

Case Study

South Sebastopol, South Wales

SDS GEOLight® and Weholite combine at Welsh residential development



Image kindly supplied by Taylor Wimpey.

SDS Systems

SDS GEOLight® Attenuation Tanks and Weholite Manholes.

Client and End Customer

Taylor Wimpey.

Project

“Edlogan Wharf” residential and mixed use development, South Sebastopol.

Purpose

To provide housing to support a growing population and bolster the local economies of Sebastopol and Cwmbran.

Brief to SDS

To prevent flooding of the development by surface water and protect multiple local water courses from pollution.

Timing

March 2020 (latest phase).

Project Background Information

‘Wren’s Nest’ is a 27-acre, third construction phase of the ‘Edlogan Wharf’ development, which lies within the Afon Lwyd valley in the borough of Torfaen. It is one of eight parcels of land in a 244-acre development which will take an estimated 10 to 12 years to construct and, upon completion, will comprise 1200 homes, a village green, sports pitches and play areas, cycle and leisure trails, allotments and extensive areas of green space including woodland and conservation grassland.

Project Objectives

To deliver a drainage system that ensures the site remains flood risk free, and to create new habitats for nature conservation, whilst still retaining the six existing streams and canal which traverse the site.

Project Requirements

To construct independent foul- and surface- water drainage systems, incorporating the use of SuDS to accept additional runoff from the road network.

Surface Water System Requirements

The catchment is relatively urbanised and receives approximately 1,150 mm of rainfall per year; it responds quickly to rainfall due to its steep, impermeable upper reaches and moderate urban area.

Surface water runoff is either discharged into the Canal or carried by one of the on-site streams to finally discharge into the main rivers of either the Afon Lwyd or the Blaen Bran.

The SuDS system is required to ensure that, despite the redevelopment of the former grass and woodland to impermeable areas, the hydrological status quo is retained. This means that the rate and volume of surface water runoff leaving the development should be no greater, and its quality no poorer, than before the new development occurred.

Matt Tinsley, Project Manager, Taylor Wimpey, said: *"We have been working with SDS on this project for a number of years now and will continue to do so until the site is completed in six or seven years' time. We appreciate the way in which the SDS team takes responsibility not only for ensuring the delivery of every aspect of their involvement but also for always going the extra mile to help us resolve issues on-site that sit outside of their control."*

SDS Product Features

Multiple GEOLight® storage tanks, totalling in excess of 8,000m³ capacity, have been installed over the past five years. In the most recent phase of construction, excess surface water is captured by two GEOLight® tanks, together capable of storing over half a million litres, which can be accessed by three 1.5 metre diameter Weholite HDPE manholes, positioned at each end, and in the centre, of the two attenuation tanks.

Whilst pre-existing streams and canal habitats have been retained, the construction of new balancing ponds and swales provides additional attenuation features, whose natural bio-cleaning mechanisms are expected to break down any hydrocarbon pollutants.

Issues Overcome

A survey of the site's geology revealed that the scope for natural infiltration of surface water was limited. Investigations also indicated a requirement for mitigation measures on some of the streams, without which several of the development areas would be at risk of significant sewer flooding from extreme rainfall events. Consequently construction of the drainage system was required early in the build programme in order to quickly counter this risk.

