

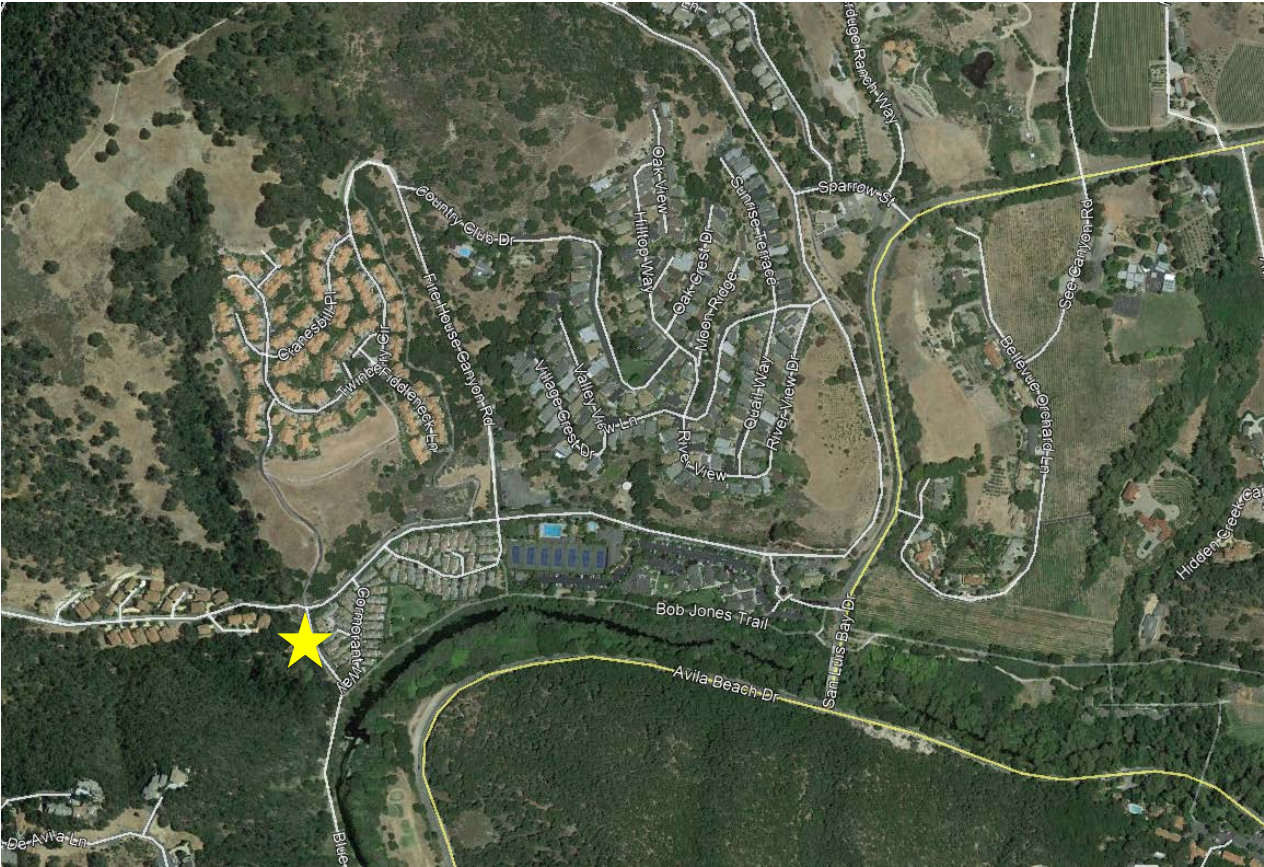
Wellhead Treatment Design Concept



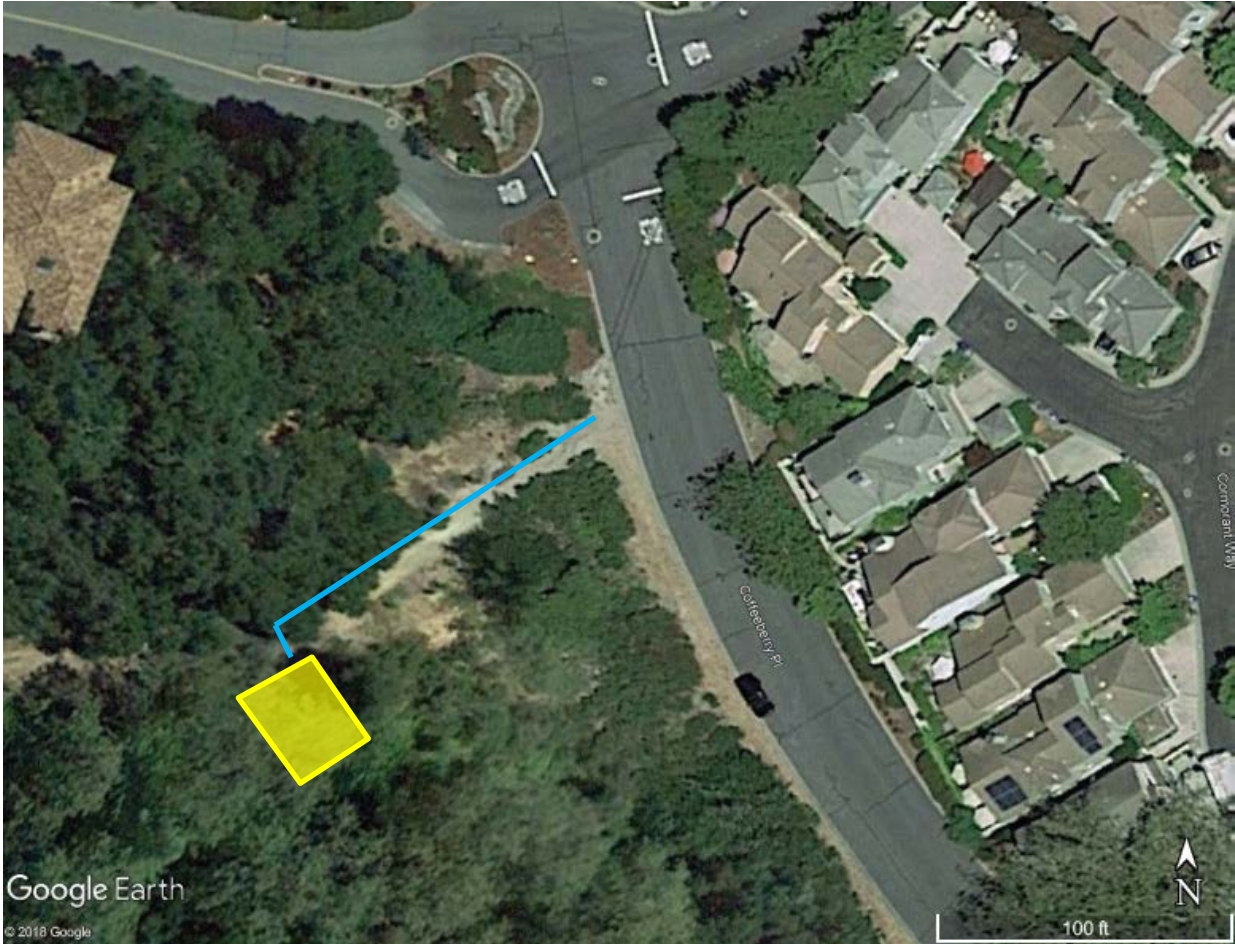
San Miguelito Mutual Water Company

October 17th, 2018

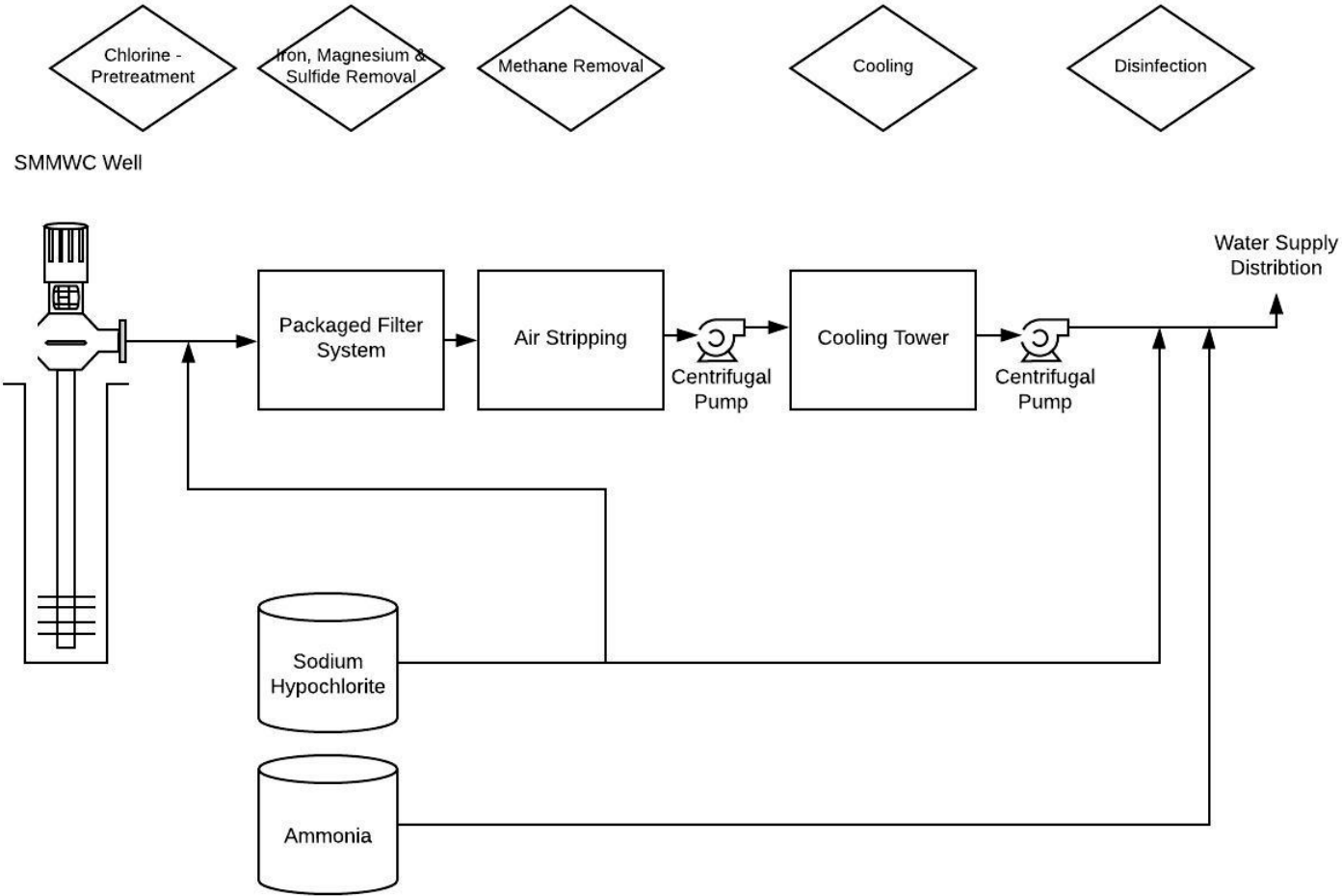
Well Location



Well Site



Wellhead Treatment Schematic



Conceptual Site Layout



Sample Equipment Photos



Air Stripping Tower & Blower
Approx 8' Tall x 5.5' Square



Cooling Tower
Approx. 6' Tall x 5' Diameter

Sample Equipment Photos



Pressure Filters
Approx 8' Tall x 6' x 4'



Well Head

Additional Considerations

- Air Pollution Control District
 - Only involved if receive nuisance complaints from neighbors
- Division of Drinking Water Permit
 - Permit amendment application & technical report
 - Address comments and resubmit application
 - Obtain permit
 - Need to complete CEQA process
- Property Considerations
- Visual/Trail Impacts

Opinion of Probable Project Cost

	Cost	Notes
PG&E Connection and Meter	\$45,000	PG&E fees, duct bank, meter
Well Pump & Civil Site Work	\$45,000	Piping, grading, fencing
Air Stripping & Booster	\$125,000	Methane removal
Ion Exchange Filter	\$60,000	Iron, Manganese, and Sulfide
Cooling & Booster	\$11,000	Temperature reduction
Disinfection (Chlorine & Ammonia)	\$12,000	Pre and Post Treatment
Building/ Screening	\$32,000	320-sf wooden building
Subtotal	\$330,000	
Contingency	\$33,000	10% of construction cost
Design, Administration, CEQA & Permitting, & Construction Phase Services	\$50,000	
Total	\$413,000	

Cost estimates are preliminary at the conceptual level and should be refined as the project evolves.

Limitations

- Unknowns
 - Production methane and sulfide levels
 - Need for air filtration
 - Cooling in air stripping tower, may be able to reduce or eliminate
- Costs are preliminary

