

# Case Study 06

## Bristol Business Park

February 2015

### Location

Bristol Business Park (North Bristol)  
Coldharbour Lane, Bristol, BS16 1EJ

### SuDS Used

Permeable paving, swales, wet detention ponds, control feature

### How it works

The office business park is on the brow of a hill with runoff dispersed into 4 catchment areas. The phased development comprises buildings generally between 1000m<sup>2</sup> and 2000m<sup>2</sup>.

Phase 3 of the development includes 1.2ha of permeable paving which discharge to swales which run to a conventional gravity piped system conveying earlier phases conventionally paved through a wet detention pond and hydrobrake control feature, to discharge into an off-site watercourse. Later phases include permeable paving which either discharge to an off-site watercourse or a surface water sewer.



### Specific details

The car park areas are surfaced by both permeable and impermeable paving with a porous sub-base layer throughout. Runoff from impermeable areas is channelled to the permeable areas and into the sub-base layer. Roof downpipes

discharge through accessible silt traps into shallow branching pipe arrangement to aid dispersal. Due to concerns over clay heave/shrinkage, an impermeable liner below the subbase was provided and discharge pipes convey runoff to swales.



## Benefits and Achievements

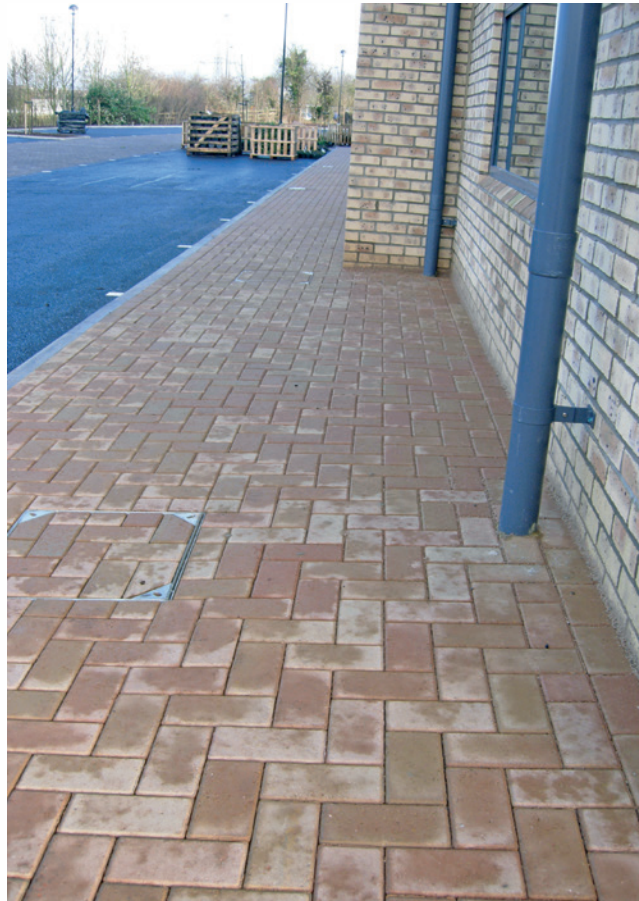
The permeable paving minimised loss of land to detention ponds and satisfied the planning policy of the local authority. The Developer was also keen to have high quality landscaped ponds in prominent locations and the swales have developed into visually interesting areas, encouraging biodiversity. Inspections of the outfalls during heavy storm and following prolonged periods of heavy rain reveal the level of attenuation achieved.

## Challenges

Care was needed to avoid contamination of the system at all stages of construction especially from sand and topsoil. The permeable paving required careful programming on site and early installation of services and drainage.

## Maintenance

When the SuDS system was initially installed in 2008 the proposed maintenance was to avoid weed growth between blocks and vacuum brushing once a year plus maintaining the landscape areas. Since its installation maintenance issues arose with the main swale as it became overgrown with reeds, making it difficult to maintain and to observe the outlet, which tended to block frequently with vegetation.



To rectify this issue, the reeds were cleared and replaced with grass slopes. The permeable paving has received little maintenance with some areas developing moss between the joints. However, there has been no evidence of ponding or flooding, illustrating its resilience and indicating that the permeable paving is still working effectively.



## Team and Details

**Design and Construction** – The principle design was undertaken by the Client

**Architect** – AWW

**Engineer** – Arup

**Completion** Phase 1 completed in 1994, phase 4 completed in 2003 and phase 5 was completed in Spring 2008.