



## Tank Strengthening - External Post-Tensioning

Anglian Water Tanks, Salt Fleet Treatment Works, Lincolnshire

**Client**  
Anglian Water Services Limited

**Consultants**  
Mott MacDonald

**Principle Contractor**  
Skanska / Freyssinet Ltd

**Value**  
£150,000

**Works Commenced**  
March 2007

**Works Completed**  
March 2008



Catastrophic failure of a sewage treatment tank at the Salt Fleet Treatment works, Lincolnshire, resulting in sewage being released on to the surrounding grounds and a 7 metre high tank collapsing outwards.

The system with which the precast tanks had been originally post-tensioned had suffered early corrosion due to detailing and installation issues.

Following this incident the HSE proposed to modify the remaining tanks, which were of similar construction, in order to prevent future failures.

Anglian Water Services appointed consultants Mott MacDonald to conduct investigative works and design a temporary solution to stabilise the tanks. The original proposal was to strengthen the tanks which ranged from 3 to 7 metres in height, and from 8 to 37 metres in diameter.

Mott MacDonald approached Freyssinet to assist with this process, and Freyssinet undertook the removal and replacement of the existing internal tendons to allow testing of the extracted strands to take place.

An externally bonded PT solution was developed utilising Freyssinet's X anchor system and 12.7mm greased and sheathed Bridon Dyform tendons, which maintained the structural integrity of the tanks and enabled Anglian Water to keep them in service.

Freyssinet carried out the installation and tensioning of 15.7mm diameter external straps to 3 post tensioned tanks.

Exclusion zones were maintained around the tanks to ensure the safety of all concerned during the installation of the new tendons and the release of the old ones.

Despite the logistics involved with the remote location, the project was completed within the proposed timescale and on budget, leading to additional phases being negotiated with Anglian Water Services.

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