

LANDSCAPE MANAGEMENT AND MAINTENANCE PLAN – ROOF GARDENS

Land at Watts Close, Haringey, London

Formation Design and Build
September 2022

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INTRODUCTION TO THE LANDSCAPE & ECOLOGY MANAGEMENT PLAN

Site Details

Site Name	Land at Watts Close, Haringey
Site Location	Watts Close, Haringey, London
Central OS Grid Reference	533276E, 188956N.
Client	London Borough of Haringey

Quality Assurance

Report Title	Landscape and Ecology Management Plan
Author (s)	Swan Paul Partnership Ltd 4 Chartfield House Castle Street Taunton Somerset
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This Landscape Management Plan (LEP) forms part of the planning submission for the proposed development of a residential scheme at the site. Reference should be made to the following documents:
Drawing 3264.105 Roof Gardens – Landscape Plan

This LMP is prepared by Swan Paul Partnership Ltd (www.swanpaul.co.uk) landscape architects

A management plan incorporates the element of time. Through the processes of monitoring, reappraisal and considered maintenance, the management plan ensures that the original design intent and capital expenditure of the landscape scheme is not lost over time. The Plan is intended to document the management and maintenance requirements of all ecological and landscaping elements of the proposed scheme. The plan runs for minimum of 5 years and implemented for all times after.

The purpose of this Management Plan is two-fold:

Aims

The aims of this document are to:

- Ensure the nature conservation value of the habitats are maintained and enhanced;
- Provide enough detail to ensure that newly created habitats are managed and maintained in the long-term to benefit biodiversity and landscape function;
- Provide a timetable for the implantation of the LMP; Provide a monitoring framework to ensure that appropriate refinements and/ or revision of the plan can be made, in order to promote any objectives/ targets of the LMP;
- Provide details of enhancements;
- To ensure the successful establishment and long-term health of the plant stock;
- Use of good horticultural practices and best health and safety practices at all times.

Landscape Elements:

This document will also set out the performance of the required soft landscape and ecology enhancement works during the first five-year period from practical completion. The document will assist those who supervise and carry out the landscape maintenance work and is intend for use by individuals or companies who have an understanding of landscape maintenance as well as a comprehension of ecological strategies and of the general terms and standards.

The softworks package consists of lightweight aggregate growing media installed on roof gardens at the site, and planted with plant species selected for its benefits for wildlife. Aggregates, logs and physical materials are also installed at varying depths and will be of benefit to birds and invertebrates. The roof gardens will not be open to the residents or the public and include photovoltaic panels for the generation of electricity. Only management and maintenance operatives will have access to the roofs.

THE LANDSCAPE MANAGEMENT PLAN

DESIGN OBJECTIVES

The landscape has been developed in such a way as to:

- Provide habitat opportunities for wildlife whilst still allowing the PV panels to operate;
- Allow for easy access to maintain or replace landscape, roof or PV panel elements;

GENERAL MANAGEMENT OBJECTIVES

The general intent of the landscape management strategy is to ensure the successful establishment of the proposed planting and seeding and for the longer-term creation of a strong planting structure. Maintenance is therefore to be undertaken in such way as to allow healthy plants to develop, unhindered by unwanted weed growth or other inhibiting factors. The site has been made up of various design elements and they all have a function to perform and have objectives in terms of establishment.

The information below summarises the main functions and key objectives for the maintenance of the wider landscape and each element over a five-year period.

- To establish the long-term design objectives of the landscape area and define management objectives and ensure the successful establishment and long-term health of the plant stock through watering and pruning if and when required;
- To ensure use of good horticultural practices and best health & safety practices at all times;
- To create new habitats and maximise the ecological wildlife value of the site;

SOFT LANDSCAPE ELEMENTS

Seed Mix for Roof Gardens

The majority of the plant communities on the green roofs are to be established from this seed mix. In the drawings this is detailed as Mix ER1 Turf Roof Mixture by Emorsgate seeds (www.wildseed.co.uk) OR SIMILAR.

Function: To provide cover and nesting opportunities for birds and invertebrates and valuable foraging for insects.

Objective: to maintain the planting free of rank weeds and to allow it to naturally seed and regenerate.

ER1 – TURF ROOF MIXTURE

Composition

This wild flower and grass mixture is suitable for sowing green roof schemes where a turf of grasses with wild flowers is the desired end point.

Wild Flowers

%	Latin name	Common name
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0.5	<i>Agrimonia eupatoria</i>	Agrimony
1	<i>Anthyllis vulneraria</i>	Kidney Vetch
0.2	<i>Armeria maritima</i>	Thrift (Sea Pink)
1	<i>Betonica officinalis</i> -	Betony
0.5	<i>Calluna vulgaris</i>	Ling - (Common Heather)
0.5	<i>Euphrasia officinalis</i>	Eyebright
1	<i>Filipendula vulgaris</i>	Dropwort
2	<i>Galium verum</i>	Lady's Bedstraw
0.2	<i>Hippocrepis comosa</i>	Horseshoe Vetch
0.2	<i>Leontodon hispidus</i>	Rough Hawkbit
0.2	<i>Linum bienne</i>	Pale Flax
1.2	<i>Lotus corniculatus</i>	Birdsfoot Trefoil
1	<i>Lysimachia arvensis</i> -	Scarlet Pimpernel
0.5	<i>Matricaria chamomilla</i> -	Scented Mayweed
1.5	<i>Origanum vulgare</i>	Wild Marjoram
1.5	<i>Papaver rhoeas</i>	Common Poppy
2.5	<i>Poterium sanguisorba</i> -	Salad Burnet
2.5	<i>Prunella vulgaris</i>	Selfheal
1	<i>Rumex acetosella</i>	Sheep's Sorrel
1	<i>Silene uniflora</i>	Sea Campion
20		

Grasses

%	Latin name	Common name
4	<i>Briza media</i>	Quaking Grass (w)
0.2	<i>Carex flacca</i> Glaucous	Sedge
20	<i>Cynosurus cristatus</i>	Crested Dogstail
24	<i>Festuca ovina</i>	Sheep's Fescue
24	<i>Festuca rubra</i>	Slender-creeping Red-fescue
2	<i>Koeleria macrantha</i>	Crested Hair-grass (w)
4.6	<i>Phleum bertolonii</i>	Smaller Cat's-tail (w)
1.2	<i>Trisetum flavescens</i>	Yellow Oat-grass (w)
80		

Sowing Rates

10g/m²

Plug Planting

Planting of native and semi-native plants as ready grown plugs will be carried out to mounded areas where there is greater depth of substrate and therefore greater resources available for plant growth. This will allow for good establishment of planting to these areas.

PLUG PLANTS FOR INTERPLANTING

Composition

Interplant mounded areas with the following cornfield annuals as plug plants, amongst seeding. Plugs 3x2cm root size.

Plug Flowers

%	Latin name	Common name
40%	<i>Agrostemma githago</i> –	Corncockle
20%	<i>Centaurea cyanus</i> –	Cornflower
10%	<i>Cota austriaca</i> – (<i>Anthemis austriaca</i>) –	Corn Chamomile
20%	<i>Glebionis segetum</i> – (<i>Chrysanthemum</i>) –	Corn Marigold
10%	<i>Sedum telephium</i> –	Stonecrop

Various aggregates, pebbles and rocks

Various sizes of aggregates and loose materials are to be provided and laid over surfaces in drifts to provide varied substrates and habitats for plants and animals. These are to be as follows:

% of area	Material
70%	Gravels: gravel or crushed concrete waste from site (or elsewhere) 5-25mm in size.
20%	Pebbles and stones: Pebbles, hardcore or crushed concrete waste from site (or elsewhere) 25-75mm in size.
10%	Rocks: Quarried stone or crushed concrete waste from site (or elsewhere) 75-150mm in size.

The above elements to be retained in interwoven drifts of the same sized material over both flat and mounded areas.

Log Refugia

Various sizes of loose logs are to be provided and laid over surfaces in piles to provide invertebrate refugia. These are to be as follows:

%	Material
100%	Hardwood logs 100-200mm dia, 1-1.5m long

Arrange in piles roughly 1.5m long and 1.0m wide with 12-20 logs to each pile.

ESTABLISHMENT/ MAINTENANCE PROGRAMME

Management and maintenance of the roof gardens will be undertaken by a competent landscape management company, to be appointed and monitored by the site operators. This management plan is intended as a guide for this operation.

The developer and management company are responsible for, but not be limited to:

General Management Tasks

The works involved, but are not limited to, the following maintenance tasks:

- Ensure the work is carried out in a safe manner avoiding risks to the health and safety of employees, users of the site and general public. A site-specific risk assessment should be submitted prior to the

commencement of the work;

- The work shall be undertaken without risk or inconvenience to the public, site occupants or neighbours. Access to the site and the work shall be undertaken with due regard to the needs of those using the site and surroundings. Work shall be timed to avoid unnecessary nuisance or disturbance to the site occupants or adjoining neighbours.
- Ensure early establishment and healthy growth of all newly seeded areas and plug plants;
- Watering plants and seeded areas as necessary (with particular attention to trees) to aid establishment during the early years after planting;
- Keeping planting areas generally free from weeds.
- Leave the works in a clean, tidy condition and after any maintenance operations;
- Hand weeding as required.
- Replacing plants that fail where required at the next available seeding/ planting season;
- Mowing regimes for ER1 seeded areas to be established to maintain appearance and function in the long term.

Standards of Workmanship

The landscape maintenance is to be carried out to a high standard and where possible source locally based landscape contractor subject to the following;

- The contractor shall supply appropriately skilled and experienced operatives for the type and quality of the work and be familiar with this manual. The contractor shall supply a suitable experienced and qualified foreman, who shall attend the site at each and every visit. The foreman must be able to interpret and act on instructions given by the CA or his agents. An NVQ level 2 in Horticulture or Arboriculture is recommended as a minimum for staff.
- The contractor must be a CSCS certified operator and take appropriate safety precautions and comply with the Control of Pesticides Regulations 1986, the conditions of approval for the chemical, and any relevant Code of Practice issued by DEFRA.
- All operations necessary shall be carried out without unreasonable noise and disturbance. The landscape maintenance contractor will ensure that the works themselves do not cause inconvenience or danger to the users of the site.
- The work shall be undertaken without risk or inconvenience to the public, site occupants or neighbours. Access to the site and the work shall be undertaken with due regard to the needs of those using the site and surroundings. Work shall be timed to avoid unnecessary nuisance or disturbance to the site occupants or adjoining neighbours.
- Pruning, thinning or cutting should be undertaken during autumn / late winter / early spring in order to avoid disturbance during the bird breeding season which is March to August inclusive.
- The contractor shall allow for the removal and safe disposal of all waste materials arising from the landscape maintenance works..
- The following British Standards shall apply

- BS3882: 2015 Specification for topsoil.
- BS3936-1: 1992 Nursery stock - specifications for trees and shrubs.
- BS4428: 1989 Code of practice for general landscape operations (excluding hard surfaces).
- Noxious weeds as defined by the Weeds Act, or invasive or harmful species should be noted by the Contractor with appropriate control measures implemented at the earliest opportunity. Should Himalayan balsam be found within the site then its removal is best achieved by hand pulling and removal of plants, being careful not to spread seed into the wider landscape. It is an invasive nonnative species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and should be disposed of responsibly.

Noxious Weeds (must be destroyed or controlled)	Species covered by the Wildlife and Countryside Act (illegal to spread)	Other Harmful Species
Spear Thistle (Cirsium vulgare) Creeping or Field Thistle (Cirsium arvense) Curled dock (Rumex obtusifolius) Ragwort (Senecio jacobaea)	Japanese knotweed (Reynoutria japonica) Giant Hogweed (Heracleum mantegazzianum)	Marestails Invasive plant difficult to control

Failure of Plant Material

- The contractor shall replace any plug or failed seeded area which has died or has not developed full foliage during the twelve (12) months following planting. Replacements shall take place as early as possible during the planting season following the original planting period and undertaken with good horticultural practice.
- All replacement plant material shall conform to the original Specification unless otherwise agreed in writing between the Client and the Landscape Architect. Any reinstatement or replanting works should respect the original intent of the design and planting proposals and carried out at the appropriate time.
- The contractor shall make good at his own expense all necessary repairs to levels, grassed areas and paving required because of plant replacements.

ELEMENTS OF WORK (SPECIFICATION)

SOFT LANDSCAPE ELEMENTS

ER1 Turf Roof Seed Mixture (or similar)

Areas of this seed mix are to be established on roof gardens predominantly within swathes of smaller aggregate surface materials, with larger materials and plug planting to the mounded areas. Seeding is to be carried out amongst the finer aggregate areas.

- Ensure the bed is weeded and well prepared prior to seeding. Create a fine friable seedbed and carry out two equal sowings at right angles to each other. Broadcast manually, rake level and roll. Ensure good seed to soil contact.
- Water by hose and sprinkler as necessary to secure healthy establishment and to avoid the need for replacement due to dry periods (less than 30mm rainfall at the end of a four-week period).

MAINTENANCE OF TURF ROOF SEED MIXTURE

- **First year management:**
Mix ER1 Flowering Lawn Mix by Emorsgate seeds. The wildflower and grass species in this mix are annuals and perennials; they will be slow to germinate and grow and will not usually flower in their first growing season. There will often be a flush of annual weeds from the soil in the first growing season. This annual weed growth should be controlled by repeated hand pulling on a monthly basis.
- **Management once established:**
Make monthly checks through the growing season (March to August) and remove rank weed species and tree seedlings. Once every three years the roofs should be strimmed and the arisings removed. This should be carried out in late summer after plants have flowered and set seed.
- All failed areas of seeding, areas of dead plants or failing plants which in the opinion of the Landscape Architect are failing to make satisfactory growth shall be replaced by the Contractor. These areas are to be replaced with new seeding in the appropriate season.
- In subsequent years the roofs should be watered during times of drought only. Water to ensure the survival of the plants.

Plug Flowers

- All planting should be carried out in accordance with BS4428:1989, Code of practice for general landscape operations (excluding hard surfaces). Plug plants should be put into the ground at the same depth at which they had been previously grown in the nursery. All plants need to be well firmed in after planting and watered in. It is important to make sure that the roots do not dry out, therefore it is advisable to keep them under a moist cloth or in a bucket of water during planting. Plant by moving aggregates to one side, plant the plugs and the re-instate aggregates around the plug. Avoid planting in frosty or very dry weather;
- **Weed Control:** between plants to be carried out by mechanical means, not sprays as the majority of the plants will be killed by these. Any arisings are to be removed from site;
- **Management once established:**
Make monthly checks through the growing season (March to August) and remove rank weed

species and tree seedlings. Once every three years the roofs should be trimmed and the arisings removed. This should be carried out in late summer after plants have flowered and set seed.

- All failed areas of planting, areas of dead plants or failing plants which in the opinion of the Landscape Architect are failing to make satisfactory growth shall be replaced by the Contractor. These areas are to be replaced with new plants in the appropriate season.
- In subsequent years the roofs should be watered during times of drought only. Water to ensure the survival of the plants.

PROCESS FOR MONITORING AND REVIEW

The management of the roof site is to be reviewed on an annual basis (Years 1-5) and it is intended that the implementation of this management plan will help to fulfil the design objectives over the first 5 years. The review process is to ensure that the aims and objectives of the scheme are being achieved and maintenance operations should be refined over the period to respond to industry standards improvements and incorporating any additional operations required.

Each annual review will be coordinated and completed by a suitably qualified representative of the Applicant. The review will include advice from specialist consultants as required, such as a qualified ecologist and the Landscape Management Contractor. The review should identify any changes to site conditions and circumstances and identify where changes are required to existing management practices and timeframes.

Any strategic enhancements, including new planting should be identified and priorities established for undertaking these works. Within 1 calendar month of the review, a revised Landscape Management Plan shall be produced (if appropriate) and circulated.

After the first five years (Years 5+) the Landscape Management Plan will be reviewed every five years, or as required to ensure the satisfactory management of the landscape indefinitely. The Landscape Maintenance Contractor responsible for the site should keep to the spirit of the original design objectives.

ANNUAL MAINTENANCE OPERATIONS SCHEDULE

This table lists the key routine operations required during the first 5 years after practical completion of the soft landscape treatments and should be used as a guide to timings of specific operations. The maintenance contractor should be prepared to undertake maintenance tasks as required throughout the year to satisfy objectives at the direction of the management organisation.

Task	J	F	M	A	M	J	J	A	S	O	N	D	Notes
General operations:													
Weed control – One visit per month													Monitor and apply during drought conditions only
Watering – Two visits per month													Monitor and apply during drought conditions only
Replanting/ re-seeding operations													Inspect and carry out if necessary
Strimming – down to 100mm remove arisings.													Carry out every three years

General inspection/ reinstate loose rocks or logs etc.													
Management Plan:													
Monitor & adjust objectives													

Note: This list is not definitive list, additional operations maybe be required and can be developed as part of the on-going management and proposed for the following 5 years.