

# Ham Close Regeneration

Planning Application:  
Biodiverse Roof Strategy

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## Document control

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**Project**  
Ham Close Regeneration

**Client**  
Hill Residential

**LUC Project Number**  
11265

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**Note**

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# 1.0 Introduction

This document has been produced in support of the Full Planning Application for the site at Ham Close, Ham, Richmond Upon Thames, TW10 7PG. Ham Close is currently owned by Richmond Housing Partnership (RHP) and the London Borough of Richmond Upon Thames Council (LBRuT). Hill Residential have been selected as the developer of the project. Ham Close regeneration, will replace existing homes and community facilities. Hill Residential have appointed a full design team to develop the proposals. The applicant and design team have engaged in pre-application discussions with local authority; LBRuT and Richmond Design Review Panel to develop the detailed design for this submission as well as the Greater London Authority.

This document is produced to illustrate details in relation the biodiversity roof strategy including location, extent, detail and maintenance, appropriate to policy LP17. This report should be read in conjunction with additional documents which form this application. A full outline of documents can be found in the Planning Statement.

## Policy LP17

### Green roofs and walls

Green roofs and/or brown roofs should be incorporated into new major developments with roof plate areas of 100sqm or more where technically feasible and subject to considerations of visual impact. The aim should be to use at least 70% of any potential roof plate area as a green / brown roof.

The onus is on an applicant to provide evidence and justification if a green roof cannot be incorporated. The Council will expect a green wall to be incorporated, where appropriate, if it has been demonstrated that a green / brown roof is not feasible.

The use of green / brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions and extensions.

**Point 5.6.4** A green roof is defined as having a minimum of 70% soil/vegetation coverage, with a minimum substrate depth of 85mm, and a maximum of 30% hard surface. Green roofs are not roof terraces. Green roofs can be installed on any pitch of roof; however, as the pitch increases, additional specific design measures will be required in order to retain the substrate across the roof surface, which will result in increased costs. The appearance of the green roof also needs to be compatible with the surrounding area. The aim should be to use at least 70% of any potential roof plate area as a green roof; that is, the total roof plate area including space for renewable energy solutions such as photovoltaic panels and solar thermal but excluding non-green roof solutions such as air conditioning units. The Council will take into account relevant viability information.

## 2.0 Proposals

The proposal of 14 apartment blocks and 42 houses replaces 192 existing homes. The proposed scheme comprises 452 residential homes of a mixture of sizes, split across various tenures. The proposals also include the re-provision of the existing Ham Youth Club as Ham Community Centre, and Richmond MakerLabs.

The proposed apartment blocks and terraced houses are arranged around public and private external space.



Ham Close Illustrative Masterplan

### 3.0 Biodiverse Roof Locations

Biodiverse roofs are proposed to all of the apartment blocks and the new Community Centre. Where proposed, the design maximises the extent of biodiverse roof, and in all cases covers a minimum of 70% of the available roof plate in each building. A brown roof system will be used with seeding to encourage establishment.

Biodiverse roofs are not proposed to houses and some sections of the flat blocks due to the inability to access them safely for maintenance purposes or due to plant requirements. The MakersLab does not have a biodiverse roof as the pitch is too great, the building footprint is also less than 100sqm.

Biodiverse roofs are proposed on parts of the roofs which are inaccessible to residents and users of the Community Centre. Maintenance access is provided via secure access hatches with ladders from communal areas in the building cores. The roofs are either edged by a suitable parapet to facilitate safe access for maintenance personnel, or a suitable man-safe system will be provided.

The roofs will be finished in the same base growing medium, and then seeded. In addition to the base seed mix, the roofs will allow establishment of local native seeds which blow onto the roof.

The roofs offer biodiversity value through the broad range of species proposed, extent of habitat, and opportunities for local species to colonise the substrate. The multiplicity of wild flowers 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.

Roof areas of the houses are not proposed to have biodiverse roofs as access for maintenance cannot be provided from public areas. Climbing plants are proposed along the flank walls of the housing where possible.

Biodiverse brown roof areas along with percentage coverage are indicated on the plan below.

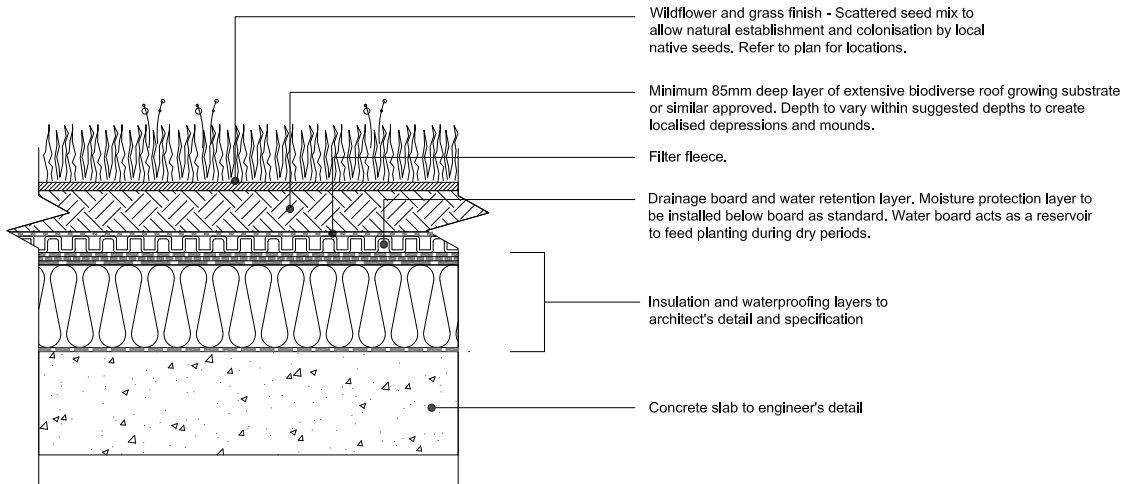


Biodiverse Roof Extents Plan

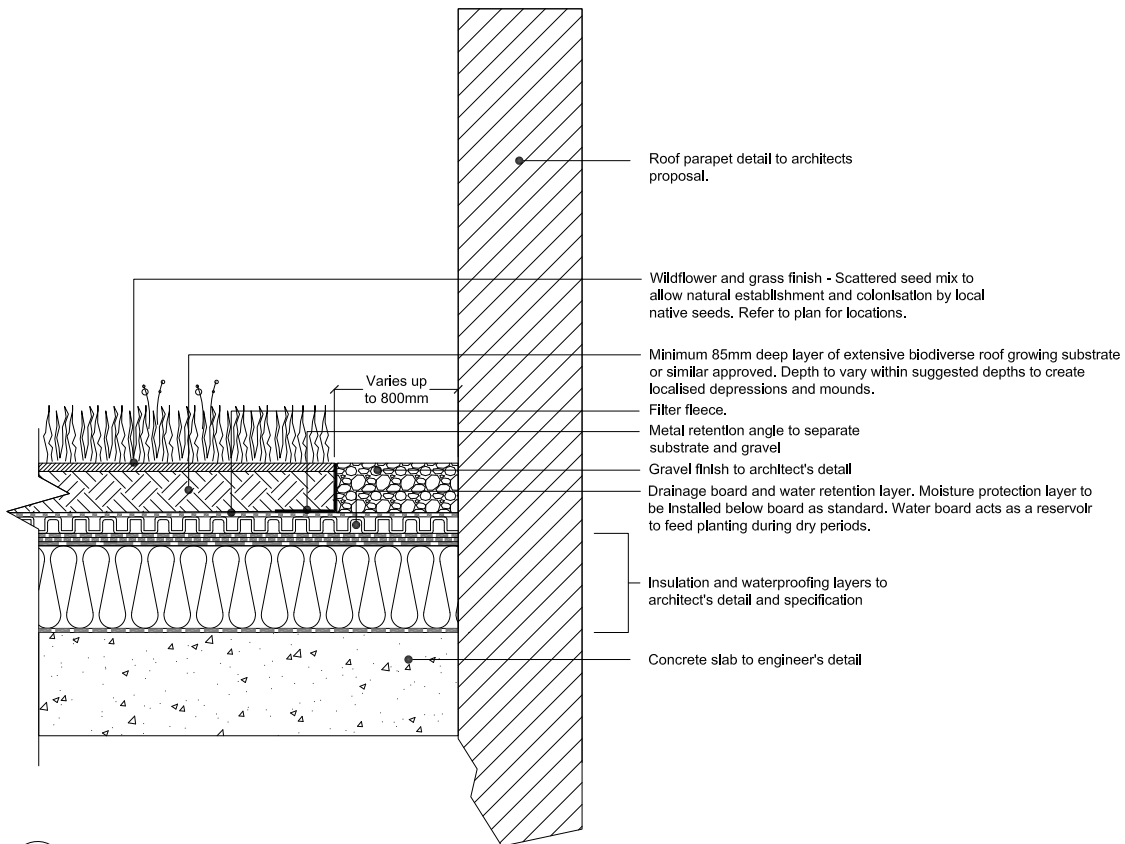
- Seeded Biodiverse Roof
- Access Hatches

## 4.0 Biodiverse Roof Build-ups Details

Typical build-up details for the biodiverse roofs are shown below.



Typical biodiverse roof build-up  
1:10 @A4



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

## 5.0 Planting and Soil Specification

### Biodiverse growing substrate

Characteristic	Unit	Area (Ha.)
Maximum saturated weight	kg/m <sup>3</sup>	≤ 1,200
Typical supply weight	kg/m <sup>3</sup>	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 certified roof supplier. Contractor to ensure material is suitably laid and 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
Centaureum 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 rhoeas	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.



## 6.0 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 trimmed 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, the vegetation barriers (pebbles) and under the PVs 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.

## 6.0 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/m<sup>2</sup>. Areas of up to 30m<sup>2</sup> 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.