



Drainage / SUD's Maintenance Regime

D1304 - NORTH BERSTED STREET, NORTH BERSTED

Introduction

This statement details the drainage maintenance requirements for the proposed surface and foul water systems at the development above. A copy of this statement should be provided to the party responsible for maintaining the drainage system and should also be included within the Maintenance Manuals for the development.

The maintenance detailed in this document must be undertaken throughout the lifetime of the development. Failure to undertake this maintenance may result in the drainage system not operating as designed, increasing the risk of flooding.

Drawings detailing the design of the drainage system are referenced 2017/D1304/201.

Brief Description of the Surface Water Drainage System

The below ground surface water drainage system at the above development comprises a traditional piped system, connecting the dwellings into the porous driveways and porous shared access road, via diffuser boxes located within the subbase layer of the road construction. The porous paving system is full tanked, and allows no infiltration of surface water into the underlying soils. The porous paving acts as the attenuation for the site with a Hydrobrake flow control device restricting the runoff to 5l/s in to the surface water highways drain in North Bersted Street.

The surface water drainage for the site will not be offered for adoption to the statutory sewerage undertaker.

The system operates entirely by gravity and this system does not rely on moving parts to remain operational.

Brief Description of the Foul Water Drainage System

The below ground foul water drainage system comprises of a traditional piped system, drained entirely by gravity to the Southern Water foul sewer within North Bersted Street. As the system operates entirely by gravity the system does not rely on any moving parts to remain operational.

The foul water drainage for the site will not be offered for adoption to the statutory undertaker.

Responsibility for Maintenance

The communal road services and landscaped areas, including the SUD's drainage system of porous carriageway and Hydrobrake flow control device will be the responsibility of a management company.

When a home is purchased on the development the purchaser/s will be required to enter into a legal agreement to bind all parties to co-operate with the responsibilities of that of the management company.

Each household on the development will be required to financially contribute equally for the upkeep of the shared facilities.

Where surface or foul water drainage benefits only that of the conveyed plot itself, the future maintenance of this drainage will be the responsibility of that household. This would include the porous paving of the private driveway.



Maintenance Requirements

Whilst the drainage system has been designed to operate with as little maintenance as possible, there are key operations that must regularly be undertaken to ensure that it remains in optimal condition, most of which are general housekeeping tasks that should be undertaken for any drainage system, but with additional attention to the catchpits upstream of the flow control devices and the porous paving. These operations are summarised below together with recommended frequencies:

- Periodic desilting of catchpits, gully sumps and channel drains. These should be emptied at least as follows (but with an annual inspection and additional cleansing if required): On completion of drainage works, Year 1, Year 3, then every 5 years. The desilting of these items are required to ensure the Hydrobrake flow control device operates as per the design, and does not become blocked.
- Periodic jetting or rodding of pipework as required to clear blockages.
- Gratings on any gullies and channel drains to be kept clear of debris.
- Any manufacturer specific requirements for maintenance (i.e. for the Hydrobrake) should be added to the periodic maintenance.

Porous Paving / Diffuser Units

The areas of porous paving are designed to allow infiltration of surface water run-off through the joints in the block paving surface course and into the subbase below. The water is then collected and discharged into the positive drainage system.

As part of the porous paving system, diffuser units are used to discharge surface water run off from roof areas into the subbase, as well as forming links between areas of porous paving. These diffuser units are small heavy duty cellular units which allow more efficient discharge of surface water into the subbase base of the porous paved areas.

The areas of porous paving will require additional maintenance measures to ensure they operate as designed. Failure in carrying out this maintenance, could increase the risk of flooding. The additional measures are as follow:

- Periodic surface sweeping to reduce silt and debris accumulation. The porous surfaces should be swept at least every 8 to 12 weeks with additional sweeps in the autumn to clear fallen leaves.
- Removal / management of weed growth, as required. Typically, once or twice a year for regularly used areas.
- Periodic silt removal from Porous surfaces as described by manufacturer. If any areas are showing signs of ponding, they shall be dealt with by raking out the joints and redressing. The entire surface shall be monitored and when there are signs of excessive siltation resulting in poor drainage over the whole area, the blocks shall be taken up and a replacement of bedding layer and geotextile shall be undertaken.
- Redressing of joints on the block paving as required.
- Catchpits upstream of diffuser units, should be emptied and inspected on the same regime as all catchpits specified previously set out in this document.



Hydrobrake (Flow Control Chamber)

The Hydrobrake flow control system is self-activating, relying on upstream hydraulic head to generate an air-filled vortex within the centre of the casing. Once the vortex is initiated water drains down through a small opening in the back of the device at the designed restricted flow rate.

The flow control device has two measures encase of emergency (i.e. blockage). The first is a door situated in the front of the unit itself, this can be operated from the surface by a release cable situated just under the manhole cover which closes under its own weight and does not require any mechanism to operate. The second is a high-level overflow pipe situated with the flow control manhole. Both measures allow the system to drain down freely, until the blockage can be cleared.

The Hydrobrake flow control chamber will require additional maintenance measures to ensure it operates as designed. The additional measures are as follow:

- The sump within the flow control chamber should be monitored for build up of silts and should be emptied as a minimum on the same regime as specified for catchpits previously within this document.
- The drain down door located on the centre of the unit will require inspection and opening annually, to ensure it is operating as intended.

French Drain

French Drains (filter drains) consist of a shallow trench filled with a granular material and perforated pipe at the base; this is all then wrapped in a permeable geotextile. The French drain allows overland surface water flows to permeate down into a positive drainage system for this specific site.

A section of French drain is located along the North-Western boundary of the site as indicated on the drainage layout plan (2017-D1304-201). This is located in a section of historic ditch which would have historically once collected overland flows before the surrounding area became developed.

The French drain will require additional maintenance measures to ensure it operates as designed. The additional measures are as follow:

- Catchpits upstream of diffuser unit, should be emptied and inspected on the same regime as all catchpits specified previously set out in this document.
- Perforated pipework should be cleared of silts / blockages as required.
- Remove or control tree roots where they are encroaching the sides of the filter drain, as required.

Remedial/Repair Actions

Significant storm events may cause significant damage to SUDS. As such it may be necessary to inspect and carry out essential recovery works to return the feature to full working order.

Resetting of uneven blocks by lifting block area, removing bedding material and relaying to match original design.

Accidental Spillages

It is not envisaged that any materials are to be stored onsite once the development is completed, which could cause major spills and potential pollution issues within the drainage system. If this situation alters in the future a specialist will be required to be contacted to confirm if any upgrades to the existing system are required.

Minor spillages of fuels and oils from motor vehicles will be dealt with by the porous paving and deep trapped gullies, by biodegrading / collecting the hydrocarbons respectively.

Future Alterations to the Development

Any future alterations to the porous paving should be confirmed by a specialist. Where possible any future services are to avoid being located through areas of porous paving. If new services are required to run through areas of porous paving, services should be installed below the porous paving level with the porous system reinstalled above.