NRG CONSULTING

Wrotham Road

Daylight, Sunlight & Overshadowing Assessment

September 2025

CONTENTS

Document Control Sheet			
Report Reference	PP2232/WR/DL/202509-AV	Report Author	Alex Visintini
Report Prepared For	Johal Real Estate Developments Ltd	Approved By	Ryan Thrower
Issue Purpose:	For Planning Issue	Date of Issue	29th September 2025

1 Executive Summary

NRG Consulting have been commissioned to undertake a Daylight, Sunlight and Overshadowing Assessment on a proposed development at **7 Wrotham Road, Gravesend, DA11 0QF**.

The proposed description of development is: *Roof extension to an existing building to create two new residential units.*

Our assessment of the proposed development is in adherence to the following best-practice guidance and industry standards:

- BRE's Site Layout Planning for Daylight and Sunlight, A guide to good practice (BR 209), 3rd Ed. (2022)
- Daylight in Buildings – (BS EN 17037:2018)

The BRE document serves as a guide designed to assist rather than restrict the designer. While it provides valuable advice, it is not mandatory and should not be viewed as a tool for planning policy. In unique circumstances, developers or planning authorities may opt for different target values.

The findings of this report indicate that the proposed development will not have a negative impact on the sunlight levels experienced by neighbouring properties and spaces at the approved/existing flats located on lower floors of 7 Wrotham Road.

Based on the findings within this report, it is considered that daylight and sunlight considerations should not be a constraint to the granting of planning permission.

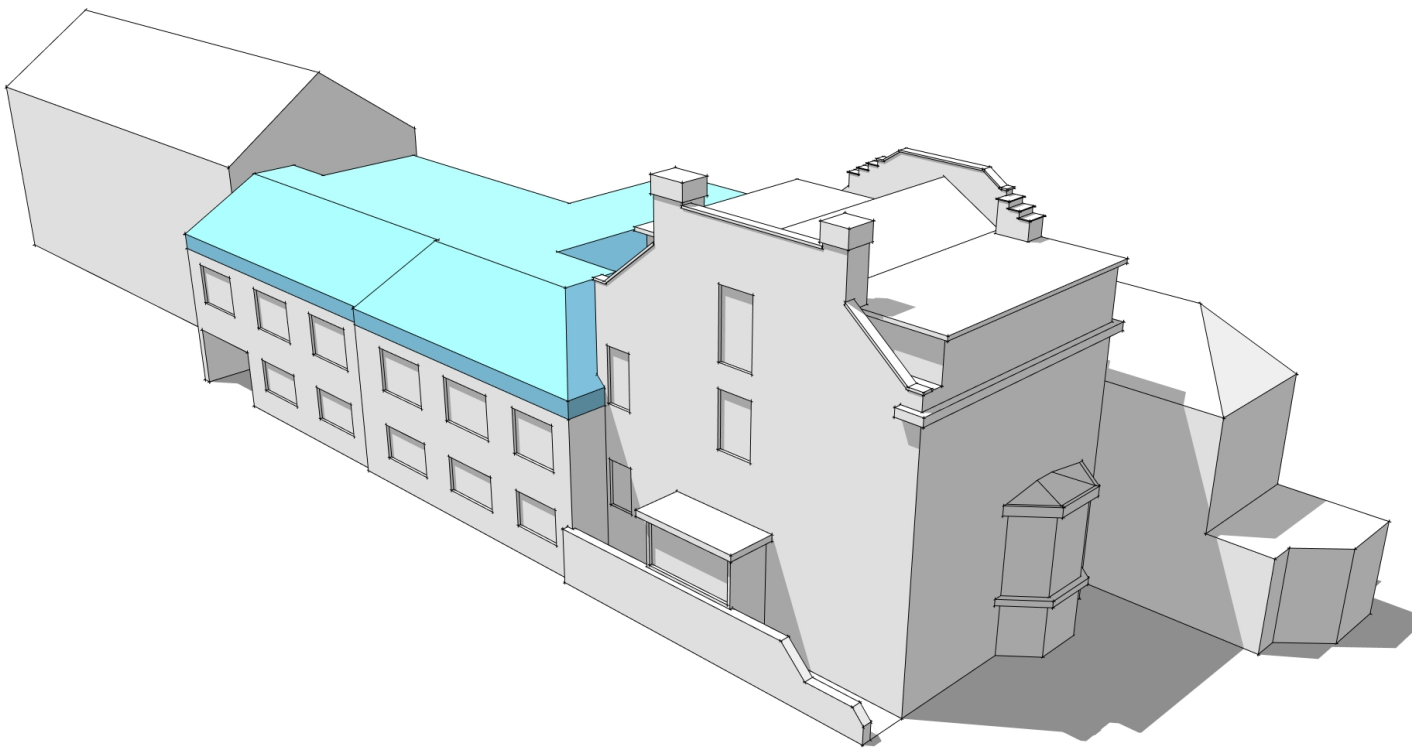

Figure 1*: 3D model of proposed buildings*

2 Introduction

2.1 Background

The Building Research Establishment (BRE) has outlined guidelines and methodologies for measuring and assessing daylight and sunlight within proposed buildings in their handbook, "*Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice", 3rd Ed*. The guide also offers advice on site layout planning to determine the quality of daylight and sunlight within open spaces between buildings. This document is intended to be used in conjunction with the interior daylight recommendations found within the British Standard BS EN 17037:2018 and the Applications Manual on Window Design from the Chartered Institution of Buildings Services Engineers (CIBSE).

The British Standards Institution (BSI) has provided guidance on good practice in daylighting design in BS EN 17037:2018 Daylight in Buildings, presenting criteria intended to enhance the well-being and satisfaction of people in buildings.

This study assesses the availability of Daylight and Sunlight to the façades of local dwellings and their amenity areas with respect to the design proposals prepared by the design team, as well as the availability of internal daylight to the proposed building.

NRG Consulting has proposed the following methodology to assess the proposed layouts:

- Prepare a 3D computer model to:
  a) understand and visualize sunlight for neighbouring properties.
  b) assess the internal daylight/illuminances for the living rooms, kitchens, and bedrooms of the proposed development.
- Carry out an assessment using the methodologies set out by above for diffuse daylight and sunlight conditions.

This comprehensive approach ensures a thorough evaluation of both external and internal daylight conditions, taking into account both existing structures and proposed developments.

2.2 The Nature and Effect of Daylight and Sunlight

The 3rd edition of the "Site Layout Planning for Daylight and Sunlight" guide by Paul J. Littlefair, released in June 2022, replaces the second edition. The key update is the methods for assessing daylight in a proposed building, as per section 2.1 and Appendix C of the handbook. These methods are based on BS EN 17037, which offers two methodologies for evaluating daylight across a room's working plane: the Illuminance Method and the Daylight Factor Method.

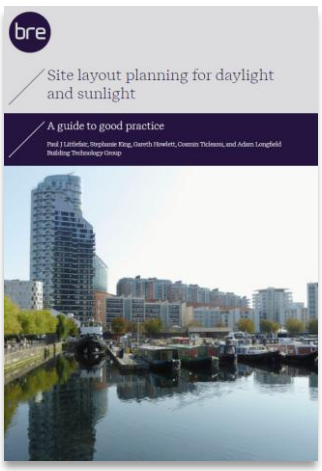

Figure 2: BRE guidelines

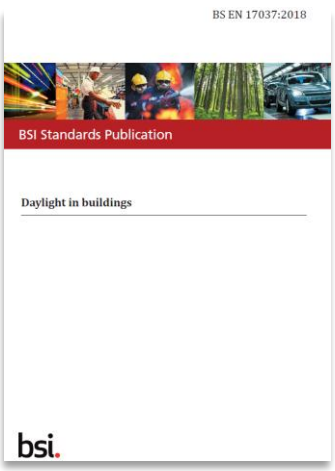

Figure 3: BS EN 17037

3 Daylight and Sunlight Assessment Guidance

3.1 Assessment of the Effect of Daylight and Sunlight

When evaluating the potential light-related impacts of proposed developments it is crucial to distinguish between daylight and sunlight. Daylight encompasses all direct and indirect sunlight during daytime hours, while sunlight refers solely to direct sunlight. Even on cloudy or overcast days, diffuse daylight can illuminate rooms through windows, despite the absence of sunlight. Particular attention should be paid when the development is located south of existing buildings. In the northern hemisphere, most sunlight comes from the south. In the UK, south-facing facades generally receive the most sunlight, while north-facing facades receive less sunlight during summer months, specifically in early mornings and late evenings.

The BRE Guidance considers separate areas when assessing the impacts of a new development on an existing property:

- Daylight - The impacts of all direct and indirect sunlight during daytime.
- Sunlight - The impacts of only the direct sunlight on a dwelling and its garden and open spaces. This comprehensive approach ensures a thorough evaluation of both external and internal light conditions, taking into account both existing structures and proposed developments.

The BRE report provides guidelines for when sunlight obstruction may become an issue:

- If the proposed or existing development has a window that faces within 90° of due south, and;
- On this window wall, all points on a line 2m above ground level are within 4m (measured sideways) of a point which receives at least a quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months, between 21st September and 21st March.

Table 1 below summarises the criteria used in this report to assess the impacts from new development on the sunlight reaching existing properties, and for internal daylight.

Parameter	Report Reference	Acceptability Criteria
Vertical Sky Component	BRE 209 Section 2.2	Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each existing window. If the VSC is both less than 27%, and less than 0.8 times its former value occupants will notice the reduction in the amount of skylight..
APSH/WPSH	BRE 209 Section 3.2	It is recommended that interiors where the occupants expect sunlight receive at least one quarter (25%) of Annual Probable Sunlight Hours (APSH), including the winter months between 21st September and 21st March at least 5% of Annual Probable Sunlight Hours (WPSH). If the available sunlight hours are both less than these values and less than 0.8 times their former value, then the occupants will notice the loss of sunlight.
Table 1: BRE Daylighting Criteria		

3.2 Angle to Sky from Horizontal

Generally, a building will maintain the potential for good interior diffuse daylighting as long as no obstruction, measured in a vertical section perpendicular to the main face from the centre of the lowest window, subtends an angle of 25° to the horizontal or less on all its main faces.
If this criterion is met, further calculations are typically not required as it is unlikely that daylighting will be significantly affected. This approach ensures that buildings are designed with optimal daylighting in mind, enhancing the overall quality of the interior environment.

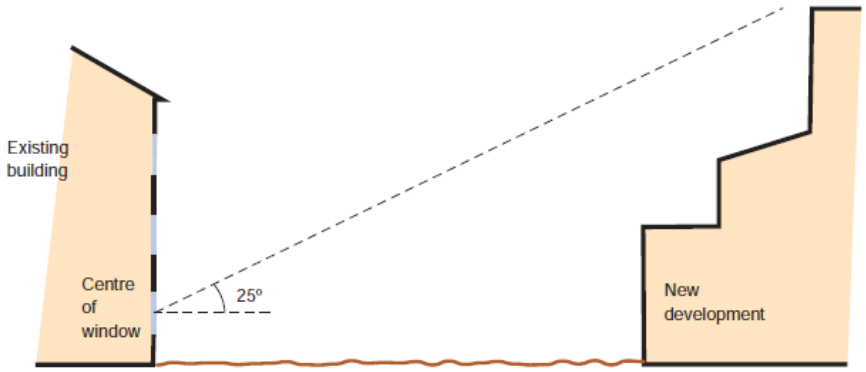

***Figure 4**: Section showing the angle to sky from horizontal criteria for diffuse daylighting*

4 Methodology Applied

4.1 Data

All data utilised in this report has been sourced directly from digital files supplied by the Design Team. The height of any potential obstructions has been determined using survey data or derived from publicly accessible aerial photographs.

Figure 5: *Aerial view of the site as existing*

4.2 3D Model

To conduct the daylight, sunlight, and overshadowing assessment for the adjacent properties, we constructed a full-size 3D model of the existing area. This model includes existing buildings and neighbouring properties and was created using Trimble SketchUp 2021. We manually measured the angle to the sky from the horizontal within the model space. To assess the Vertical Sky Component and the Annual and Winter Probable Sunlight Hours (APSH/WPSH), we used MBS Daylight software. This approach ensures a thorough and accurate assessment of daylight and sunlight conditions.

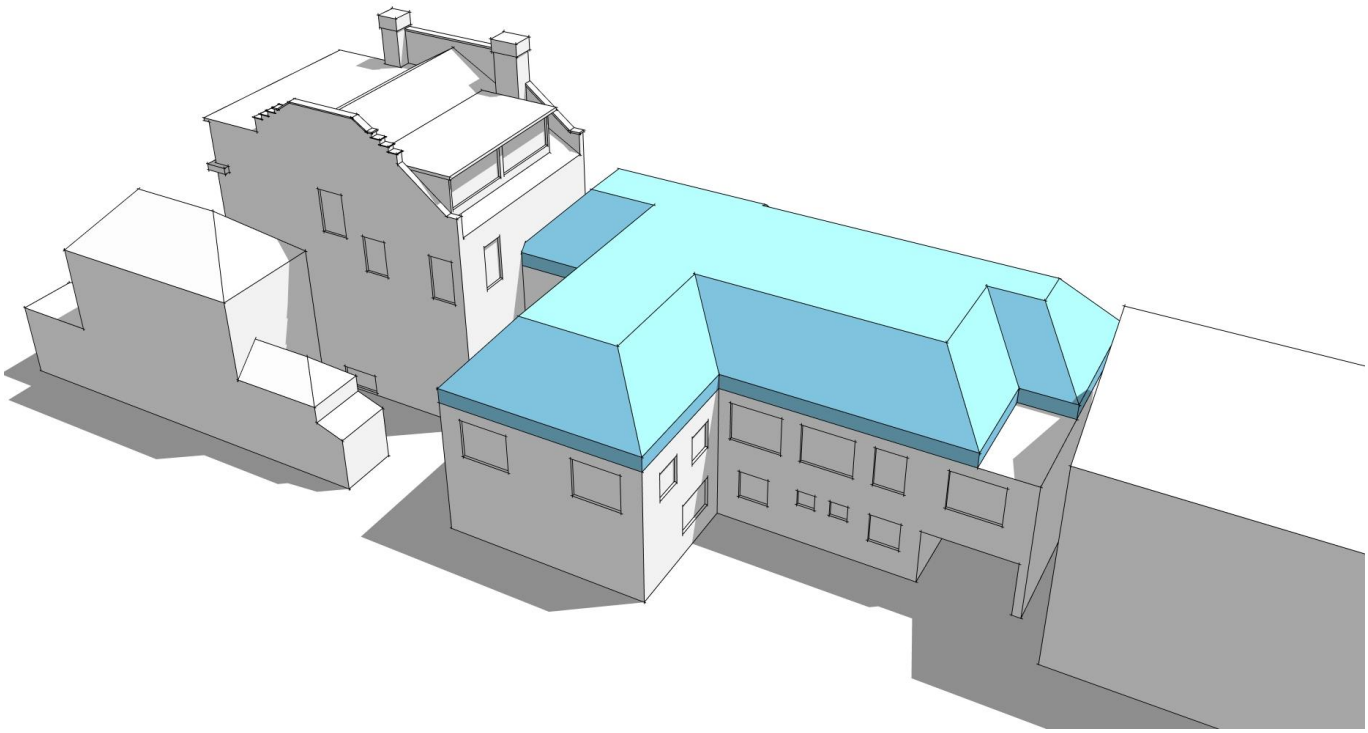

Figure 6: *3D model of the proposed development*

4.3 Design Data

The architectural design for this project was provided by **Go Plans**. The drawing pack used for this assessment was issued in September 2025.

5 Results

5.1 Vertical Sky Component Analysis and APSH/WPSH Analysis

Our assessment of the Vertical Sky Component (VSC) reveals minimal changes between the existing VSC available to the analysed windows and the VSC post-development. Furthermore, our analysis of Annual and Winter Probable Sunlight Hours indicates no adverse effects on existing properties.

The windows analysed, along with their addresses, are listed in the tables below. All are deemed compliant with BRE guidelines.

ADDRESS	WINDOW No	PRE CONSTRUCTION VSC	POST CONSTRUCTION VSC	AFFECT RATIO	MEETS BRE CRITERIA
7 Wrotham Road (Existing or Approved Dwellings)	1	36.4	36.14	0.99	YES
	2	38.73	38.72	1	YES
	3	38.56	38.29	0.99	YES
	4	38.65	37.57	0.97	YES
	5	37.92	28.13	0.74	YES
	6	34.54	34.54	1	YES
	7	34.53	34.53	1	YES
	8	26.38	26.2	0.99	YES
	9	36.01	36.01	1	YES
	10	38.46	37.6	0.98	YES
	11	38.82	38.82	1	YES
	12	38.88	38.88	1	YES
	13	13.09	12.14	0.93	YES
	14	38.94	38.94	1	YES
	15	38.94	38.94	1	YES
	16	24.16	23.66	0.98	YES
	17	32.9	30.93	0.94	YES
	18	28.39	26.65	0.94	YES
	19	25.95	25.51	0.98	YES
	20	30.75	30.21	0.98	YES
	21	32.79	32.23	0.98	YES
	22	35.93	35.46	0.99	YES
	23	32.45	30.12	0.93	YES
	24	37.32	35.66	0.96	YES
	25	37.78	37	0.98	YES

ADDRESS	WINDOW No	PRE CONSTRUCTION VSC	POST CONSTRUCTION VSC	AFFECT RATIO	MEETS BRE CRITERIA
	26	36.56	36.2	0.99	YES
	27	38.94	38.94	1	YES
	28	38.69	38.69	1	YES
	29	38.69	38.69	1	YES
	30	38.94	38.94	1	YES
	31	38.94	38.94	1	YES
	32	38.69	38.69	1	YES
	33	38.69	38.69	1	YES
	34	38.65	38.65	1	YES
	35	38.94	38.94	1	YES
	36	38.94	38.94	1	YES
	37	38.94	38.94	1	YES

Table 2: *Results of Visual Sky Component Analysis. If a window were to achieve less than 27% Post Construction VSC the Affect Ratio must be at least 0.80 to ensure BRE compliance*

ADDRESS	WINDOW No	PRE CONSTRUCTION APSH	POST CONSTRUCTION APSH	AFFECT RATIO	PRE CONSTRUCTION WPSH	POST CONSTRUCTION WPSH	AFFECT RATIO	MEETS BRE CRITERIA
	1-7	North-facing window						
	8	51	51	1	20	20	1	YES
	9	79	79	1	30	30	1	YES
	10	79	77	0.97	30	28	0.93	YES
	11	81	81	1	30	30	1	YES
	12	81	81	1	30	30	1	YES
	13-26	North-facing window						
	27	82	82	1	30	30	1	YES
	28	82	82	1	30	30	1	YES
	29	82	82	1	30	30	1	YES
	30	82	82	1	30	30	1	YES
	31	82	82	1	30	30	1	YES
	32	82	82	1	30	30	1	YES
	33	82	82	1	30	30	1	YES
	34	82	82	1	30	30	1	YES
	35	82	82	1	30	30	1	YES
	36	82	82	1	30	30	1	YES
	37	82	82	1	30	30	1	YES

Table 3: *Results of Annual Probable Sunlight Hours. If a window were to achieve less than 25% Post Construction APSH or 5% WPSH the Affect Ratio must be at least 0.80 to ensure BRE compliance*

5.2 Window Arrangement

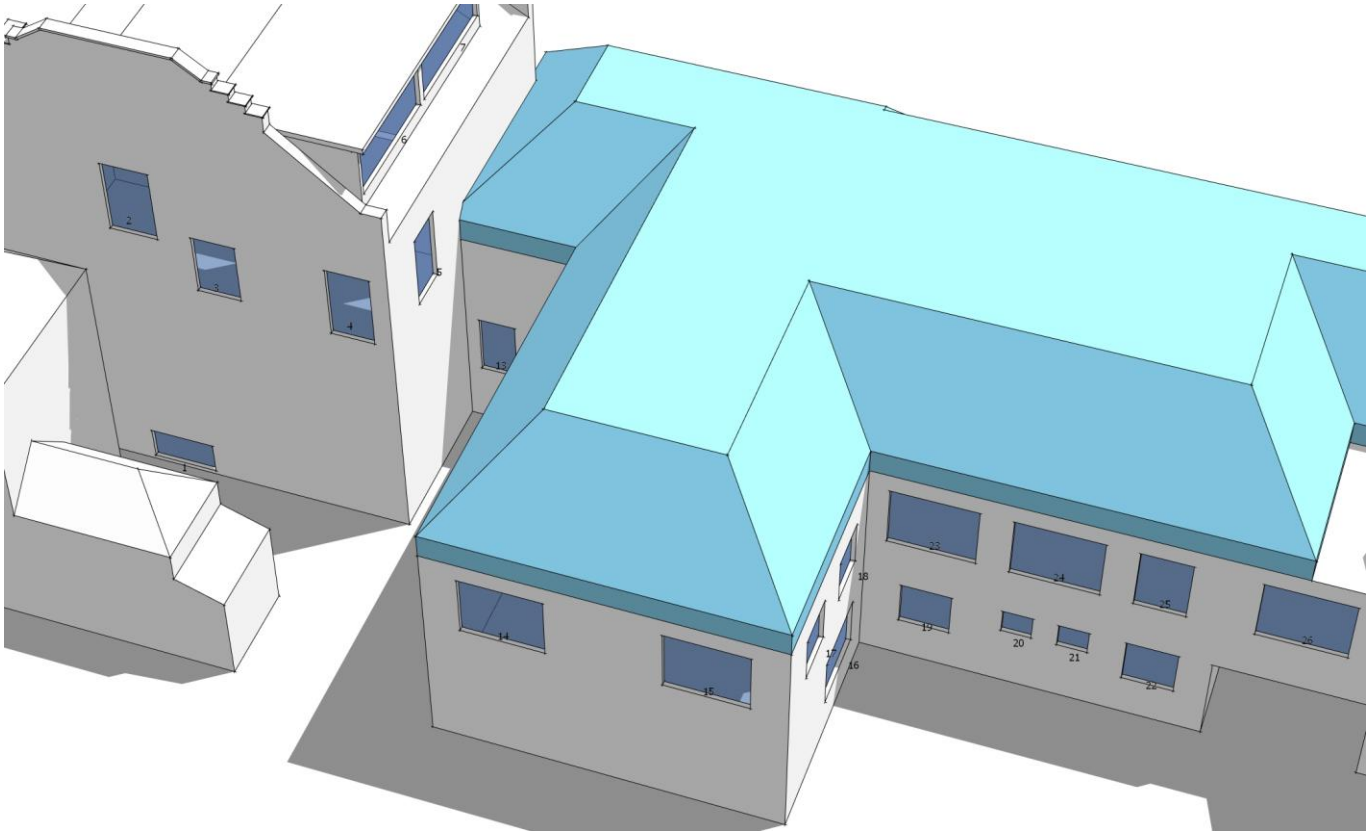

Figure 7: Window arrangement

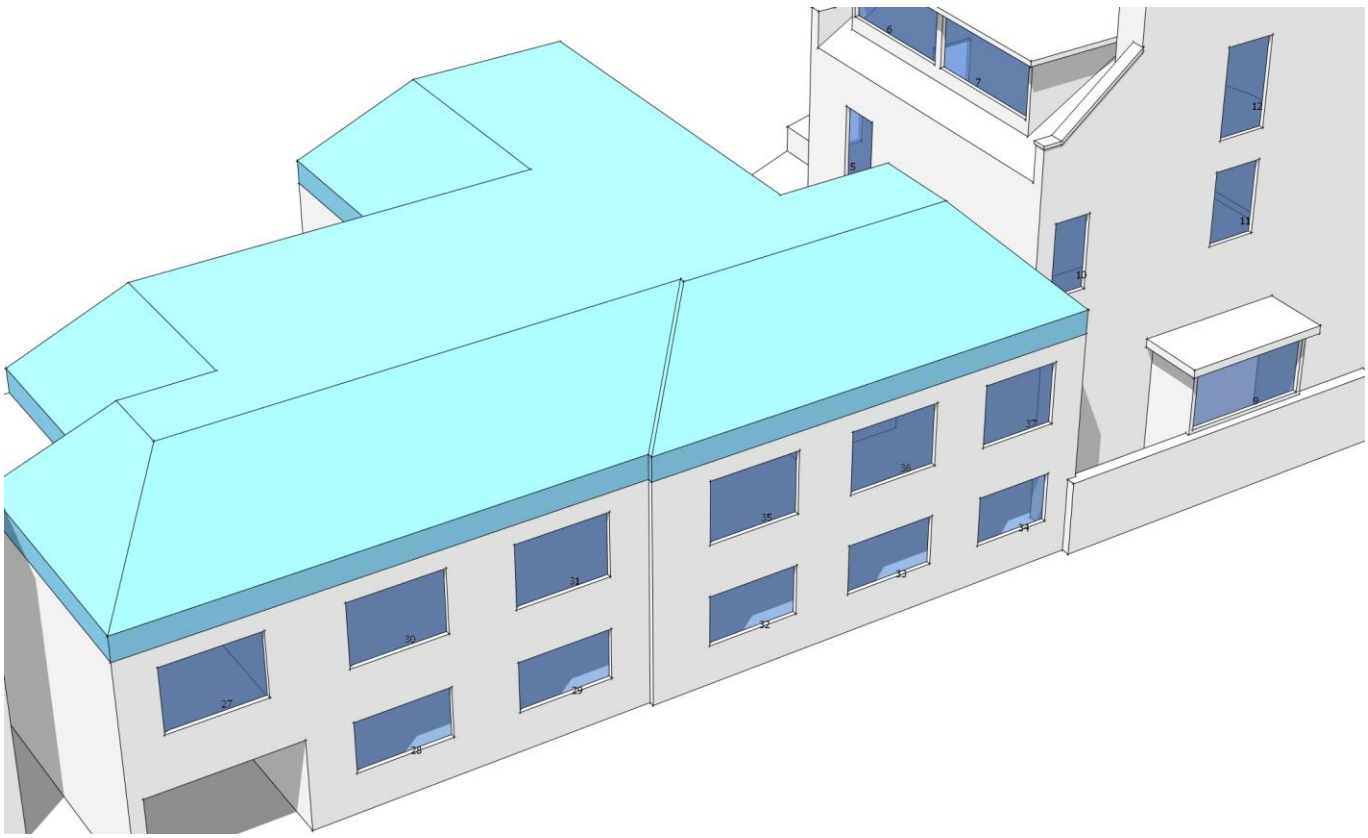

Figure 8: Window arrangement

6 Conclusion

Our daylight and sunlight analysis indicates that the proposed development at **7 Wrotham Road, Gravesend, DA11 0QF** will not impact the surrounding properties at the approved/existing flats located on lower floors of 7 Wrotham Road.

As detailed in Sections 5.1-5.3, our analysis shows that the neighbouring habitable windows/rooms meet the target requirements of the BRE Guide in terms of daylight and sunlight in the proposed situation, with no significant adverse material effect.

The Vertical Sky Component (VSC) Analysis reveals minimal changes in daylight access to the existing buildings before and after the proposed development. All analysed windows comply comfortably with BRE guidelines for adequate daylighting [Section 5.1].

Our Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) assessment demonstrates that the proposed development will not significantly affect the existing buildings. All analysed windows comply comfortably with BS EN 17037:2018 [Section 5.1].

As per the findings of this report, it is considered that daylight and sunlight levels should not be a constraint to the granting of planning permission.

Disclaimer

The contents of this report are based on drawings, specifications, and information provided by the Design Team, supplemented by assumptions and sourced data by NRG to undertake the assessment in the most accurate manner possible.

NRG bears no responsibility to third parties for any use or interpretation of this report. Third parties act on the report's contents at their own risk.

The use of this report is exclusively reserved for the named client only, unless accompanied by a signed letter of reliance.

This report has been produced by NRG Consulting (NRG) to support a Planning Application. It should not be relied upon at construction stage, for Building Control compliance, or to be used in the discharge of Planning Conditions.