



**Horndean Road,
Emsworth**

SuDS Operations & Maintenance Manual

Prepared by:

Escher Silverman

Lone Barn Studios, Stanbridge Lane
Romsey, SO51 0HE

Tel: 01794 521213

Fax: 01794 522195

ES1711/SUDS

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Prepared by Kevin Mitchell
I Eng, FIHIE

Signed:



Date: 31st March 2017

Reviewed by Kazys Narbutas
BSc (Hons) CEng
MICE, MCIHT

Signed:



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O	Initial issue	March 2017	KAM

1.0 INTRODUCTION

- 1.1 Regular inspection and maintenance is important for the effective operation of the SuDS drainage features across the development.
- 1.2 The following SuDS features have been designed into the development to control the surface water run-off created through the construction of impermeable areas such as roofs, drives and roads.
- Pervious Pavements (block paving)
 - Attenuation Tanks and Flow Control Devices
- 1.3 In order to ensure the continued effective operation of the SuDS features maintenance regimes have been provided for each of the above features.
- 1.4. This document has been prepared at the design stage and should be considered as part of an evolving process. Following construction as built information and drawings should be included. The post construction information should include drawings detailing the extent and location of SuDS features together with relevant manufacturer's details.
- 1.5 The following maintenance regimes should be amended/updated to suit specific manufacturer's requirements for the various components installed.
- 1.6 The following appendices have been included to allow for additional information and records to be included post construction.
- **Appendix A** As built Information
 - **Appendix B** Manufacturer's Information
 - **Appendix C** Inspection Records

- **Appendix D** Maintenance Regime Monitoring and Amendments

- 1.7 It should also be recognised that for a maintenance regime to continue to be appropriate and fit for purpose a constant monitoring ethos should be adopted and any corrective measures implemented to ensure that the correct maintenance regimes going forward are in place. Inspection records should be kept and used as a basis for the determining the suitability of the maintenance regimes and the areas of the development requiring attention.

2.0 PERVIOUS PAVEMENTS

- 2.1 Pervious pavements have been provided around the development to infiltrate water down through the sub base from the road/drive over and to act as a conduit for surface water run-off to be carried towards underground attenuation tanks prior to discharge off site.
- 2.2 Pervious pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. Extensive experience suggests that sweeping once per year should be sufficient to maintain an acceptable infiltration rate on most sites.
- 2.3 A maintenance regime has been prepared for the development as indicated in Table 1 below.
- 2.4 Inspection reports should be kept and the maintenance regime for the pervious paving should be adjusted, if necessary, to suit ongoing site-specific circumstances as they arise.
- 2.5 A brush and suction cleaner (which can be a lorry-mounted device or a smaller precinct sweeper) should be used for regular sweeping. Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material. Any lost material should be replaced. It is also possible to clean the surface using lightweight rotating brush cleaners combined with power spraying using hot water.
- 2.6 If the surface has clogged then a more specialist sweeper with water jetting and oscillating and rotating brushes may be required.
- 2.7 The pervious pavements have been designed to accept flows from the surface water drains serving the site which discharge into the sub base via silt traps. These silt traps are intended to catch sediment and silt.

Table 1: Operation and Maintenance Requirements - Pervious Pavements

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance.	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment.
	Empty silt traps	Once a year at the same time as the pervious paving is being cleaned.
Occasional maintenance.	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required – once per year on less frequently used pavements.
Remedial Actions.	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging).
Monitoring.	Initial inspection.	Monthly for three months after installation.
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Three-monthly, 48hours after large storms in the first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor silt taps.	At same frequency of pervious paving inspections.

3.0 ATTENUATION TANKS AND FLOW CONTROL DEVICES

3.1 Pervious pavements have been provided around the development to infiltrate water down through the sub base and to act as a conduit for surface water run-off to be carried towards underground attenuation tanks prior to discharge off site.

3.2 The attenuation tanks are constructed using a geocellular system with limited access via manholes. These manholes will assist in the maintenance and inspection of the structures.

3.3 There are two types of flow control devices being used:

- Prefabricated Flow Control Device
- Vortex Control fitted to concrete manhole

Table 2: Operation and Maintenance Requirements - Storage Tanks

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance.	Inspect and identify any areas that are not operating correctly, take remedial action.	Monthly for 3 months, then annually.
	See pervious pavement maintenance regime Table 1 for maintenance and cleaning of pervious paving over.	As pervious pavement maintenance regime
Remedial actions.	Repair/rehabilitate inlets, outlet, overflows and vents.	As required.
Monitoring.	Inspect/check all inlets, outlet, overflows and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required

Table 3: Operation and Maintenance Requirements - Flow Control Devices

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance.	Inspect and identify any areas that are not operating correctly, take remedial action.	Monthly for 3 months, then annually.
	Remove any sediment from flow control devices.	Annually (or as required).
Remedial actions.	Repair/rehabilitate inlets, outlet, overflows and vents.	As required.
Monitoring.	Inspect/check all inlets, outlet, and overflows to ensure that they are in good condition and operating as designed.	Annually
	Where fitted check operation of by-pass door.	Annually

Appendix A

Appendix B

Appendix C

Appendix D

Monitoring and Review Table

Revision	Revision Description	Date	Initials