



Hampshire
County Council

Economy, Transport and Environment Department

Interim Technical Guidance Note ITG6-4 – Permeable Pavements

Revision	Date of Issue	Amendment Description	Prepared By	Approved/ owned by
0	14/03/22	Initial Publication	Kathie Murray	David Ryder

Stuart Jarvis BSc DipTP FCIHT MRTPI
Director of Economy, Transport and Environment, The Castle, Winchester

CONTENTS

1. Interim Guidance	3
2. Further Support	7

1. Interim Guidance

- 1.1. Hampshire County Council are currently developing Technical Guidance Note TG6-4 which will detail the adoptable standard requirements for permeable paving within the local highway network. This interim Guidance Note details the basic requirements that HCC will require when considering adoption of permeable paving.
- 1.2. If intending to propose permeable pavement as part of proposed drainage strategy adoption, you should liaise with HCC at the earliest possible opportunity to review the suitability of permeable pavement for the proposed scheme/location.
- 1.3. Any permeable paving areas accepted for adoption by HCC shall be subject to Commuted Sums in accordance with the [Commuted Sums Policy](#).
- 1.4. The design methodology shall be based on the Interpave document "Design & Construction of Concrete Block Permeable Pavements Edition 7 December 2018" (D&C CBPP), together with the additional HCC requirements as set out in this Interim Technical Guidance. The D&C CBPP follows the recommendations of various authoritative publications regarding permeable pavements including The SuDS Manual (CIRIA, 2015) and relevant British Standards (including BS 7533, BS EN 13242, BS EN 13108). Figure 1 illustrates the key design stages for designing permeable paving.

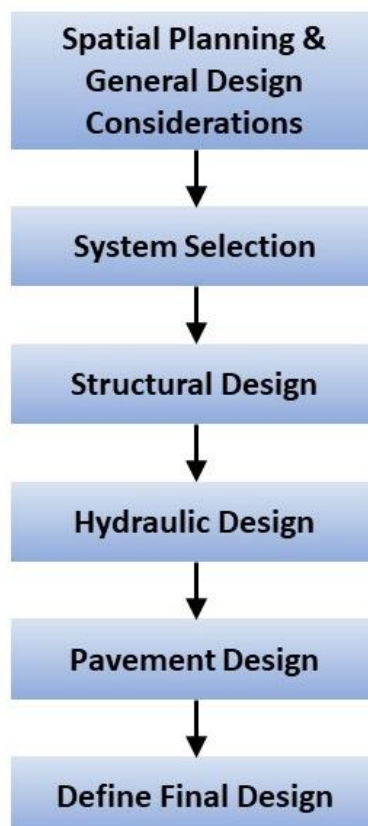


Figure 1- Permeable Pavement Key Design Stages (based on Interpave D&C CBPP Figure 16)

- 1.5. HCC will only consider permeable pavements for adoption if they comply with the following:
- a) The design and detail of permeable paving proposed within the adopted Highway or areas to become adopted Highway are to be approved by the Highway Authority **prior to construction**.
 - b) Only in locations with
 - o posted speed limits of 30mph or less, and
 - o with Traffic Category Types 5 or 6 (as defined in the Interpave Design & Construction of Concrete Block Permeable Pavements document), and
 - o in low traffic flow areas such as cul de sacs / quiet lanes.
 - c) Not located on spine roads or potential bus routes.
 - d) With low gradients (to ensure adequate infiltration of run-off). Gradients to be as low as possible with an absolute maximum of 5%.
 - e) Not located where there is a high risk of siltation from surrounding landscape features, surrounding facilities (e.g. aggregate processing) or in ground water protection zone 1 (SPZ1).
 - f) Only Pavement Systems A (Total Infiltration) or B (Partial Infiltration) will be considered which **only** take run-off from adopted Highway. Fully tanked systems will not be considered.
 - g) Not systems that include geocellular crates as a sub-base alternative.
 - h) Only where suitable infiltration testing (in accordance with design standards) had been undertaken to inform an appropriate design. Should the geotechnical investigation show that there are variable ground conditions/strata present, infiltration testing up to 1 metre below formation will be required to ensure that there is a suitable depth of permeable material.
 - i) Only where suitable testing & assessment has been undertaken which demonstrates ground contamination is unlikely to be present in the areas of infiltration.
 - j) Only where the highest groundwater level is at least 1m below the proposed infiltration level.
 - k) Design for hydraulic performance in the pavement with any associated drainage systems is to deliver a combined capacity to accommodate a 1:30 year storm event plus a 20% allowance for climate change. For the 1:100 year storm event plus 40% allowance, design to demonstrate that the road will not become impassable (<100mm of flooding) or cause any 3rd party property flooding. During construction the contractor will be required to demonstrate on a regular basis that the void content of the open graded sub-base/drainage layer is equal to or exceeds the figures assumed at the design stage.
 - l) Only where suitable subgrade assessment has been undertaken and any necessary subgrade improvement undertaken (such improvement ensuring adequate infiltration can still be achieved – use of lime/cement will not be

acceptable as it will impact the infiltration). Design for structural performance shall consider the bearing capacity of the formation in a fully saturated condition. Any capping having a higher infiltration rate than the underlying subgrade and of a suitable material that it doesn't lose strength in saturated conditions.

- m) Only where it has been designed for a 40 year design life when determining the thickness of the pavement layers.
- n) Only where suitable coarse graded aggregate (40/20 to BS 7533-13:2009 / Type 3 subbase with suitable durability) has been used for the subbase material (Type 1 subbase material is not acceptable).
- o) Only where the pavement incorporates a dense bituminous base layer (including being designed for construction traffic). The bituminous base shall be perforated by coring (100mm diameter) at 1 metre centres and filled immediately with an aggregate to the manufacturer's specification typically of type 2/6.3 Gc 80/20 BS EN 13242:2007 with the application of the geotextile, laying course and blocks being **undertaken straight afterwards**. From this point, all construction traffic shall be excluded from using the permeable pavement. Perforation by punching will not be permitted. Bedding and jointing material needs to be free-draining and have sufficient durability to resist wear from small movements between blocks. A typical grading specification is given in the table below, but advice should always be sought from the permeable pavement manufacturer with regard to the exact material type that is suitable for each system.

BS sieve size (mm)	Percentage passing
14	100
10	90-100
6.3	80-99
2.0	0-20
1.0	0-5

Bedding and jointing layer specification (2/6.3 to BS 7533-13:2009)

- p) Where the base course will be trafficked prior to application of the block work, the base course material shall incorporate coarse aggregate with a PSV appropriate to the level of traffic anticipated and temporary alternative measures shall be put in place to deal with surface water running off at base course level. Refer to HCC Model Specification Appendix 7/1 including "9.3 Temporary Running".
- q) Permeable Paving Concrete Blocks with nibs have been used with a minimum block thickness of 80mm and minimum PPTV of 55 and laid in a herringbone pattern with suitable edge restraints. Blocks are to be saw cut only and shall not be smaller than 1/3 of their original size.

- r) Only where suitable jointing aggregate and laying course material has been used. **Note: Conventional jointing sand is not suitable as a medium for surface water to pass down through the pavement.**
- s) Where permeable paving abuts any area of conventional construction the interface shall be a straightforward vertical joint with no steps and a full depth impermeable membrane shall be incorporated to separate the two constructions terminating at top of binder course. The conventional design shall also consider the bearing capacity of the formation in a fully saturated condition where it adjoins an infiltration area i.e. the thickness of sub-base may need to be reinforced or thickened locally but in no circumstances should this be deeper than the adjacent permeable pavement.
- t) Where sewers are to run beneath permeable paving these sewers are to be fully inspected, tested, commissioned, proven and confirmed as suitable for adoption prior to construction of the permeable paving. Additionally, where sewers are more than 3 metres deep a sufficient settlement period shall elapse such that any consolidation of the backfill is completed before the permeable paving is constructed.
- u) Except for sewers as detailed in (t) above, no services shall be permitted to run within or beneath permeable paving. Where services are required to cross permeable paving, a service crossing of conventional construction **at least 2 metres** width shall be provided. All areas of permeable paving are to be safeguarded through a designation of Streets of Special Engineering Difficulty under the New Roads and Street Works Act.
- v) Where road markings are required on areas of permeable paving, these shall be applied using Methyl Methacrylate and an appropriate primer system.
- w) Shall be designed to **exclude surface water from adjacent properties** which shall be dealt with within their own boundaries. Where private properties, adjacent parking areas, etc are served by permeable paving, these areas shall still be included when designing highway drainage on the assumption that such drainage will clog over time and not be maintained.
- x) Construction traffic shall be excluded from using any area of permeable paving that has been completed.
- y) Where suitable maintenance has been undertaken between completion of the pavement construction and adoption. Topping-up of the joints and vibration should be carried out 3 months after practical completion and also at final completion when site works have finished.
- z) If surface infiltration becomes impaired significantly (30% reduction in new design performance or areas of ponding) prior to adoption, the developer will be required to take up clean/replace the geotextile, laying course and blocks before the road will be adopted.

2. Further Support

- 2.1. Should you have a specific query or feedback about any of the content of this Interim Technical Guidance Note, please send an email to Technical.Guidance@hants.gov.uk with the start of the email title as “ITG6-4 – [Subject of email]”.
- 2.2. Should you have a query about applying this to your particular project, please contact:
 - the Design Audit Engineer dealing with your S278 or S38 application (if you are a Developer or Developer’s Consultant)
 - the Technical Guidance Note Specialist(s) (if you are a working within Hampshire County Council)