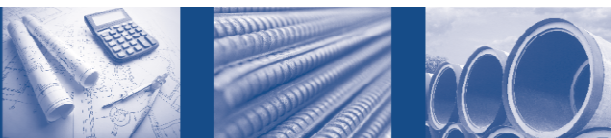


**GATEWAY CENTRE
BOORLEY GREEN**

**SUDS MANAGEMENT &
MAINTENANCE PLAN**

**VISTRY
SOUTHERN**

Date: April 2023
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DOCUMENT CONTROL RECORD

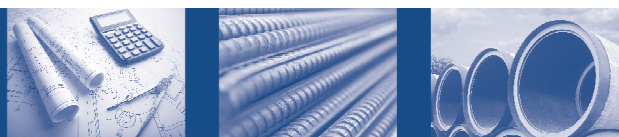
Document Issue:

Rev	Date	Issue Status	Prepared by	Checked by
-	24/05/2022	First Issue	A. Mcshane	C. Pendle
A	06/12/2022	Updated following LLFA Comments	A. Mcshane	C. Pendle
B	11/01/2023	Updated following LLFA Comments	A. Mcshane	C. Pendle
C	08/03/2023	General amendments and additional permeable paving notes added	A. Mcshane	C. Pendle
D	03/04/2023	Updated following LLFA Comments	A. Mcshane	C. Pendle

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 Gateway Centre, Boorley Green.
- 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.
- The management company is funded by the development residents with every property paying an apportionment of the overall annual charge according to the size of the property.
- 1.3 This document details the SuDS structures within the treatment train and their required maintenance processes to ensure that no polluted discharge to the off site network 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 Vistry Southern and their appointed Management Company or the relevant adopting authority.
- 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.

Note: Private driveways will be the responsibility of the house owner and not the management company. Details of responsibilities will be included by the developer within the homeowner Information Pack.

- 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:
- Deep trap gullies draining to pipework
 - Sealed permeable driveway sub-base
 - Cellular attenuation tanks
 - Flow controls
 - Outfall headwalls & watercourses
 - Overland Swale

3 SUDS Management & Maintenance

3.1 Storm water pipework & Road Gullies

The key maintenance requirement for the surface water drainage system includes the removal of sediments and debris from the system as required.

Note: If adopted the maintenance of gullies & pipework along the carriageways will fall under the standard maintenance regime of either Hampshire County Council Highways or Southern Water Utilities.

- 3.2 All storm water pipe work should be visually inspected a minimum of monthly for the first three months after installation and then a minimum of once year.
- 3.3 As road gullies are the first on the treatment train and susceptible to higher silt loadings, these will need to be inspected a minimum of monthly for the first three months after installation and then a minimum of every four months.
- 3.4 During this inspection identify any gully pots or pipes that require remedial maintenance such removal of sediment, debris, leaves and litter as required.
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.
- 3.5 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.

3.6 Driveways & Private Roads & parking areas

Driveways & Private Roads & parking areas will either be constructed as an impervious or pervious surface. The impervious surfaces will consist of either block paving or macadam surfacing drained via traditional yard gullies or aco drains discharging into a permeable high-void aggregate sub-base layer beneath. The permeable areas will be via a permeable block paving system. The sub-base in both systems is sealed at the base but allows for filtration of pollutants from the runoff which is then discharged to the main piped network.

3.7 Permeable Block Paving

Key Maintenance Requirements:

- Driveways: Regular brushing and vacuuming (to be carried out by a specialist contractor)
- Parking Courts/Roads: Regular brushing and vacuuming (to be carried out by a specialist contractor)

- 3.8 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.
- 3.9 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.
 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).

3.10 (Parking Courts & Roads. Including areas of heavy use):

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 pavement's 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.

- 3.11 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.

- 3.12 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.

- 3.13 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.

3.14 Impermeable Block/Macadam Paving:

General yard 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.

3.15 Cellular Attenuation Tank

The key maintenance requirement for the cellular attenuation tank will be the visual inspection of the internal units via built in access chambers and integral maintenance tunnel for the removal of sediment and jetting as required. A visual inspection of the impermeable geomembrane that envelopes the structure should also be carried out to check for structural integrity, where possible.

- 3.16 The attenuation tank is to be constructed from cellular units that allow internal CCTV and jetting access for inspection and maintenance (SDS Geolight, Hydro Stormbloc®, Wavin Aquacell or similar approved).
- 3.17 The built in modular inspection unit and maintenance tunnels within the attenuation tank allow almost the entire volume of the structure to be inspected via CCTV camera and flushed through.
- 3.18 A catchpit chamber is to be installed immediately upstream of the attenuation tank to reduce the amount of silt entering the tank and it will generally only be necessary to ensure that the upstream catchpits / silt traps are free from debris such as leaves or sediment.
- 3.19 It is recommended that the attenuation tank system be inspected no less frequently than at monthly intervals for the first 3 months and thereafter at 6 monthly intervals. In addition, it is suggested that the installation is inspected immediately following the first storm event, whenever this should occur post installation.
- 3.20 It should also be noted that more regular inspections may be required should the catchpit(s) fill more frequently and/or if the initial inspections reveal that maintenance / cleaning will be required more regularly than at six month intervals.
- 3.21 Flushing of the system can be achieved using a jetting system with a 150 bar pump pressure (ie. approximately 80 bar at the nozzle) at a discharge flow of 300 l/min. The jet nozzle should be introduced to the system via the Inspection manhole and the integral inspection / maintenance tunnel.
- 3.22 Any silt & debris should be flushed to the inspection or catchpit manhole and removed in accordance with the Management Company policy for waste management.

Cellular Systems - Operation and Maintenance Requirements

Maintenance schedule	Required action	Recommended Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Where rainfall infiltrates into blocks from above, check surface of filter for blockage by silt, algae or other matter. Remove and replace surface infiltration medium as necessary.	Monthly (and after large storms)
	Remove sediment from pre-treatment structures	Annually, or as required
Remedial actions	Repair/rehabilitation of inlets, outlet , overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms

3.23 Flow Control Chamber

The key maintenance requirement for the flow control chambers will be the inspection of the units for blockages of the vortex flow control unit and silt removal from sump of chamber.

- 3.24 The hydraulic vortex flow control unit has no moving parts and is self-activating, requiring minimal maintenance. After initial installation, it is recommended that the unit be inspected monthly for three months.
- 3.25 Thereafter the manhole chamber and control device should be inspected at least every six months to verify the condition and operation of the unit and check for blockages within the inlet of the chamber and of the flow control device. During these inspections, accumulated silts should be removed and the sump cleaned out using a conventional sump vacuum cleaner. Flow Controls are fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur.

3.26 Outfall Headwalls

Outfall headwalls should be visually inspected a minimum of monthly for the first three months after installation and then a minimum of once a year. Accumulated sediments, debris and any overgrown vegetative material should be removed from the margins of the outlet headwalls as necessary.

- 3.27 During the inspections the general operation, and structural condition of the headwall and any erosion of banks or scour control features should be identified and rehabilitated as required.

3.28 Watercourses, Ditches & Overland Swale

This relates to the northern outfall watercourse linking other areas of the Boorley Green development area as well as the southern ditch adjacent to the highway.

Key Maintenance Requirements:

- Vegetation management and grass mowing
- Litter and debris removal together with sediment monitoring

3.29 Regular inspection and maintenance is important for the effective operation of the watercourses and ditches. The maintenance will be undertaken as part of the overall development landscape maintenance

3.30 These activities will be carried out at intervals detailed below, and shall comprise of the following operations:

- Collection and removal of all litter/large debris from the ditch, inlets, outflows, and water margins once every 3 months.
 - Any failure in the operation of the inlet and outlet headwalls unless adopted by others in which case they will be notified of any observed defect.
 - Any damage or erosion to the perimeter edges and slopes of the watercourse.

3.31 An annual check carried out by a suitably qualified person, to assess the condition and operation of the inlets and outflows, and the accumulation of silt/sediment.
A record of maintenance visits and remedial operations shall be maintained.

3.32 The above operations shall (where feasible) be in conjunction with routine grounds maintenance operations to the surrounding landscape.



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