



# Irrigation Engineering: Studies and Expert Witness

- Studies
- Hydraulic Modeling
- Operation & Maint. Considerations
- New & Retrofit
- Expert Witness

WEI has frequently been hired as a subconsultant specialist in evaluating, modeling, and schematically designing irrigation systems for subdivisions and multi-property systems. Using water system network modeling software, WEI models a system and identifies a cost-effective and functional design for capacity, operation, and maintenance. Scour velocities to keep lines clean of sediment when dirty surface waters are used, along with adequate provisions for flushing and draining, are evaluated. Systems include all types of water sources, surface and closed systems, with and without pump stations, and with multiple pressure zones.

## Selected Projects

### Ruby Canyon Estates North & South, Mack, CO

Hydraulically modeled and designed an irrigation system consisting of two pressure zones, 83 lots, and a pump station. Source, storage, and quality of irrigation water were considered, along with required and potential irrigation usage rates. Consideration was also given to the desired sprinkler systems and required pressures therefor, and also to looping and redundancy, preferred minimum flow velocities, headloss considerations, and flushing systems. Designs addressed irrigation system management and maintenance issues.

### Hacienda Heights, Loma, CO

Evaluated, hydraulically modeled, and schematically designed an irrigation system for a 35 acre subdivision having considerable elevation difference under three scenarios of supply water: from a reservoir pond that straddled the property boundary; from a low-pressure 10 inch line that passed through the property; and from an offsite high-pressure irrigation lateral. Evaluations considered irrigation system management and maintenance, irrigation supply and reliability, and water quality.

### Ruby Canyon Estates, Mack, CO

Hydraulically modeled and designed for 38 lots with pump station. Quality of irrigation water were considered, along with required and potential irrigation usage rates. Consideration was also given to the desired sprinkler systems and required pressures therefor, and also to looping and redundancy, preferred minimum flow velocities, headloss considerations, and flushing systems.

### Benson Estates, Fruita, CO

Evaluated, hydraulically modeled, and schematically designed an irrigation system for an 8 acre 12 lot subdivision, considering irrigation system management and maintenance, irrigation supply and reliability, and water quality.

### 5 Acre Homesite, Castle Valley, UT

Was hired as an expert witness to evaluate existing irrigation system and testify in court regarding design deficiencies and impracticality of retrofitting the system. Based on our testimony and supporting documents, homeowner was fully refunded for all costs of the inadequate and unsuitable system.

### Country Club Estates, Grand Jct, CO

Evaluated an existing irrigation system and alternatives for retrofit. Evaluated the challenge of removing sediment from dirty Colorado River supply water, hydraulically modeled and evaluated the system for better function and for expansion for a new phase of the subdivision.

