



Customer

Strukton Civiel
(www.struktonciviel.com)

Location

The Netherlands, Amsterdam
(North-South Line)

Date of delivery

Augustus 2009

Summary

- Designing and taking a unique monitoring system into operation for specific existing problems
- Installation, connection and configuration of the systems
- Product created in close cooperation with Strukton operating companies

Building pit monitoring **Amsterdam**

Strukton Systems developed a building pit monitoring system on behalf of Strukton Civiel. The system provides early warning if activities pose a potential threat to the construction environment, enabling preventative measures to be taken to avert possible damage to surrounding structures.

Strukton Civiel is responsible for part of Central Station within the scope of the North-South Line project in Amsterdam. The huge building pits created under the monumental Central Station building and the rail yard make it essential to monitor developments under the ground during construction work.

Construction activities can lead to unwanted ground subsidence causing damage to structures in the immediate vicinity of the building pit. The railway station also has to remain fully operational during construction and account must be taken of the consequences, including compressional waves generated by arriving trains.



The building pit monitoring system consists of a central industrial computer linked to sensors. These sensors consist of force sensors in water gauges used to measure the groundwater level and SAAF (Shape Accel Array Field) sensors capable of measuring soil creep up to a ground depth of approx. 30 metres. Barometers register the compressional waves inside and outside the surrounding buildings.

The central computer issues an alarm signal if predetermined levels of soil creep or groundwater are exceeded. Acoustic warnings and flashing lights then alert the people in the building pit to the registered deviations.

The data is stored in a robust central computer, which is housed in a specially constructed waterproof casing. The system components are equipped to operate at high temperatures. They are also resistant to electrical voltage peaks, generated by strong electromagnetic fields. Because of its special uninterruptible power source (UPS) – resistant to high temperatures – the system is capable of compensating for input power interruptions of up to two minutes.



Mobile measurement case



Barometer



Soil creep sensor

Strukton Systems' building pit monitoring system is unique because it measures potential soil creep deep beneath the surface as opposed to only in and around the surrounding buildings. As such, it serves as an early warning system in cases where activities could pose a danger to the environment, making it possible to take preventative measures to avert any damage to surrounding structures.

