

OLDLANDS FARM PHASE 1A

SUDS MANAGEMENT & MAINTENANCE PLAN

HANBURY PROPERTIES

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References:

The SUDS manual – CIRIA C753 (2015) ISBN 9780-86017-760-9

National Planning Policy Framework (NPPF) – Communities and Local Government
Technical Guidance - Flood Risk & Coastal Change (March 2012)



1 Introduction

- 1.1 This document sets out the principles for the long term management and maintenance of the proposed surface water Sustainable Drainage Systems (SuDS) installed within the Phase 1A development area associated with the Oldlands Farm commercial development, Bognor Regis, West Sussex.
- 1.2 The purpose of this document is to ensure that the management company and /or homeowner that will be maintaining the SuDS and ditches is entrusted with an inspection and maintenance programme to ensure the optimum operation of the surface water drainage network is continually maintained for the lifetime of the development and to prevent the increased risk of flooding both on and off site in accordance with the NPPF.
- 1.3 This document details the SuDS structures within the treatment train and their required maintenance processes to ensure that no polluted discharges to the adjacent watercourse will take place.
- 1.4 This plan has been directly referenced from the latest technical SuDS guidance within the *CIRIA Report C753 The SuDS Manual* (2015) and other applicable guidance.
- 1.5 This document is laid out in specific sections applicable to the relevant SuDS type detailing:
 - A description of the SuDS component and its use.
 - Maintenance requirements and frequencies.
 - Inspection requirements and frequencies.
- 1.6 The activities listed are generic to the relative SuDS types and represent the minimum maintenance and inspection requirements, however additional tasks or varied maintenance frequency may be instructed by the maintenance company as required. Specific maintenance needs of the SuDS elements should be monitored and maintenance schedules adjusted to suit requirements.

2 SuDS Layout & Design

- 2.1 The installed SuDS system at this development are the responsibility of Hanbury Properties Ltd and their appointed Management Company.
- 2.2 Following installation and after transfer, all SuDS are to be maintained in perpetuity by the Management Company and shall ensure that it or any contractor employed by it carries out periodic maintenance of all such SuDS in accordance with the schedules listed in this report. Inspection checks shall be carried out by a qualified and competent person, at the minimum intervals listed within the schedules and the appropriate work carried out.
- 2.3 In terms of water quality, the proposed surface water system offers a suitable level of mitigation in accordance with the Environment Agency pollution prevention guidance GP3, NPPF, CIRIA C753 and DEFRA guidance.
- 2.4 There are three categories of maintenance activities referred to in this report:
- **Regular maintenance** (including inspections and monitoring).
Consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, inspections and sampling.
 - **Occasional maintenance**
Comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).
 - **Remedial maintenance**
Comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design.
Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.
- 2.5 There are a number of SuDS components with the surface water drainage system including:
- Gullies and Beanie kerbs for development roads (where required)
 - Permeable subbase for internal road areas
 - Permeable paving for parking areas

3 Surface Water Drainage Strategy

The surface water drainage strategy for the development and the SuDS management train is described below:

Roofs:

- Runoff from roofs discharge through downpipes to a traditional channel drain before discharging to the permeable subbase or directly to the permeable subbase.

Parking Areas and Internal Roads:

- Internal road areas will be constructed using a macadam surface with sealed permeable stone sub base. Runoff will discharge via gullies or beanie block directly to the sub base.
- Parking bays will be constructed using permeable block paving discharging into a permeable type stone sub base..
- This type of construction will provide an effective method of removing the urban pollutants prior to discharging downstream to the main drainage system.

4 SUDS Management & Maintenance

4.1 Road Gullies & Beanie Kerbs

Road gully maintenance will comprises of the removal of large debris and litter by hand picker and sucking out the sediment / oil contents of the gully into a tanker, ensuring that the outlet is clear and then re-filling the gully pot with clean water up to the level of the outlet.

During the first year of operation each gully should be inspected every 3 months, and every 6 months thereafter for structural integrity and cleaned out as required.

4.2 Permeable Block Paving

4.3 Key Maintenance Requirements:

- Sweeping
- Regular brushing and vacuuming (to be carried out by a specialist contractor)

4.4 Regular inspection and maintenance is important for the effective operation of permeable pavements and should be inspected regularly, preferably during and after heavy rainfall to check effective operation and to identify any areas of ponding.

4.5 Permeable block paving needs to be regularly cleaned of silt and other sediments to preserve infiltration capability and should have a minimum of three surface sweepings per year.

A brush and suction cleaner, which can be a lorry-mounted device or a smaller precinct sweeper, should be used and the sweeping regime should be as follows:

1. End of winter (April) – to collect winter debris.
2. Mid-summer (July/August) – to collect dust, flower and grass-type deposits.
3. After autumn leaf fall (November).

4.6 Care should be taken in adjusting vacuuming equipment to avoid removal of jointing Material and any lost material should be replaced.

4.7 To ensure the continual optimal performance of the permeable paving, it is recommended that the following maintenance should be carried out:

The following guidelines are offered as an initial regime, but maybe either increased or decreased depending on the local environment and any external contributing factors:

- A visual inspection of the paving may be carried out on a regular basis.
This will confirm the effectiveness of the agitation maintenance due to variations between sites and allow any refinement of the regular agitation activity if necessary.



- The paving should be agitated (e.g. brushed, vacuumed, etc.) at least twice a year. This is to ensure no vegetation of any sort is allowed to grow and develop in the joints. Ideally, this activity should be carried out in the spring and autumn seasons.
 - The paving should be inspected after any heavy precipitation to ensure no displacement of any organic matter onto the surface of the pavement.
 - For winter maintenance, the controlled use of de-icing may be used without causing significant detrimental effects towards the permeable pavements performance. When used carefully, the use of these chlorides will not result in an increase in the chloride levels in the local ground.
 - Weed growth – when sedimentation occurs in areas of permeable paving then there is the potential for weed growth, this will typically occur where there are overhanging trees or soft landscaping slopes down on to the paving or in areas which do not receive over run from vehicles particularly frequently. Weeds can be removed from the surface through the controlled application of proprietary non-persistent contact herbicides. Those containing Glyphosate are the most suitable.
- 4.8 Glyphosate based herbicides are the most common for general-purpose use, they are most effective on grasses and perennial weeds with non-woody stems. Weeds should be sprayed when they are actively growing, in dry but not sunny conditions, so that the Glyphosate will go down to the root and kill the weed completely. Glyphosate will be neutralized upon contact with the ground, which makes it safe to plant in the area soon after treatment. It is available ready mixed or as a concentrate.
- 4.9 Depending on the amount of usage and the environment the permeable pavement has received and been exposed to, the laying course material may require either replacement or cleaning after a 25 to 30 year period. This would be evident if the infiltration rate of the paving became prolonged, allowing ponding to develop. Should this occur, the uplifting and cleaning (or replacing, depending on the costings of the activity) of the laying course maybe considered. The laying course material, jointing and blocks may be reused (once cleaned), minimising costs.
- 4.10 If reconstruction is necessary, the following procedure should be followed:
1. Lift surface layer and laying course.
 2. Remove any geotextile filter layer.
 3. Inspect sub-base and remove, wash and replace if required.
 4. Renew any geotextile layer.
 5. Renew laying course, jointing material and concrete block paving.
- 4.11 Materials removed from the voids or the layers below the surface may contain heavy metals and hydrocarbons and may need to be disposed of as controlled waste. Sediment testing should be carried out before disposal to confirm its classification and appropriate disposal methods.



4.12 Internal Roads

Internal road areas will either be constructed as permeable block paving (outlined above) or constructed as an impervious macadam surface drained via gullies, channels or beanie blocks discharging into a permeable high-void aggregate sub-base layer beneath.

This sub-base allows for filtration of pollutants from the runoff which is infiltrated to the sub strata below.

- 4.13 General gully and linear channel maintenance involves the removal of dead leaves, soil, litter from the gratings and sediments from the sump within the gully pot or channel. This involves the removal all protective covers and grids and the cleaning out of channels or gully pots by hand or with suitable jetting equipment.

During the first year of operation each gully and channel should be inspected every 3 months, and every 6 months thereafter for structural integrity and cleaned out as required.

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