



Location: Basalt, CO

Year: 2004

Construction Dollar Value: \$0.5M

Owner: Town of Basalt

Contact: Robi Darcy, Water System Operator, 970.927.9013

Key SGM Staff: Warren Swanson, PE; William Swigert, PE, SE

Subconsultants and their project roles: Grand Valley Engineering Solutions (Electrical Engineer); Ralston Mechanical Consulting (Mechanical Engineer); HP Geotech (Geotechnical Engineer)

Client Benefits

- Gained valuable reliable supply from high-quality aquifer despite minimal space availability
- Valuable tree in construction zone preserved as a park asset
- Reduced energy usage achieved with high-efficiency turbine pump and VFD
- Industrial facility blends in with quaint downtown backdrop

Project Elements

- 12"-diameter, 100'-deep production well
- 350-GPM, VFD-controlled, well pump with 50-HP motor
- Well pitless unit and 100-LF of discharge piping
- Wellhouse with hypochlorite storage and feed system, flow meter and valves, and system instrumentation, telemetry and controls
- 500-LF of buried 24" ductile iron pipe for disinfection contact time
- Tie-in to main distribution system

SGM helped the Town to boost its potable water supply and meet rapidly growing demands by developing a new groundwater source. Given the Town's limited available space and location at the confluence of two major rivers, the best available well site was located in the middle of a small downtown park. This created numerous infrastructure design and construction challenges, ranging from minimizing impacts to parking and traffic flow, to wellhouse construction at the base of a steep slope, to preservation of an invaluable shade tree for the park. SGM led the planning and engineering efforts from the well drilling and testing phase through to construction and system startup. The design team collaborated with a local architect to achieve a facility design that fit with the downtown architectural character and provided the necessary functionality. SGM also helped bring the project, which involved asphalt replacement on a major Town thoroughfare, to completion prior to winter closure of local batch plants. SGM engineered the facility to allow for remote monitoring and control via telemetry and the Town's central water SCADA system.

Challenges

- To protect the root zone of a valuable park shade tree, SGM collaborated with the Town's consulting arborist to finalize the well discharge pipeline's alignment and associated construction specifications
- Due to minimal space available for the wellhouse, SGM designed its rear wall to serve as a retaining wall to allow construction into a steep slope
- Disparate initial and future allow maximum well production rates due to water rights constraints was addressed with incorporation of VFD to allow energy-efficient turndown in early years of operation
- Busy downtown project site required careful selection of pipeline alignment to minimize disturbance to road surfaces and traffic flow
- Large, high-pressure gas line located near available distribution system tie-in point required close coordination with contractor during construction