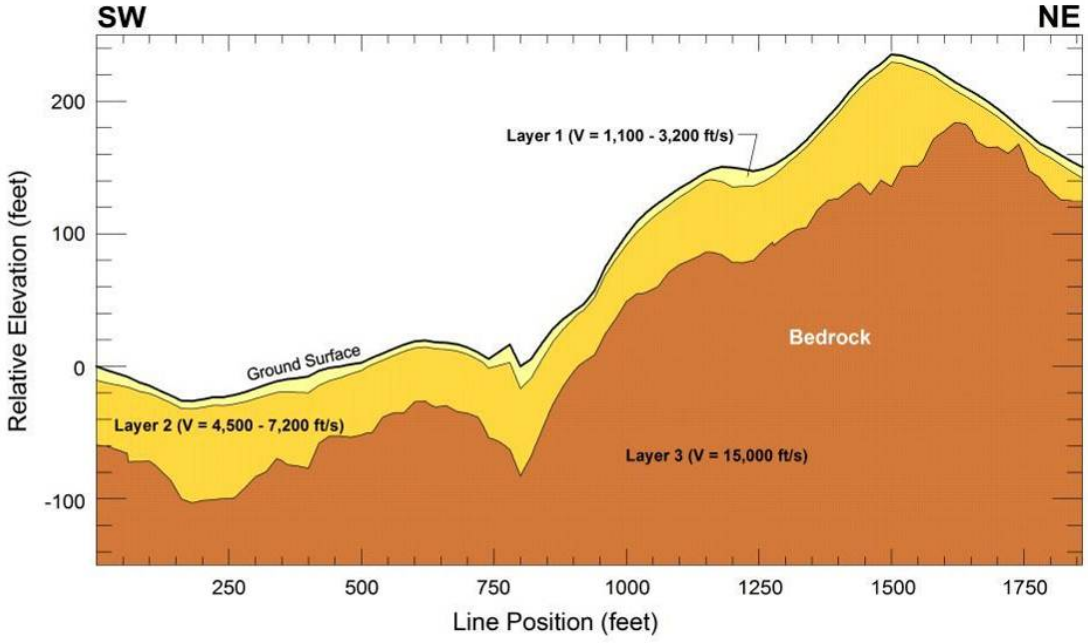
# DEPTH TO BEDROCK

## Seismic Refraction – LAKE ELSINORE, CALIFORNIA

A seismic refraction investigation was conducted at a property in Lake Elsinore, California to provide an image of the alluvium/bedrock interface to depths ranging from 60 to 130 feet below ground surface at the Property. Lithology at the Property consisted of discontinuous alluvium along with sedimentary and intrusive igneous bedrock. Spectrum was hired to obtain seismic rippability information where several cuts were planned for a proposed development. A challenge for this project was topographic relief of 200 feet or more and no vehicle access along several transects.

Spectrum collected 7 transects of P-wave data, for a total of 6800 line feet, using a Seistronix RAS-24 signal enhancement seismograph, 8-Hz vertical geophones, and a 20-lb. sledgehammer. This seismic refraction profile shown below was approximately 1850 feet long and consisted of 5 overlapping spreads, each consisting of 24 geophones at 20-foot spacing. Seismic data were processed using the GRM method, which allows for an undulating bedrock surface and lateral changes in the velocity of the target refractor.

Bedrock velocities at the Property were found to range from 7,400 to 18,600 feet per second, and depths were found to range from 10 feet to 90 feet below ground surface.




*Seismic Refraction Profile*

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