

# UNDERGROUND WATER STORAGE TANKS

BLACKPOOL - ENGLAND

## Automatic monitoring of the diaphragm wall of an underground water storage tank during the release of the water pressure in the tank base

In 1994, NorthWest Water launched 'Sea Change'; a government sponsored programme of coastal improvements to meet the stringent requirements of the European Union Bathing Water Directive.

Blackpool and the adjoining Flyde coastline have eight beaches designed for bathing by the European Union. It is said to be Europe's largest resort. Four years ago, all of Blackpool's raw sewage, approximately 570M litres a day, flowed untreated into the sea from short outfalls close to the town beaches.

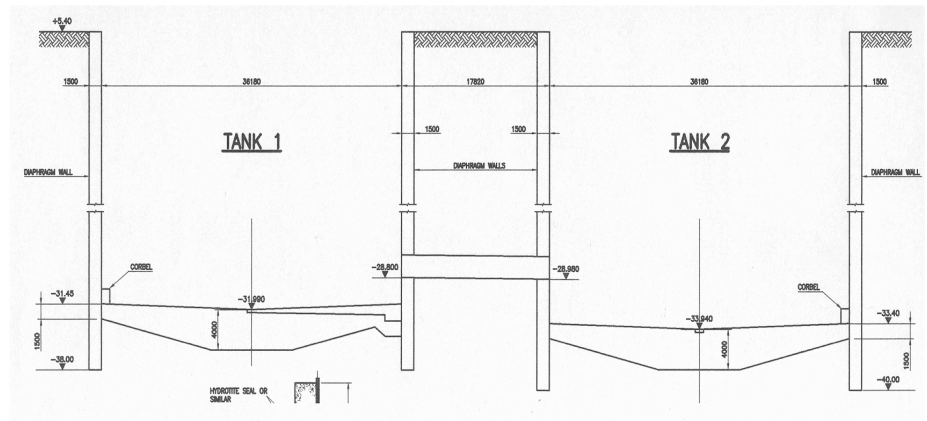
The project involved laying a 14km sewer beneath Blackpool's seafront to intercept all of the outfalls and re-route all the raw effluent north to a new treatment plant at Fleetwood.

A series of five new storm water-holding tanks were constructed, increasing the storm water capacity along the coast by 166,000m<sup>3</sup>, to retain and treat excess water after the main storm flow has passed through.

The design engineers were concerned about the potential flotation of Tank No. 2 once hydrostatic head re-established.

The purpose of the installed monitoring system was to warn engineers of any uplift recorded, via a combination of visual and audio alarms installed on the site.

Sol Data were approached by the client to design, supply and maintain an instrumentation solution that would continuously monitor the movement of the diaphragm walls of Tank No. 2.



Section indicating the layout of the two tanks



Cyclops monitors the tank's level & also the verticality of the adjacent diaphragm wall sections

Data from the Cyclops was transmitted via a simple cable network to an office based PC, pre-installed with SolData's Geoscope data acquisition software, providing graphic displays of the current data in near real time. Geoscope would also trigger on-site alarms for any displacements exceeding preset levels.

OWNER :	NORTHWEST WATER
CONSULTANT :	W.S. ATKINS
DATE OF WORKS :	JULY 1999 - SEPTEMBER 1999
<b>WORKS CARRIED OUT :</b>	
<ul style="list-style-type: none"> <li>• Installation of one CYCLOPS, monitoring and alarms</li> </ul>	