

CASE STUDY: Remediation: Application of Dewatering, Groundwater Treatment



Client: Nationwide Construction Firm

Site: Former Gas Works Site

As part of a high profile site redevelopment in the south west of England, significant remediation works were required to bring the site with a long history of town gas production back into use, as a riverside 200 home luxury residential development, part of a wider scheme of redevelopment fostering regeneration of the whole area.



The Environment Agency approved remediation strategy required extensive and deep excavation of significantly contaminated soils and groundwater and the removal of widespread former gasworks infrastructure including three large buried gasholder bases.

The proximity of the river, adjacent to the site created a very sensitive receptor for contaminants mobilised during the works and a shallow water table.

Geo² were contacted to provide a solution to the groundwater issues, in accordance with our mobile treatment license the dewatering and treatment system designed to be fully automated process removing the need for a Geo² site presence or dedicated staffing.

A surface mounted trash pump was used by site staff to fill a large, 40m³ settlement vessel, capable of ensuring suitable storage capacity to prevent delays to the groundworks.

The treatment system was designed to remove suspended solids, NAPL and significant contamination from the groundwater prior to discharge to foul sewer in accordance with the sewerage undertaker's requirements.

Treatment plant consisted of a 40m³ settlement tank with float sensor controlled operation, pumping to a three tier weir system, designed to eliminate NAPL. The final stage of this acts as a product separator, which collects phase separated product accumulating on the surface of the tank, for removal by licensed subcontractors. Float sensor controlled pumps, push the water through a sand filter, to remove any final sediment before filtering through three Granular Activated Carbon (GAC) vessels in series, which are capable of removing up to 99% of dissolved groundwater contaminants. Water drained under gravity from the GACs to the existing foul sewer infrastructure with approval of the drainage undertaker.

To ensure treatment quality was maintained frequent sampling and monitoring was undertaken to prevent blighting of the GACs, or breakthrough of contaminants into the discharge stream.

The total volume of abstracted groundwater pumped through the treatment system was over 1,200m³, excluding the generation of solids during the settlement process. Settled solids were disposed off via vacuum tanker, under supervision, by a licensed subcontractor. The total combined volume of DNAPL, LNAPL and suspended solids was approx 15,000 litres.

By implementing this technique, the client was able to avoid costly liquidated damages and delays to the groundworks programme. Due to the simplicity of use of the system, due to the automated operation this system proved to be an ideal and convenient solution to treat large volumes of liquids on demand.

