

CONTENTS

1 INTRODUCTION 2

2 DEVELOPMENT DESCRIPTION..... 2

3 BRE 209 DESIGN GUIDANCE 3

4 IMPACT ON NEIGHBOURING BUILDINGS 4

 4.1. Guidance 4

 4.2. Methodology..... 5

5 RESULTS – VSC DAYLIGHT 11

LIST OF FIGURES

Figure 2.1 : Proposed Site Plan..... 3

Figure 4.1 : Google Maps Image of Adjacent buildings to Proposed Development..... 6

Figure 4.2 : 3D Model of Proposed Cherrywood development and adjacent building 7

Figure 4.3 : Granfeland’s South East Window Reference Nos 8

Figure 4.4 : Granfeland’s South East Window Reference Nos 9

Figure 4.5 : Granfeland’s South Elevation Window Reference Nos..... 10

LIST OF TABLES

Table 1 : VSC Daylight Result Summary..... 11

1 INTRODUCTION

This report compiles the Daylight - impact of the proposed development on neighbouring buildings as undertaken by HOB for the Proposed development at Cherrywood – Lehaunstown Housing, Co Dublin.

The report has been prepared as a desktop exercise with 3D massing and survey information provided by others. No site visits took place as the information provided included all relevant required information and our understanding is that any survey information or 3D models provided were carried out by relevant suitably qualified professionals.

IES VE 2024 (Radiance module) program was utilized in the analysis of the proposed development.

The following standards and guidance documents have been consulted when compiling this report to ensure compliance with the various Daylight and Sunlight requirements as applicable and relevant:

- The Building Research Establishment’s (BRE) Site Layout Planning for Daylight and Sunlight: A guide to good practice (BRE 209) 3rd edition/ 2022 edition, (the “BRE Guide”).

It should be noted at the outset that the 2008 British Standard has been superseded by the 2018 British Standard, and BRE Guide 2nd Edition has been superseded by BRE Guide 2022 edition. Both previous revisions have now been withdrawn.

2 DEVELOPMENT DESCRIPTION

The subject site for this Daylight and Sunlight Analysis report is the proposed residential development at Lehaunstown Land, Cherrywood.

The subject site for this Lighting Impact Assessment report is the proposed residential development at Lehaunstown Land, Cherrywood.

The site is located off Lehaunstown Lane, Laughanstown, Co Dublin. It consists of a rectangular plot of land in agricultural use with an area of approximately 3.58 hectares.

The development, accessed via a new road connecting the development site to The Parade, consists of 109 residential units made up of terraced houses, duplexes and apartment buildings ranging in height from 2 to 4 storeys organised around a hierarchy of pedestrian-oriented spaces together with associated surface and underground parking, ESB substations, cycle parking, communal and public open space and associated landscaping



Figure 2.1 : Proposed Site Plan

3 BRE 209 DESIGN GUIDANCE

The BRE Guide describes its purpose in the following terms in the “Summary” section (v):

“This guide gives advice on site layout planning to achieve good sunlighting and daylighting, both within buildings and in the open spaces between them. It is intended to be used in conjunction with the interior daylight recommendations for new buildings in the British Standard Daylight in buildings, BS EN 17037. It contains guidance on site layout to provide good natural lighting within a new development; safeguarding of daylight and sunlight within existing buildings nearby; and the protection of daylighting of adjoining land for future development.”

The BRE Guide also notes that:

“1.6 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 (see Section 5). In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings. Alternatively, where natural light is of special importance, less obstruction and hence more sunlight and daylight may be deemed necessary. The calculation methods in Appendices A and B are entirely flexible in this respect. Appendix F gives advice on how to develop a consistent set of target values for skylight under such circumstances.”

“1.7 The guidance here is intended for use in the United Kingdom and in the Republic of Ireland, though recommendations in the Irish Standard IS EN 17037 may vary from those in BS EN 17037. Many of the principles outlined will apply to other temperate climates. More specific guidance for other locations and climate types is given in BRE Report Environmental site layout planning.”

Therefore, if the situation arises where the targets identified within the Guide are not achieved, these should be highlighted and either justified in the context of the development / site or where relevant and applicable, compensatory measures will be proposed. However, the Guide does not impose absolute standards that must be achieved under all circumstances.

In the context of this report, any deviations from the Guide’s recommendations have therefore been identified, with an approach throughout to ensure that good quality daylight/sunlight is achieved through analysis and design improvements as far as practicable and viable as detailed in the report as relevant.

The main sections in the guide that the assessments within this report will reference (as applicable) are:

- Light from the Sky (Daylight):

Existing Buildings – The guide sets a quantitative assessment method for determining the impact of new developments on light from the sky (VSC) on existing neighbouring buildings.

4 IMPACT ON NEIGHBOURING BUILDINGS

4.1. Guidance

As set out within the introduction, the impact on existing buildings has been assessed utilising quantitative assessment method as detailed in the BRE publication “Site Layout Planning for Daylight and Sunlight – A guide to good Practice (2022 Edition)”

VSC is a measure of the amount of light reaching a window. It is the ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE standard overcast sky, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings.

BRE Guidelines state:

Light from the Sky

"If any part of a new building or extension, measured in a vertical section perpendicular to a main window wall of an existing building, from the centre of the lowest window, subtends an angle of more than 25° to the horizontal, then the diffuse daylighting of the existing building may be adversely affected. This will be the case if either:

- **The VSC (Vertical Sky Component) measured at the centre of an existing main window is less than 27%, and less than 0.8 times its former value."**
- **The area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value. (the No-Sky-Line requirement)**

The guide clarifies that:

"Where room layouts are known, the impact on the daylighting distribution in the existing building can be found by plotting the 'no sky line' in each of the main rooms... The no sky line divides points on the working plane which can and cannot see the sky. Areas beyond the no sky line, since they receive no direct daylight, usually look dark and gloomy compared with the rest of the room, however bright it is outside. If, following construction of a new development, the no sky line moves so that the area of the existing room, which does receive direct sunlight, is reduced to less than 0.8 times its former value this will be noticeable to the occupants, and more of the room will appear to be poorly lit."

Since the room layouts of existing Neighbouring building are not know the analysis is based on measuring the VSC at the existing main windows. As per the BRE Guide, main windows included, living rooms, kitchens, and bedrooms. Existing windows with VSC above 27% after proposed development are considered to still receive good daylight availability and therefore not adversely affected.

4.2. Methodology

Analysis was undertaken by calculating daylight availability for the permitted vs. proposed development for indicative window locations on the façade of each neighbouring building which has the potential to be impacted as indicated in Figure 4.1 below.

The analysis focuses on primary windows, the main living area, and the conservatory. It was conducted on the existing neighbouring residential building that might be affected by the proposed development. Daylight (VSC) calculations were performed for indicative window locations on the façade of the neighbouring building, comparing the existing scheme with the proposed scheme.



Figure 4.1 : Google Maps Image of Adjacent buildings to Proposed Development

3D models of both the baseline and proposed developments at Cherrywood Lehaunstown Housing were produced for VSC assessment. These models also include adjacent neighbouring building, and the windows to be analysed.

As per BRE guidance, the **Baseline model** state reflects the existing environment. It includes the surrounding context and the subject site in their current standing. This includes any structures that are to be demolished as part of this application.

The **cumulative or Proposed model** state reflects the subject site if the development is built as proposed This includes the demolishing of structures, landscaping etc. Figure 4.1 below indicates the 3D model.

The BRE Guidelines state that when assessing the effect, a new development would have on existing buildings, it is usual to ignore the effect of trees. This is because daylight is at its scarcest and most valuable in winter when most trees will not be in leaf.

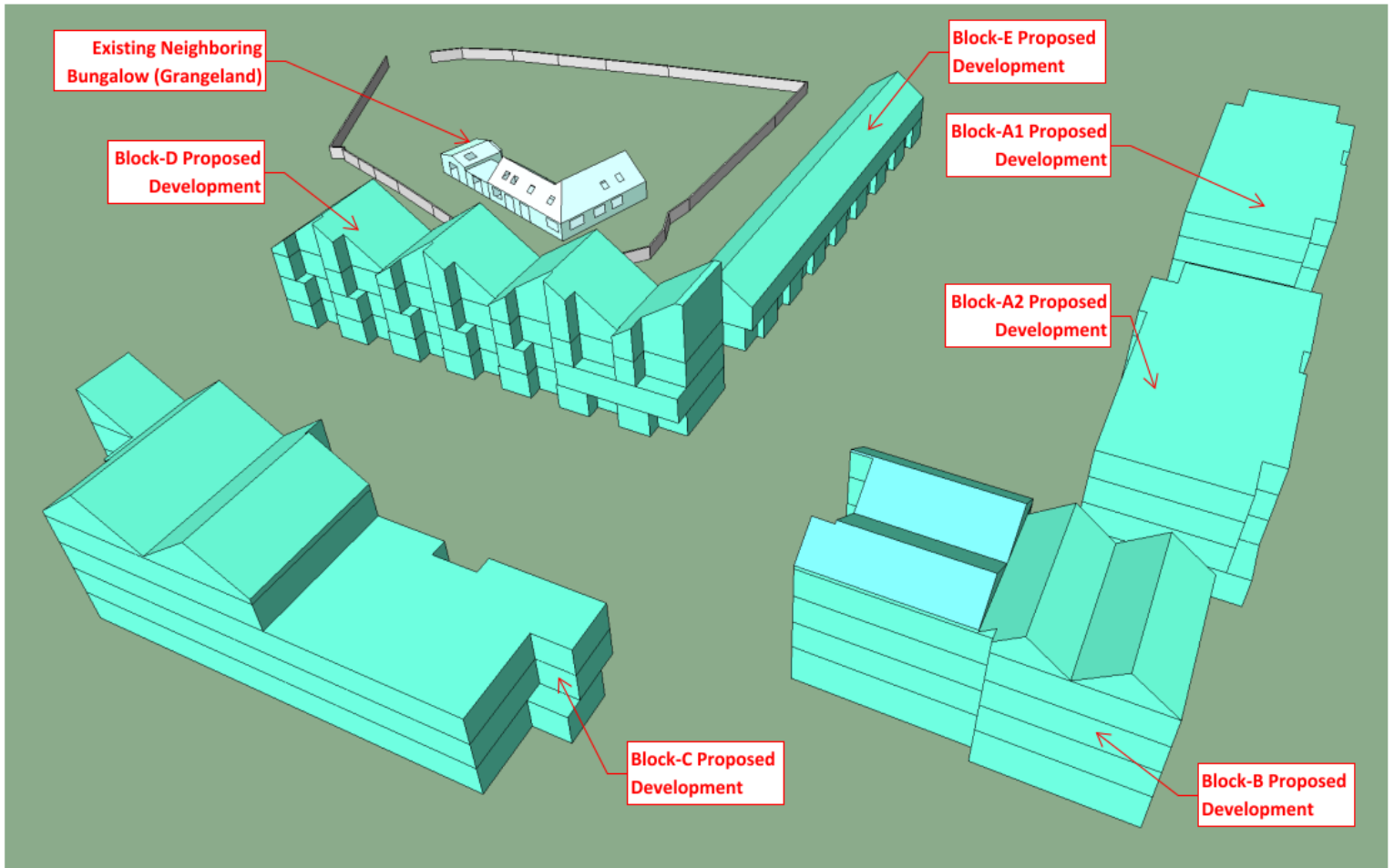


Figure 4.2 : 3D Model of Proposed Cherrywood development and adjacent building

The following relevant neighbouring buildings were assessed. All other buildings were determined to be either further away (and therefore would receive negligible impact) or have no windows facing the development.

- Grangeland [Residential Bungalow] Figure 4.1 and 4.2 shows the Neighbouring building.

Analysis was undertaken by calculating sunlight availability Pre and Post-development for indicative window locations on the façade of the building as shown in Figures 4.3 to 4.5 below.



Figure 4.3 : Granfeland's South East Window Reference Nos

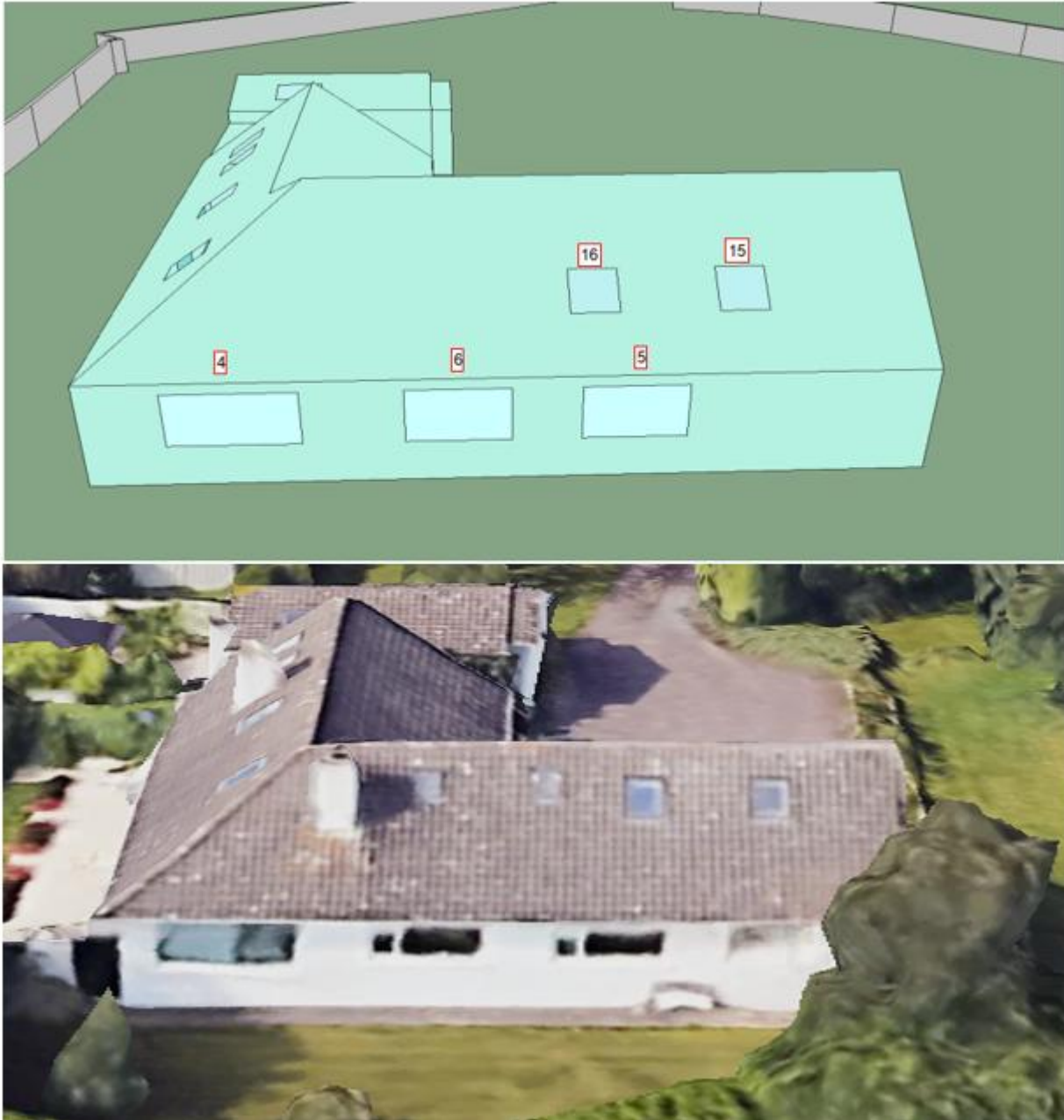


Figure 4.4 : Granfeld's South East Window Reference Nos



Figure 4.5 : Granfeland's South Elevation Window Reference Nos

5 RESULTS – VSC DAYLIGHT

The below tables present the VSC results for all 16 neighbouring windows analysed. All windows are determined to be compliant with BR 209 guidelines. In the majority of instances, VSC under the proposed condition improves on those in the baseline condition. The results confirm that the proposed development is determined to not adversely affect neighbouring buildings in terms of receipt of natural light, when assessed against the baseline scheme.

Zone	Window Reference No.	VSC Baseline (%)	VSC Proposed (%)	Ratio of Proposed to Baseline	Criterion 1	Criterion 2	Overall Compliance
					VSC Proposed > 27%	VSC Proposed <80% of Baseline	
Grangeland	1	38.32 %	33.57 %	1.14	YES	YES	Pass
Grangeland	2	97.10 %	94.97 %	1.02	YES	YES	Pass
Grangeland	3	38.20 %	34.63 %	1.10	YES	YES	Pass
Grangeland	4	39.58 %	29.37 %	1.35	YES	YES	Pass
Grangeland	5	39.48 %	30.73 %	1.28	YES	YES	Pass
Grangeland	6	39.52 %	30.11 %	1.31	YES	YES	Pass
Grangeland	7	38.27 %	29.01 %	1.32	YES	YES	Pass
Grangeland	8	38.48 %	30.54 %	1.26	YES	YES	Pass
Grangeland	9	39.48 %	27.04 %	1.46	YES	YES	Pass
Grangeland	10	39.48 %	32.65 %	1.21	YES	YES	Pass
Grangeland	11	83.62 %	78.78 %	1.06	YES	YES	Pass
Grangeland	12	83.51 %	78.55 %	1.06	YES	YES	Pass
Grangeland	13	83.52 %	77.59 %	1.08	YES	YES	Pass
Grangeland	14	83.48 %	75.99 %	1.10	YES	YES	Pass
Grangeland	15	83.53 %	78.56 %	1.06	YES	YES	Pass
Grangeland	16	83.60 %	78.12 %	1.07	YES	YES	Pass

Table 1 : VSC Daylight Result Summary