



### Key achievements

- High accuracy, long-term monitoring of ground settlement
- Automated sensors and gateway for reliable, 24-hour data collection

### The Project

An expansion to the DP World London Gateway logistics hub involving the construction of a new berth to significantly increase capacity of the port. The project requires piling works on the existing port and significant land reclamation works to extend the dock out into the Thames river.

### The Challenge

GEO-Instruments' monitoring scheme needed to include instrumentation to monitor both the piling and land reclamation works. Multiple phases of construction needed different monitoring solutions, each requiring varying equipment, methods and expertise. In particular, a safety critical monitoring system was required for monitoring the ground stability around newly constructed crane stacks.

### The Solution

IP-X sensors were installed to monitor ground settlement in two initial boreholes next to the crane stacks. The GEO-Instruments team coordinated with specialist drilling subcontractors to establish the boreholes. The IP-Xs provided an automated solution for collecting Magnetic Extensometer data that can measure ground movement at multiple depths within a borehole. Usually a manual process, automating the measurement of these sensors significantly increases the frequency, accuracy and reliability of readings while eliminating the need for future site visits. The sensors were installed into drilled boreholes to a depth of 21m with monitoring magnets spaced every 3-4 metres within the borehole.

Data was collected on a local wireless gateway and sent to GEO-Instruments' QuickView software to easily manage trigger alarms, alert emails, and reports for the client and site team.

### Application

Dock Monitoring

### Technique

Geotechnical Monitoring

### Market

Ports  
Infrastructure

### Client

McLaughlin & Harvey

### Project Duration

Ongoing

### Instrumentation

Automated Magnetic  
Extensometers

### Keller companies

GEO-Instruments

