

Waterhouse Gardens

Sustainable Drainage Plan

Building Name: Waterhouse Gardens

Location: Manchester

Objectives

1. To reduce the risk of flooding and surface water pollution
2. To minimize the impact of the development on the local drainage network
3. To promote sustainable drainage practices

Design Principles

1. Sustainable Drainage Systems (SuDS): Implement SuDS to manage surface water runoff, reducing the burden on the existing drainage network.
2. Green Infrastructure: Incorporate green roofs, walls, and other green infrastructure to manage surface water runoff and improve air quality.

Proposed Drainage Strategy

Surface Water Runoff Management

- Swales – ‘Rain Gardens’ have been installed in strategic areas of the external public realm areas to allow surface water runoff to flow into them and promote their irrigation and enhance the green infrastructure.

Green Infrastructure

- The landscape proposals for WHG will significantly enhance the biodiversity of the once neglected site by strategically implementing various planting initiatives. These include the planting of over 100 small trees, 200 linear meters of hedging, 500m² of bioretention planting beds, and 1000m² of perennial planting.
- The trees provide valuable vertical structure, offering shelter and food for a range of wildlife, while the hedging creates natural corridors for animals to move through, enhancing connectivity across the landscape.
- The bioretention planting beds, designed to manage rainwater runoff in a much more sustainable way, supporting native plants that attract pollinators and improve soil health.
- Meanwhile, the perennial planting fosters long-term ecological stability, as perennials provide a stable habitat year-round, supporting a variety of wildlife, not only provides year-round colour and texture but also sustains a diverse range of species, from insects to birds. Collectively, these elements assist in transforming the site into a thriving,

resilient ecosystem, fostering long-term ecological health and increasing the site's overall biodiversity.

Monitoring and Maintenance

1. Regular Inspections: Conduct regular inspections of the SuDS features to ensure they are functioning correctly. To form part of ongoing drainage maintenance regime
2. Maintenance Schedules: Establish maintenance schedules for the SuDS features
3. Training and Education: Provide training and education to building management team on the importance of maintaining the SuDS features and rainwater harvesting systems

Implementation and Handover

1. Implementation Plan: Develop an implementation plan for the sustainability drainage plan, including timelines and responsibilities
2. Handover: Ensure that the sustainability drainage plan is handed over to the building management team, including information on maintenance and operation

Certification and Verification

1. Certification: Target obtaining certification from a recognized third-party organization, such as the SuDS Certification Scheme
2. Verification: Schedule in regular verification of the sustainability drainage plan to ensure it is functioning correctly and meeting the required standards

SuDs and Landscaping Maintenance Plan – Summary Schedules

Soft landscape maintenance – Amenity Grass cutting Grassed

- General: Maintain turf in a manner appropriate to the intended use
- Grass height: Maintain within range specified
- Soil and grass condition: To be kept free from damage
- Ornamental turf and lawns: Maintain reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills:
- Edges: Neat and well defined, in clean straight lines
- Litter and fallen leaves: Remove regularly to maintain a neat appearance
- Before mowing: Remove litter, rubbish, and debris
- Finish: Neat and even, without surface rutting, compaction, or damage to grass
- Adjoining hard areas: Sweep clear and remove arisings

Description of works	Season	Frequency
Cutting - maintain grass between 25-30mm using suitable machinery and remove arisings	May - October	Weekly
Herbicide application	May - October	As required
Edge all lawned areas	May - October	4x
Spring fertilizer application (slow release 60g/m2)	April	1x
Autumn fertilizer application (slow release 60g/m2)	August	1x
Water as necessary	May - September	As required
Leaf clearance	September - December	As required

Reinstatement of Damaged Lawns (May – October) as required

- Damaged turf: Remove to a depth of 40mm.
- Preparation: Cultivate substrate to a fine tilth.
- Reinstatement: Re-turfing: Quality and appearance to match existing.
- Protection and watering: Provide as necessary to promote successful germination and/or establishment.

Soft landscape maintenance – Planting beds

- Weed control: Keep planting beds clear of weeds by applying herbicide.
- Pruning: Pruning to be carried out to best horticultural practice
- Watering: As necessary to ensure establishment of planting
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.

Description of works	Season	Frequency
Maintain weed free area to the surface of all planting areas	March - October	8x
Re-firm all shrubs as necessary	March - October	8x
Fertilizer application	Spring	1x
Prune as necessary to encourage healthy growth	March - October	8x

Control all pests and diseases	As required	As required
Remove all dead or damaged material	March - October	As required
Water as necessary	May - September	As required

Soft landscape maintenance – Trees

- Protection: avoid damage to neighbouring trees, plants, and buildings Removing branches: Removal of any low hanging branches
- Health check: Trees to be inspected for the overall health. Trees to have a well-balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

Description of works	Season	Frequency
Inspection of trees	January - December	12x
Pruning - in accordance with good horticulture practice; trim and shape	Autumn	1x
Watering	May - September	As required
Leaf collection from base of trees	Autumn	As required

Hard landscape maintenance

- Paving surfaces need to be maintained such that they provide a safe passage for all foot- paths users.
- It is important that paved surfaces are regularly inspected so that defects can be identified and rectified.
- Typically, early life maintenance, or aftercare of new works will be covered within the defect period.
- The maintenance and defects liability period will be 12 months.
- Regular site inspections to inspect all paved areas regularly during the maintenance period, and to undertake any remedial works.

Description of works	Season	Frequency
Regular inspections to footpaths and paved areas	Inspect with each visit	As required
Litter picking to hard landscaped areas	All year	As required

SUDS Maintenance

As outlined, SuDS are a new environmentally friendly approach to managing rainfall that uses land- scape features to deal with surface water. SuDS aim to:

- Control the flow, volume and frequency of water leaving a development area.
- Prevent pollution by intercepting silt and cleaning runoff from hard surfaces.
- Provide attractive surroundings for the community.
- Create opportunities for wildlife.

Description of works	Season	Frequency
Grass cutting	April - October	8x
Litter collection	All year	As required
Inspection of inlets and outlets	Quarterly	4x
Inspection of any silt build up that will require removing	Quarterly	4x
Removal of dead vegetation	As required	As required
Inspection for any invasive species	March - September	8x

Remedial works may be required to repair any damage where necessary.