Designing and delivering permeable surfaces

A presentation by Bob Bray
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SuDS mimics nature

The impermeable landscape

The permeable landscape
Early days – nature’s way

Designing for Pollution Prevention

Oxford MSA M40
The permeable pavement concept

- Collects
- Cleans
- Stores
- Conveys
- No dedicated space
The basics

- Sub-grade – CBR dictates bearing capacity
- Permeability – store or infiltrate or both
- Sub-base – mimics the ‘Roman Road’ – no fines
- Bedding layer – hard grit 2-6mm over 4-20mm stone
- Block layer – 60/80mm standard strength block
- Shaped joints – interlock and grit lock
- Permeable joints – 10-20 year joint life
Permeable pavement profile

Raised impermeable footway and service corridor with surface channel - DETAIL 1

Permeable pavement option - DETAIL 2

Raised kerb - DETAIL 3

Permeable block paving - infiltrating - DETAIL 4

Flush edge to impermeable surface and sub-base - DETAIL 5

Permeable block paving - lined - DETAIL 6

Impermeable surface with voided sub-base for additional storage - DETAIL 7

Raised kerb with grass edge and outlet - DETAIL 8

Car parking on permeable pavement

Tarmac roadway

1 in 60

450 mm of voided stone

PERMEABLE PARKING WITH TARMAC ROAD ACCESS AND VOIDED SUB-BASE STORAGE

Sub base can be lined to form a tank

Water can be recycled
Examples

Riverside Court

Springhill

Fort Royal School
Riverside Court, Stamford

106 units/hectare – urban housing
A Permeable development
- sometimes no runoff at all
Civic re-development - Parkside, Bromsgrove

‘invisible SuDS’
– SuDS in the construction profile
Parkside Court, Bromsgrove

a civic space for Bromsgrove
Parkside Bromsgrove

SuDS for people – ‘sponge’ development
Enhancing storage

30% storage raised to 95% with protected sub-base replacement boxes
Hazeley School
Hazeley School

Permeable car park collects, cleans and stores runoff
Permeable pavement on a slope

SuDS designed to protect amphibian population - Newtopia
Australia Road

innovation – storage in raingardens
Thank you!

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