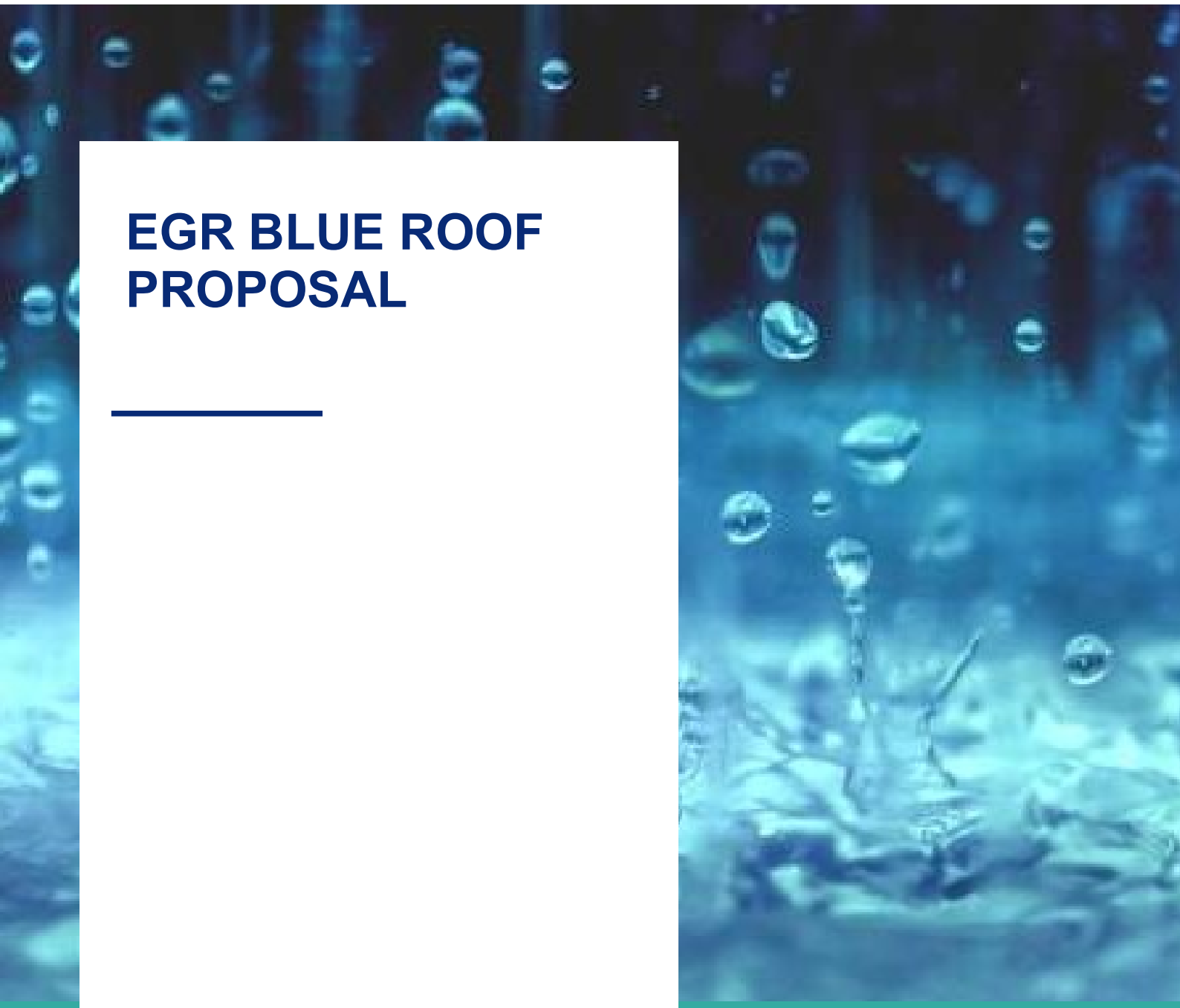


EGR BLUE ROOF PROPOSAL

OCTOBER 2024 Rev 00

Tottenham Hale, London

Eco Green Roofs

Design Data

We have used the following information in undertaking our assessment.

PARAMETER	DATA	SOURCE
Return Period	1:100 YEARS	Clients documentation
Climate Change Allowance	40%	Clients documentation
Location (For **FSR** Data)	London	Clients documentation
Restricted Flow Rate	See induvial roof calculations	Clients documentation
Approximate Catchment Area	Refer to individual roofs	Clients documentation
Approximate Storage (Blue Roof) Area	Refer to individual roofs	EGR Measure from client drg
Estimated Void Ratio of storage zone	90% (2)	EGR best practice / assessment

Notes

1 – Our blue roof storage area assessment includes an allowance for bases and plinths where they are indicated on the plan drawings. It is important that EGR are made aware of any additional items to be placed on the roof in order for the calculations to be adjusted as may be necessary. Unless requested, no allowance has been made for any future reduction in the available storage zone by tenants plant for example. This should be communicated to the end user to prevent uncalculated loss of storage volume.

2 – This allows for the structure of the storage components detailed in this proposal together with a small allowance for siltation and a limited use of aggregate around penetrations.

Analysis

Calculation Output Summary

Roof Reference	Level 01	Level 02	Level 07	Level 8	Level 24	Level 25	
Allocated Outflow (l/s)	0.3	0.3	0.2	0.3	0.3	0.6	
Blue Roof Area (m2)	100	100	102	23	211	259	
Void Ratio	90%	90%	90%	90%	90%	90%	
Additional Contributing Area (m2)	8	8	12	3	14	38	
Max Design Depth (H-max) mm	74	74	88	70	85	80	
Overflow Set Height (mm)	74	74	88	70	85	80	
Potential Overflow Depth (mm)	109	109	123	105	120	115	
Overflow method	Integral standpipe & external	Integral standpipe & external	Integral standpipe & external	Integral standpipe & external	Integral standpipe & external	Integral standpipe & external	External overflows by others
Recommended Overflow Rate (l/s)	2.5	2.5	2.5	1.5	5.3	6	
Half Empty Time (hrs)	2.9	2.9	5.2	1	7.2	4.4	
Storage Volume (m3)	6.5	6.5	7.5	1.5	15.5	20	
No. of Outlets	2	2	2	2	2	2	
No. of orifices per outlet	1	1	1	1	1	1	
Flow Control Orifice Size (dia)	TBC	TBC	TBC	TBC	TBC	TBC	

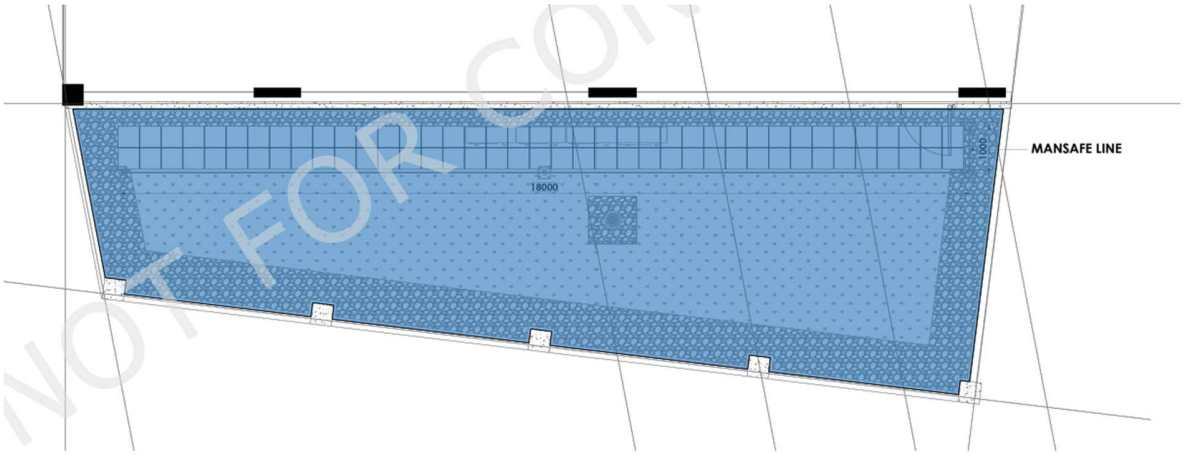
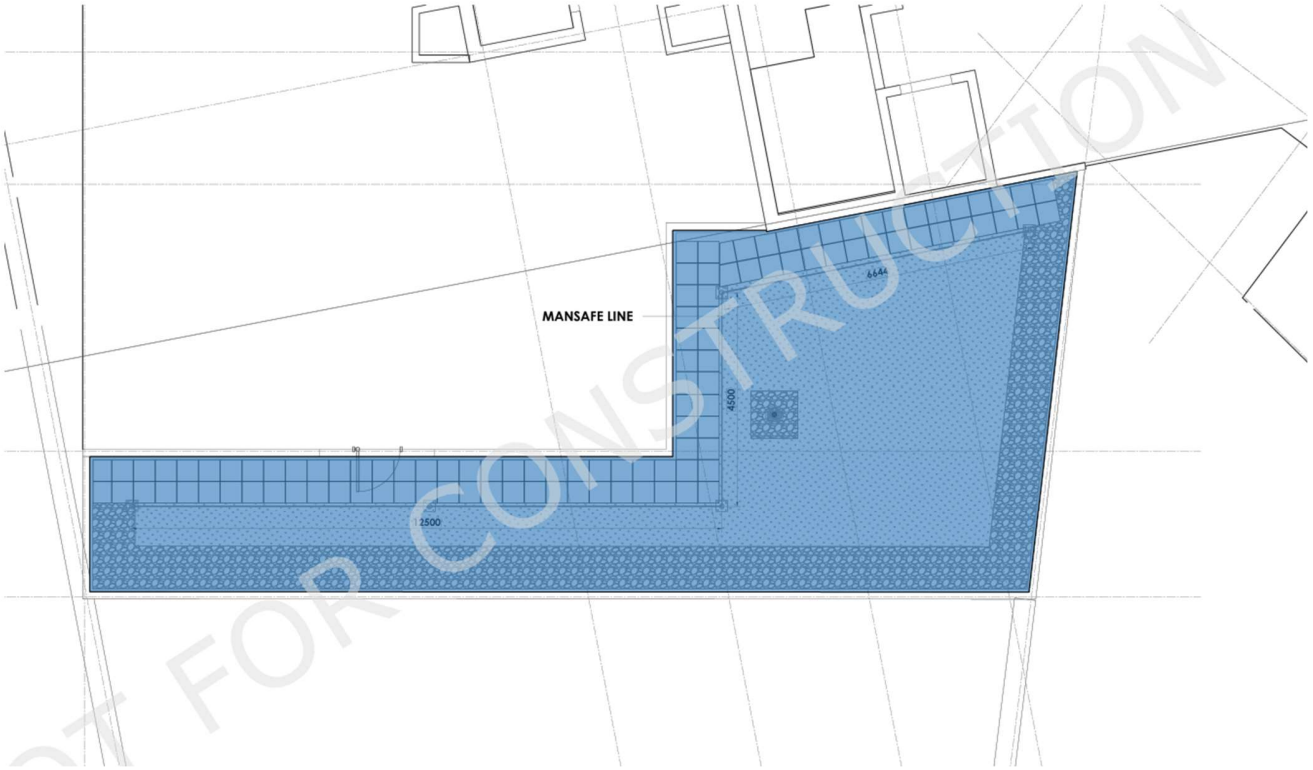


Figure 1: Level 01

Figure 2: Level 02



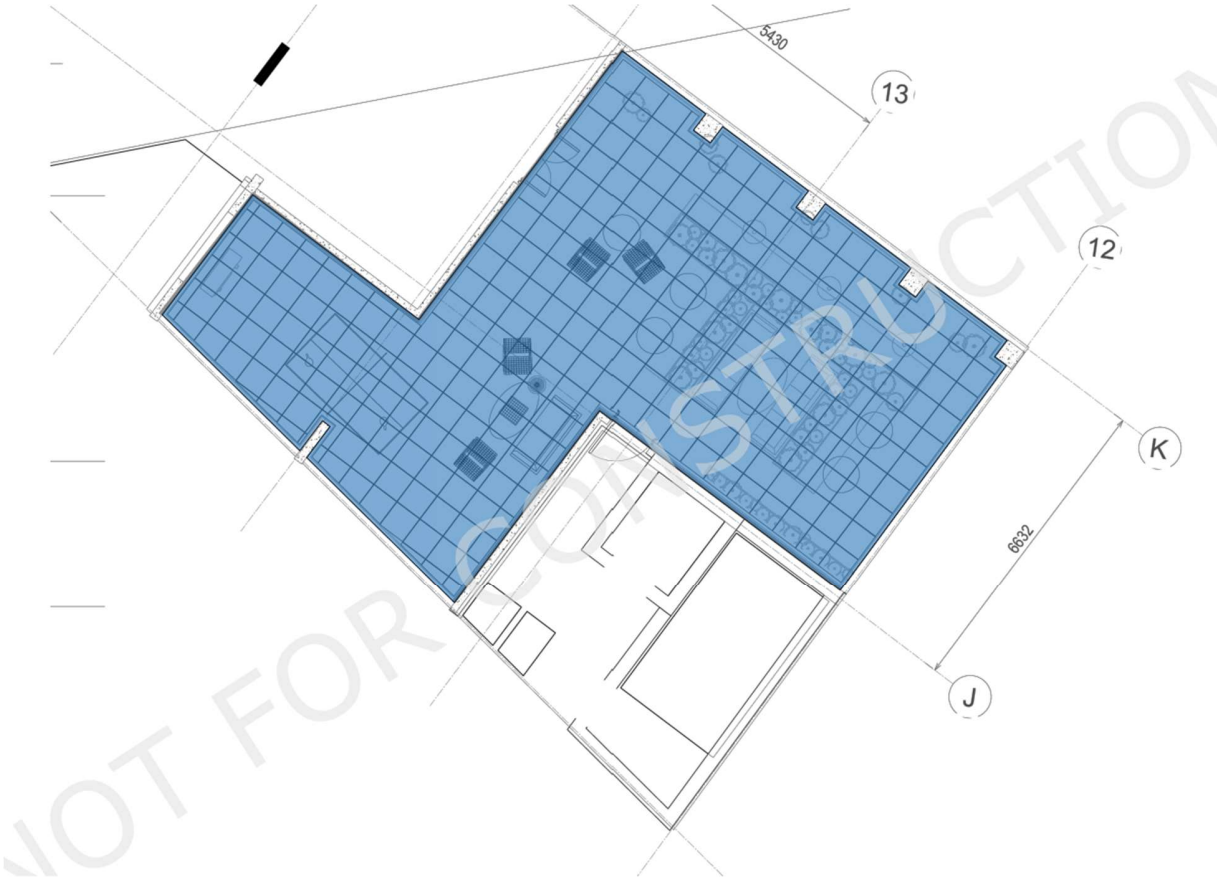


Figure 3: Level 07

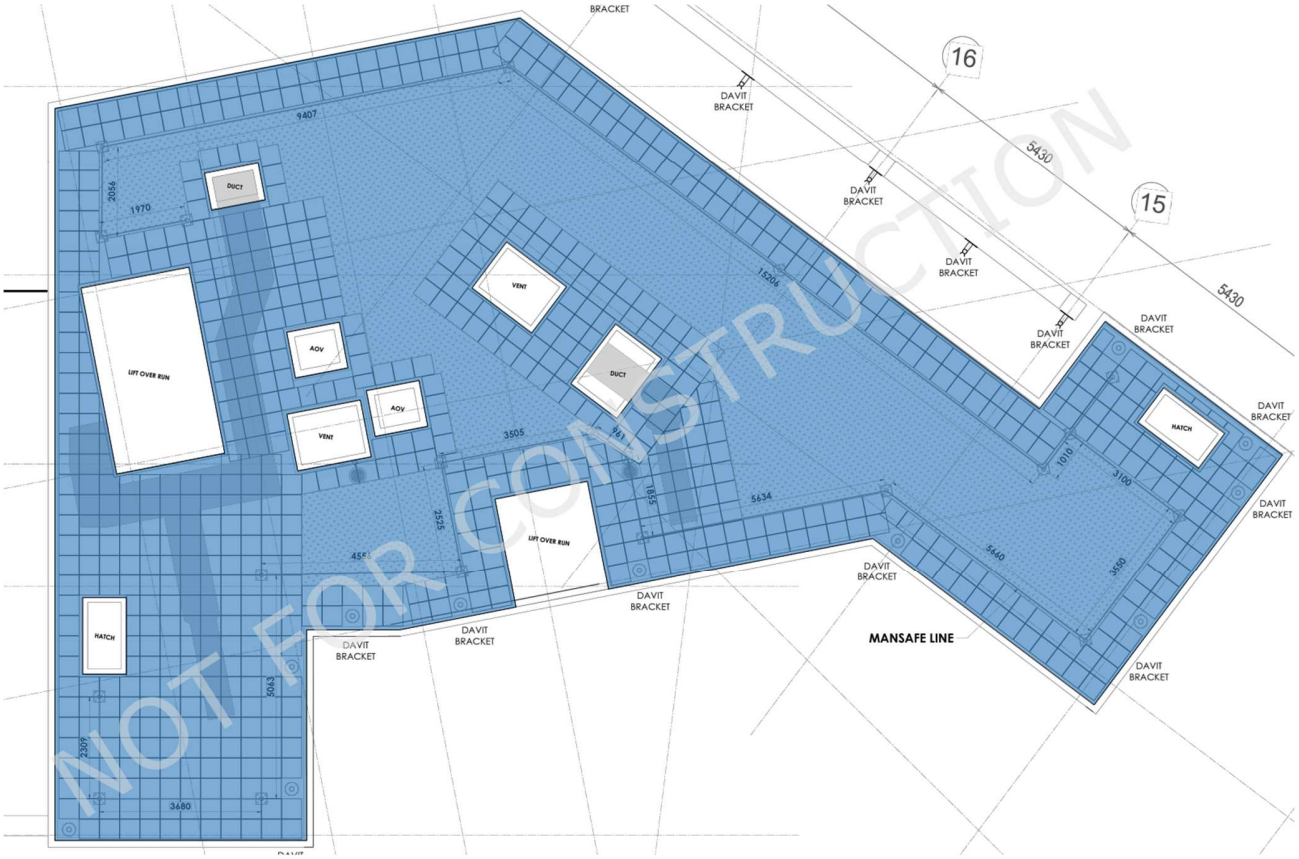


Figure 4: Level 25

Overflows and Exceedance Paths

A critical element of a blue roof is an effective way of dealing with excess water that may derive from a blockage or a storm that exceeds the design criteria, which may lead to ingress into the building or structural failure. This facility should be sized to accommodate a full storm flow.

EGR have not been party to the development and detailed design of this element and at the time of this report have not had sight of the provision. In making our assessment we have assumed that all blue roof areas are provided with adequate exceedance path / overflow provision to support that provided integral to our outlet.

Waterproofing Details

It is necessary to maintain an adequate freeboard above the maximum blue roof storage level. We have assumed that the first point of waterproofing breach is no less than 150mm above the maximum blue roof water level.

Fire Spread

Occasionally, it is necessary to consider the potential of fire spread through rainwater goods / blue roof components. We have assumed that the configuration has been reviewed by the project Fire Engineer and no special measures are required.

Contributing Areas

These require confirmation and checking before the flow rates can be confirmed and finalised

Assumptions and Clarifications

Underground Drainage

We assume that the rainwater system is free flowing and is provided with a vented interceptor trap separating any foul flows / sewer gases from the blue roof system.

Structural Loadings

EGR have not undertaken any structural calculations and we assume that the maximum accidental loading has been calculated by others. For blue / green roofs this should include the maximum water depth to working overflow level, the saturated green roof media, potentially snow loading and any additional items such as M&E plant, furniture and so on.

Overflows / Exceedance Paths

It is critical that overflow points are provided and are adequate in capacity to protect the building should the system capacity be exceeded or become blocked. The provision and design of this overflow system is not covered by the EGR works.

Available Storage Volume

The available storage volume has been assessed from the information available as outlined earlier in this report. Anything placed / mounted on the roof is likely to reduce this volume and is important that this be reviewed, and any changes informed to EGR in order to reassess the calculations.

Maintenance

The orifices used in the flow control mechanism are easily blocked. Regular maintenance of the system is therefore essential.