

## SuDS set the scenery at services

*ACO helps create striking SuDS-based landscape at M40 service area.*



Heralded as one of Europe's most attractive motorway service areas, the M40 services at Beaconsfield owes its lakeside setting to a fully integrated sustainable drainage system ([SuDS](#)) created using a number of products developed by [ACO Water Management](#). Collecting surface water from all hardstanding areas across the 64,000m<sup>2</sup> site, the system first removes all particulates and hydrocarbons from the run-off before discharging to the woodland-edged lake at the rear of the main services building which acts as a retention pond controlling the eventual safe release of water into an adjacent stream.

Beaconsfield services are the forth to be opened on the M40. Currently the largest in the UK, the services offer a wide range of amenities, including a hotel and business centre, alongside zoned parking for over 700 cars, HGVs, caravans and coaches.

Central to the £60million development of the site – which fringes on environmentally sensitive

ancient woodland – was the need to preserve the delicate ecology of the surrounding countryside. For the drainage design team from infrastructure specialist, Ramboll UK Ltd, this meant realising an ambitious SuDS scheme that could effectively and safely manage potentially high volumes of oil contaminated run-off.

### **Project:**

M40 Beaconsfield Services.

### **Objective:**

To create a fully integrated sustainable drainage system (SuDS) to manage surface water run-off from all hard standing areas across the site.

### **Brief:**

1. To realise an ambitious SuDS scheme using a range of ACO products as a means of conveyance to the retention pond which controls the safe release of water into the adjacent stream.
2. Installation of an ACO drainage scheme to meet the Load Class environment, the ground conditions of the site and to optimise the speed of the surface water removal, thus reducing overall construction time and cost.

### **Solution:**

Interlinked runs of ACO MultiDrain M100D fitted with cast iron gratings installed in the main 675 space car park. ACO combined KerbDrain 305 and KerbDrain 480 edging the HGV, caravan and coach park. ACO S100 cast iron drainage channels installed on the filling station forecourt.

“With a restricted discharge rate to the stream, the greatest design challenge was to provide sufficient attenuation capacity for cleaned surface water within the system,” says Dan Harvey, Project Director from Ramboll UK Ltd. “Rather than using below ground storage, we had sufficient space to accommodate a large retention pond. Not only would this add a unique aspect to the landscape, attracting local residents and non-motorway users to the facilities, but it would help increase the biodiversity and long-term sustainability of the area by providing a new habitat for a wider variety of species.”

### Speed of surface water removal

Within each discreet traffic and parking area, Ramboll has selected an ACO drainage system appropriate to the ground conditions and Load Class environment. Value Engineered to minimise below-ground infrastructure, each run optimises the speed of surface water removal and is configured to simplify construction of the surrounding pavement – reducing overall construction time and cost.

Through the 675 space passenger vehicle car park located in front of the main service building, interlinked runs of [ACO MultiDrain M100D](#) fitted with cast iron gratings have been installed. The finish complements the façade of the structure

and the secure Drainlock™ bar-less locking system fitted to each grating section prevents any lift or lateral movement – an important safety benefit in such a busy pedestrian and vehicle area.

Edging the HGV, caravan and coach parking areas is the mid and high capacity combined kerb drainage systems, [ACO KerbDrain 305 and 480](#). Certified to Load Class D 400, ACO KerbDrain is the only one-piece combined kerb drainage system to carry the British Standard Kitemark™.

All KerbDrain units are manufactured from Vienite™, ACO’s high strength, sustainable material that meets the environmental and sustainability targets for construction products. Vienite’s high durability characteristics make it four times stronger than traditional concrete. It also has a low rate of water absorption, is resistant to freeze-thaw attack and has excellent chemical resistance.

Heavy duty [ACO S100](#) cast iron grated drainage channels form a separate surface water management network across the filling station forecourts – the largest of their kind in the UK. Collected run-off, which carries a potentially higher concentration of hydrocarbons, is directed to a dedicated separator tank which discharges to a settlement and infiltration pond close to the service station entrance.



*The M40 services at Beaconsfield owes its attractive lakeside setting to a fully integrated SuDS scheme created using a range of ACO Water Management products.*



## ACO Water Management

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