



Key achievements

- **Combined automated and manual solution to provide comprehensive and reliable monitoring data during critical works.**
- **Accurate, high-frequency, long-term automated instrumentation system.**

- **The Project**

Keller Foundations and GEO-Instruments worked together on the £38m redevelopment of a historical building in Oxford. Keller were contracted to undertake piling and jet grouting works at Rhodes House over several months as part of redevelopment work being carried out by Beard Construction. The works included an extensive basement conversion, new accommodation and improved office spaces.

- **The Challenge**

The pre-existing structure is Grade II listed and an important part of Oxford University. Keller foundations installed more than 600 CFA piles to provide secant walls for a sunken courtyard and the lower ground level conference hall as well as bearing piles for the garden pavilion. Keller also installed more than 80 jet grouted columns to underpin and seal the foundations.

The proximity of the works and sensitive nature of the building required intensive monitoring of structural movement.

- **The Solution**

Prior to the start of piling and jet grouting, engineers from GEO-Instruments installed a system of 33 hydrostatic levelling cells and a network of 32 wireless tiltmeters on to the façade of the building to provide automated, high frequency monitoring of settlement and inclination during the works. Additionally, during jet grouting, GEO-Instruments worked closely with the other Keller teams, using manual monitoring techniques to supplement the automated systems. The Automated instrumentation continued to remotely monitor the rest of the construction works until their conclusion.

Application

High frequency structural monitoring

Technique

Settlement monitoring
Automated monitoring
Data visualisation software

Market

Buildings

Client

Beard Construction

Project Duration

2 Years

Instrumentation

Hydrostatic levelling cells
Manual surveying
Tiltmeters

Keller companies

Keller Foundations
GEO-Instruments