Laurie Brandt

Abstract: **Geotechnical Engineering – Understanding the Earth and its Properties to Solve Engineering Challenges**

Geotechnical Engineering is a field that combines the knowledge of the geology of a site and the properties of the soil and rocks with the engineering of solutions to properly design and construct on a site. The soils and rock on the Western Slope and intermountain west provide challenges for building or repairing projects such as roads, bridges, buildings, dams, powerlines, pipelines, and mines and there can often be additional challenges caused by geologic hazards such as rockfall, landslides, debris flows, shallow groundwater, flooding, and unstable slopes. Our soils can be expansive, collapsible, weak, corrosive, or unstable when wetted or loaded. Laurie has been working in the field of Geotechnical Engineering for the past 28 years and she will share what this field is, how the engineering geologist informs the engineering process, and provide case studies that illustrate unique site conditions, project challenges, and engineering solutions. Laurie will explain the typical tools used for exploring, testing and sampling the subsurface, instruments used for monitoring soil and rock conditions, laboratory tests that determine properties relevant to foundations and slopes, and typical recommendations used to overcome challenging sites.

Bio – Laurie Brandt is a Certified Professional Geologist (CPG) who has been working in the field of Engineering Geology since 1998 in the Montrose area. She works for RockSol Consulting Group, a civil, structural and geotechnical engineering and materials testing firm with an office and laboratory in Grand Junction. She earned a B.S. in Geography with a minor in Geology from the Pennsylvania State University in 1984 and an M.S. in Remote Sensing with a minor in Geomorphology from Cornell University in 1986. Laurie had an internship with the USGS Remote Sensing Section in Denver doing mineral resource exploration using satellite imagery and after grad school she worked for an environmental consulting firm mapping river channels and performing instream flow studies to model the impacts that hydroelectric plants had on stream hydraulics and fisheries. After racing mountain bikes professionally for 5 years, she got back to geology doing geotechnical engineering site investigations and geologic hazard assessments. Laurie has worked on projects in Colorado, Utah, New Mexico, Arizona, Nevada, Wyoming, Montana, Oregon and Alaska. From 2000 to 2020, Laurie also taught various introductory geology classes at the Montrose Campus of CMU and she is teaching the Geology of Colorado there this semester. She also teaches mountain bike skills clinics through the Montrose Recreation District, as she enjoys sharing her passion of bikes and geology whenever possible.