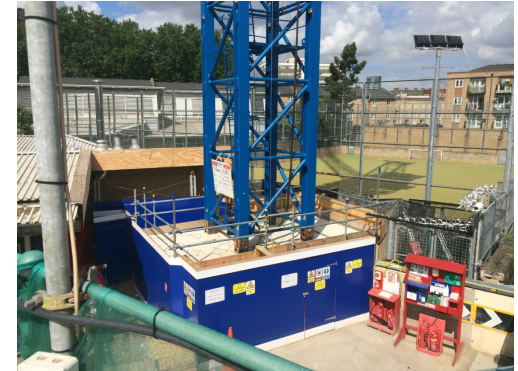


Crane Base Monitoring: Whitechapel Station, London

CLIENT: **BBMV/CROSSRAIL**

How wireless monitoring technology kept a constant watch on stability of tower cranes throughout a complex construction project



Challenge

Major upgrade work at Whitechapel Station in East London for the Crossrail (Elizabeth Line) project required the installation of two tower cranes. This presented numerous challenges in the congested and busy station environment – which was kept open to the public throughout the project.

One crane was built on a base on the station platform five metres below ground level; the other at ground level. Tunnelling for the Elizabeth Line required excavation below the cranes and there was a critical need to check for movement.

The work was undertaken by the BBMV consortium (Balfour Beatty, Morgan Sindall, VINCI Construction). They chose to use Senceive wireless monitoring technology and installed high precision FlatMesh™ tilt sensor nodes on the crane bases and superstructure.

Solution

Monitoring was required for a duration of at least 18 months. On each crane, a node was attached to the concrete base and another to the crane uprights using Senceive's patented magnetic mountings.

The FlatMesh™ tilt sensors were an ideal choice, as they were installed quickly and needed no wires for communications or power – which could have been damaged or interfered with other operations on the busy site.

Monitoring data was transmitted wirelessly from the site via two solar-powered gateways. Registered stakeholders could view the data and interact with the monitoring system configuration using Senceive WebMonitor visualisation software.

WebMonitor enables accurate, reliable data to be securely accessed on a computer, tablet or smart phone anywhere in the world.

Outcome

The FlatMesh™ tilt sensor nodes were installed quickly and easily and remained in place without issue or failure for 32 months with no replacement or maintenance required. The long battery life gave the system the flexibility to remain installed well beyond the intended monitoring period.

Key Points:

- **Wireless monitoring quick to install and robust enough for challenging construction site conditions**
- **Remote access to data and ability to change settings of FlatMesh™ system**
- **Project extended from 18 to 32 months without changing any equipment**