1167LS01 Landscaping report

Refurbishment and extension
29A Frognal, London NW3

Prepared by FLECK
for Emanuelle Lee and Alex Esterkin
16.01.24

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Contents

1.0 Introduction

1.1 Introduction

This landscaping report has been produced by FLECK for the applicants, Emanuelle Lee and Alex Esterkin, the householders who own the freehold of 29A Frognal in London NW3.

This statement should be read in conjunction with the following drawings and documents which form part of this application for full planning permission:

- Arboricultural report by Crown Tree Consultancy
- Arboricultural Method Statement and Tree Protection Plan by Crown Tree Consultancy
- 11720 Proposed Tree Planting Scheme by Crown Tree Consultancy
- Planning statement by Boyer
- Design and access statement 1167DA01
- Location plan ref. 1167P_01
- Existing block plan ref. 1167P_10
- Existing floor plans ref.1167P_100-101
- Existing elevations ref. 1167P_110-116
- Proposed block plan ref. 1167P_20
- Proposed floor plans ref. 1667P_200-201
- Proposed elevations ref. 1167P_210-216

1.2 Scope of report

This report seeks to provide more detail regarding the landscaping elements of the design as described in the planning application documents.

2.0 Proposals

2.1 Green wall

The proposed green wall is located to the rear elevation of the proposed rear extension at 29A Frognal.

The wall will utilise direct and indirect type greening: self attaching climbers with utilise the substrate of the facade for support; in addition, vertical tensioned stainless steel wires will be attached to the wall at 400mm centres for the climbers to use. All of the climbers will be planted directly in the soil at the base of the wall making them significantly more drought tolerant than a Living wall system (LWS).

The wall will receive less than half a day of sun in mid summer and therefore a range of shade tolerant climbers and shrubs will be used in this location as follows:

1. Pileostegia viburnoides (climbing hydrangea): A hardy slow growing self clinging climber which flowers in summer and autumn.
2. Hedara helix ' Glacier' (Ivy 'Glacier"): A hardy large evergreen self clinging-climber
3. Lonicera tragophylla (Chinese honeysuckle): A hardy deciduous twining climber which flowers in the summer
4. Clematis 'Silver Moon': A hardy, vigorous twining climber which flowers in summer and autumn
5. Rosa 'New Dawn' (climbing rose): A hardy vigorous climbing rose which flowers in summer and autumn.

Plants will be planted at 80cm centres leaning toward the wall directly in the soil approximately 45cm away from the base of the wall beyond the rainshadow. The wall has a parapet rather than over hanging eaves/ gutter arrangement and as suchfacilitates rainwater penetration to the base of the climbers. To either end of the green wall water butts will collect rainwater from the roofs to the rear slope and dormer roof of the main house via the side extension roof. The water collected by these will be used to water the climbers during dry spells. The soil will be mulched annually with garden compost.

1. climbing hydrangea (© visionspictures.com)

2. Ivy (© RHS)

3: Honeysuckle (© RHS)

4. Clematis (© RHS)

5. Climbing rose (© visionspictures.com)

2.0 Proposals

2.2 Green roof

The proposed ground level front side and rear extensions all have flat roofs that will be cultivated as green roofs to improve local biodiversity, create greater thermal mass and therefore thermal stability to the house, reduce surface water run off and provide a modest level of carbon capture. It is proposed to use a proprietary green roof system created by an established provider accustomed to work on projects in the London region to ensure that suitably robust and drought resistant planting is proposed to work best with the site limitations and to ensure that ongoing advice can be received.

The product proposed is BauderGREEN seeded native wildflower extensive green roof by Bauder who provide the vegetation, substrate, filtration layer, drainage layer and protection layer. A 1:5 section of the build up proposed is included in this report overleaf. This system has a number of benefits:

- Bauder seed mixes use British native species
- The flower mix is RHS compliant and good for pollinators
- The system is Buglife approved
- Improved SUDs capacity and better drought resistance compared to those with a shallower substrate
- The system is GRO and FLL compliant
- The system is installed by a specialist subcontractor and ongoing support./ troubleshooting is offered by Bauder.

As outlined above, the system is reasonably drought resistant however, rainwater from the main roof will be diverted across the front and rear green roofs prior to collection in water butts to provide additional watering to those areas. The water collected in the butts will be used to water the garden in times of drought. As a final measure, watering infrastructure will be designed in to facilitate irrigation of the green roofs when required.

The seed mix proposed here is BauderGREEN Flora 5 seed mix devised for urban environments planted at 100g coverage per m2. This comprises a mix of 38 species ideal for city environments: 80% wild flowers; 10% annuals; and 10% sedge and grasses. The plants chosen are able to absorb pollution and CO2 and give a suitable environment for insects and invertebrates.

The seeded roof must be sown in spring or autumn. Bauder's maintenance and watering advice is appended to this document and sets out how the system will be cared for.

BauderGREEN seeded extensive roof system (© Bauder)

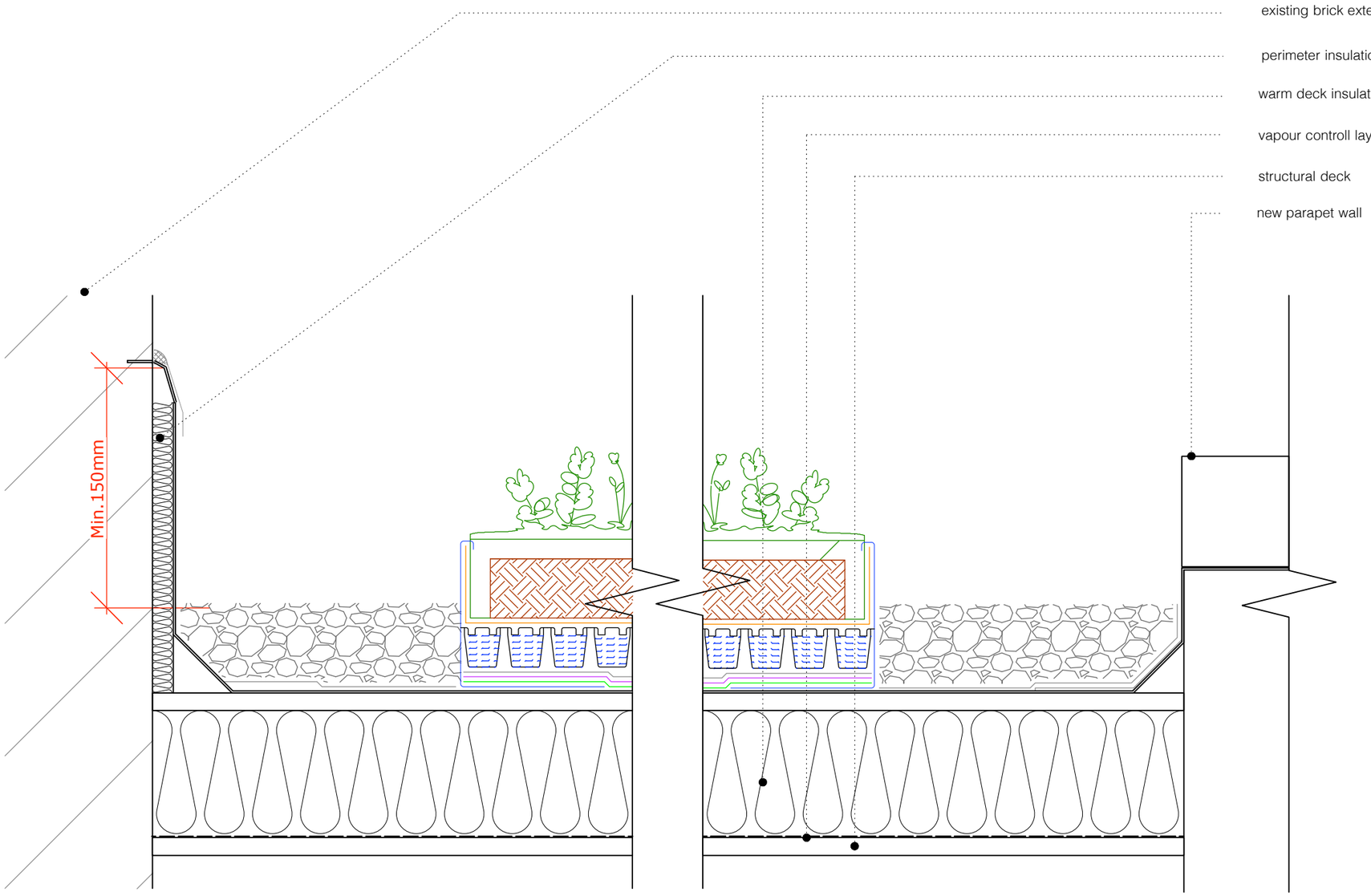
	Function	Product name	Thickness (mm)	Weight (kg/m²)
1	Wildflower seed*	BauderGREEN flora seed mixes. (5 options)	Height and weight varies with season	
2	Growing medium	BauderGREEN SUB-BM UK biodiverse substrate	100+	120
3	Filtration layer	FV 125 filter fleece	1	0.13
4	Drainage Layer	DSE 40 drainage board	40	15.3
5	Protection Layer	FSM 600 protection mat	4	3.6
6	Underlying Waterproofing	Bauder's underlying waterproofing system	Not included	Not included
System build-up (saturated)			**145+**	**139**

*Bauder supply various green roof systems to meet required biodiverse targets and other green roof requirements

In-depth and up-to-date product specific technical data is available for each element within a system.
Download from our website bauder.co.uk/technical-centre

Indicative extensive green roof system - seeded

BauderGREEN seeded extensive roof system (© Bauder)



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NOTES:

1. Do not scale from this drawing.
2. All dimensions must be checked and any discrepencies checked with architect prior to manufacture, fabrication and/or installation.
3. All works to be carried out in accordance with British Standards, EU Regulations, Codes of Practice and all statutory obligations.

extensive roof system components:

- Bauder native wildflower mix from seed
- 100mm SUB-EM UK Extensive Substrate / SUB-BM UK Biodiverse Substrate
- DSE 40 Drainage Board
- FV 125 100 / 200 Filter Fleece - 1m / 2m Roll
- GGM 6 Rubber Protection Mat
- PE 02 Seperation And Slip Layer - Not Required On Single Ply Systems
- Additional Bauder Capping Sheet / Membrane To Secure The Metal Trim
- Waterproofing System.
- Vegetation Barrier 80mm Deep x 300mm Wide (500mm When Positioned Adjacent To Opening Rooflights and Windows)
- AL 150 Edge / Drainage Trim. Secured In Place By Separate Pieces Of Torch Applied Bauder Plant-E Capping Sheet.

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CLIENT:
A Esterkin and E Lee

PROJECT:
Frognal
Refurbishment and extension

STATUS:
PLANNING

DRAWING:
Proposed
wildflower roof detail

DRAWN BY: CF

DATE: 22/01/24

SCALE: 1:5@A3

DRAWING NUMBER: 1167P 300 REV

2.0 Proposals

2.3 Hard landscaping

Please refer to the proposed block plan which locates areas of hard landscaping to the front, rear and side of 29A Frognal.

Hard landscaping will natural stone or clay pavers suitable for external use. Paving will be bedded on 50mm sand on a compacted hard core base. Fine sand will be brushed into the joints between the slabs.

Where gravel/loose stones are proposed (between the driveway/ front path, at the base of some external walls) these will be laid to a depth of min. 50mm on a proprietary water permeable terram mat to inhibit weed growth. The matting will be perforated to accommodate planting where indicated.

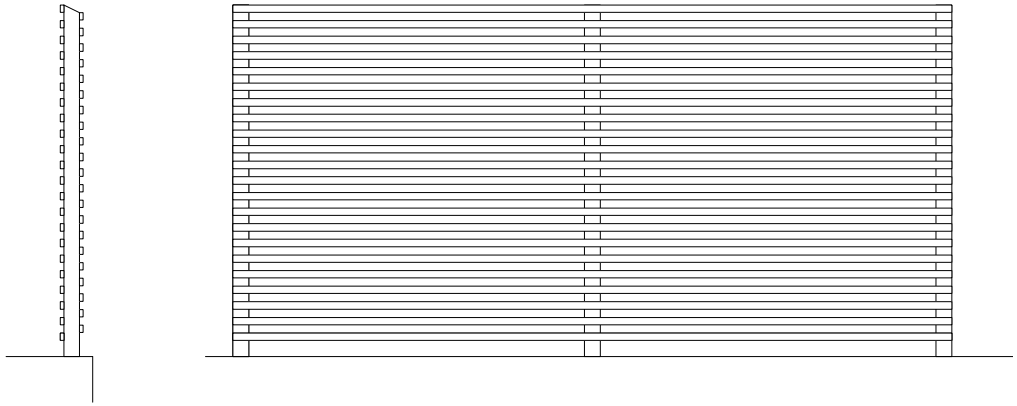
2.4 Fencing

Generally, the site boundary will be retained as existing with repairs carried out as necessary to match existing. However, a new boundary treatment is proposed between the rear garden of 29A and 29 Frognal as follows:

1.8m tall screen formed of 19x38mm horizontal western red cedar battens fixed at 80mm centres with stainless steel fixings to either side of treated s/w posts set out at approx. 1.8m centres. The battens on either side of the posts to be fitted in such a way to provide privacy (see detail opposite)

2.5 Replacement and existing trees

The Arboricultural report by Crown Tree Consultancy describes the trees on and around the site including 3 trees which would not be affected by the works but which nevertheless require removal in due course due to poor health. Please refer to the Arboricultural Method Statement and Tree Protection Plan and document ref. 11720 Proposed Tree Planting Scheme both by Crown Tree Consultancy. These reports give details of how existing trees will be protected during the works and locates and describes 3 new trees which will be planted to replace the 3 existing trees which require removal.



Fence: in section (lhs) in elevation (rhs)

3.0 Appendices

3.1 Biodiverse Green Roof Systems by Bauder

BAUDER
making roofs secure.

General Maintenance Wildflower / Biodiverse Systems

WB blanket, Bauder Flora seed mixes and wildflower plug planted systems

General maintenance procedures

Bauder biodiverse green roof systems

These practises should be carried out annually as part of a structured maintenance regime.

General Maintenance

Maintenance is necessary to keep biodiverse green roof systems in good condition. After installation, regular watering and minor upkeep will be needed until the planting has rooted into the growing medium and adapted to its location. The level of ongoing maintenance will depend on the species of vegetation included and the purpose for which it was initially installed. Whilst the intent may have been a naturalised biodiverse roof, this can cause problems with the build-up of dead or unwanted vegetation and its potential fire risks if not correctly maintained.

Bauder biodiverse green roofs include a selected species mix to provide a balanced plant community on the roof. They are currently installed to meet BREEAM or Biodiversity Net Gain targets and require maintenance to remain sustainable. Maintenance is best carried out annually, during springtime and in late autumn. This may include strimming and the removal of dead organic matter.

Please note: Designated biodiverse areas should be disturbed as little as possible during maintenance to minimise the upset of any micro-habitats that may have colonised.

Preliminary Maintenance Procedures

The following procedures should be carried out in order to ensure the roof is maintained in good condition and to protect the validity of the waterproofing system guarantee:

- Ensure that relevant health and safety procedures are followed when working at roof level, this includes making sure that safe access can be gained to the roof. 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.
- Ensure all dead vegetation is removed with a strimmer and provision made for the debris to be safely lowered to the ground and disposed of.
- Bauder recommends removing unwanted leaf litter that has fallen onto the roof surface from overhanging trees both in the spring and autumn, to ensure that this does not smother the vegetation beneath.
- 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.
- Ensure that any protective metal flashings and termination bars remain securely fixed in place. Renew or repair as necessary.
- Examine all mastic sealant and mortar pointing for signs of degradation. Repair or replace as necessary.
- Check that all promenade tiles and paving slabs remain in position, secure and in good condition.
- Ensure that any new items of plant/equipment that may have been introduced to the roof are mounted on suitable isolated slabs and that any fixings used to secure the plant/equipment in place do not penetrate the waterproofing. If in doubt, please contact Bauder for further advice.
- The building owner should keep a record of all inspections and maintenance carried out on the roof. Any signs of damage, contamination or degradation to the waterproofing should be reported to Bauder immediately, in order for arrangements to be made to carry out remedial work if necessary.
- When carrying out any maintenance to adjoining roof areas, care must be taken not to damage either the green roof landscaping or the waterproofing system. If considered that either element has been effected, Bauder should

General maintenance procedures

Bauder biodiversity green roof systems

be contacted for advice. Any waterproofing damage caused after completion of the original installation may invalidate the guarantee.

- Any unauthorised alterations to the waterproofing system will invalidate the guarantee. If such a situation should arise, Bauder should be contacted to advise on the alteration and how it should be incorporated without effecting the guarantee.

Plant Related Maintenance Tasks

Plant encroachment

- Any vegetation which has invaded into drainage outlets, inspection chambers, walkways and the vegetation barriers (pebbles) should be removed. Additional washed stoned pebbles, similar to existing, can be added if movement or settlement of the pebble vegetation barrier has occurred.

Plant Maintenance

In the absence of a management plan for the green roof, the following activities should be carried out:

Maintenance of the Bauder Native Wildflower Planting

- In the late autumn the vegetation should be strimmed back to a height of 50-70mm and unwanted waste matter raked up and removed.
- To promote growth, an application of 80mg/m² of slow release organic fertiliser to the vegetation may be required.

Weeding

- In a biodiverse green roof, with the exception of saplings which should always be removed, weeds are only consid -ered as an aesthetic problem. If weeds become invasive, they can be manually removed.

Irrigation

- The need for irrigation in a biodiverse green roof system is determined through a client's visual requirements of the vegetation.
- If it is intended that the roof should have colour and interest for the longest period through the growing season, then irrigation will significantly aid in achieving this. Should the requirement be only to deliver biodiversity, then the provision of sufficient watering points at roof level to allow for only occasional watering in periods of prolonged drought can be considered sufficient.

Support

Modern biodiversity green roof installations will normally require only minimal maintenance. Bauder is happy to offer advice on any green roof challenges. Enquiries should be forwarded to the Technical Department at the address below.

Please note: In the event of any query arising which it is thought may affect the condition of the system, then contact Bauder. Bauder cannot accept responsibility for any problem or failure due to use outside those parameters for which the system was designed or 'acts of god' beyond our control e.g. extreme weather conditions or damage through pests.

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General maintenance procedures

Bauder biodiversity green roof systems

Bauder Green Roof Maintenance Service

Green roof maintenance service is carried out by Bauder's preferred maintenance providers. These experienced green roof maintenance companies have worked closely with Bauder carrying out maintenance services throughout mainland Britain for several years.

A typical maintenance programme includes:

- **Roof evaluation** - a comprehensive review of a Bauder green roof to determine what remedial work, if any, needs to be completed.
- **Removal of weeds and unwanted items** - over time a green roof can become congested with leaves, debris and other unwanted vegetation, which can be removed.
- **Inspection** - examination of roof outlets and removal of any encroaching vegetation to enable water to flow freely to rainwater pipes.
- **Application of fertiliser** - to help restore a green roof to its best, an organic slow release granular fertiliser will encourage growth.
- **Testing** - after all work has been performed, the irrigation system will be examined to ensure it works as expected.

This work can be undertaken by the companies detailed below, who directly manage the maintenance of green roofs and will cover all aspects of the service from quotations through to invoicing. Bauder and our preferred suppliers are committed to the arrangement and will ensure a continued high standard of expert care and advice for our customers.

Green roof maintenance contractors currently recommended to maintain green roof elements for the Bauder system

Green Maintenance in England and Wales:
The Urban Greening Company
Mr Mike Cottage
105 Ridgeway
Marlow
Buckinghamshire
SL7 3LH
07515 887868
greenmaintenance@tugc.co.uk
tugc.co.uk

Green Maintenance in Scotland:
Urban Utopia Landscapes
Mr Gavin Gale
Mayville Gardens East
Edinburgh
Lothian
EH5 3DW
0800 061 4353
office@urbanutopialandscapes.com
urbanutopialandscapes.com

If you would like Bauder to forward your details to one of the preferred maintenance companies, please email **c.roddick@bauder.co.uk** giving the details of the green roof and contact information with explicit permission for your details to be shared with the preferred supplier.

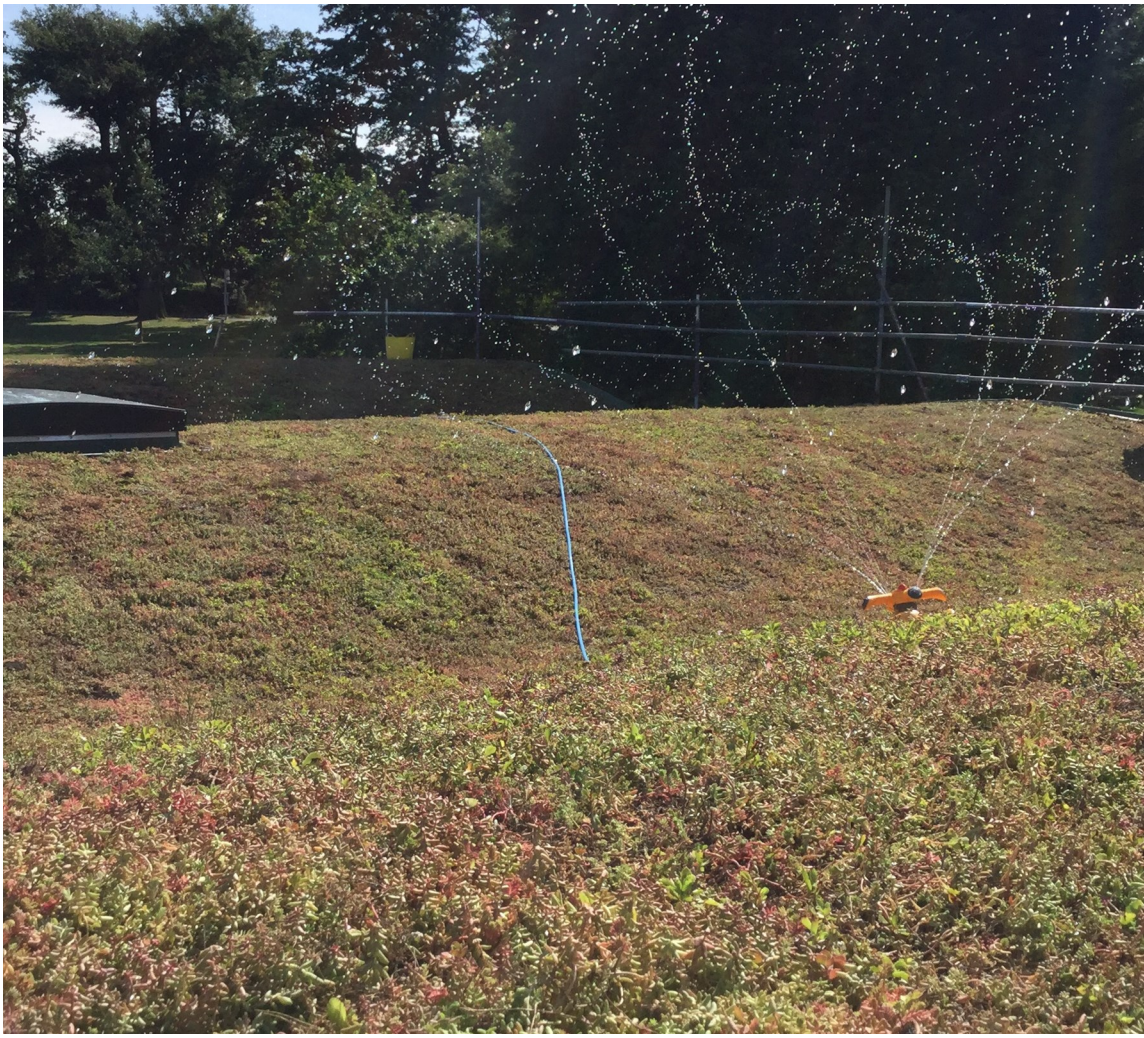
3.0 Appendices

3.2 Extensive Green Roof Watering Guide by Bauder

BAUDER
making roofs secure.

General Maintenance Watering Guide

Extensive green roof systems



Watering Guide

Bauder green roof extensive systems

The following is a simple guide for the requirements of the initial establishment watering (directly after installation) and long-term watering or irrigation for a Bauder extensive green roof system.

All green roofs require water at installation and in hot, dry weather.

Establishment Watering

All green roofs require some form of establishment watering which should continue until the plants have developed a sound root system. Establishment watering critically needs a fully operational rooftop water supply with adequate pressure and flow rate at the point where watering is delivered. This watering should be via surface sprinklers or on small roofs a hose with a fine rose. This must be carried out even when an irrigation system has been fitted that will come into operation at a later stage. In warm weather, watering should take place in the early morning or evening to reduce evaporation.

Bauder Flora Mixes / Wildflower Plugs / WB Native Wildflower Blanket

Bauder recommend that seeded and plug planted areas are installed in the spring and autumn months when there is usually milder weather, moderate temperatures, and likelihood of regular rainfall. Seed and plugs are very difficult to establish in mid-summer and do not grow in mid-winter.

Seed & Plugs: Water for 10-12 weeks after installation.

Bauder Wildflower Plugs should be saturated completely prior to planting. Seeded roofs should not be watered until seed has germinated - for more information see Bauder Green Roof Installation Guide.

WB Native Wildflower Blanket: Water for 6-8 weeks after installation.

Ensure the substrate remains damp to the touch by watering regularly. In mid-summer, the roof may need daily, watering and will have to be constantly monitored.

Bauder XF301 / Bauder SB Substrate Sedum Blanket / Sedum Plugs

Sedum is quite drought resistant but only once it has fully established.

XF301/Bauder SB Substrate Sedum Blanket: Water for 4-6 weeks after installation.

Sedum Plugs: Water for 10-12 weeks after installation.

Ensure the substrate remains damp to the touch by watering regularly. In mid-summer, the roof may need daily, watering and will have to be constantly monitored.
Note: Sedum turns red when stressed through lack of water.
Bauder recommend that sedum plug planted areas are installed only in the spring and autumn months when there is usually milder weather, moderate temperatures, and likelihood of regular rainfall.

Key points for installation:

- Ensure all other roof works are completed before the green roof is installed.
- Test the watering system prior to the delivery of the vegetation, ensure there is a working water source at roof level with sufficient pressure at the point of watering.
- Do not try to install living vegetation in hot, sunny weather.
- Install any vegetation on the day it is delivered (See Bauder's Green Roof Installation Guide).
- Ensure the vegetation blankets are laid carefully and additional substrate is used to patch any open joints.

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Watering Guide

Bauder green roof extensive systems

- Water in the vegetation (even in winter) and fertilise if required (with Bauder Organic Fertiliser).
- Watering should take place in the early morning or evening to reduce evaporation.
- Avoid any trafficking of the roof.
- Avoid any storage of materials on the roof.
- Continue to water the roof as required for the whole establishment period.

Long Term Watering / Irrigation

This advice is for green roofs after their initial establishment is complete. Roofs are hostile environments for all plants. There is an increase in wind at higher levels and the reduced depth of substrate can dry out quickly when surrounded by a warm building. The perimeter of a planting area is more prone to drying than the centre.

ALL green roofs will require watering in times of drought.
Generally watering is best carried out in the early morning or later evening (irrigation should be set to come on at night).

Bauder Flora Mixes / Wildflower Plugs / WB Native Wildflower Blanket

The British Native species are not as drought tolerant as sedum. The depth of growing medium (substrate) means the plants struggle to retain enough water in very dry weather. Watering should be carried out regularly as the weather dictates, typically in the summer months this would involve watering after one or two weeks without rainfall.

Watering is likely to prolong the flowering season for many species.

Ideally monitor the appearance of the roof along with the local weather forecast. When watering, water until the substrate is soaked, and the drainage board is full of water. The roof can be left for a further 1-2 weeks before it will need watering again.

Note: Overwatering will produce a lush, thick green roof covering which can choke other species, underwatering will increase the speed in which plants flower and go to seed or brown off.

Bauder XF301 / Bauder SB Substrate Sedum Blanket / Sedum Plugs

Sedum is a very drought resistant plant and will survive even quite long periods of drought, however it will benefit from the occasional soaking i.e. in prolonged hot, dry weather (2-3 weeks without rain in the summer months).

Note: Sedum turns red when stressed through lack of water.

Advise: Water heavily once every week, water the sedum until the vegetation and substrate are total soaked.

Note: Overwatering will encourage grass and weed species to establish, underwatering will shrink the sedum plants enabling erosion of the exposed substrate.

This guide assumes: Summer months are April to October. Winter Months: November to March. Whilst generally summer months are hotter and drier, common sense should dictate when the weather is particularly severe for the time of year.

More comprehensive details are contained in the Watering Requirement Guidelines, which include details of irrigation.

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