195 Fordwych Road, London, NW2 3NH
Green Roof Design and Maintenance Statement August 2017

Scope

This statement outlines the design and maintenance considerations for the green roofs at 195 Fordwych Road, London, NW2 3NH in support of Planning Permission 2017/4242/P Condition 8.

Site Background

195 Fordwych Road is a 2 storey brick built semi-detached property bound to the front by Fordwych Road and to the rear by the Thameslink train line. Planning Permission was granted on 2nd March 2017 subject to approval of conditions to convert the premise into 1x 1b, 1 x 2b and 1 x 3b apartments. The existing property contains both a front and rear external area of hard landscaping with minimal foliage. Please see Figs. 1 to 4.

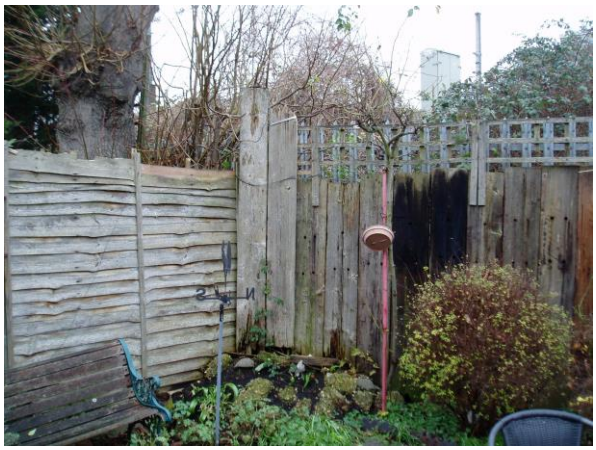


Fig. 1. Rear yard boundary with minimal planting

Fig. 2. Front yard with extensive hardstanding

Fig. 3. Rear Yard with extensive hardstanding and minimal planting

Fig. 4. Entrance with extensive hardstanding.

As can be seen in the above images, there is minimal habitat for bio-diversity within the existing site boundary, due to the extensive covering of hard landscaping and sparse low-level shrub planting.

Proposals – External Planting Overview

Whilst the proposals include the construction of new extension upon the external yard to the rear this is solely upon areas currently occupied by hard landscaping, thus there is no loss of existing planting to new building. Current planting will be replaced with new lawn to the rear garden and in front of the bay window. Border planting is to be introduced to the boundary with 197 Fordwych Road and adjacent to the front boundary wall with the street. In total an area of 51m^2 of new lawn planting and 16m^2 of shrub border planting is introduced to the Ground level, as per Fig. 5. below.

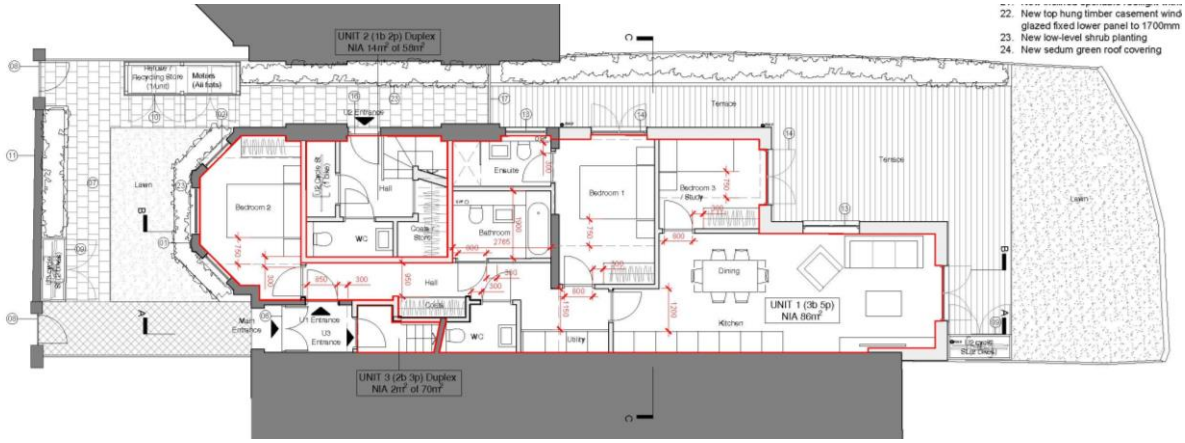


Fig. 5. Extract from drawing dMFK_2039_A100_P5 showing extents of new lawn and border shrub planting.

The rear yard will be demised to Unit 1 (3b 5p) who will be responsible for the maintenance and upkeep of the lawn and border planting. The front yard is shared by all flats and will be managed by the landlord.

Proposals – Green Roof Details: Provision

At first floor level, it is proposed to install green roof areas to the roofs of the single storey rear extensions to Unit 1, as per Fig. 6. The areas are 10m^2 and 5m^2, totalling 15m^2 of new green roof. In total an area of 82m^2 of new planting is proposed, a net uplift of at least 70m^2.

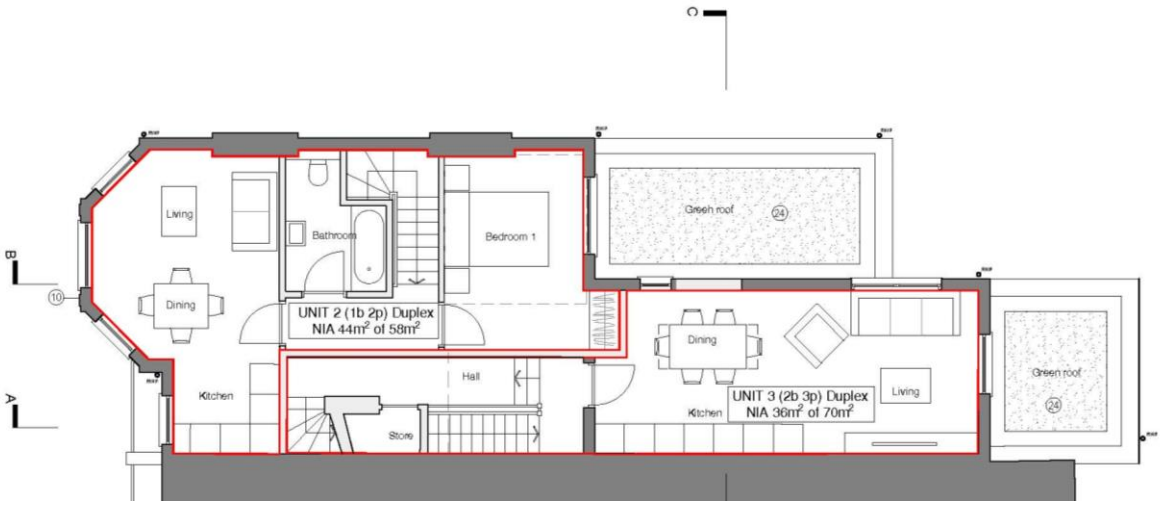


Fig. 6. Extract from drawing dMFK_2039_A110_P4 showing the extents of the green roof proposed.

As can be seen, the green roof areas are visible from units 2 and 3 only although they are located on the roofs of Unit 1. The areas are not accessible from any of the flats, therefore, it is proposed that these units are accessed from the rear yard of Unit 1 by a ladder, as this will give the safest access for maintenance. Since the green roofs fall into what is effectively a common area, where not one of the units' owners/tenants has sole ownership / responsibility for the green roof maintenance, a low-maintenance option is the most suitable. Intensive bio-diverse living roof systems require a substantial maintenance regime to ensure:

- Drainage outlets and inspection chambers cleared of vegetation;
- Outlets and pebble perimeters cleared of dead and live plants;
- Intensive care of plant blankets;
- Replacement of failed plants exceeding 5% of plants installed;
- Replenishment of any settled substrate;
- Irrigation system installed and checked regularly for faults.

This type of roof is most suitable to private residential premise where full freehold is held, not shared between a number of units where a regular maintenance regime would benefit the occupants of the property able to benefit from the green roof. Extensive systems suitable for sedums will contribute to the already substantial increase in the provision of habitat for bio-diversity and require a much lesser maintenance regime to ensure:

- Drainage outlets and inspection chambers cleared of vegetation;
- Outlets and pebble perimeters cleared of dead and live plants;
- Watering during the installation phase and less frequent watering post installation.

It is proposed to install an extensive green roof comprised of:

- Sedum blanket;
- 28mm sedum substrate;
- 20mm filter fleece;
- Drainage layer.

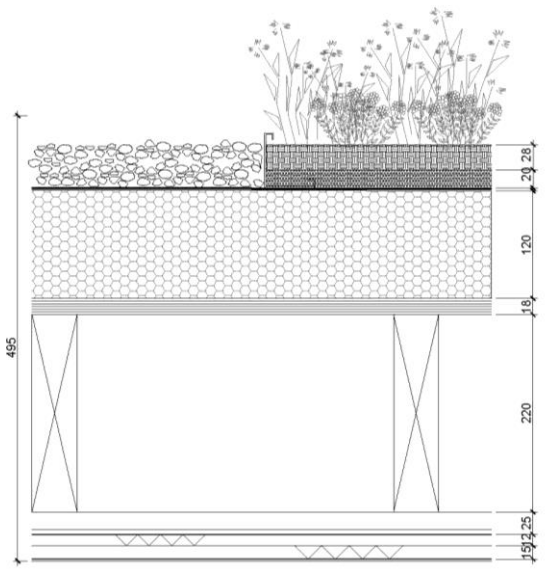


Fig. 7. Proposed Green Roof build up

Fig. 8. Image of proposed sedum blanket

Please refer to Appendices 1 for technical data sheets for the proposed build ups and 2 for vegetation details.

The sedum blanket contains 11 species of mature sedum plant, mosses and grasses to ensure plant diversity, including:

- *Sedum acre*
- *Sedum album - 'bella d' Inverno*
- *Sedum album - coral carpet*
- *Sedum ewersie*
- *Sedum Kamtschaticum - ellacombianum*
- *Sedum Kamtschaticum - weinstephaner gold*
- *Sedum montanum orientale*
- *Sedum pulchellum*
- *Sedum rupestri (reflexum)*
- *Sedum sexangulare*
- *Sedum spurium - mesemlanthemum = Delosferma*
- *Sedum spurium - mesemlanthemum = hallii*
- *Sedum verticillatam*

Proposals – Green Roof Details: Maintenance

This will involve an installation and maintenance regime as follows:

Preliminary Maintenance (During Installation)

- Remove build-up of bio-mass on the roof - all dead vegetation removed and provision made for the debris to be safely lowered to the ground and disposed of. Recommended removal of unwanted leaf litter from overhanging trees both in the spring and autumn to ensure that this does not smother the vegetation beneath.
- Inspect all rainwater outlets and downpipes to ensure all are free from any blockages and that water can flow away freely.
- Ensure that any protective metal flashings and termination bars remain securely fixed in place.
- Examine all mastic sealant and mortar pointing for signs of degradation.
- Ensure water supply available for watering.
- Sedum blanket substrates laid directly to single ply membrane in rolls by accredited installer ensuring care not to damage waterproof membrane beneath.
- Once an area of installation is completed the vegetation blanket is heavily watered to ensure that the plants and substrate are saturated before moving on to the next area.
- Upon completion of the installation, organic slow release fertiliser is applied and watered-in to assist the plants' establishment and providing them with nutrients to promote growth.
- Vegetation barriers are created and installed by using 20 - 40mm round washed pebbles at the perimeters, upstands and abutments and provides protection against wind uplift at the edges of the blanket as well as rapid surface drainage during heavy rainfall.

Ongoing Maintenance (Post-installation)

- The vegetation blankets will require a post-installation irrigation period of 4 weeks for sedums where the blankets should not be allowed to dry out. The amount of watering the plants will require depends upon the location of the building, the roof type and degree of pitch, local climate and exposure levels and the type of plants in the vegetation blanket.
- It may also be necessary to irrigate for longer than this if installation is followed by a warm, dry spell of weather. To encourage the plants to survive without topical irrigation and harden them ready to survive the winter it is important to start cutting back watering from early September.
- The maintenance requirement in the years following installation will depend upon the weather experienced through the winter and early spring of each year and should follow our standard extensive green roof maintenance guidelines, excepting where weather conditions have caused significant damage to the vegetation.
- Maintenance is best carried out annually, during springtime and additionally in late autumn should the particular roof location be affected by local trees that produce surface leaf litter.
- Some deposited leaf litter may be considered as contributory to the bio-diverse environment, which is acceptable so long as provision is made to ensure that this has no negative effect on other plants and the roof drainage performance.

Summary

In summary,

- The biodiverse habitat currently provided by the external areas within the site are low, with extensive hardstanding and minimal planting.
- The proposals include for 81m^2 of new planting across lawn, shrub planting and green roof (at least 70m^2 increase in planted area).
- The arrangement of the green roof areas within the project between the demises of the 3 apartments means that not one owner / tenant will have full access or use.
- Therefore, a low-maintenance option is best suited to ensure that the substrate is maintained.
- An extensive sedum roof is best suited to this application and, when viewed in conjunction with the additional planting proposed, will provide a substantial bio-diverse improvement to the site.

Appendix 1 – Extensive Green Roof Technical Data Sheet

TECHNICAL
SYSTEM SUMMARY

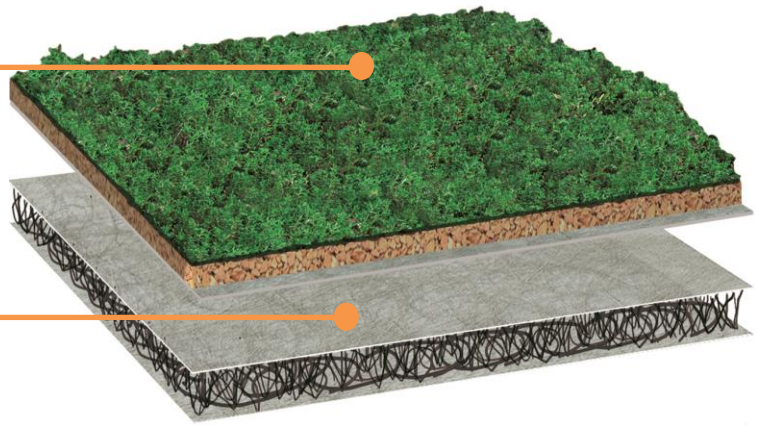
XF301 SEDUM BLANKET

EXTENSIVE GREEN ROOF SOLUTION

A pre-cultivated vegetation blanket on a patented nylon loop and geo-textile base carrier with substrate growing medium. The pre-attached moisture retention fleece provides water storage. The blankets are lightweight, easy to maintain and provide instant greening to the roof. The blanket features up to 11 species of sedum together with mosses and grasses, ensuring plant diversity. A comprehensive range of guarantees are available for this system.

Bauder XF301 Sedum Blanket
is a pre-cultivated vegetation blanket on a patented nylon loop and geo-textile base carrier with special substrate and a pre-attached integral 8mm moisture retention fleece.

Bauder SDF Mat
is a multifunctional drainage, filtration and protection layer manufactured from ultraviolet resistant nylon woven loops which are thermally bonded to geo-textile filter fleece facings.



When to Specify

The Xero Flor sedum blanket is a versatile, exceptionally lightweight green roof system that is suitable for both new build and refurbishment projects. It should be noted that extensive green roof systems are not intended for general access or leisure purposes and are primarily used for their ecological benefits or aesthetic appearance.

Waterproofing Options

There are different waterproofing systems available to suit the individual project criteria for the green roof, its landscaping options, weight loading limits, performance and durability requirements. Please contact us so that a technical advisor can take you through the system best suited to your project.

BAUDER

TECHNICAL
SYSTEM SUMMARY

XF301 SEDUM BLANKET

Weight Loading

Based on 1-2° pitch

Product	Thickness (mm)	Saturated Weight (Kg/m²)
Bauder XF301 Sedum Blanket	28.0	44.0
Bauder SDF Mat	20.0	0.2
Totals	**48.0**	**44.2**

Appendix 2 – Sedum Species Data Sheet

SEDUM VEGETATION BLANKET XF301

The Bauder XF301 is our sedum blanket system featuring up to 11 species of sedums with some mosses and grasses to ensure plant diversity. All plants are selected to suit our climate and keep weight and maintenance to a minimum. The sedum blankets provide 90% ground coverage at installation.

Bauder has approximately 150,000m^2 under cultivation to cater for the ever increasing annual demand for Bauder sedum green roofs.

KEY FEATURES

- Most lightweight green roof system available, making it ideal for retrofitting on a building or on new build construction.
- Delivers instant greening of a roof with sedums and other species all able to flourish in our climate
- Cost effective
- Developed to meet FLL guidelines
- Cradle-to-Cradle certification
- Sedum blankets are grown on our farm in the UK and delivered to site within 24 hours of harvesting
- Carry fire ratings of EXT.F.AA and EXT.S.AA

The Bauder Xero Flor XF301 Sedum Blanket is a very lightweight and cost-effective way of quickly delivering an established sedum vegetation finish onto a flat roof.

The core of the multifunctional Xero Flor XF301 Sedum Blanket is its patented carrier, which holds both the substrate and vegetation firmly in place whilst also providing the water retention and drainage characteristics necessary to keep the vegetation healthy. The sedum vegetation provides a dense foliage that delivers colour and interest through the spring and early summer.

For speed of installation the product can be supplied in 10m rolls for crane-assisted positioning, and is also available in 2 x 1m roll sizes to allow for manual handling on smaller projects.

For further information on the Bauder XF301 sedum blanket green roof system please see the Bauder Flat Roof Solutions brochure or visit www.bauder.co.uk and click on the green roof section.

BAUDER SEDUM BLANKET XF301 INDICATIVE PLANT LIST

Species
Sedum acre
Sedum album - 'bella d' Inverno
Sedum album - coral carpet
Sedum ewersie
Sedum Kamtschaticum - ellacombianum
Sedum Kamtschaticum - weinstephaner gold
Sedum montanum orientale
Sedum pulchellum
Sedum rupestri (reflexum)
Sedum sexangulare
Sedum spurium - mesemlanthemum = Delosferma
Sedum spurium - mesemlanthemum = hallii
Sedum verticillatam

Royal Opera House
Production Workshop

Mount St. Vincent
Co Limerick