



Submitted by post and email to: suds@defra.gsi.gov.uk

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Defra
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Dear Sir/Madam

Consultation on Delivering Sustainable Drainage Systems - 2014

I am writing to submit Interpave's response to the above consultation.

Interpave is the Precast Concrete Paving and Kerb Association, promoting and developing concrete block paving, paving flags and kerbs - ranging from domestic uses to the most taxing heavy industrial applications. Interpave represents the UK's leading manufacturers and is a product association of the British Precast Concrete Federation Ltd (BPCF). Interpave is the driving force behind the development of concrete block permeable pavements (CBPP) as a SuDS technique in the UK, with an extensive information resource available via www.paving.org.uk.

The following responses and comments reflect the views of Interpave's membership and also those of SuDS consultant Steve Wilson of EPG (also currently working on both the CIRIA SuDS Manual and the drafting of British Standard BS 7533 -103 Permeable Pavements - Code of Practice for the design and construction of permeable pavements surfaced with modular paving units). It is expected that this standard will replace the existing standard BS 7533 - 13 mid 2015.

Q1. Do you agree that the proposed revision to planning policy would deliver sustainable drainage which will be maintained? If not, why?

Answer 1: No, for the following reasons.

1a. Interpave welcomes the proposal and any other steps that would lead to further integration of multifunctional SuDS with the master-planning and design of developments, and the wider planning process, in line with the Code of practice for surface water management BS 8582:2013. However, indications are that **some** local planning authorities are already failing to follow existing policies or regulations and may continue to do so. Therefore, additional legislative intervention is needed.

As the consultation proposal states, SuDS have been a part of national planning policy for some time. Nonetheless, the July 2014 Committee on Climate Change ASC Progress Report points out that: "*Less than half of the planning applications we reviewed considered sustainable drainage. This raises questions as to whether a*

large proportion of local planning authorities are following national planning policy on SuDS.”

Furthermore, definitive requirements for permeable surfaces were put in place in Permitted Development rules for households (and, in 2010, for non-domestic properties). Nonetheless, the ASC report observes that: *“The low uptake of permeable paving in front gardens suggests that planning regulations for households that have been in place since 2008 are not being enforced by local councils.”*

1b. The consultation refers to The Pitt Review, which concluded that SuDS are an effective way to reduce overloading of public sewers by delaying entry and reducing the volume of runoff entering sewers. Probably the most effective way of achieving this is by providing ‘interception’ or source control.

Concrete block permeable paving is a proven, cost effective and practical way of providing interception and has been used successfully on thousands of new development sites in the UK. It has been used in a whole range of developments from housing through to large commercial sites.

The consultation proposal relies on the current draft of the National SuDS Standards. However, this draft has had the requirement for interception removed, which will seriously reduce the impact of SUDS on flooding of sewers, is no different to the current situation and does not help deliver effective SuDS.

1c. In any event, we consider that the proposals for maintenance would not be effective (see also Answer 2).

Q2. How should the Local Planning Authority obtain expert advice on sustainable drainage systems and their maintenance? What are the costs/benefits of different approaches?

Answer 2: The ‘expert advice’ can only be consistently reliable and locally appropriate if available from within the local authority - in effect by still requiring each authority to set up an SAB or similar internal resource. This would mirror current approaches to other specialisations such as highways and conventional drainage. It will also provide the means to manage the SuDS assets in an area. It is vital for long term maintenance that an organisation has a complete list of SUDS assets in an area and who is responsible for the maintenance of the different parts of the systems.

Q3. What are the impacts of different approaches for Local Planning Authorities to secure expert advice within the timescales set for determining planning applications?

Answer 3: no comment.

Q4. Do you agree that minor size developments be exempt from the proposed revision to the planning policy and guidance? Do you think thresholds should be higher?

Answer 4: No, for the following reasons.

4a. The proposed exemption for smaller developments fails to recognise the well-recognised cumulative effect of such developments. Similarly, urban creep has a big impact on the capacity of sewers and the main cause of this is minor extensions. There is no technical reason why smaller developments should be exempt. These types of development can be easily provided with SuDS using permeable pavements.

4b. The cumulative effect of the loss of small areas of garden to driveways on runoff is already well known and clearly legislated for, applying to hard surfaces over 5m². There is no logical reason to propose a larger exemption for new developments, which would further erode the already poor application of the extant Permitted Development regulations. We recommend that the proposal apply to all developments.

Q5. What other maintenance options could be viable? Do you have examples of their use?

Answer 5: Adoption by local authorities, as current arrangements for highways and conventional drainage (see Answer 2).

Q6. What evidence do you have of expected maintenance costs?

Answer 6: the following response relates only to concrete block permeable pavements, on which Interpave provides definitive industry guidance.

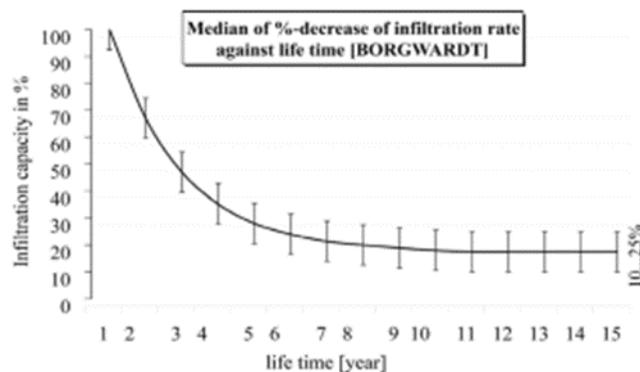
The maintenance requirements for CBPP have been well researched both in the UK and overseas. DEFRA's own study by WSP in 2013 found that the evidence shows permeable pavements rarely clog completely. The summary of maintenance requirements from the report for permeable pavements is provided below.

Annual maintenance						
Weed control	/100m ²	£1.10	0.5	£0.55	SPONS External Works and Landscape 2013 p309 mass spraying hard areas plus chemical costs page	2013
Vacuum sweeping of paving	ha	£48.48	1	£48.48	Cost from Swindon Borough Council estimate	2010
Periodic maintenance						
Heavy duty sweeping to remove clogged jointing material	ha	£75.00	0.04	£3.00	Note it was previously believed that the blocks would have to be lifted, cleaned and relaid every 25 years. More recent experience has shown that the silt is trapped mainly in the upper parts of the joints and that clogged pavements can be restored using heavy duty	2013
Re apply new jointing material and vibrate into joints	m ²	£1.33	0.04	£0.05	3mm quartzite grit at a rate of 6kg/m ² (25kg bag will do 4m ²) and blocks vibrated after grit is placed. 1 ganger and 1 skilled operative plus whacker plate - re joint 100m ² per hour	2013
Annual maintenance costs						

Frequency per year - where interval is greater than one year value in column above is 1/frequency

The annual cost for maintaining each 100m² of permeable paving surface is about £6-00.

Several studies (e.g. NC Cooperative extension 2011) have shown that the dust and silt that causes the surface of permeable paving to clog up is trapped in the top part of the joints between blocks. One of the most extensive studies on the long term performance has been carried out by Borgwardt (2006). The results indicate that CBPP lose between 70% and 90% of their as new surface infiltration rate over the first few years of use (Figure below).



Long term surface infiltration rates for concrete block permeable paving

After that time the infiltration rate levels of CBPP remains effectively constant. Because the 'as new' infiltration rate is so high, even this reduced capacity is 1270mm/h which is far greater than rainfall events the systems are expected to cope with. The ICPI add a further factor of safety and recommend that a long term infiltration rate of 250mm/h is adopted when assessing designs using CBPP (ICPI 2011). All the concrete block permeable paving currently on the market achieves an infiltration rate of 250 mm/hr in use. Similar curves to those reported by Borgwardt have been published by Beecham et al (2010).

What this means in practice is that silt can be occasionally removed by sweeping and if the pavement does clog up completely it can be regenerated using sweepers, as found by the Transport Research Laboratory (TRL 2010). Extensive experience suggests that sweeping once per year should be sufficient to maintain an acceptable infiltration rate on most sites. However in some instances more or less sweeping may be required and the frequency should be adjusted to suit site-specific circumstances. There are examples of 10-year old pavements that have not been swept regularly but that are still working effectively. A brush and suction cleaner, which can be a lorry-mounted device or a smaller precinct sweeper, should be used for regular sweeping.

If a permeable surface becomes completely blocked (e.g. mixing concrete on the surface) some types of surfacing are easier to repair than others. For example CBPP units can be lifted, the joint and bedding replaced and the paving units re-laid with minimal disruption.

In summary, permeable pavements do not need any special maintenance regime, but should be maintained in a similar manner and frequency to conventional asphalt pavements.

References:

Beecham S, Lucke, T and Myers B (2010) Designing porous and permeable pavements for stormwater harvesting and re-use. Diss. International Association for Hydro-Environment Engineering and Research, 2010.

Borgwardt S (2006) Long-Term In-Situ Infiltration Performance Of Permeable Concrete Block Pavement, in Proceedings of the 8th International Conference on Concrete Block Paving, Interlocking Concrete Pavement Institute, Washington, DC

ICPI (2011) Permeable Interlocking Concrete Pavements Manual - Design, Specification, Construction, Maintenance (4th Ed.)

NC Cooperative extension (2011) Maintaining permeable pavements. Urban Waterways. State University and A&T State University

TRL (2010) A pilot scale trial of reservoir pavements for drainage attenuation. Published Project Report PPR 482. December 2010.

Q7. Do you expect the approach proposed to avoid increases in maintenance costs for households and developers? Would additional measures be justified to meet this aim or improve transparency of costs for households?

Answer 7: no comment.

If you have any queries or require further clarification of the above, please do not hesitate to contact me.

Yours faithfully,



Colin Nessfield
Secretary
Interpave