
MAINTENANCE PLAN

for

EAGLE HOUSE, TALBOT ROAD, PORT TALBOT

REF: IR21068-MP1

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Principal Operation and Maintenance Requirements.

To comply with Standard S6 the following sections outline recommended maintenance requirements for the various aspects of the drainage system for the development.

The construction of the raingarden/ bioretention area and permeable car park only require the use of standard civil engineering and landscaping operations such as excavation, filling, grading, pipe laying, top soiling, seeding and planting they can all be constructed by a competent contractor with minimal risk in terms of health & safety.

The contractor, once appointed, will need to programme the works to ensure the drive sub-base is protected until the development is completed.

All features are easily accessible for future maintenance.

1.1 Pervious Pavement

Permeable paving lasts 20-25 years before requiring replacement of filter material. This is one of the longest lifespans of all SUDS options (Understanding permeable and impermeable surfaces, 2009, p.25).

Construction considerations

Sub-base material (coarse graded aggregate) should be placed in layers not exceeding 150mm in thickness or twice the nominal maximum aggregate size. Unlike traditional pavement construction, the open-graded materials should not be fully compacted to eliminate any voids, as this will compromise the performance of the system.

It is likely that excessive compaction will result in the displacement of the open graded aggregate by the compaction equipment. The open-graded material should be compacted such that its maximum density is achieved for the particular aggregate type and grading without compromising the final void percentage offered by the material.

Each layer should be suitably compacted before the next layer is placed to prevent any potential settlement of the pavement after completion.

Due to the nature of the sub-layers care should be taken during the construction process to prevent dirt or detritus contaminating the sub-base and compromising the permeability of the system. For example, the trafficking of the sub-base as a site access route should not be undertaken. Should other construction or maintenance work take place close to the pavement which may affect the infiltration of the pavement, suitable protective measures should be implemented.

Further site-specific requirements will be provided to the contractor once the order has been placed.

A recommended operation and maintenance plan for areas of pervious pavement is summarised in Table 1-1.

Maintenance Schedule	Required Action	Minimum Frequency
Routine visual inspections	In general, routine visual inspections are all that is required to determine whether or not remedial maintenance is required. Any infiltration issues are shown up by water ponding on the surface. If ponding is not visible, then remedial action is not required. If ponding is visible see section on Remedial Action for ponding.	Once a year during or following heavy rainfall.
Regular Maintenance	A pressure washer set to a light / medium pressure should be all that is required to remove general dirt and grime.	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional Maintenance	Stabilise and mow contributing and adjacent areas.	As required
	Weeds tend not to establish in areas which receive regular trafficking by vehicles. If weeds are an issue, they can be dealt with by using a weed killer containing Glyphosate. The manufacturer's instructions should always be followed, and adequate Health & Safety measures should also be put in place when handling chemicals.	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection.	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually

Table 1-1 - Typical Pervious Pavement Operation and Maintenance Requirements

Pre- construction (Design stage)

It is essential that the system is designed correctly by a qualified engineer. Refer to BS 7533 Part 13

The design and detailing of the project should ensure that soil from soft landscaping is prevented from spilling onto the surface.

During construction.

Mud / soil and other contaminants should be prevented from entering the sub-base, bedding course and jointing aggregates.

Do not allow muddy construction traffic to use the area once completed.

Do not allow soft landscaping to spill onto the paving surface

After construction.

Do not store materials which may clog up the surface such as soil and mulch.

1.2 Underground Piped Systems

A recommend operation and maintenance plan for the piped drainage network is summarised in Table 1-2

Maintenance Schedule	Required Action	Minimum Frequency
Regular maintenance	Ensure drainage intakes are clear of debris/silt	Monthly (or as required)
Occasional Maintenance	Clear gully pots	6 monthly
	Jet clean sewer lines, gully tails and kerb channels to remove grease, grit, sediment and other debris to ensure conveyance capacity is not compromised	Every 2 years
	Clear perforated pipework of blockages	As required.
Intermittent Maintenance	CCTV survey of sewer lines to identify any defects/sign of performance degradation such as: Cracked/deteriorating pipes; Leaking joints/seals at manholes; High water line showing regular high stage in pipes (sign of lack of capacity or downstream constraint); and Suspected infiltration or exfiltration.	Every 2 – 5 years
Remedial Actions	Repair defects using suitable methods. Effective temporary repairs may be sufficient in short term until scheduled, capital improvements can be made.	As required
Monitoring	Record areas of surface ponding/intake bypassing/surcharging (photos, inundated areas, depths) during extreme storm events and investigate the reasoning for this post-storm.	As required

Table 1-2 - Typical Pipe System Operation and Maintenance Requirements

1.3 Raingarden

The proposed drainage scheme will utilise a bioretention area as a mechanism for collection, treatment and attenuation of surface water run-off. The anticipated maintenance and management for raingardens/ bioretention areas associated with the surface water drainage system is outlined in Table 1-3.

Maintenance Schedule	Required Action	Minimum Frequency
Regular inspection	Inspect infiltration surfaces for silting and ponding. Record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular Maintenance	Reseed area of poor vegetation growth, after plant types to better suit conditions, if required	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional Maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial Actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

Table 1-3 Typical Raingarden Operation & Maintenance Requirements