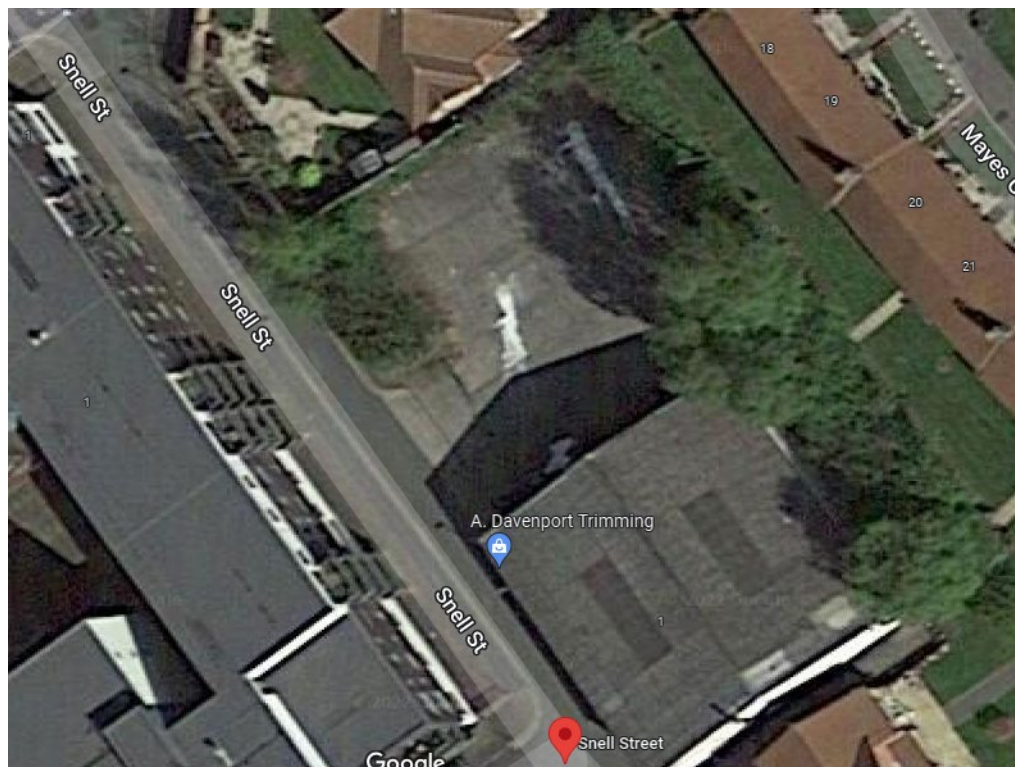


SNELL STREET, MANCHESTER



01/03/2022

MAINTINECE STRATEGY

The Alan Johnston Partnership LLP

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1.0 FUTURE MANAGEMENT & MAINTENANCE

The surface water run-off from the proposed development is restricted using a vortex flow control device and the attenuated run-off is stored using a below ground oversized pipes.

It is envisaged that the following components have been or will be included within the drainage strategy for the proposed development:

- Inspection chambers, manholes and catchpits.
- Pipes.
- Drainage channels and gullies.
- Vortex flow control device.

A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented. It is proposed that the surface and foul water drainage systems will remain private and therefore will be the responsibility of the developer or a suitable maintenance contractor employed by The developer. As such any queries regarding funding for future maintenance should be directed to the developer.

Therefore, the maintenance of the specified SuDS should be included within the developments Operation and Maintenance Manual and should be detailed in accordance with the CIRIA SuDS Manual C753, as per the operation and maintenance guidance outlined below.

1.1 General Maintenance & Inspection Requirements

- No work shall be carried out on the drainage system without permission from a nominated person, who has access to information/a working knowledge of the system.
- Maintenance/inspection work shall be carried out in a safe/planned manner.
- All work is to be carried out by competent persons suitably trained and equipped in accordance with current statutory safe working policies.
- Entry into confined spaces shall be kept to a minimum and be restricted to suitably qualified/equipped persons working in accordance with current statutory safe working policies.
- Drainage systems shall be inspected on a regular basis or should any problems be suspected. Any debris/defects discovered shall be recorded and a programme of cleaning/ repair initiated. Urgent repairs/cleaning shall be actioned as soon as practicable.
- It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.
- Clearing of the drainage system can be achieved by a number of methods depending on the nature of the work;
 - Rodding – Manual/Mechanical with flexible rods.
 - Jetting – High pressure water jetting.
 - Plunging.

1.2 Inspection Chambers, Manholes and Catchpits

The appropriate health and safety equipment must be used when accessing manholes/catchpits. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access. The following operations should be carried out annually.

- Covers of inspection chambers and manholes shall be removed and the sides, benchings and channels cleared.
- Accumulated deposits of silt in inspection chambers, catchpits and manholes shall be removed. Any traps shall then be plunged and thoroughly flushed out with clean water. This should be completed in Autumn, after leaf fall.
- Main and branch drains shall be cleared as required and afterwards be flushed with clean water. Any obstructions found shall be removed and not flushed down the system.
- Covers of inspection chambers, manholes and catchpits shall be replaced, bedded in suitable grease or other sealing material as required and bolted/locked down as appropriate. Missing bolts and broken items shall be replaced in accordance with the manufacturer's details.
- All chambers below the top water level of the attenuation tank, which may surcharge during storm events should, as a minimum be cleansed annually to remove the build-up of any silts.

1.3 Pipes

Regular inspection and maintenance is important to identify areas which may have become obstructed/clogged and may not be draining correctly, as failure to do so would expose the development to a greater level of flood risk.

Pipes are proprietary products and therefore the materials used can vary across the site. As such, where used the manufacturer's recommendations should be followed. Access for maintenance of the pipes is provided through inspection chambers and manholes. The below table sets out the maintenance schedule for the pipe components.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect for evidence of poor operation via water levels. If required take remedial action.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.
	Check and remove large debris and/or vegetation growth near pipe runs.	Monthly or as required.
Remedial Actions	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue.	As required, if above actions do not improve performance.
Monitoring	Initial Inspection should be provided as post construction CCTV survey.	N/A
	Inspect/check all inlets, outlets and overflows to ensure they are in good condition and operating as designed.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.

All pipework below the top water level of the attenuation tank, which may surcharge during storm events should, as a minimum be cleansed annually to remove the build-up of any silts.

1.4 Drainage Channels and Gullies

Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating. The below table sets out the maintenance schedule for the drainage channel and gullies components of the proposed drainage systems.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Litter and debris removal.	Monthly or as required.
	Check and remove large debris and/or vegetation growth near pipe runs.	Monthly or as required.
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.
Remedial Actions	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue.	As required, if above actions do not improve performance.
Monitoring	Initial Inspection including channel outlet boxes and gully sumps.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.

1.5 Vortex Flow Control Device

Regular inspection and maintenance is important to identify if the vortex flow control device has become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk. Vortex flow control devices are proprietary products and therefore can vary from manufacturer to manufacturer. As such, where used the manufacturer's recommendations should be followed.

- Normally, little maintenance is required as there are generally a vortex flow control device has no moving parts.
- If blockages occur they tend to do so at the intake of the vortex flow control device.
- Vortex flow control devices are generally fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur.
- The smaller type conical units, below the minimum recommended size, are also supplied with roding facilities or vortex suppressor pipes as standard.
- Following installation of the vortex flow control device it is vitally important that any extraneous material i.e. Building materials are removed from the unit and the chamber.
- After the system is made live, it is recommended that each unit be inspected monthly for three months and thereafter at six monthly intervals with hose down if required. Units should also be inspected within 48 hours after large storms.

It should be noted that the Main Contractor should provide a Verification Report, including photographic evidence, to demonstrate that the drainage has been constructed as per the design drawings. As-built drawings should as be supplied by the Main Contractor, where the construction of the drainage varies from the design construction status drawings.