



RIGHT OF LIGHT  
CONSULTING  
Chartered Surveyors

# Daylight and Sunlight Report

(Within Development)

**20 December 2023**

24 High Street  
Llanbradach  
Caerphilly  
CF83 3LQ

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# 1 EXECUTIVE SUMMARY

## 1.1 Overview

- 1.1.1 Right of Light Consulting has been commissioned by Lilyalex Properties Ltd to undertake a daylight and sunlight assessment in connection with the development at 24 High Street, Llanbradach, Caerphilly CF83 3LQ. The aim of the assessment is to check whether the proposed accommodation will provide its future occupiers with adequate levels of natural light.
- 1.1.2 The assessment is based on the numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a good practice guide, 3<sup>rd</sup> Edition' by P J Littlefair 2022.
- 1.1.3 Appendix 1 identifies the windows and amenity areas analysed in this assessment. Daylight provision data and contours for the habitable rooms are presented in Appendix 2. Exposure to sunlight data is provided in Appendix 3.
- 1.1.4 Right of Light Consulting confirms that the proposed design satisfies all of the requirements set out in the BRE guide 'Site Layout Planning for Daylight and Sunlight'. In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light.

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## 2 INFORMATION SOURCES

### 2.1 Documents Considered

2.1.1 This report is based on the following drawings:

Oliver-Thomas Consultancy

2772[D]RS(0)01	Site Location Plan	Rev A
2772[D]L(0)R101	Lower Ground Floor Plan: Proposed	Rev B
2772[D]L(0)R104	Attic Plan: Proposed	Rev A
2772[D]L(0)R105	Roof Plan: Proposed	Rev A
2772[D]L(0)R106	Rear Yard Plan: Proposed	Rev B
2772[D]L(0)R107	Section BB: Proposed	Rev B
2772[D]L(0)R108	Section CC: Proposed	Rev B
2772[D]L(0)R109	Front Elevation: Proposed	Rev -
2772[D]L(0)R110	Rear Elevation: Proposed	Rev A

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### **3 METHODOLOGY OF THE ASSESSMENT**

#### **3.1 Local Planning Policy**

- 3.1.1 We understand that the Local Authority takes the conventional approach of considering daylight and sunlight amenity with reference to the various numerical tests laid down in the Building Research Establishment (BRE) guide ‘Site Layout Planning for Daylight and Sunlight: a guide to good practice, 3<sup>rd</sup> Edition’ by P J Littlefair 2022. The BRE guide is based on European standard BS EN 17037 ‘Daylight in Buildings’, 2019 (BS EN 17037).
- 3.1.2 The standards set out in the BRE guide are intended to be used flexibly. The BRE guide states:
- 3.1.3 “The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly, since natural lighting is only one of many factors in site layout design.”
- 3.1.4 In reference to applying different numerical target values in different locations, the BRE guide states:
- 3.1.5 “These values are purely advisory and different targets may be used based on the special requirements of the proposed development or its location.”

#### **3.2 National Planning Policy Framework**

- 3.2.1 The BRE numerical guidelines should be considered in the context of the National Planning Policy Framework (NPPF), which stipulates that local planning authorities should take a flexible approach to daylight and sunlight to ensure the efficient use of land. The NPPF states:

“Local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards).”

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### **3.3 National Planning Practice Guidance**

3.3.1 The BRE numerical guidelines should also be considered in the context of the National Planning Practice Guidance (NPPG). The NPPG states that developments should maintain acceptable living standards. It goes on to explain that what this means in practice is that appropriate levels of sunlight and daylight, will depend to some extent on the context for the development. This is consistent with the BRE guide which as noted in paragraphs 3.1.4 to 3.1.5 above, states that site location is a relevant factor when setting sunlight and daylight targets.

### **3.4 Interior Daylighting**

3.4.1 The BRE guide recommends that interior daylighting is checked using the daylight provision test set out in BS EN 17037. The test measures both the amount of daylight, as well as the distribution of daylight within a room. The test is applied to habitable rooms such as living rooms and bedrooms. A kitchen is generally deemed to be a habitable room if it is large enough to accommodate a dining area. If the kitchen is small and is solely used for cooking purposes, then the accepted practice is to treat the kitchen as a non-habitable room.

3.4.2 The assessment is carried out using a grid of points on a horizontal reference plane in each room. In accordance with the BRE recommendations, we have set the reference plane at 850mm above the floor and have excluded assessment points from a 0.3m wide band around the perimeter of each room.

3.4.3 The UK National Annex to BS EN 17037 gives UK specific minimum illuminance recommendations which we have set as the targets for this project. The targets comprise of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens to be exceeded over at least 50% of the reference plane.

3.4.4 Where a room has a shared use, the highest target should apply. However, the BRE guide explains that local authorities could use discretion here. The guide gives the example where the target for a living room could be used for a combined living/dining/kitchen area if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in a design.

3.4.5 The data in Appendix 2 includes the lux target we have assigned to each room, together with the percentage of the reference plane that meets the target. The median

illuminance (lux) achieved for each room is also presented. Where the median illuminance exceeds the lux target, this means the lux target has been achieved over at least 50% of the assessment grid.

3.4.6 The daylight provision test may be carried out using either the daylight factor method, or the interior illuminance method. For the purpose of this assessment, we have adopted the daylight factor method. Using the conversion table set out in the BRE guide, we have expressed the results in terms of lux.

3.4.7 Since the assessment is based on a computer simulation, it is necessary to set various surface reflectance values. For example, a 0.6 reflectance means that 60% of the light hitting the surface will be reflected. The BRE guide states that it is necessary to make an allowance for the deterioration of surface finishes. Furniture within the rooms will also have an impact on daylight provision. Since the computer model used in the simulation does not include furniture, the BRE guide recommends that an allowance for this is also made within the reflectance values. For this reason, we have set out below, both the manufacturer's reflectance values, and the values used in the simulation. The simulation values include allowances for furniture and the deterioration of the surfaces. Should product substitutions be required, products with equal reflectance values should be chosen to ensure the daylight results presented in this report are achieved.

Surface	Product	Product Reflectance	Simulation Reflectance
Interior walls	Dulux Light & Space Absolute White	0.93	0.8
Ceilings	Dulux Light & Space Absolute White	0.93	0.8
Floors	Kahrs engineered wood (Ash Air)	0.76	0.4
Development cladding	BRE default value	n/a	0.2
Balcony floors	Portland stone	0.6	0.5
Balcony soffits	Dulux Weathershield Brilliant White	0.92	0.6
Neighbouring buildings	BRE default value	n/a	0.2
Mirror	Generic value	n/a	0.95
Glass	Generic value	n/a	0.1
Exterior ground	BRE default value	n/a	0.2

3.4.8 The simulation is based on double-glazed windows with a glazed area that equates to 80% of the structural opening size. The glazing consists of a Pilkington 4mm Optifloat Clear outer pane and a Pilkington 6.4mm OptiLam K Glass S inner pane, which has an overall manufacturer's direct transmittance of 0.82. In accordance with the BRE guide, the simulation includes maintenance factors to allow for the effect of dirt on the glazing.



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### **3.5 Exposure to Sunlight**

- 3.5.1 The BRE guide states that the main requirement for sunlight is in living rooms, where it is valued at any time of day but especially in the afternoon. Sunlight is also required in conservatories. It is viewed as less important in bedrooms and in kitchens, where people prefer it in the morning rather than the afternoon.
- 3.5.2 The BRE guide states that, in general, a dwelling will appear reasonably sunlit provided:
- at least one main window wall faces within 90 degrees of due south, and
  - a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March.
- 3.5.3 The guide states that, where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.

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## **4 RESULTS OF THE ASSESSMENT**

### **4.1 Windows Analysed**

4.1.1 Appendix 1 identifies the windows serving habitable rooms analysed in this assessment.

### **4.2 Interior Daylighting**

4.2.1 Daylight provision data and contours for the habitable rooms are presented in Appendix 2.

4.2.2 All habitable rooms tested surpass the BRE minimum illuminance recommendations.

### **4.3 Exposure to Sunlight**

4.3.1 Exposure to sunlight data is provided in Appendix 3.

4.3.2 In the case of the proposed development, half of the units tested have a living room window which faces within 90 degrees of due south and receives a total of at least 1.5 hours of sunlight on 21 March.

4.3.3 The BRE guide acknowledges that in some cases, it may not be possible for every dwelling to achieve ideal levels of sunlight. The guide explains that where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that:

- faces within 90 degrees of due south, and
- can receive a total of at least 1.5 hours of sunlight on 21 March.

4.3.4 In our opinion, the proposed development represents good site layout design. Since the design maximises sunlight availability, as far as practically possible given the constraints of the site, the BRE exposure to sunlight recommendations for groups of dwellings have been met.

### **4.4 Conclusion**

4.4.1 Right of Light Consulting confirms that the proposed design satisfies all of the requirements set out in the BRE guide 'Site Layout Planning for Daylight and Sunlight'.

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In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light.

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## 5 CLARIFICATIONS

### 5.1 General

- 5.1.1 The report provided is solely for the use of the client and no liability to anyone else is accepted.
- 5.1.2 The assessment is limited to assessing daylight & sunlight of the proposed development as set out in section 2.1 and 3.1 of the BRE guide.
- 5.1.3 The assessment is based on the information listed in section 2 of this report. The assessment has been undertaken without access to the proposed development site or neighbouring properties.
- 5.1.4 This assessment does not calculate the effects of trees and hedges on daylight, sunlight and overshadowing to gardens. The BRE guide states that trees should sometimes be taken into account. e.g. where there is concern that future occupants of the dwelling may want the trees to be cut down if they block too much skylight or sunlight. We are not aware of any such circumstances, in this instance.
- 5.1.5 We have undertaken the survey following the guidelines of the RICS publication "Surveying Safely". Where limited access is available, assumptions will have been made.
- 5.1.6 This report is based upon and subject to the scope of work set out in Right of Light Consulting's quotation and standard terms and conditions.

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## APPENDICES

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## **APPENDIX 1**

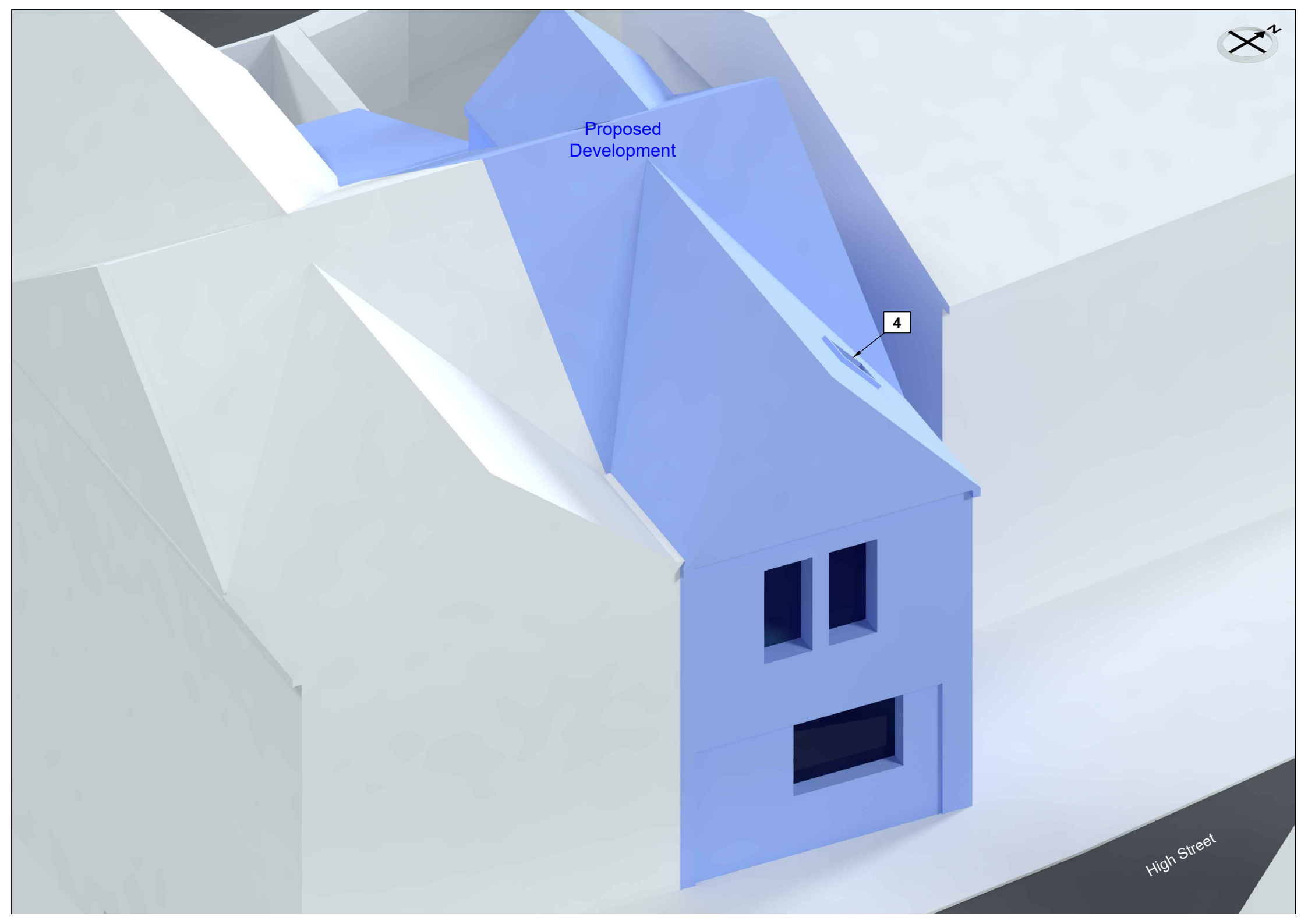
### WINDOW KEY



Proposed  
Development

4

High Street



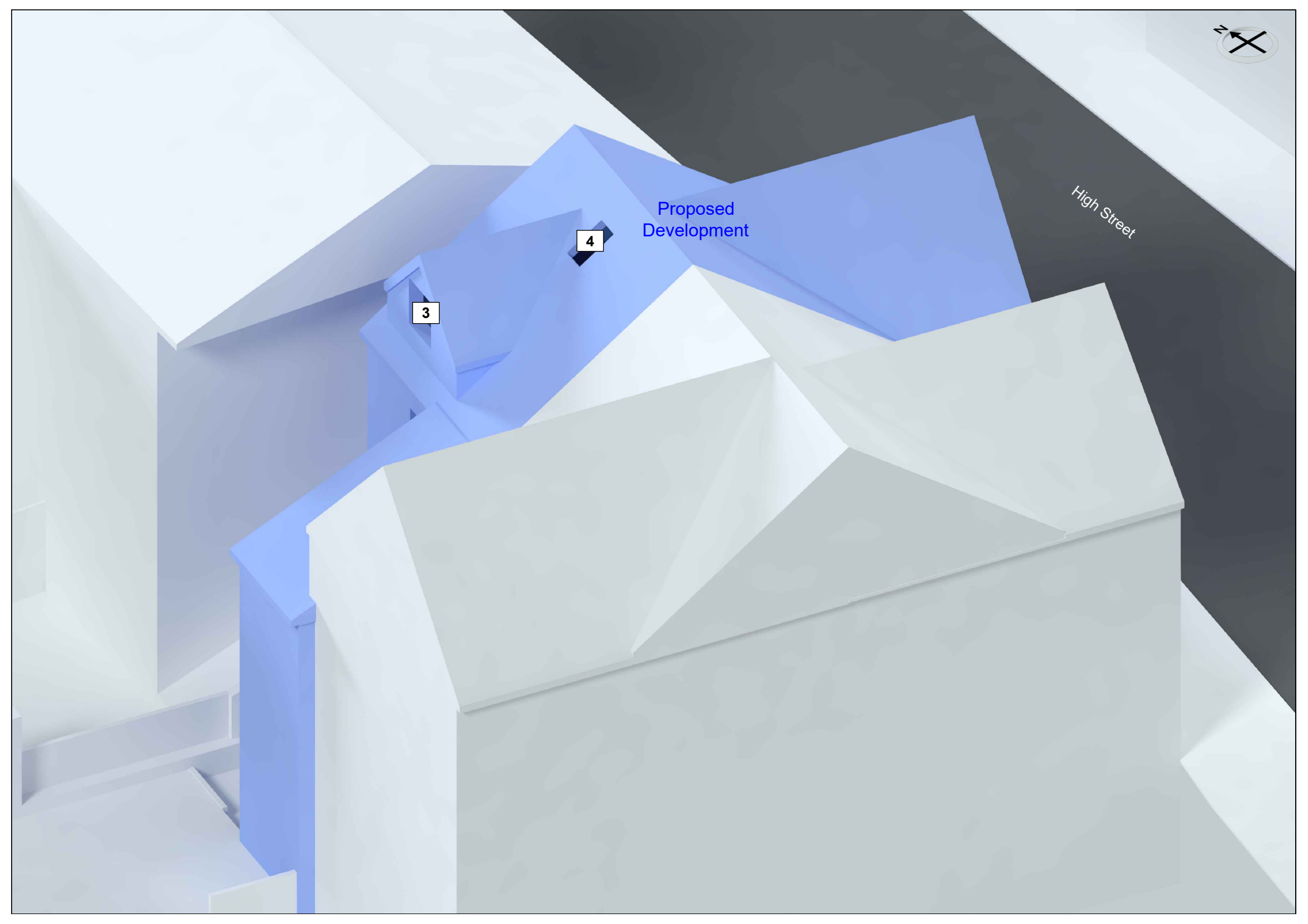


High Street

Proposed  
Development

4

3



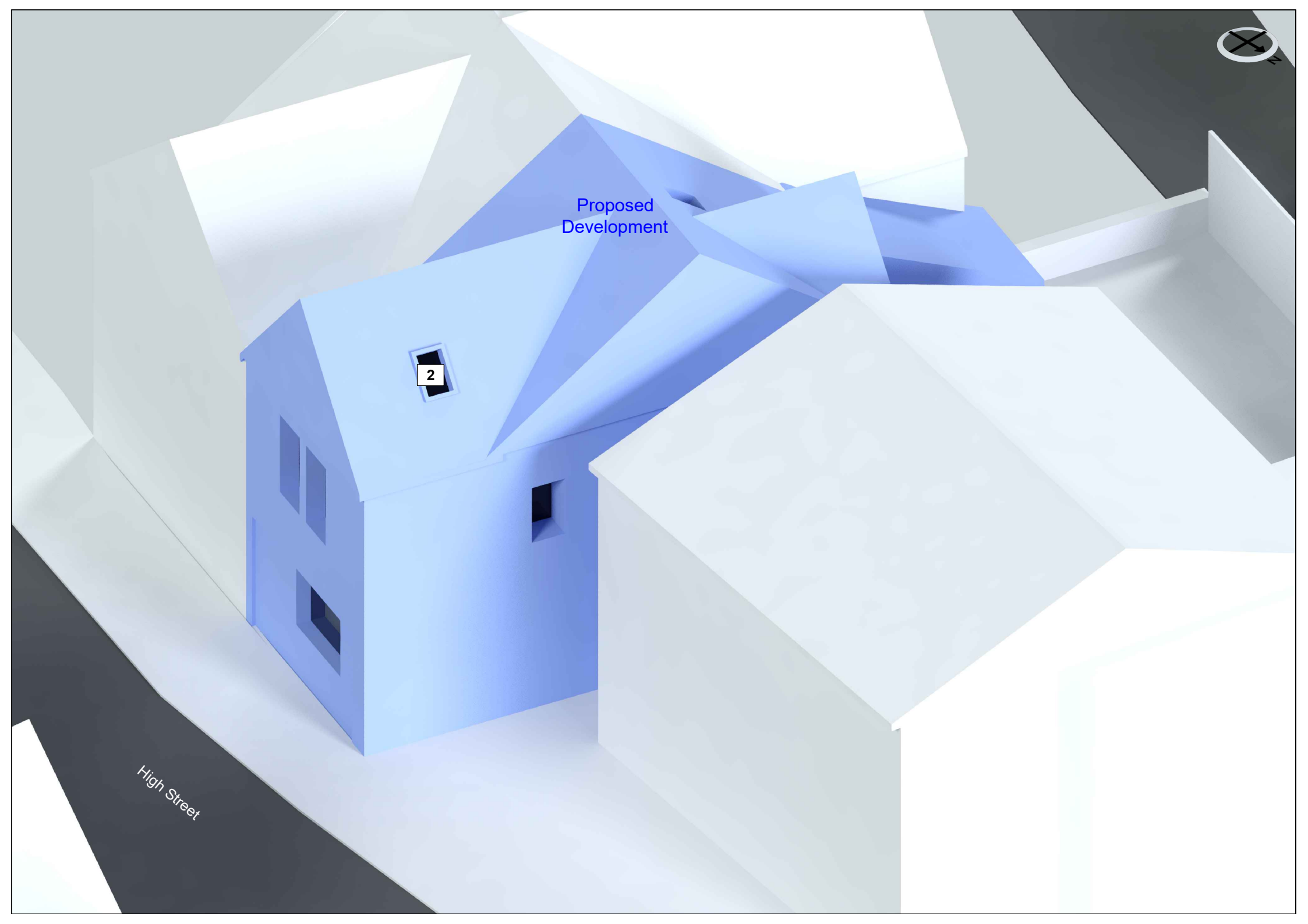




Proposed  
Development

2

High Street



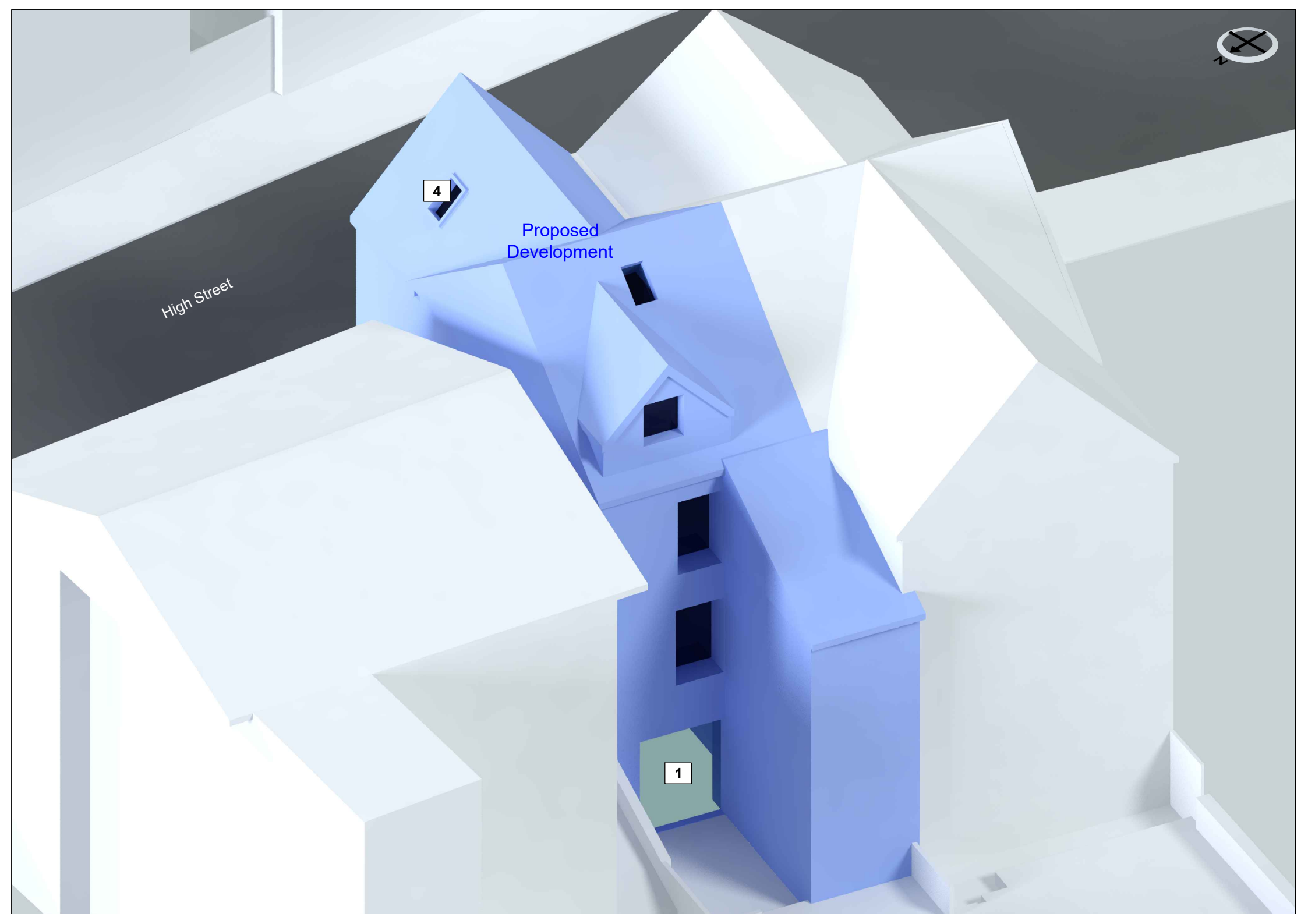


High Street

4

Proposed  
Development

1



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## **APPENDIX 2**

### **DAYLIGHT PROVISION DATA & CONTOURS**


## Appendix 2 - Daylight Provision


### 24 High Street, Llanbradach, Caerphilly CF83 3LQ

Reference	Room Use	Min.Target Illuminance (Lux)	Target % of Reference Plane	% of Reference Plane Achieved	Target % Achieved	Median Illuminance (Lux)
<u>24 High Street (Flat N1)</u>						
<u>Basement floor</u>						
Window 1	Studio	200	50%	76%	Yes	346
<u>24 High Street (Flat N4)</u>						
<u>Second Floor</u>						
Window 2	Bedroom	100	50%	68%	Yes	121
Windows 3 & 4	Living/Kitchen	200	50%	91%	Yes	316





Key:

 200 lux and above

 150 lux to 199 lux

 100 lux to 149 lux

 Below 100 lux

 Window reference

Drawing Title: Daylight Provision Contours

Scale: Do not scale

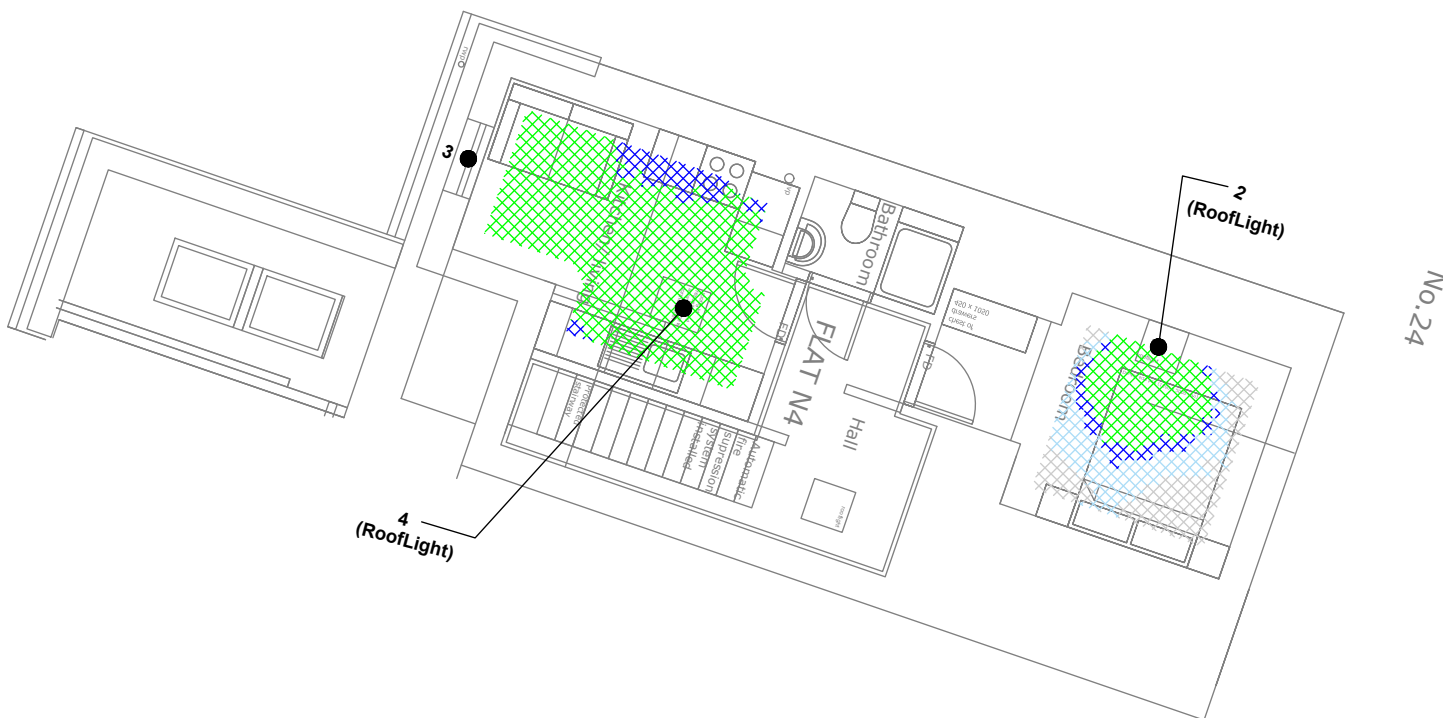
Drawing No: 1 of 2 Rev. .

Rev	Date	Details of revision




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Key:

 200 lux and above

 150 lux to 199 lux

 100 lux to 149 lux

 Below 100 lux

 Window reference

Drawing Title: Daylight Provision Contours

Scale: Do not scale

Drawing No: 2 of 2

Rev. .

Rev	Date	Details of revision



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## **APPENDIX 3**

### EXPOSURE TO SUNLIGHT DATA

## Appendix 3 - Sunlight Exposure

### 24 High Street, Llanbradach, Caerphilly CF83 3LQ

Reference	Room Use	Target Sunlight Exposure	Sunlight Exposure Achieved	At least one room meets Sunlight Exposure Target
<u>24 High Street (Flat N1)</u>				
<u>Basement floor</u>				
Window 1	Studio	1.5 hours	0 hours	No
<u>24 High Street (Flat N4)</u>				
<u>Second Floor</u>				
Window 2	Bedroom	1.5 hours	0 hours	Yes
Windows 3 & 4	Living/Kitchen	1.5 hours	2.8 hours	