PUNTERS GARAGE
22 NEW ROAD
HILLINGDON
UB8 3DX

SUDS MANAGEMENT & MAINTENANCE PLAN

AQUINNA HOMES

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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 at the residential development at Punters Garage, 22 New Road, Hillingdon.

1.2 The purpose of this document is to set out the basis of the development SuDS Maintenance Plan and to ensure that the adopting management company is entrusted with a robust inspection and maintenance programme, ensuring 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 National Planning Policy Framework (NPPF).

1.3 The activities listed in this document 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.

1.4 The installed SuDS system at this development are the initial responsibility of Aquinna Homes.
Following installation and after an initial period (TBC) of operation, all SuDS are to be transferred to residents.
An agreement shall be set up by Aquinna Homes, who shall confirm in writing to the Principle Planning Officer at Hillingdon London Borough Council when the maintenance agreement is completed and is operative.

1.5 The residents will then be responsible for maintaining the surface water system including all SuDS in perpetuity.

1.6 All those responsible for maintenance should follow relevant Health and Safety legislation (Health and Safety at Work Regulations, 1999) for all activities listed within this report including lone working, if relevant) and risk assessments should always be undertaken.

1.7 Any contractor employed by the residents shall carry 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.

1.8 This report is to read in conjunction with MJA drawing '*5641:02 'Private Drainage Strategy'* for the location of all SuDS elements present within the development.
Reference should also be made to the detailed landscape proposals for the proposed treatment / maintenance regime for all landscape features.
The operations contained within this plan shall (where feasible) be in conjunction with routine grounds maintenance operations to the surrounding landscape.

2 SuDS Layout & Design

2.1 The storm water drainage strategy for the proposed development is to utilise SuDS features to attenuate all surface water runoff from impermeable areas and infiltrate on site.

2.2 The proposed storm water system consists of the following SuDS components:

- Permeable block paving (under-drained)

2.3 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, and inspections.
- **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.

3 SUDS Management & Maintenance

3.1 Permeable Block Paving

3.2 Note: Loose materials such as sand, cement soil or other loose substances should not be stored directly on top of the permeable blocks without the use of an impenetrable sheet.

3.3 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 by the management company depending on the local environment and any external contributing factors.

3.4 Permeable pavements should be visually inspected a minimum of monthly for the first three months after installation and then a minimum of three times a year, preferably during and after heavy rainfall to check effective operation and identify areas of ponding.
These inspections should occur close to the end of winter (March), mid-summer (July) and after the autumn (November).

3.5 During this inspection identify any areas that require remedial maintenance such as topping up of jointing grit or removal of vegetation, weeds, silts and sediments that may be clogging the joints between the blocks.
Small areas such as driveways can be swept with a hand bristle broom, for larger areas such as parking courts a lorry mounted rotary brush and vacuum sweeper device can be used.
Weeds can be removed from the surface through the controlled application of proprietary non-persistent contact herbicides. Those containing Glyphosate are the most suitable.

3.6 Care should be taken to ensure that only the detritus is removed from the joints and avoid removal of the jointing material.
If required, joints should be replenish with aggregate material to lip of paver using specific 6-2mm single size grit using a stiff brush to sweep the material in ensuring joints are filled.
Do not replace the jointing grit with sand as this will stop the permeable system from working.

3.7 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.

3.8 Contamination of the permeable block paving from routine landscape maintenance such as grass clippings from mowing, hedge trimming, mulching plant beds etc. should be prevented.
If contamination occurs the debris should be immediately swept, collected and removed by the homeowner or landscape operative.

3.9 Depending on the amount of usage and the environment the permeable pavement has received and been exposed to, the sub base laying course material including geotextile membranes/ grids 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 of the laying course maybe considered.
The laying course material, jointing and blocks can be reused once cleaned, minimising costs.

3.10 Replacement sub-base material to be used should be a clean 4/20mm coarse graded aggregate to BS EN13242:2002.
Jointing material between the blocks should be 6-2mm single size grit to the joints.
Refer to MJA Consulting construction detail drawing 5641:20 for type of geotextile membrane/ geogrids to be used.

3.11 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.

Permeable Paving Operation and Maintenance Requirements

Maintenance schedule	**Required action**	**Frequency**
Regular maintenance	Brushing and vacuuming.	Three times/year at end of winter, mid-summer, after autumn leaf fall, or as required based on site-specific observations of clogging or manufacturers' recommendations.
Occasional maintenance	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weed.	As required.
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.	As required.
	Rehabilitation of surface and upper sub-structure.	As required (if infiltration performance is reduced as a result of significant clogging).
Monitoring	Initial inspection.	Monthly for 3 months after installation
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action.	3-monthly, 48 h after large storms.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor inspection chambers.	Annually.

4 Contact Information

For further information on the management and maintenance of SuDS on the development please contact:

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