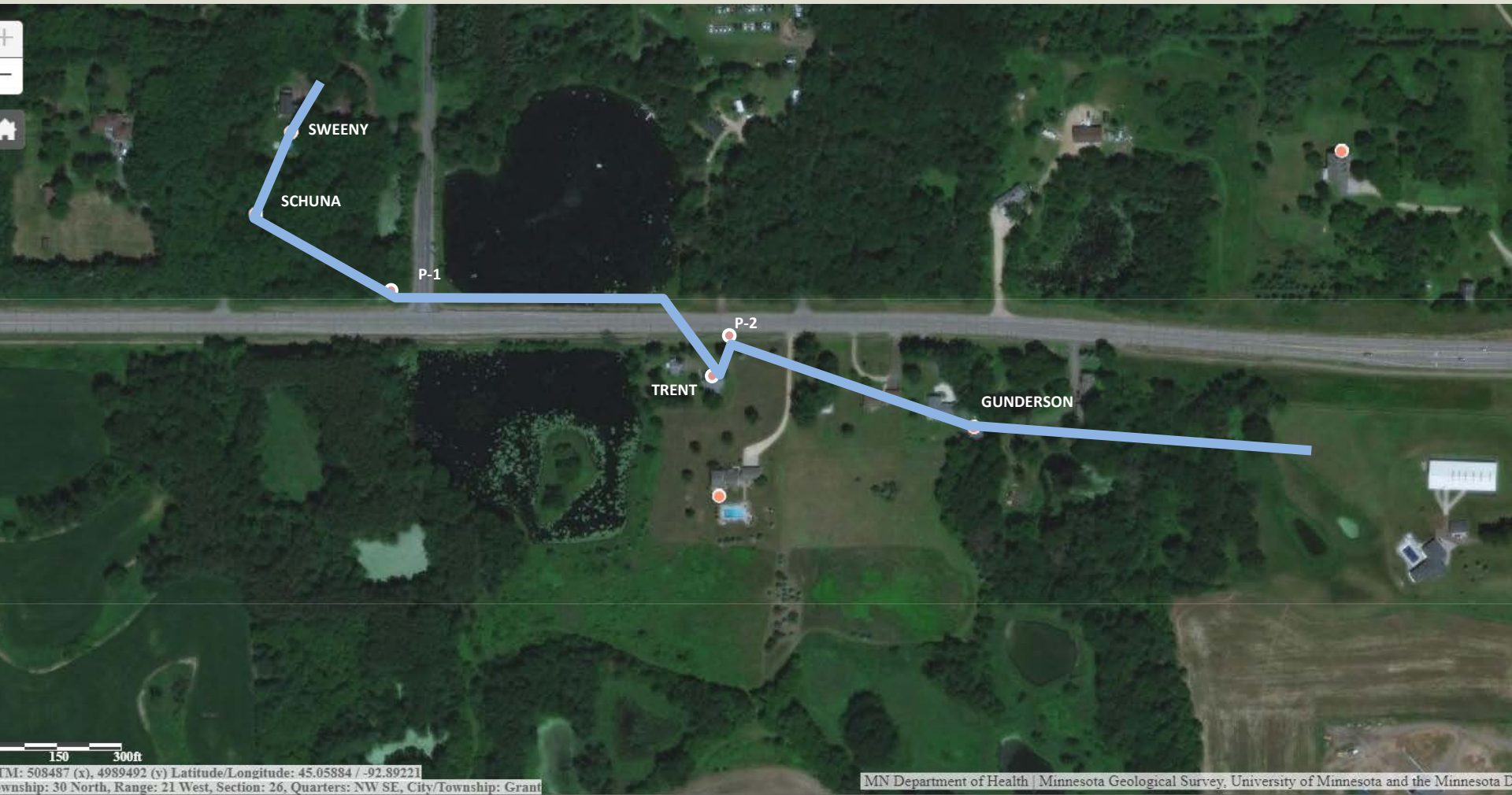
Groundwater Monitoring Locations



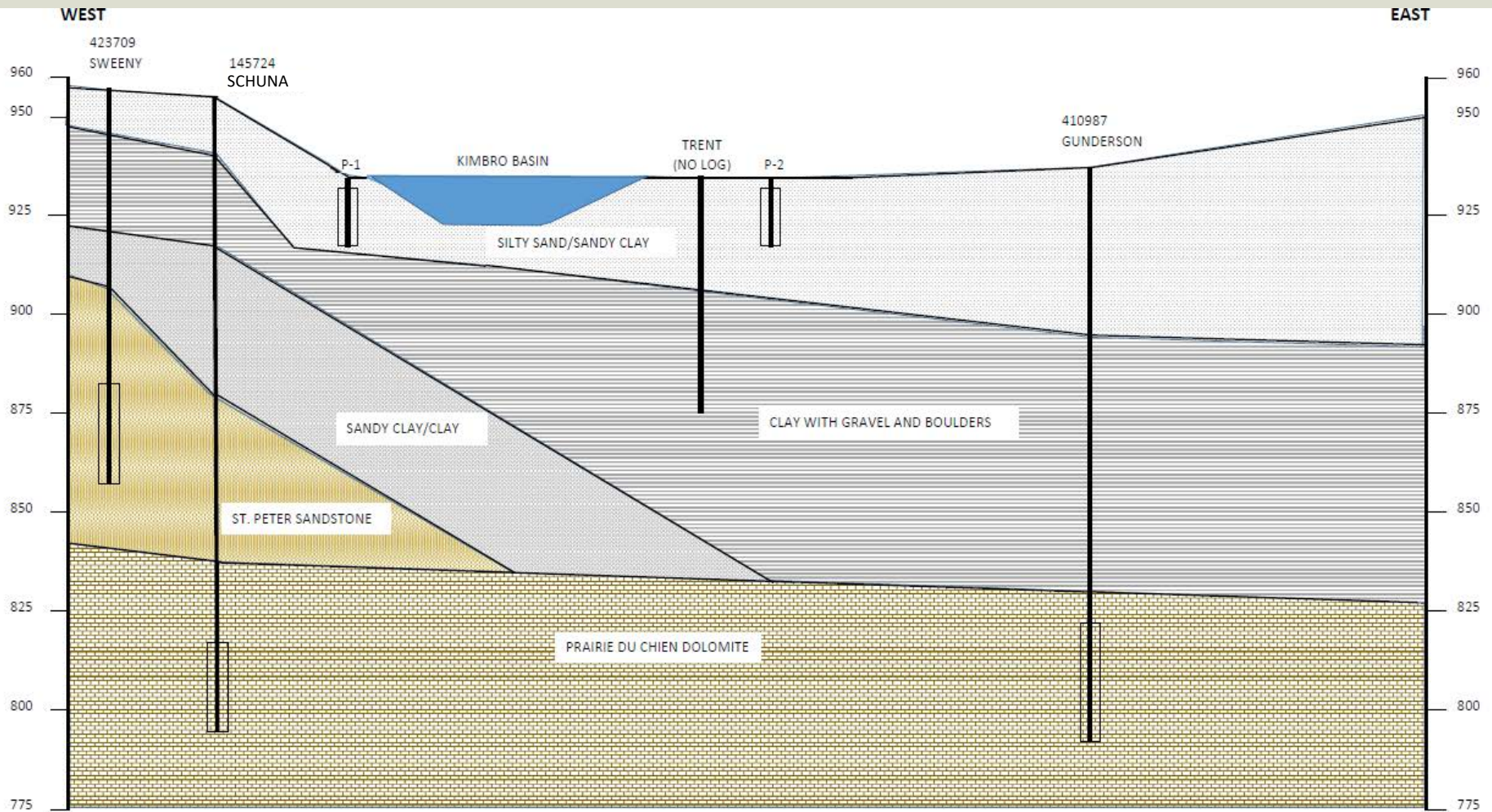
Piezometers



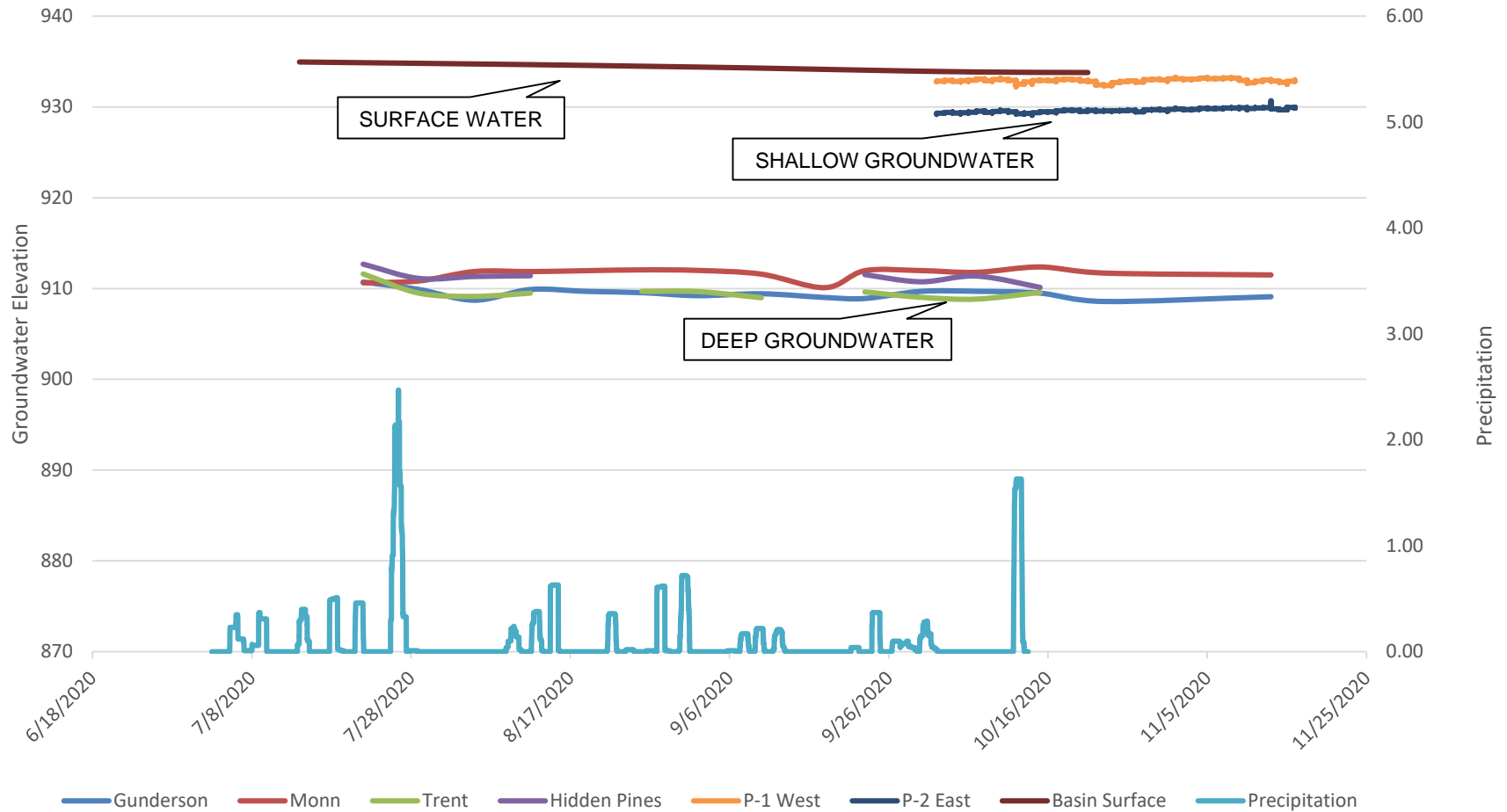
Geologic Cross-Section



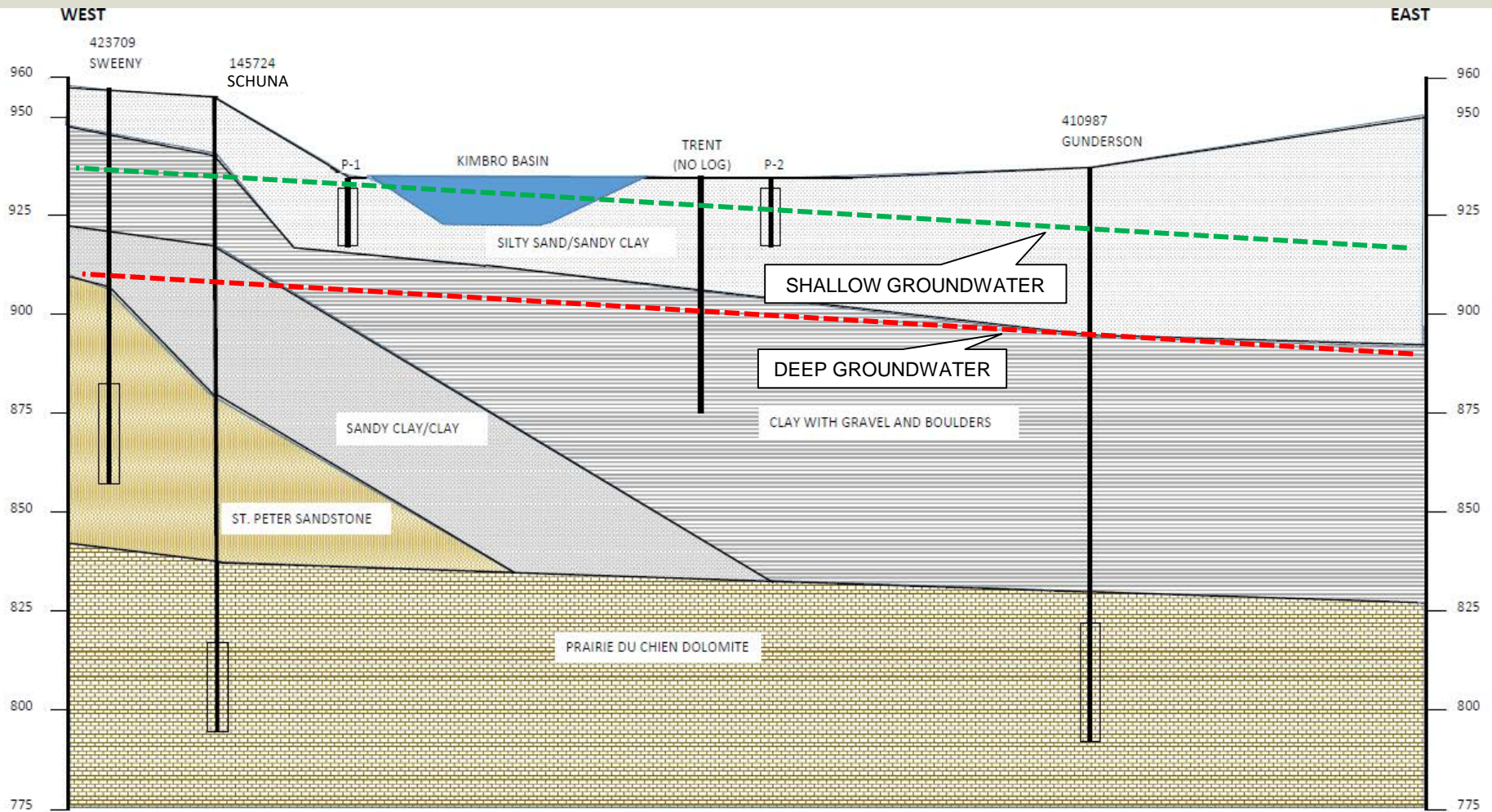
Geologic Cross-Section



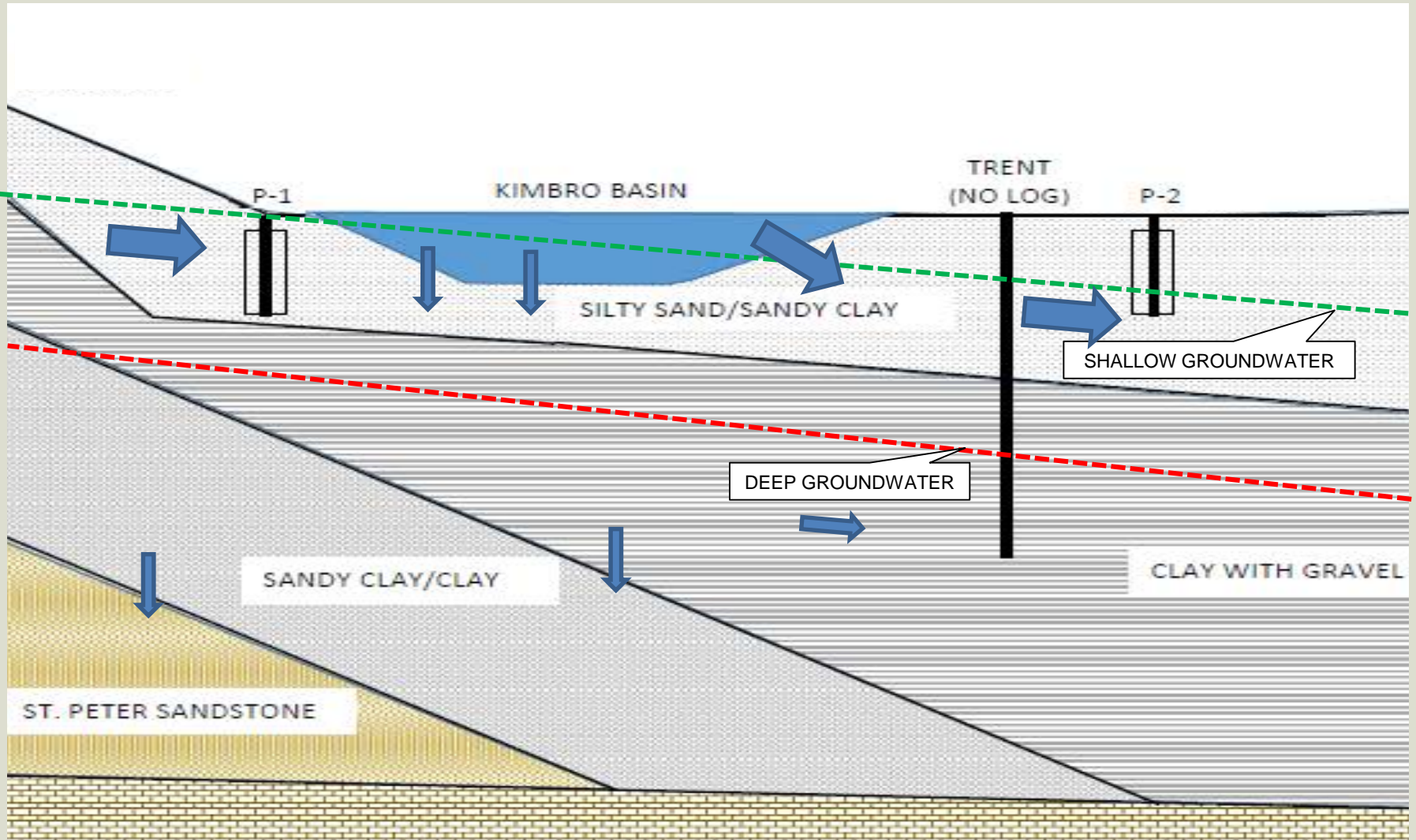
Groundwater Elevations and Precipitation



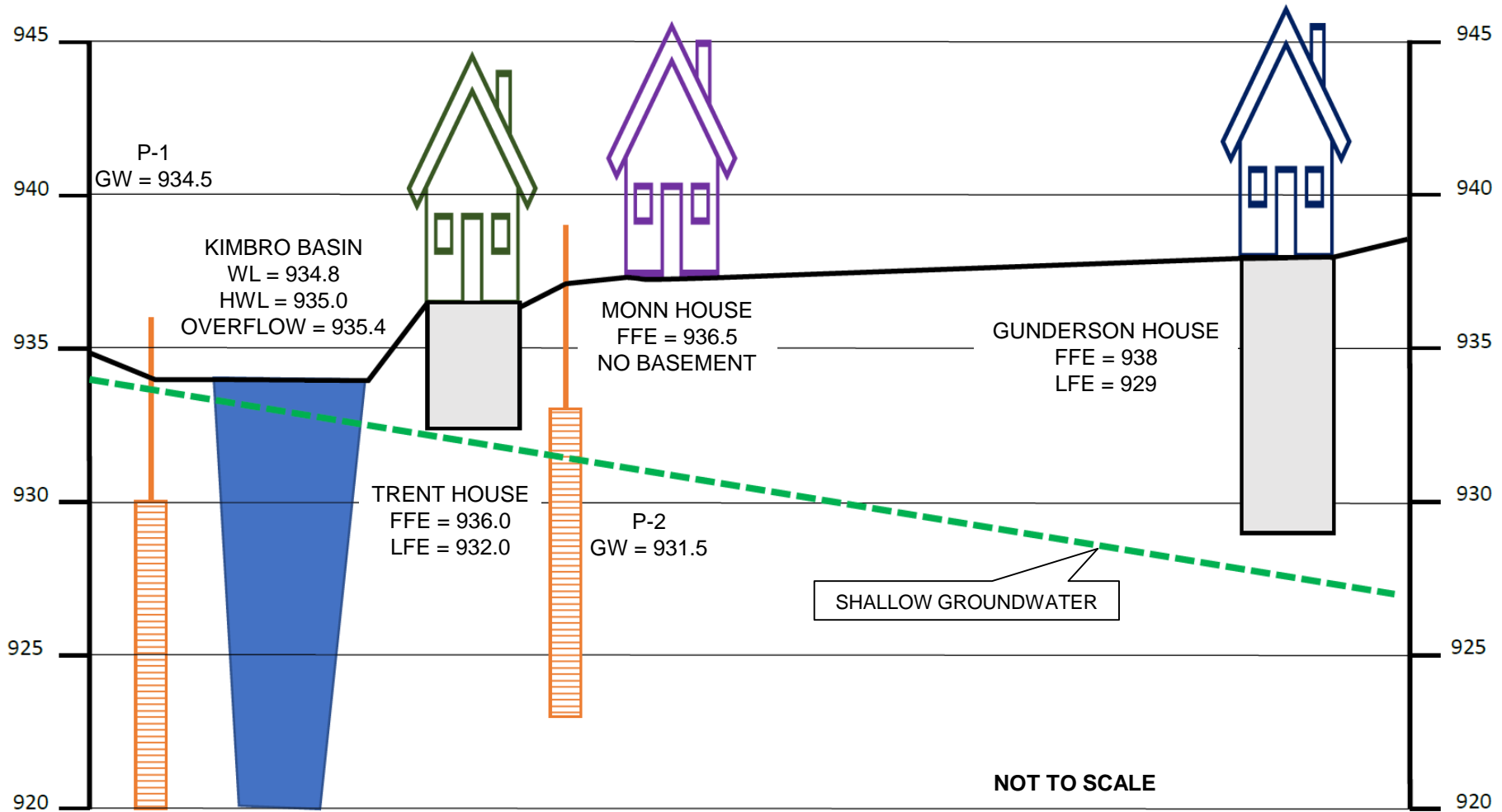
Geologic Cross-Section



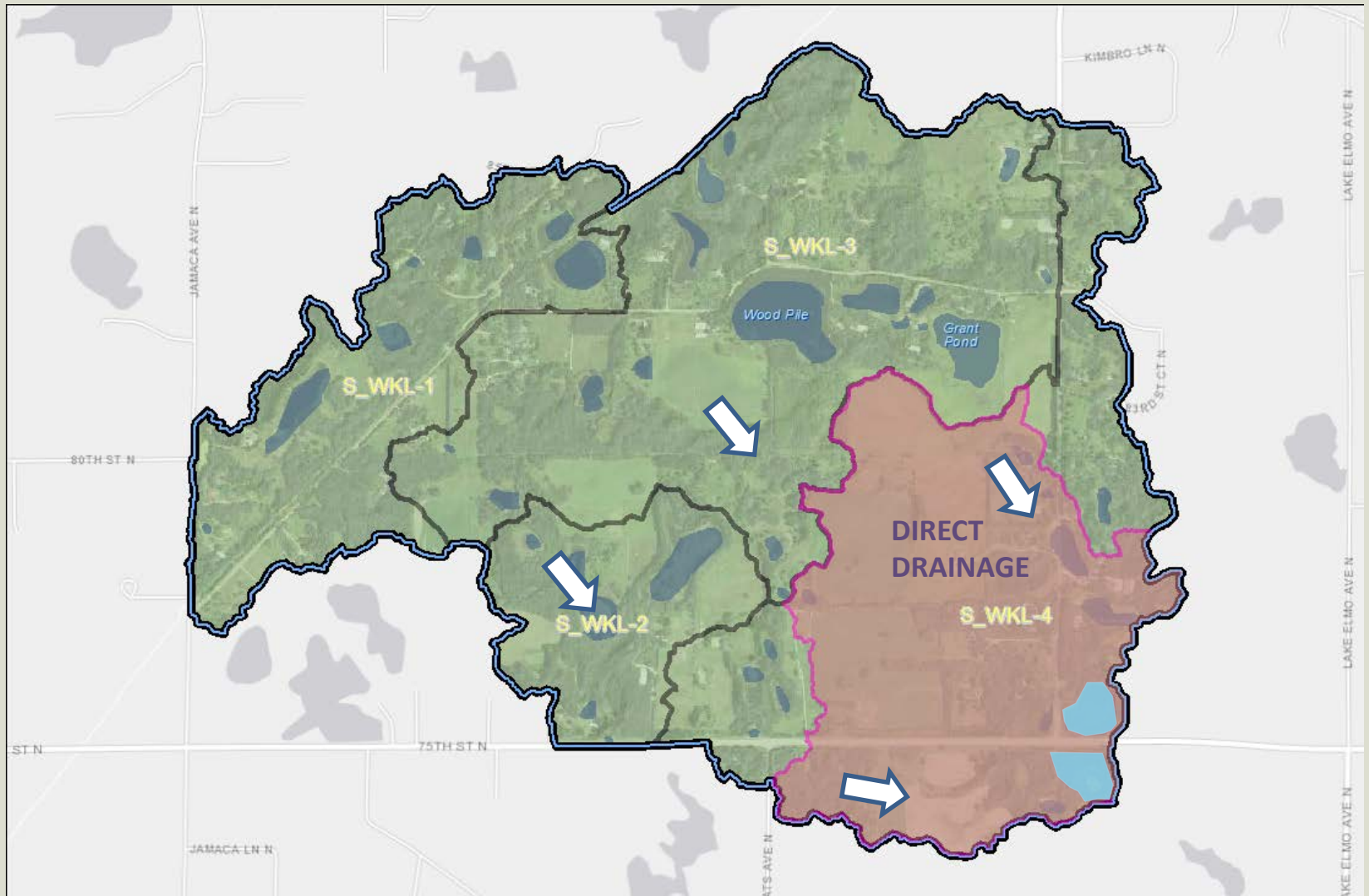
Groundwater Flow



Key Elevations



Groundwatershed



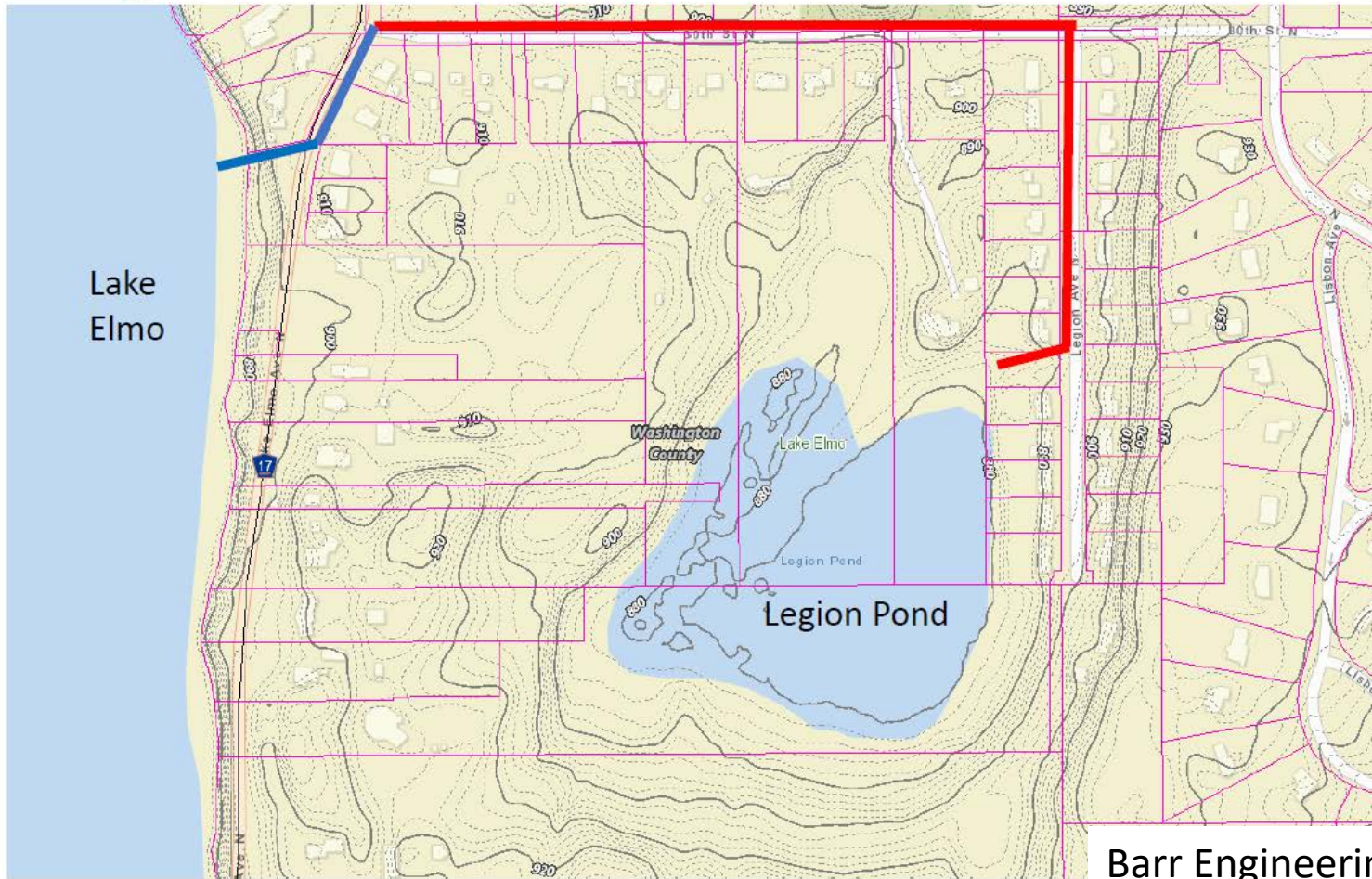
Potential Long-Term Remedies

- Pumping Kimbro Basin
- Engineered Overflow
- Floodproofing/Buyout of Affected Properties



Case Study: Legion Pond

Legion Pond: Possible Route for Pumping



Barr Engineering, 2020



Case Study: Legion Pond

Legion Pond: Estimated Pumping Cost

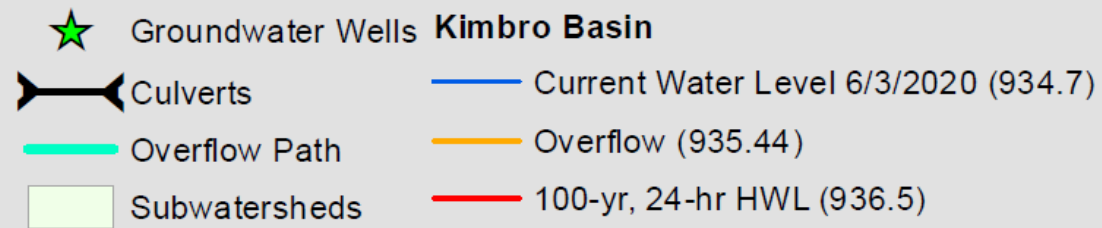
- Depends on pump size, driveway/road crossings, re-fueling frequency, groundwater inflows
 - Groundwater inflows could be significant
- Washington County provided cost estimate
- Barr discussed project with pump rental company to get more specific cost estimate
- 1 Month: \$97,000-\$234,00
- 2 Months: \$147,000-\$254,00

Low end is the estimated based on discussion with pump rental company and assuming similar operations costs as Downs Lake

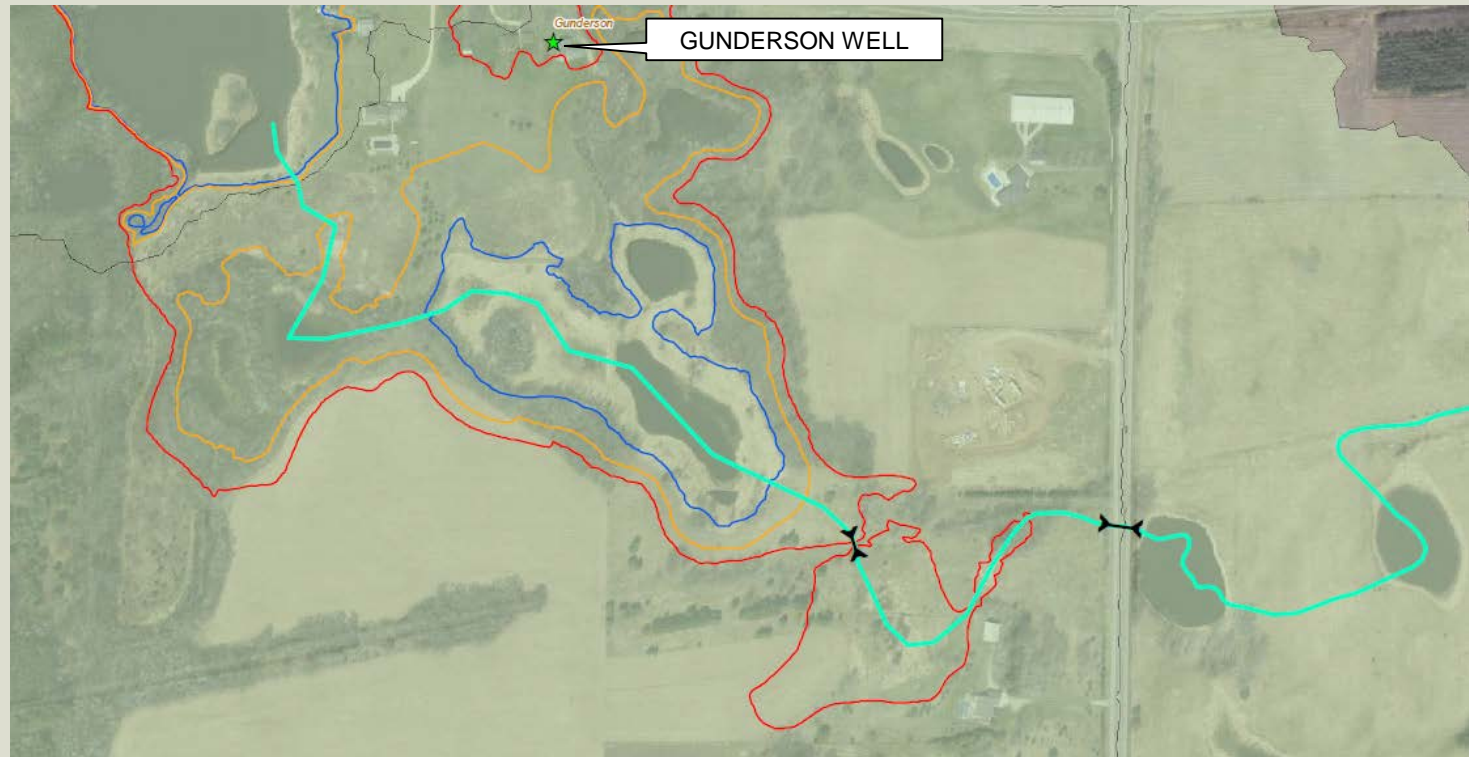
Barr Engineering, 2020



Water Levels and Overflow Path: Kimbro Basin



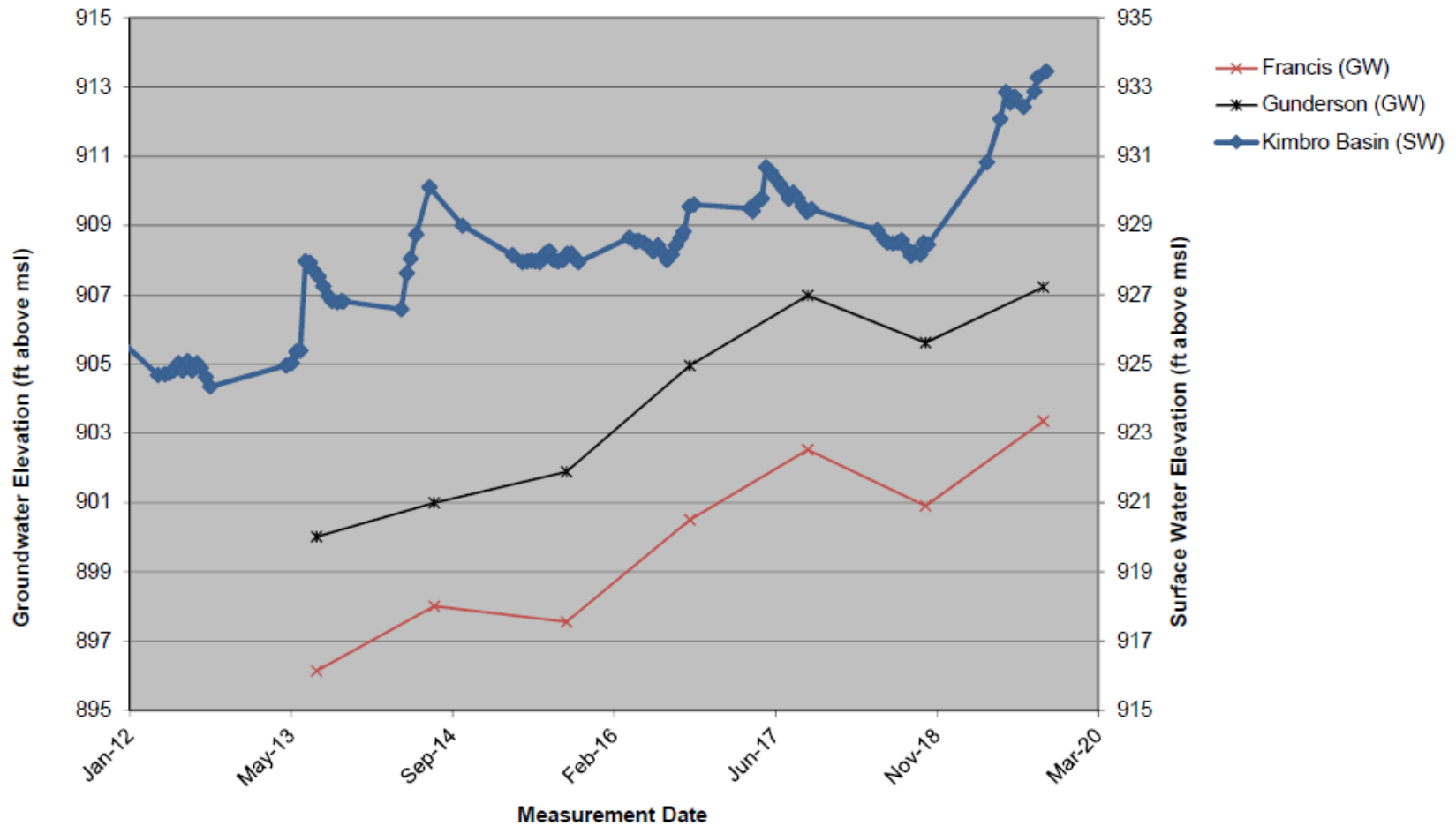
Water Levels and Overflow Path: Downstream of Manning Avenue



- | | | | |
|---------------------|--|---------------------|--|
| ★ Groundwater Wells | Kimbro Basin | | Downstream Wetland |
| ⌘ Culverts | — Current Water Level 6/3/2020 (934.7) | — Overflow (935.44) | — Survey Water Level 11/13/2019 (923.76) |
| — Overflow Path | — 100-yr, 24-hr HWL (936.5) | — Overflow (930.89) | |
| □ Subwatersheds | | | |



Groundwater Elevations



Next Steps - Groundwater

Finalizing the Technical Memorandum for the January 2021 Board Meeting

- Status of County Road 12 and Kimbro Avenue North
- Options for flood-proofing or buying-out the Trent residence
- Summarizing the findings of the Shallow Groundwater investigation

