

### GEODAQ DELIVERED:

- ▶ Two in-place inclinometers, consisting of 208 MEMS accelerometers.
- ▶ Installation of the in-place inclinometers, one upslope and one downslope of Highway 299.
- ▶ Piezometers for monitoring groundwater levels
- ▶ Solar-powered monitoring station with GCM controller module and wireless internet modem in protective casing, secured by a locking steel frame.
- ▶ Dedicated server, secure database, and redundant backup for data storage.
- ▶ Password-protected web interface for real-time data monitoring and analysis.

*"Because Geodaq's in-place inclinometers have more sensors than conventional ones, we get better displacement profile resolution with redundant measurement points, without having to go to the trouble and expense of site visits."*

Doug Brittsan, Senior Engineer  
California Department of  
Transportation

## Humboldt, California

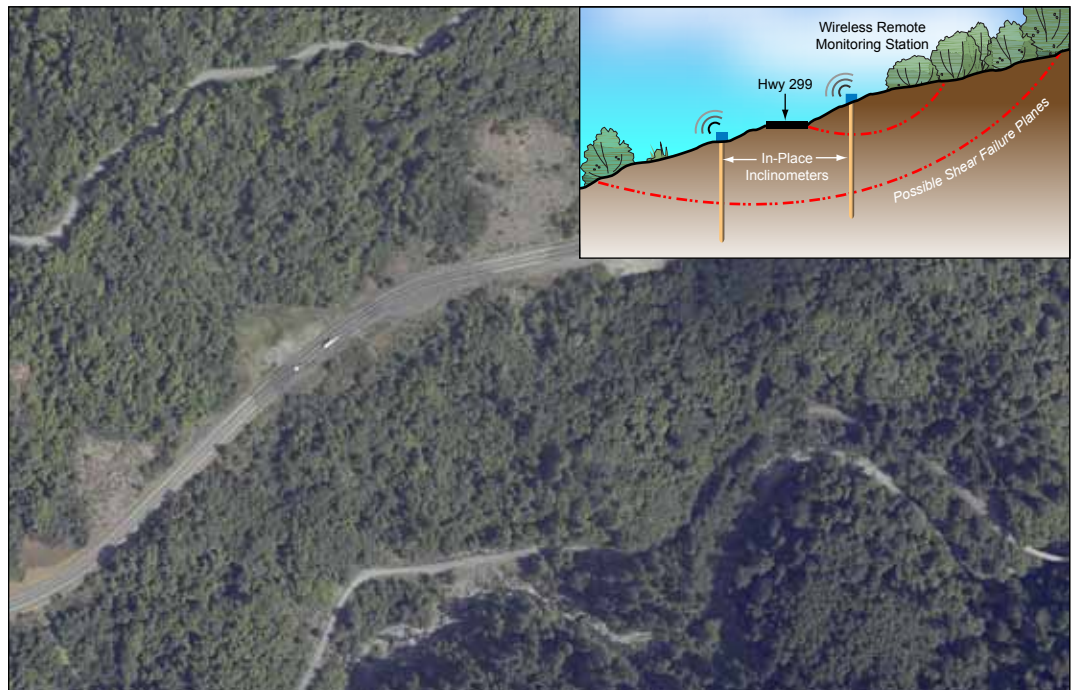
# HIGHWAY 299 REMOTE LANDSLIDE MONITORING

### OVERVIEW

Highway 299 in Northern California is a heavily traveled two-lane highway that runs over an active earthflow that may slide at more than one location below the ground surface. Movement and resulting repaving is so frequent that a test bore revealed asphalt going 33 feet down. Caltrans's initial attempt to monitor earth movement by taking measurements in the field was thwarted within months because earth movements bent the inclinometer casings so much that surveys using a conventional inclinometer probe were impossible at deeper levels.

### SOLUTION

Geodaq's in-place inclinometer, a densely spaced network of sensors, allows robust, continuous monitoring over the full depth of the casing, while wireless transmission to Geodaq's webserver allowed engineers to observe changes at their office, saving significant travel costs to this remote location.



### Contact Information:

John Lemke  
3385 Lanatt Street, Suite A  
Sacramento, CA 95819  
geodaq.com ▶ 916-9-930-9800