CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

Coastal Erosion Monitoring

Campbell Scientific Equipment Selected For UK Coastal Erosion Prevention Project

Fairlight Cove sits on 50m cliffs with predominantly clay soil making the area vulnerable to land slip after heavy rain

Many houses are at risk in Fairlight Cove with recent high annual rainfalls contributing to accelerated erosion

WJ Groundwater, who specialise in groundwater control were recently contracted by Terry Oakes Associates on a project to stabilise cliffs suffering from rapid coastal erosion at Fairlight Cove, a small village located at the top of 50m cliffs on the South coast of England. The project was initiated by Rother District Council.

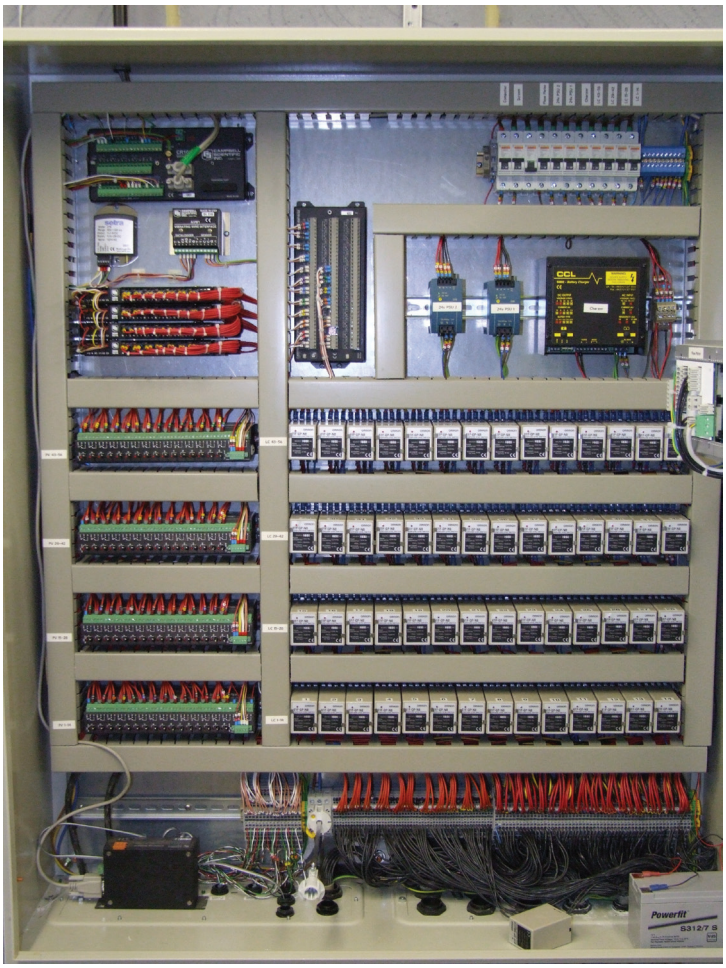
Coastal erosion had long been a minor problem in the area but the rate of erosion has accelerated in recent years with the current cliff edge at a point not predicted to be reached, according to a 2003 study, until 2053. Five houses have been lost in the past few years with many more at risk.

Rises in groundwater levels due to recent above average annual rainfalls was identified by geotechnical engineers as a major contributory factor in this accelerated erosion as the predominately clay soils of the area are lubricated by the water increasing the likelihood of a land slip.

As part of a major protection plan WJ Groundwater were commissioned to drill a series of 56 wells each installed with water level sensors and pneumatic pumps connected to a Campbell Scientific CR1000 data logger. The 25m deep wells, spaced at 6m intervals, are accessed via manhole chambers. Water levels at each well are measured every second and, at a certain threshold the data logger switches on the pumps to extract the water via a drainage system.

At the heart of the system is a CR1000 which sequences the scanning of each sensor through a Campbell AM16/32B multiplexer and switches the pumps on and off through a series of SDM-CD16D 16 Channel digital output expansion modules and SDM-CDAC controllers. Water level is measured by vibrating wire pressure transducers which are interfaced to the data logger via a Campbell Scientific AVW1 vibrating wire module.

Data is collected by the logger and served using Campbell's RTMC software to a panel pc with a touch screen display on the systems enclosure and also sent to a distant control centre via a Campbell landline modem. The enclosure has around 1,000 individual connections and took several weeks to commission.



The complex wiring in this enclosure has over 1000 connections and took several months to complete.

The CR1000 Data logger is situated top left.

Instrumentation Used

- *CS CR1000 Data Logger*
- *CS AM16/32 Multiplexer*
- *CS SDM-CD16D 16 Channel Digital*
- *Control Port Expansion Module*
- *CS AVW1 Vibrating Wire Interface*
- *CS SDM-CDAC 16 Channel AC/DC*
- *Controller*
- *CS100 Setra Barometric Pressure Sensor*
- *CS Com220 Fixed Line Phone M0dem*
- *Pneumatic Pumps*
- *VW Water Level Transducers*

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WJ Groundwater Ltd - www.wjgl.com