Monitoring construction shopping center Belfast, Northern Ireland

Subject:	Monitoring Construction Shopping center
Project reference:	1304-0053-001
Location:	Belfast, Northern Ireland
Client:	FGA Victoria Square Basement
Client type:	Contractor
Period:	2004-2007
Turnover:	€ 1.087.000,-

In the center of Belfast a new shopping center is realized. The realization of a parking cellar with a total depth of 10 meters below surface level is an important part of the shopping center. A sheet pile wall with a depth of 18 meters is placed with his toe in the sandstone. After installation of the sheet piles the building pit is dug to a depth of ten meters. To make the digging possible the water table is lowered. Sophisticated monitoring is done to avoid damage and nuisance to the construction site and the adjacent buildings. To monitor deformation of the sheet pile and the soil around the pit during the excavation an extensive monitoring system have been placed.

Automatic inclinometers have been installed to the sheet pile and on a large amount of building in the surrounding of the building pit. A large number of piezometric standpipes are installed to monitor the groundwater level and water quality. A network of inclinometers, radio tilt sensors, leveling studs on buildings, leveling studs on roads and fissure meters are installed round the building site.

The measurements are sent wireless and automatically to a computer on the building site. The data is collected and processed by a custom made on-line program and stored in a database. The information from this database is available in tables and graphs. The manual measurements are inserted in the same database. If settlements, tilts or deformation of the retaining wall exceed a maximum acceptable value, the system will generate an alarm message via SMS.

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