

Beckton STW Shaft Construction

Beckton

Extensive work is being carried out to upgrade London's ageing sewage network.



The project

The discharge shaft was to be excavated at Beckton Sewage Treatment Works. Grouting was used to reduce the permeability of the chalk below the shaft to mitigate ground water inflow during excavation.

The challenge

The site investigation indicated the grouted zone included fissured structured chalk of variable grades with structureless chalk towards the top. Descending stage grouting was selected to minimise the risks associated with unstable ground during drilling and grouting. The permeability of the ground and the grout injection volumes were assessed during the works and an observational approach used to tailor the methodology to best suit the ground conditions encountered.

The solution

A total of 21 boreholes were drilled and grouted using microfine cement in three stages from 44m to 35m below ground level. The grout injection volumes were assessed and, where appropriate, revised to suit the ground conditions encountered. The post-treatment validation tests confirmed that the permeability of the chalk had been reduced to less than the specified requirement of 1×10^{-6} m/s.

Project facts

Owner(s)

Thames Water

Keller business unit(s)

Keller UK

Main contractor(s)

eight20

Solutions

Groundwater control

Markets

Infrastructure

Techniques

Rock/fissure grouting

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