

Pegasus Ranch is a 166-acre horse ranch and vineyard located on the southwestern slopes of the Sonoma Mountains, south of Petaluma, CA. The property is located in Zone 3 (marginal water availability area) on Sonoma County's water availability map. The Owner proposed to subdivide the property and develop the newly created parcel west of Lakeville Highway and adjacent to the Petaluma River. The issue of concern to the Sonoma County Permit and Resources Management Department (PRMD) was the availability of sufficient groundwater, the possible impacts to nearby groundwater supply wells, and possible saltwater intrusion. In accordance with Sonoma County PRMD Subdivision Requirements, a Groundwater Resource and Impact Evaluation was needed. The Owner, through his Civil Engineer, Dimensions-4 Engineering of Santa Rosa, retained EGS to conduct the required investigation.

To respond to the subdivision Negative Declaration Statement groundwater resources and impacts EGS implemented a data review, filed "Well Completion Report Release Agreement" application to PRMD for authorization to obtain nearby Confidential DWR well records, reviewed driller Well Completion Reports, driller's pump tests, and production records. We reviewed USGS published mapping and conducted a supplemental site geologic reconnaissance to provide project specific information to help evaluate the hydrogeologic aspects of the site geology. This information was used to determine the "*cumulative impact area*", identify the project's planned water requirements, and estimate the theoretical water demand of the proposed post-subdivision new development.

The PRMD's site specific Draft Health Use Permit Conditions, the County Procedures for implementing General Plan Policy WR-2e, and Sonoma County Groundwater Studies Checklist required a limited 4-hour well pump test on the existing well that was to be used for the new development. After EGS completed the pump test we collected water quality samples for analysis of bacteria, arsenic and nitrate.

The pump test data was analyzed to evaluate well performance and verify / compare the original test conducted at the time of well construction. We also evaluated the site and area geology and hydrology, other on-site and off-site well driller's logs, meteorological data, evapo-transpiration and infiltration estimates, run-off rates, the limited pump test data, and well location and depth data, to evaluate the groundwater supply and estimated water supply. Based on these data sources we developed, a model of the hydrologic characteristics of the groundwater resource beneath the property and impact area including off-site well / spring interference that could occur as a result of pumping the on-site well, and the potential for additional well pumping to induce salt water intrusion. The results of our Groundwater Resource Availability and Saltwater Intrusion Evaluation allowed the subdivision to proceed and the project to be developed as planned.