GEO INSTRUMENTS

E-SCRAP RECYCLING FACILITY

GROUND SETTLEMENT MONITORING

Key achievements

- **Combined Automated and Manual solution to ensure reliability and data continuity**
- **Robust, cost-effective ground movement monitoring solution.**

The Project

Construction of a large new electronic scrap recycling facility in Kent. When operational, the major new facility will sample and process waste electronics material so raw materials can be reclaimed and re-used.
Located next to the Thames river, the site has a high water table and sandy, wet ground conditions. Significant piling works were required for ground improvement across the site.

The Challenge

The monitoring system was required to measure ground movement caused by the piling works, with strict limits on settlement imposed by the project specification. Continuity and reliability of data was the highest priority in the design of the monitoring scheme. Any instrumentation used is at risk of damage due to the heavy-duty work and plant movement taking place on site.

The Solution

GEO-Instruments engineers installed a combined monitoring scheme of automated and manual settlement plates. The automated settlement plates system is built to be robust and suited to site conditions. However, Including manual plates in the design built in redundancy in case of failure of the automated system.
The plates were installed at 1-2 metres depth below ground level. Tubing and cabling for the automated plates were installed into a duct and buried.

Automated settlement plates measure changes in pressure caused by settlement or heave and are linked via fluid tubing to a shared reservoir. Data is collected automatically at regular intervals. Manual plates are fitted with rods and 3D prisms that are measured by a surveyor.

Settlement plates are a cost-effective ground monitoring solution. Though less accurate than some other, more expensive systems they are reliable and robust and therefore well suited to ground improvement applications.

Application
Settlement monitoring

Technique
Automated monitoring

Market
Infrastructure
Buildings

Project Duration
6 months

Instrumentation
Settlement plates