



Key achievements

- Installation of a fully automatic safety-critical monitoring system with high reading frequency.
- Long-term monitoring period with minimal requirement for maintenance visits

The Project

An active landslide adjacent to a key road near Newport is exhibiting a slow, surface level creep downhill towards the road. The sensitive nature of the slope and nearby road asset meant an automated monitoring system is required to measure the movement of the landslide.

The Challenge

Installation of an in-ground monitoring system on must be completed during night shifts and partial road closures under strict time constraints. The remote location of the site means there would be no access to mains supply to power instrumentation and data logging devices. Potential shear in the slope makes it unfeasible to use certain geotechnical instrumentation (for example In-Place Inclinometers).

The Solution

A combined solution of ShapeArrays, Piezometers and Wireless Tiltmeters was designed to give a comprehensive understanding of ground movement. In-ground sensors were installed below the shear plane to prevent damage and ensure uninterrupted data. Piezometer measure changes in ground water while SAAs

Solar panels were used to power a data logging solution capable of reliably running the in-ground instrumentation for multiple years.

Tiltmeters were installed on the retaining wall at the base of the slope to more directly measure the influence of ground movement on the road.

The QuickView online data visualisation platform is being used to analyse data and automatically manage movement alerts and regular reporting.

Application

Automated slope stability monitoring

Technique

Geotechnical Monitoring

Market

Highways Infrastructure

Client

WSP

Project Duration

5+ Years

Instrumentation

Piezometers

ShapeArrays

Wireless Tiltmeters

Keller companies

GEO-Instruments