



ENVIRONMENTAL



FLOOD RISK



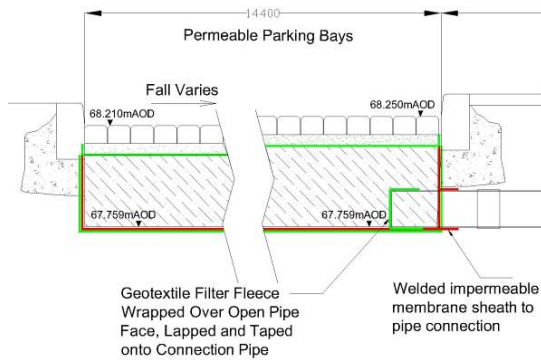
DRAINAGE



ECOLOGY

# Enderby Park & Ride SuDS Design

Leicestershire County Council



## Project aims

Design of a sustainable drainage system (SuDS) to drain, treat and attenuate runoff from a large new park & ride development in Enderby, Leicester.

The key aspects of this study included SuDS conceptual design, detailed design, hydraulic and structural design of car park.

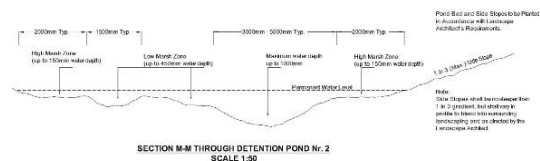
## Project summary

The overall site covers 6ha and, as soakage tests showed that infiltration drainage was not a viable option at the site, discharges were restricted to the pre-development greenfield runoff rate of 24.4 l/s.

The site is generally sloping and the car park was designed to drain via permeable block paving, which provides the primary means of collecting, treating and attenuating runoff as a source control system. The

parking bays were designed as a series of tiers with open-graded subbase depths that were sufficient to contain the 1 in 100 year plus climate change runoff without surface flooding. The subbase zones were lined with impermeable membrane to create a series of 'tanks' below the parking bays, which were interlinked and independently throttled via a series of flow control devices.

Flows from the permeable pavements were subsequently routed via filter drains to provide conveyance and a second phase of treatment. Finally, all flows leaving the site passed through a detention pond to provide a third phase of treatment. The detention pond was also designed to provide ecological enhancement and biodiversity benefits to the overall scheme.



The car park SuDS system is designed to attenuate runoff from the 1 in 100 year plus climate change event.

In addition to achieving management of surface water volumes, the SuDS design provides a high degree of treatment while retaining a shallow construction system.

