

## 5 Bioretention systems (Rain gardens)

- 5.1 Rain gardens have been specified for use adjacent to carriageways and/or footways. They are intended to intercept, slow flows, provide water quality treatment at source and provide biodiversity.
- 5.2 Rain gardens may contain proprietary products and as such, where used, the manufacture's recommendations should be followed.

### Operation

- 5.3 Rain gardens are intended for interception and the slow of flow at source. They are meant to be dry planted features except during rainfall events.
- 5.4 Parcel 6 rain gardens have been designed to be surface features with perforated underdrains enabling conveyance of flows in rainfall events, and connection to the wider surface water network.
- 5.5 Access for maintenance is provided through downstream access chambers, and via surface level.

### Inspection and Maintenance Regime

- 5.6 Regular inspection and maintenance is important for the effective operation of rain gardens. It is important to identify areas which may have been obstructed/clogged and may not be draining correctly thus exposing the development to a greater level of flood risk.
- 5.7 The following table outlines general maintenance requirements for rain gardens.

| Maintenance Schedule   | Required Action                                                                                                                                                                                         | Typical Frequency                                                |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Regular Inspections    | 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    | Remove litter and surface debris and weeds                                                                                                                                                              | 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 5.1** Maintenance Schedule for Rain Garden

## 6 Permeable Paving

- 6.1 It is proposed that all driveways and private shared drives are to be constructed from permeable paving.
- 6.2 The permeable paving will be designed in accordance with CIRIA C753 and BS7533-13.
- 6.3 Permeable paving may contain proprietary products and as such, where used, the manufacture's recommendations should be followed.

### Operation

- 6.4 Permeable paving on Parcel 6 is intended for water quality and its location on driveways and private drives, where vehicles are parked, gives greater chance of pollutant interception at source.
- 6.5 As an added benefit, permeable paving slows flows and acts as an additional storage feature. Like other SuDs features on site, they are intended to be dry except during rainfall events.
- 6.6 The surface has been designed to be porous allowing rain to flow through the upper construction layers into the voided stone which makes up the subbase. Where these features are intended to be used as infiltration devices or soakaways any capping also needs to be permeable to permit the flows to the formation.

### Inspection and Maintenance Regime

- 6.7 Regular inspection and maintenance is important for the effective operation of the permeable pavements.
- 6.8 Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols, as run-off is taken from potentially contaminated areas such as car parks.
- 6.9 Individual property driveways will be subject to maintenance by the homeowner. Where located as parallel parking bays or shared drives off the main carriageway, a resident's management company will be responsible for the upkeep and maintenance.
- 6.10 The following table outlines general maintenance requirements for permeable paving:

| Maintenance Schedule   | Required Action                                                                                                                                                                       | Typical Frequency                                                                                                                                                                                                                                                                                                            |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regular Maintenance    | Brushing and vacuuming (standard cosmetic sweep over whole surface)                                                                                                                   | 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                                                                                                                                                                                                                                                                                                                  |
|                        | Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying                                                                 | 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                                                                                                                                                                                                                                                                                                                  |
|                        | Remediate work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material | 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, 48 hr after large storms in the first six months                                                                                                                                                                                                                                                              |
|                        | Inspect silt accumulation rates and establish appropriate brushing frequencies                                                                                                        | Annually                                                                                                                                                                                                                                                                                                                     |
|                        | Monitor inspection chambers                                                                                                                                                           | Annually                                                                                                                                                                                                                                                                                                                     |

**Table 6.1** Maintenance Schedule for Permeable Paving.

## APPENDIX 1

### Proposed Development Layout



## FINCHAMPSTEAD PARCEL 6 - SITE LAYOUT



PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: AV | APPROVED BY: NCC | DATE: 15/05/2025 | SCALE: 1:1000@A2 | DRWG: P24-2400\_DE\_OO\_L0\_001 | CLIENT: VISTRY THAMES VALLEY