

## Case Study

### Thames Riverside, Staines

SDS treatment devices mitigate legacy ground contamination



Image kindly supplied by Big Yellow Self Storage and Mountford Pigott.

#### SDS Systems

SDS Aqua-Swirl® AS-2 Pollutant Separation System;  
SDS Aqua-Filter™ AF-X.1 Media-based Filtration System.

#### SDS Customer

Thamesbridge Construction;  
MCS Build (Principal Contractor).

#### Client

Runnymede and Surrey County Councils;  
National Highways (formerly Highways England);  
Big Yellow Self Storage.

#### Project

Thames Riverside redevelopment.

#### Purpose

To minimise the impact on the local environment from the redevelopment of contaminated land.

#### Brief to SDS

To provide effective and environmentally friendly treatment of surface water from the contaminated site.

#### Timing

Spring 2024. (Completion of build in September 2025).

#### Project Background Information

The £26 million redevelopment involves the construction of a business park on the south bank of the River Thames in Staines. Located on the Causeway, this is a mixed-use area reflected in the presence of large commercial buildings, office units and DIY stores, and interspersed with dense residential areas. The new business park will comprise a 'Big Yellow' self-storage facility of 64,000 ft<sup>2</sup>, as well as six units forming an Innovation Centre covering 6,000 ft<sup>2</sup>, and a further nine industrial units with a combined floor area of 100,000 ft<sup>2</sup>.

The 5.65-acre site is environmentally sensitive due to the presence of principal aquifers and its location within a groundwater Source Protection Zone (SPZ). Following the decommissioning of a gas works on the site in 1986, a gas holder was retained and used for the storage of

natural gas from the turn of the century until it was demolished in 2014, alongside the removal of overspill car parking serving Centrica's (formerly British Gas) office headquarters directly opposite the site.

During previous demolition works, which included the removal of existing hardstanding and relic foundations, an area of residual hydrocarbon contamination was discovered in the shallow soils. Due to the amount of material that would need to be removed for off-site disposal and following a detailed quantitative risk assessment to establish whether the contamination posed a significant risk to the underlying groundwater, it was determined that, despite the identification of elevated leachate concentrations of hydrocarbons, this material should remain in situ and untouched.

## Project Objectives

To mitigate the impact of contaminated land on surface water quality.

## Project Requirements

To address the risk of pollution to local waterbodies and the environment in general that is posed by the mobilisation of surface and underground contaminants by stormwater runoff.

## SDS Product Features

The drainage system has been designed to accommodate a 1-in-100-year storm plus an allowance of 40% for climate change, and to accept siphonic drainage from the main building's roof.

Replacing the pre-existing drainage system, which comprised of a gravel-filled interception trench cut across the top of the parking area and was reliant upon gravity for its supply of surface water runoff, the new SuDs strategy involves a combination of SDS treatment systems, underground attenuation tanks and complex flow control, supported by a planned schedule of maintenance.

## Issues Overcome

As a consequence of extensive site remedial works completed in 2016, a Land Quality Statement and Vapour Detailed Quantitative Risk Assessment, prepared by Campbell Reith in December 2021, was submitted with the planning application. This concluded a requirement for remediation of soils in one specific area to counter the potential for residual mobilised contaminants to have an adverse impact on groundwater quality. The development scheme was further required to address the site's position in a Flood Zone 2 and in a groundwater SPZ, and to meet the necessary compliance with Hazardous Substance Regulations.

In securing the approval of the Local Drainage Authority the design of the new drainage scheme satisfies the SuDS hierarchy and accords with the National Non-Statutory Technical Standards for SuDS, NPPF and Ministerial Statement on SuDS. Furthermore, the drainage works have been required to comply with the latest versions of Sewers for Adoption and BS EN 752 Drains and Sewer System Outside Buildings.

The project required the removal of an existing concrete interceptor drainage box and the safe disposal of the fluids that were contained within it. The existing outfall pipe to the box was connected to the new surface drainage system and any redundant pipe length removed.

## Results

The soft landscaping features across the site retain and enhance the green buffer along the River Thames, reinforcing the naturalistic edge of the development, whilst the new buildings and additional landscaping facing The Causeway greatly improve the character of this busy route in and out of Staines town centre.

**Ben White, Specification Manager, SDS, said:** "Big Yellow at Staines is the newest of over one hundred sites located in key conurbations around the UK. In keeping with the company's positive approach to sustainability the impact of the Staines site on the local environment and in particular any natural waterbodies was a fundamental consideration in the specification of a suitable stormwater treatment solution. The system we provided has enabled them to treat specific ground-based contaminants ensuring there is no risk of pollution."



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