

## Mytholmroyd Flood Mitigation

West Yorkshire

VBA, a joint venture between VolkerStevin, Boskalis Westminster and Atkins, are working in partnership with the Environment Agency and Calderdale Council on the major flood defence plan in the village. GEO-Instruments undertook a successful two-year monitoring scheme as part of the project.



### The project

With a budget of over £41 million the scheme aims to reduce the risk of flooding by raising new and strengthening existing flood walls, widening the river channel in key locations and demolishing Caldene Bridge and constructing a new 13m wider bridge upstream.

## The challenge

As part of the works to widen the river, the existing walls and large amounts of earth needed to be removed, meaning there was a significant risk of settlement in the surrounding ground. As a result, some buildings close to the channel had to be monitored for possible movement. Of key interest were two end-terrace houses next to the channel and the nearby St. Michael's Church.

Built in 1847, the church is important to the local community and a key landmark in the village. It sustained extensive interior damage during the floods in 2015 and to a lesser extent in 2020.

## The solution

A monitoring scheme was designed using multiple Hydrostatic Levelling Cell (HLC) systems and a Tiltmeter network.

GEO-Instruments engineers installed three separate systems across the church and houses. Each HLC system was comprised of several measurement cells and one reference cell installed away from the area of predicted settlement.

The cells were installed close to ground level, whereas the Tiltmeters were installed at height on the building walls, facing the river channel. An additional tiltmeter was installed at the top of the church tower.

First installed in April 2018, the HLCs recorded high-resolution settlement data automatically for the duration of the project with minimal need for maintenance. The collected data was automatically displayed on GEO-Instruments' web-based visualisation platform, QuickView.

## Project facts

### Owner(s)

Calderdale Council, Environment Agency

### Keller business unit(s)

GEO-Instruments

### Main contractor(s)

VBA

### Services

Settlement monitoring  
Automated monitoring

### Markets

Building Monitoring  
Infrastructure Monitoring

### Technologies

Hydrostatic levelling cells  
Tiltmeters

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