Acton Gardens Phase 7.2

Condition 26
Biodiversity

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Project
Acton Gardens Phase 7.2

Client
Acton Gardens LLP

LUC Project Number
11252

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Contents

1. Introduction

LUC have been appointed to prepare details pursuant to condition 26 of the Hybrid Outline Consent for the Remaining Area of the Acton Gardens Masterplan planning consent (Ealing reference: 182579OUT). This document is produced to illustrate details in relation to the reserved matters application for Phase 7.2. The proposals contained in this document have been developed by LUC's Ecology and Landscape teams to maximise the roofs biodiversity value.

Phase 7.2 Description

Reserved matters application for Phase 7.2 of the Remaining Acton Gardens Masterplan pursuant to conditions 7 (Reserved Matters) and 8 (Reserved Matters Details) of the Hybrid Outline Planning Permission Ref: 182579OUT (dated 24/12/2018) for the continued regeneration of the South Acton Estate. Application seeks approval for Means of Access, Appearance, Landscaping, Layout and Scale in relation to the construction of a new building varying in height from 6 to 12 storeys comprising 185 new residential units including provision for Over 55's; with associated private and semi-private amenity space; refuse/recycling and bicycle storage; plant rooms; car parking; tree removal and public realm improvements; as well as the an energy centre up to 373sqm in size; following the demolition of existing buildings. The application is accompanied by an Environmental Statement of Compliance.

Condition 26

Prior to the commencement of any above ground work within each Phase or Sub-Phase, full details of biodiversity roofs shall be compliant with GRO Green Roof Code 2014 shall be submitted to, and approved in writing by, the Local Planning Authority prior to the implementation of the relevant part of the development hereby approved. Submitted information should include a report from a suitably qualified ecologist specifying how the biodiversity roof has been developed for biodiversity with details of landscape features and a roof cross-section.

Where a green roof is proposed, this should be comprised of, but not necessarily limited to:

a) Be biodiversity based with extensive substrate base (depth 80-150mm).

b) Have sufficient depth of soil or growing medium for the relevant planting, including the re-use of any demolition material where feasible.

c) Be planted / seeded with a green mix of species within the first planting season following the practical completion of the building works. The seed mix shall be focused on wildflower planting and shall contain no more than 25% sedum.

d) Have relevant efficient and effective drainage and irrigation to sustain the vegetation.

The biodiversity roofs shall not be used as an amenity or sitting out area and shall be only accessed in the case of essential maintenance and repair.

This document sets out the design proposals for Phase 7.2 and how they comply with relevant aspects of the codition as outlined above.

2. Phase 7.2 Proposals

Phase 7.2 includes a single perimeter residential building with streets to four sides and a central communal courtyard garden. The central courtyard provides communal amenity space for residents. The biodiverse roofs are located at the higher level and are inaccessible to residents.

Phase 7.2 in Masterplan Context

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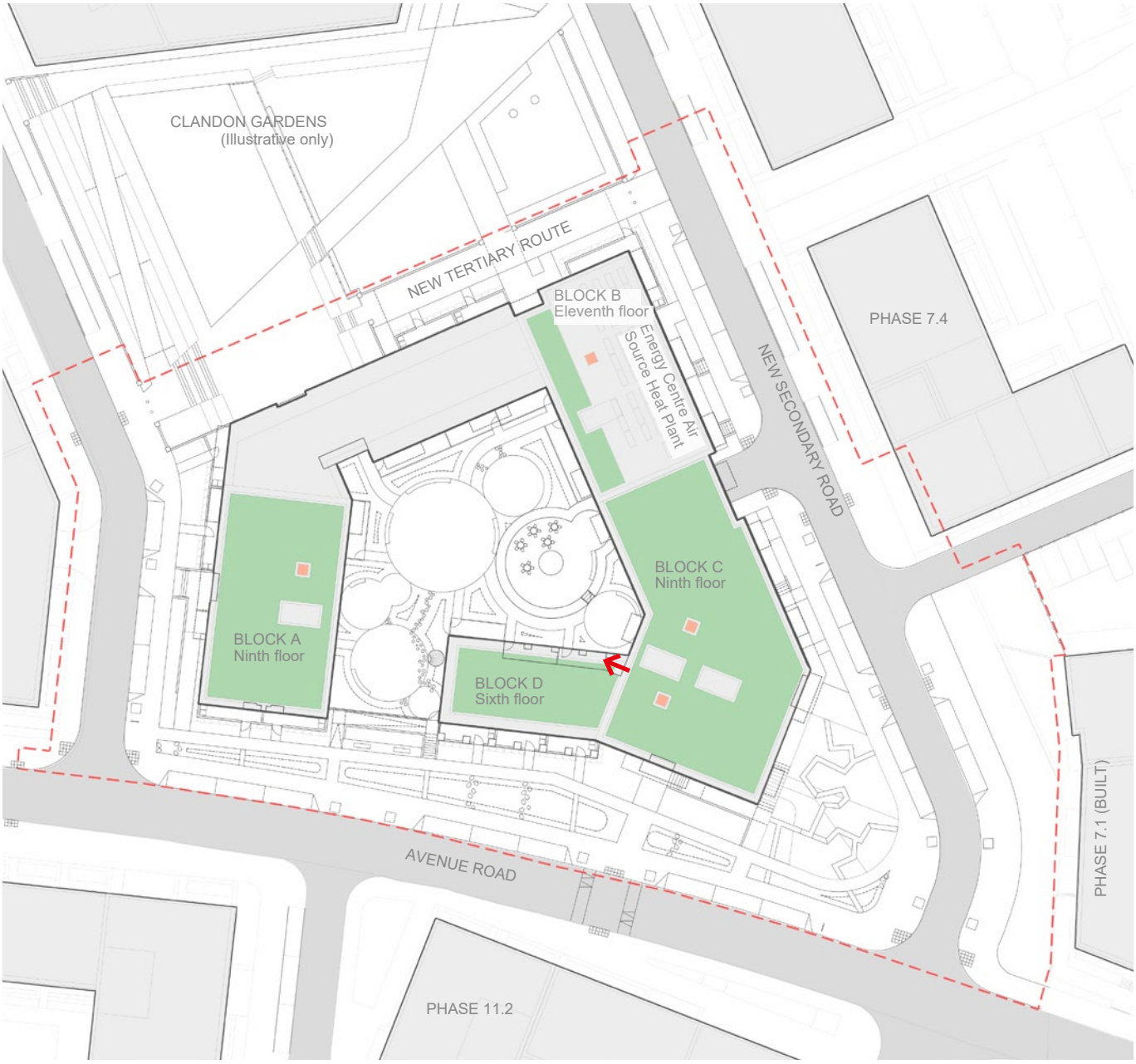
3. Biodiverse Roof Locations

Biodiverse roofs are proposed to the upper roofs and are inaccessible to residents. Maintenance access is provided via secure access hatches with ladders from communal areas in the building cores, or via a secure door from Block D staircore. The roofs are edged by a suitable parapet to facilitate safe access for maintenance personnel.

All roofs will be seeded. The roofs will be finished in the same base growing medium, and then seeded. These roofs will allow establishement of local native seeds which blow onto the roof, mixing together with the base scattered seeds.

The roofs offer biodiversity value through the broad range of species proposed, extent of habitat and opportunites for local species to colonise the substrate. The multiplicity of wildflowers within the seed mix provide a nectar and pollen rich habitat for priority pollinators, larval food plants for butterflies and a foraging habitat for birds.



Biodiverse Roof Extents Plan

Seeded Biodiverse Roof

Acces Hatches

Access via secure door from sixth floor Core D communal staircase

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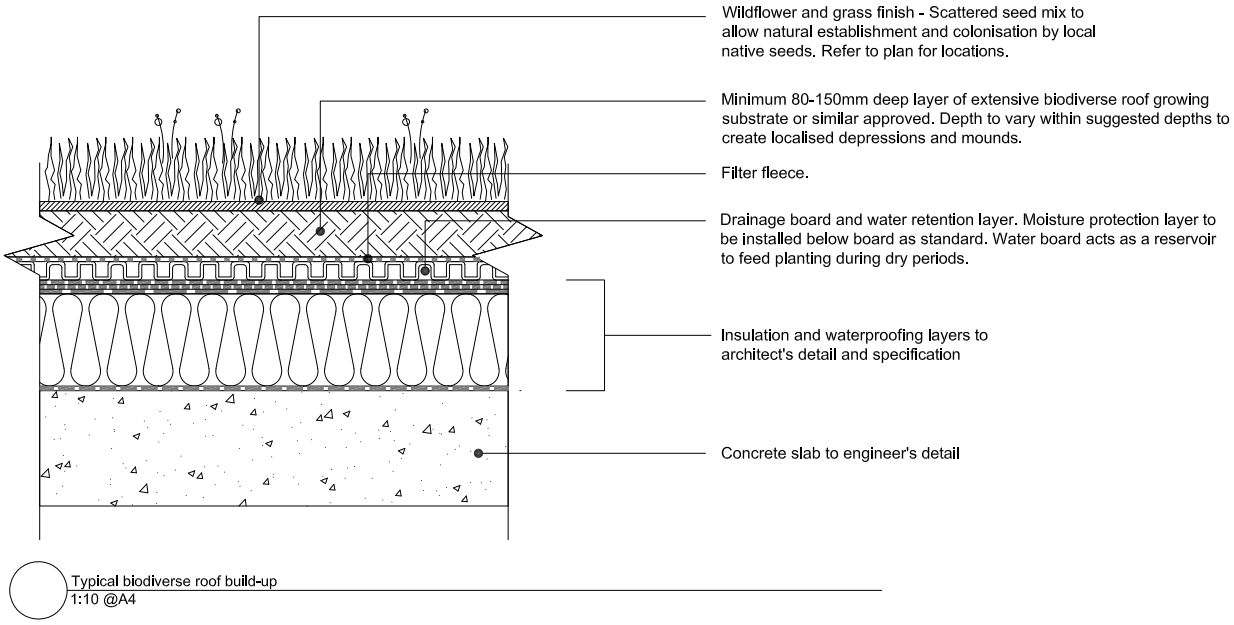
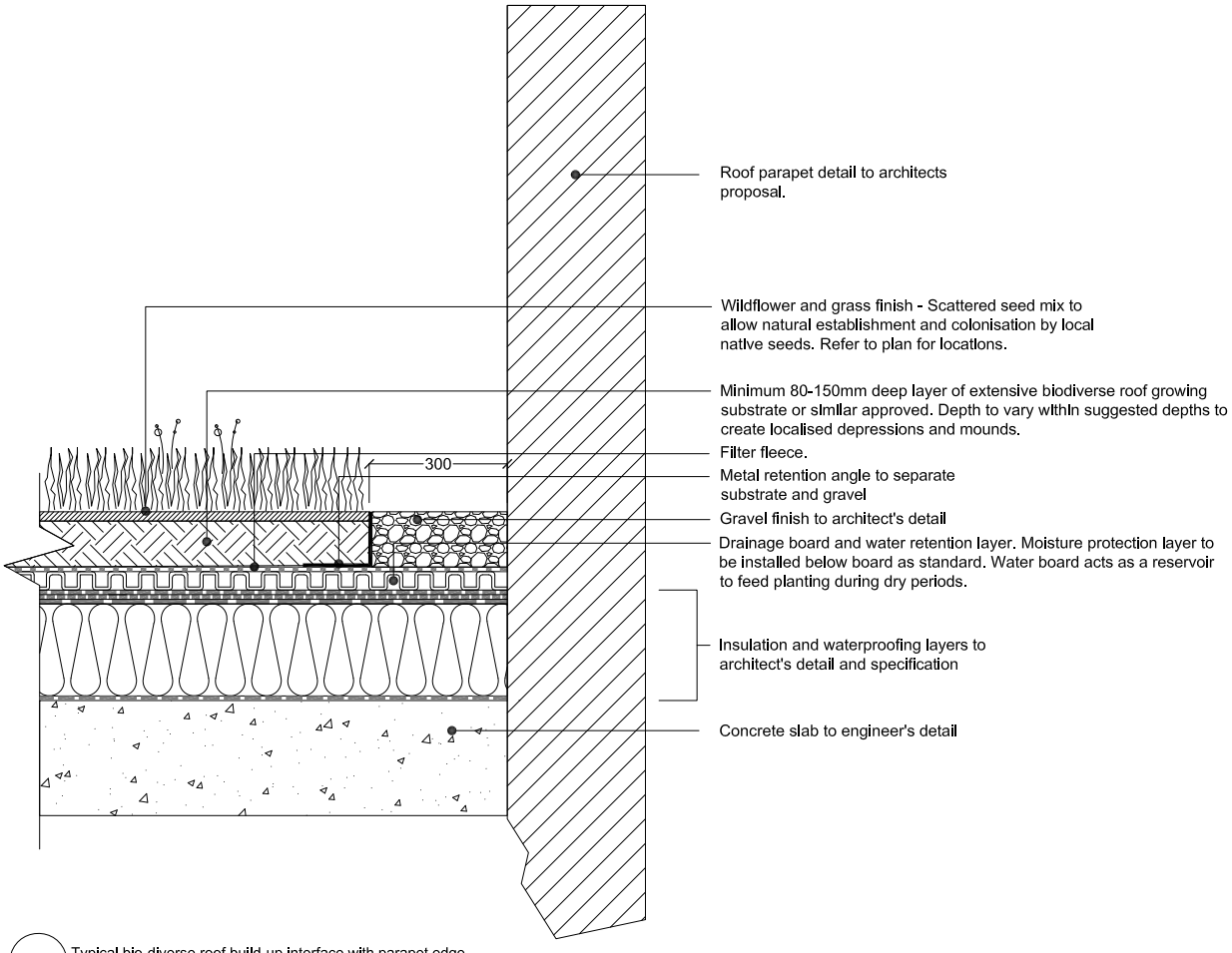
4. Biodiverse Roof Build-ups Details

Typical build-up details for the biodiverse roofs as proposed for Acton Gardens Phase 7.2 are shown below.



Typical biodiverse roof build-up
1:10 @A4



Typical bio-diverse roof build-up interface with parapet edge
1:10 @A4

5. Planting and Soil Specification

Biodiverse growing substrate

Characteristic	Unit	Area (Ha.)
Maximum saturated weight	kg/m3	≤ 1,200
Typical supply weight	kg/m3	c.950
Water storage	By vol	35%
ph value	-	6-8.5
Material	Recycled crushed brick, expanded clay, shale, composted pine bark	

Biodiverse growing substrate should be pre-mixed and can include recycled material from site if free from contaminants and provided it meets the specification criteria. Material to be provided by a suitably certifed roof supplier. Contractor to ensure material is suitably laid and is suitably secure to avoid movement in high winds.

Proposed Typical Wildflower / Grass Seed Mix

Species	Height
Achillea millefolium	8-40 cm
Armeria maritima	5-20 cm
Bellis perennis	3-12c m
Campanula glomerata	3-30 cm
Campanula rotundifolia	15 cm
Centaurea cyanus	20-50 cm
Centaurium erythrea	10-40 cm
Dianthus deltoides	15-30 cm
Echium vulgare	30-60 cm
Galium verum	15-60 cm
Geum rivale	20-40 cm
Linaria vulgaris	20-40 cm
Lotus corniculatus	10-20 cm
Lychnis flos-cu-culi	50-60 cm
Papaver rhoes	20-60 cm
Pilosella aurantiaca	20-60 cm
Prunella vulgaris	5-20 cm
Rhianthos minor	30-50 cm
Saponaria officianalis	20-40 cm
Scabiosa columbaria	15-50 cm
Sedum acre	5-10 cm
Silene uniflora	8-25cm
Silene vulgaris	25-50 cm
Thymus polytricus	4-10 cm

Establishing seed mix

Mix illustrative and subject to minor variation depending on supplier availability. Minimum number of species to be achieved as above or exceeded. Mix to contain no more than 10% grass species.

The mix is a UK Native British Provenance Seed Mix, focused on wildflower species, a number of which are on the RHS Plants for Pollinators list.

This mix is deemed ecologically beneficial and in compliance with this planning condition.

6. Management and Maintenance

A biodiverse roof is a real asset to a building and for it to continue to deliver the environmental and aesthetic benefits for which it was originally designed it is important to carry out maintenance on a regular basis.

General maintenance Requirements

All roofs require a minimum of two inspections a year to ensure that the drainage outlets etc are functional, regardless of the type of biodiverse roof. General maintenance activity is normally carried out annually during springtime. However, certain tasks which will be dependent upon the location of the roof, such as the removal of weeds, seedlings and accumulated leaf litter from overhanging trees may also need to be done during the autumn.

A typical maintenance programme includes:

- Roof Evaluation - Perform a comprehensive review of the biodiverse roof to determine what remedial work, if any, needs to be done.
- Removal of Unwanted Items - Over time a biodiverse roof can become congested with leaves, debris and other unwanted vegetation, which should be removed.
- Inspection of roof outlets and removal of any encroaching vegetation to enable water to flow freely through rainwater pipes.
- Application of fertiliser - To help restore the biodiverse roof to its best.

The following procedures should be carried out as indicated below, in order to ensure that the roof is maintained in good condition and to protect the validity of the guarantee.

Preliminary Maintenance Procedures

Ensure safe access can be gained to the roof and that relevant Health and Safety procedures are followed when working at roof level. It is advised that the contractor should always seek proof of current maintenance for any man-safe roof access systems prior to proceeding with the work on site.

Remove all dead vegetation and debris from the roof surface, taking particular care to ensure that all chute outlets, gutters and downpipes are clear. Where the species mix incorporates wild flowers and grasses it is recommended that all dead vegetation is strimmed off and the waste lowered to the ground and carted away.

Remove the lids of all Inspection chambers, ensure that all rainwater outlets and downpipes are free from blockages and that water can flow freely away.

The Building owner should keep a record of all inspections and maintenance carried out on the roof. Any signs of damage or degradation to the waterproofing should be reported to the building owner immediately, in order that arrangements can be made for remedial work to be carried out if necessary. Damage to the landscaping should be reported to the building owner.

Works to adjoining areas - When carrying out maintenance to these areas, care must be taken not to damage either the landscaping or the waterproofing system.

Vegetation Maintenance Tasks

The following tasks should be carried out annually: -

- Plant encroachment.

Any vegetation which has encroached into drainage outlets, walkways and the vegetation barriers (pebbles) should be removed. The vegetation removed may be set aside and used to repair any bare patches if required (see below). If movement/settlement of the pebble vegetation barrier has occurred, additional washed stone pebbles similar to the existing are to be added.

- Monitor the colour and rate of growth.

The colour and rate of growth of the vegetation should be reviewed to establish the health of the plants. It should be noted that many factors can affect the growth and colour of the vegetation and that plants tend to be greener in wetter, mild conditions (springtime) and where the roof pitch is shallow.

- Weeding

With the exception of saplings, which should always be removed, weeds in an extensive biodiverse roof should be only considered an aesthetical problem. If considered excessive, they can be removed either manually or by using a ‘spot weed wipe’, ensuring that care is taken to follow specific instructions regarding the use of any proprietary products. After the removal of weeds and saplings, treat the affected area as if it were a bare patch (see below). All extensive biodiverse roof installations will at times include some moss and grass.

- Repairing Bare Patches.

Bare patches can be easily repaired and this is best done during the main growing seasons of March/April or from late August until the end of September. Take vegetation cuttings from surrounding areas of abundant growth and place on bare patches, pressing gently into the soil. A light sprinkling of sand mixed with compost should then be dressed over the affected area to improve the uptake of the cuttings. The best results will be achieved if this work is carried out during spring maintenance and the affected area is kept moist for a short period afterwards.

6. Management and Maintenance

Please note: In areas of extreme exposure or where localised wind-swirl is caused by adjacent structures, it is possible that both the vegetation and substrate will be disturbed by periods of high wind. Should this occur, consideration should be given to how best to secure the installation against similar conditions in the future prior to re-instatement. If a problem of this type is suspected, the supplier may be contacted for advice and, if necessary, a suggested course of action.

- Fertiliser

Biodiverse roofs are grown in a shallow growing medium which contains very little nutrient, so the annual application of fertiliser is crucial to ensure that the plants remain healthy. Fertiliser should ideally be applied during March/April, as it helps the plants to prepare for extreme weather conditions and flowering whilst also allowing the different species to gain sufficient nutrients without competing against each other.
Organic fertilizer can be applied at the recommended rate of 80gm/m². Areas of up to 30m² may be applied using either a hand held spreader or strewn by hand from a bucket. Always apply the fertiliser at the given rate written on the supplier's bag.

It is recommended that the fertiliser is lightly 'watered in' immediately after application, to avoid "burning" of the foliage, which may occur if fertilizer pellets settle on the leaves. Dung-based organic fertilizers should be avoided.

- Irrigation

It is generally not considered necessary to irrigate extensive substrate biodiverse roof systems.