

# CASE STUDY: Network Rail (Woodwalton)

MAY 2007 - OCTOBER 2007



## Embankment monitoring on rail network

### The challenge

Earthwork stability monitoring on a historically unstable and problematic site. Woodwalton is on the East Coast Mainline with three tracks, and overhead line equipment. The embankment is very high, and built on fen land, close to sea level. Significant remedial works have been undertaken in the past. Movement not only causes track geometry distortions, but can also affect the stability of the overhead gantries. This is a long site, of several hundred metres, with significant monitoring cost challenges.

The operational service impact of undertaking remedial maintenance work on such a site is very high, so accurate prediction of potential problems is vital.

The aim is to reduce inspection and maintenance cost and improve understanding of the site. Remote monitoring has the potential to reduce or eventually even replace manual inspection regimes. There is potential to correlate earth movement with overhead gantry movement, as well as weather.

Experimenting with easy and cheap to install shallow tilt monitors also has potential for much more wide spread and comprehensive monitoring than is possible with current higher cost solutions.

### The Senceive Solution

Half day installation of ~20 nodes on embankment and gantries – quick and easy deployment. Data collection via GPRS started the same day. Multiple measurements daily, accessible remotely via secure web site

### Our Findings

The dynamics of the embankment resolved to daily basis. The potential for wider deployment of 'light weight' shallow tilt meters for early indication of possible problems was clearly demonstrated. Moreover 'network intelligence' – cooperating nodes - was able to show possible early indications of landslip.

