

1. The SUDS Proposals

- 1.1 The drainage/SUDs on the proposed development site are to consist of manholes, gulleys, catchpits, attenuation tank, flow control in the form of orifice plates and a package pumping chamber and permeable paving. The permeable sub-base construction provides additional surface water attenuation for the site.
- 1.2 The attenuation tank and permeable stone sub-base provides storages for all storm events up to and including the 100 year plus 40% climate change event.

2. Design and Adoption

- 2.1 The drainage/SUDS features will not be adopted by the Local Authority with designs for these areas being assessed through the planning permission process and building control. They have been developed in line with the latest CIRIA guidance as per engineering good practice, and the yet to be adopted DeFRA SuDS design standards.

3. Maintenance

- 3.1 The below table is a typical maintenance regime for such assets, which is based on good practice and general current procedures:

Attenuation Tank / Catchpits / Flow Control

Routine Maintenance (Typically monthly)

Maintenance Activity	Comments	Frequency	Maintenance Liability
Litter and debris removal		Monthly	Management Company
Inspect structures for evidence of poor operation		Monthly	Management Company

Occasional Maintenance (Typically 6 monthly)

Maintenance Activity	Comments	Frequency	Maintenance Liability
Inspect inlet catch pit and pre-treatment components for silt accumulation	Includes visual inspection of inlet chamber, forebay and inspection of flow control.	6 monthly	Management Company
Visual inspection catch-pits, linking pipework etc for evidence of physical damage	Visual inspection from surface only, CCTV survey required if evidence present of structural issues.	6 monthly	Management Company
Check mechanical devices within control chambers	Includes inspection of orifice plate for signs of damage	6 monthly	Management Company

Annual Activities

Maintenance Activity	Comments	Frequency	Maintenance Liability
Remove sediment from catch-pits	Remove accumulated silt with suction tanker when 50% full.	Annual/as required	Management Company

Infrequent/Corrective Activities

Maintenance Activity	Comments	Frequency	Maintenance Liability
Repair/rehabilitation of inlets and outlets.		As required	Management Company
Jetting and vacuuming inspection tunnel	Remove accumulated silt with suction tanker when 20% section loss (or 100mm whichever the lesser).	As required	Management Company

Permeable Paving

Routine Maintenance (Typically monthly)

Maintenance Activity	Comments	Frequency	Maintenance Liability
Litter and debris removal		Monthly	Management Company
Inspect structures for evidence of poor operation		Monthly	Management Company

Occasional Maintenance (Typically 6 monthly)

Maintenance Activity	Comments	Frequency	Maintenance Liability
Brushing of pavement surface	Joints in paving become silted over time. Inspect visually. Undertake maintenance where joints are greater than 50% silted.	6 monthly or more frequently if required	Management Company
Filling joints between paving blocks with suitable material	Following brushing joints may need to be topped up with suitable material. Specification as follows: <i>“Jointing material: 2/6.3mm clean crushed stone (no fines) to BS RN 13242:2002 or BS EN 12620”</i>	6 monthly as required following brushing	Management Company

Annual Activities

Maintenance Activity	Comments	Frequency	Maintenance Liability
Inspect inlet catch pit and pre-treatment components for silt accumulation	Includes visual inspection of inlet chamber, forebay and inspection of flow control.	Half yearly	Management Company
Visual inspection catch-pits, linking pipework etc. for evidence of physical damage	Visual inspection from surface only, CCTV survey required if evidence present of structural issues.	Half yearly	Management Company

Infrequent/Corrective Activities

Maintenance Activity	Comments	Frequency	Maintenance Liability
Repair damage to paving	Damage may include rutting or local failure of structure	As required	Management Company
Repair/rehabilitation of inlets and outlets.		As required	Management Company
Rehabilitation following a pollution event	Pollution includes potential sealants of joints	As required	Management Company
Repair/replace geotextile base.	If evidence from CCTV suggests a direct source of silt is present intrusive works will be required to the geotextile	As required	Management Company
Rehabilitate sub-base	If, following brushing, the structure continues to perform below standard structural overhaul may be required. Stone may require reprocessing to reinstate original void ratio.	As required Evidence of similar structures installed around the country suggests rebuilding of the structures may be required typically every 25 years.	Management Company

4. Maintenance

- 4.1 The useful life and effective operation of any drainage/SUDS feature is related to the frequency of maintenance and the risk of sediment being introduced into the system.
- 4.2 Maintenance will usually be carried out manually, although a suction tanker can be used for sediment/debris removal for large systems. If maintenance is not undertaken for long periods, deposits can become hard-packed and require considerable effort to remove.
- 4.3 Effective monitoring will give information on changes in the drainage/SUDS feature and provide a warning of potential failure in the long term.
- 4.4 Roads and/or parking areas draining to ground should be regularly swept to prevent silt being washed off the surface. This will minimize the need for maintenance.

5. Reliability

- 5.1 The reliability of drainage/SUDS is critically dependent on the quality of the design and construction, in particular the management of silt.
- 5.2 The proposed development drainage/SUDS features have been designed to accommodate flows up to the 100yr + 40% climate change event envelope within which they are intended to operate.
- 5.3 We understand that this design envelope mitigates future flooding risks to the development and also provides an abundant whole life cycle design life in line with modern planning requirements.



6. Health and Safety

- 6.1 The design guide used for these features (CIRIA's SUDS Manual and DeFRA's Technical Standards for Sustainable Drainage Systems) incorporates health and safety implications of these SUDS components. Also, the proposals are incorporated within the Construction, Design and Management Regulations 2015, which requires hazards to be removed by good design wherever possible rather than providing mitigation to manage risk.
- 6.2 Those responsible for the maintenance and management of the drainage/SUDS should take appropriate health and safety precautions for activities and risk assessments should be undertaken.