

Case Study

DIRFT, Daventry

SDS installs multiple stormwater treatment systems



SDS Systems

SDS Aqua-Swirl® Separators, GEOLight® Attenuation Tanks and Flow Controls.

Client

Winvic Construction.

End Customer

Prologis.

Project

Multi-million pound development and extension of road and rail freight distribution terminal.

Purpose

To provide the infrastructure required to meet the next stage in the terminal's growth.

Brief to SDS

To ensure the site remains flood risk free and to prevent the pollution of local water courses.

Timing

This third phase of the Centre's development programme commenced in 2015.

Project Background Information

Daventry International Rail Freight Terminal (DIRFT) is a rail road intermodal freight terminal with an associated warehousing estate located near Crick in Northamptonshire. It is the largest rail-linked logistics development in the UK and is widely recognised as Britain's most successful Strategic Rail Freight Interchange (SRFI).

Phase III is a 7.5 million square feet extension, planning permission for which was granted in July 2014; as well as rail-served warehousing it also comprises a parking facility for 300 Heavy Goods Vehicles.

Project Objectives

To effect the fast and efficient removal of surface water from the site and to ensure its safe dispersal to natural water receptors.

Project Requirements

To ensure that the site complies with all current and anticipated future environmental regulations, through the prevention of surface water and groundwater pollution in accordance with the objectives of the Site Plan and the National Planning Policy Framework.

Surface Water System Requirements

Of particular importance to this project was the ability to satisfy new best practice guidelines for surface water quality treatment and to offset the pollution indices that were attributed to Phase III's development.

The project site was broken down into two Plots, the first of which involved the installation of 500m³ of GEOLight® storage tanks, together with two SDS Aqua-Swirl® AS-4 hydro dynamic Vortex Separators with the ability to cleanse the water at a rate of 91 litres per second.

A second set of tanks, with a combined storage capacity of 1,000m³, was installed a few days later, including a catch-pit manhole with a sump, and connected to a Flow Control Device. This second Plot also included both an SDS Aqua-Swirl® AS-2 and SDS Aqua-Swirl® AS-3 Separator, with water cleansing capacities of 31 and 51 litres per second respectively.

SDS Product Features

SDS Aqua-Swirl® has recognised certification (in the form of US NJDEP/NJCAT) having been proven to achieve reliable and sustainable performance in both field and laboratory based testing programmes. SDS Aqua-Swirl® effectively removes suspended solids and associated metals and hydrocarbons from the stormwater and retains them pending collection, thus removing those pollutants from the water environment. The retained solids are easily removed using a vacuum tank and specialist equipment is not needed.

Capacity

The SDS Aqua-Swirl® separators are designed to remove more than 80% of the total pollutants in the surface water runoff volume. Models AS-2, AS-3 and AS-4 each possess oil/debris and sediment storage capacities of 140 litres and 0.28m³, 416 litres and 0.57m³, and 719 litres and 0.91m³ respectively.

The SDS GEOLight® geo-cellular attenuation tanks on this site have the combined capacity to store up to 1,500m³ of water that has already been treated.

Issues Overcome

Latest SuDS guidance requires planners to incorporate the management of the SuDS water quality devices into their designs. This can be facilitated by specifying manufactured devices upstream of vegetative devices so that proactive scheduled maintenance can be carried out quickly and easily. SDS Aqua-Swirl® has the capacity to limit the amount of silts and attached pollutants from building up in the upper layers of a wider SuDS system and to mitigate against the ability of pollutant bioaccumulations to remobilise in the event of a surge of water, such as after a torrential downpour.

SDS Market Development Manager, Jo Bradley, who, for 25 years, specialised in water quality and pollution in her role at the Environment Agency, worked closely with the project's appointed Civil and Structural Engineering Design and Environmental Consultancy, RPS Group, in order to assign representative pollution mitigation indices to the Aqua-Swirl® products. National (CIRIA) SuDS guidance has to date only included mitigation indices for vegetative SuDS; no figures exist for engineered systems hence the work undertaken for this project sets a landmark for this much needed development.

Wayne Llewellyn, Principal Engineering Co-ordinator, RPS Planning & Development, said: *"The ability to meet new best practice guidelines on the quality of surface water runoff was a primary objective of this project. We worked closely with SDS to understand how their stormwater treatment products can deliver suitable water quality improvements; this allowed us to illustrate that the 'pollution hazard' associated with the site was adequately mitigated by the specified treatment devices."*

