Case Study

Berewood Phase 1, Hampshire

SuDS protect 500 acre development from flooding

SDS Systems
SDS GEOlight® Attenuation Tanks.

SDS Customer
Careys.

Client
Grainger plc; Hampshire County Council.

Project
Berewood mixed use development.

Purpose
To provide a high quality, sustainable community that integrates positively with its environmental context.

Brief to SDS
To integrate best-in-class, below ground hard engineered Sustainable Urban Drainage Systems (SuDS) with above ground soft SuDS amenities.

Timing
Construction of the development began in 2012 and is scheduled to continue until 2021.

Project Background Information
The 500 acre "Newlands" residential development at Berewood, Hampshire, is the largest of its type in the UK and, once completed, will accommodate over 2,500 homes, supported by a range of amenities and around 100,000m^2 of employment land.

Project Objectives
To minimise the site's impact on its natural surroundings and deliver ecological benefit to the locality.

Project Requirements
To provide both pollution and flood prevention services whilst creating a new wetland resource of substantial ecological and amenity value.

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Surface Water System Requirements

Phases of consented land are being released to house builders only after the supporting infrastructure has been installed, for which SuDS are considered a priority. As each phase is launched, further SuDS will be installed, with developers integrating the existing surface water drainage scheme into each of the housing and commercial packages.

SDS Product Features

SDS has worked closely with Consulting Engineers, Mayer Brown, to establish the key design criteria for the site's sustainable drainage systems. This has resulted in the adoption of a "SuDS management train" approach, whereby a series of drainage techniques are used to change the flow and quality characteristics of the runoff in stages. Surface water runoff from the roads and the housing development construction site is first cleaned through ditches and swales before entering SDS's purpose built attenuation tanks, along with the water received from numerous water features.

Capacity

To date 3 tank systems, with a combined capacity of 4,800m^3, have been installed to support the infrastructure of the site.

Issues overcome

SDS has designed and engineered a pioneering method of installation in order to accommodate the unique complexities of the site, that are associated with a clay dominated soil, including a very high water table. It has also been a requirement of the hard engineered features of the scheme, as specified by SDS, that they are capable of performing their role of controlling water quality and volume not only upon final completion of the development but also during its 10 year period of construction, i.e. before the natural SuDS elements can be fully established, and with a substantially higher level of water-bound contaminants than might normally be expected. Water leaving the SuDS system has been test proven to be of a higher quality than the watercourse into which it is being discharged.

John Beresford, Development Director, Grainger plc, said: *"By master-planning and installing necessary Infrastructure at the very beginning, we have future-proofed our community at Berewood, making it more resilient to the horrid weather we have seen recently. The result is that in spite of the worst rainfall for 150 years the land at Berewood has never looked drier."*

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