



# Daylight & Sunlight Report

266 - 278 Yeading Lane, Hayes, UB4 9AX

Presented to: **Threshold Land and Estates Ltd**

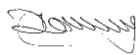
Issued: October 2024

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## Report Details

<b>Client</b>	Threshold Land and Estates Ltd
<b>Report Title</b>	Daylight & Sunlight Report
<b>Site Address</b>	266 - 278 Yeading Lane, Hayes, UB4 9AX
<b>Project No.</b>	117347.635948
<b>Lucion Contact</b>	Christine Park (Christine.park@luciongroup.com)

## Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
2	Final	16 <sup>th</sup> October 2024		<i>C Park</i>	<i>D Pope</i>	
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## About us

Lucion Delta-Simons is part of Lucion, a technology-led environmental services company dedicated to protecting people and the planet. With expert advice, guidance, and a comprehensive array of services, we support you at every stage of your asset lifecycle, helping you mitigate regulatory impact, improve business practices, and ensure safety and environmental protection.

As part of Lucion's group of companies, we can support you with a broader range of holistic services. Through our pool of multidisciplinary experts, we help you navigate complex regulatory frameworks, saving you time and money.

Being part of your sustainable supply chain is a key goal for our team. As a member of the UN Global Compact and a commitment to sustainability, we are the partner of choice for businesses looking to make informed decisions and mitigate risks across your portfolio.

Lucion is carbon neutral. We annually measure and report our Scope 1, Scope 2 and specified Scope 3 carbon emissions, and offset 100% of residual emissions through verified carbon credits, supporting carbon reduction and prevention projects overseas. We are taking steps to reduce our carbon emissions and have committed to setting and achieving near-term and Net Zero Science-Based carbon reduction targets in line with the goals of the Paris Agreement to limit global warming to 1.5°C above pre-industrial levels. Lucion is a signatory of Pledge to Net Zero and Members of the United Nations Global Compact.

If you would like support in understanding your carbon emissions, or those of your supply chain, please get in touch with your Lucion contact above who will be happy to help.



## Executive Summary

<p><b>Site and Report Context</b></p>	<p>Lucion Delta-Simons Ltd ("Lucion") have been appointed by Threshold Land and Estates Ltd to prepare a daylight and sunlight report for the proposed redevelopment at 266 - 278 Yeading Lane, Hayes, UB4 9AX.</p> <p>As per the pre-application advice (London Borough of Hillingdon Ref: 3723/PRC/2023/40) a daylight and sunlight assessment is required for the proposed development.</p> <p>This is to assess the on-site daylight and sunlight access to rooms deemed habitable based on relevant industry guidance, as well as the impact on the residential properties to the rear (east) of the site.</p> <p>The daylight and sunlight assessment has been undertaken following request from Hillingdon Council to assess the impact of surrounding trees to the proposed development in accordance with the Building Research Establishment's publication "Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice" (2022) (the "BRE Guidelines").</p> <p>Daylight and sunlight access is typically desirable for occupants within residential 'habitable' rooms. This is acknowledged within the BRE guidelines, which place the most emphasis on these uses; mainly living rooms.</p>
<p><b>Summary</b></p>	<p>Twenty-four windows have been identified to the rear of 25 - 35 Reynolds Road (odd numbers only), the use of the rooms are unknown, but it has been assumed that the ground floor are living rooms and kitchens and the first floor are bedrooms.</p> <p>The proposed development has sixteen windows, eight at first floor and eight at second floor, all of the proposed windows receive adequate daylight and sunlight.</p>
<p><b>Conclusions and Recommendations</b></p>	<p>Based on the results of the assessment, it is our professional view that the site is suitable for the development in terms of daylight and sunlight and that there are no daylight and sunlight constraints with respect to planning consent.</p>
<p>This is intended as a summary only. Further detail and limitations of the assessment is provided within the main body of the Report.</p>	



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# 1.0 Introduction

## 1.1 Appointment

- 1.1.1 Lucion Delta-Simons Ltd ("Lucion") was instructed by Threshold Land and Estates Ltd (the 'Client') to undertake a daylight and sunlight assessment in support of a planning application for the proposed redevelopment site (the 'Proposed Development') at 266 - 278 Yeading Lane, Hayes, UB4 9AX (the 'Site').
- 1.1.2 The daylight and sunlight assessment has been undertaken in accordance with the Building Research Establishment's publication "Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice" (2022) (the "BRE Guidelines").

## 1.2 Site Location and Context

- 1.2.1 The existing building represents a parade of 6 retail units at grade with 5 residential flats located on the first floor facing the main road.
- 1.2.2 To the rear of the property lies a shared service road/yard which facilitates access to the commercial property on Yeading Lane from Willow Tree Lane.
- 1.2.3 To the East of the service yard lie semi-detached residential properties whose gardens back onto the rear of the property.
- 1.2.4 Yeading Lane is a busy vehicular thoroughfare with a feeder access road running parallel and adjacent to the property. The main carriageway of Yeading Lane is separated from the feeder road by a grassy traffic island which incorporates a number of mature trees.
- 1.2.5 The application seeks to demolish of the existing building's first floor and erection of a two-storey roof extension and internal alterations to provide a total of 14 new residential units that comprise as follows:
- 10 × 2 bed 3 person apartments
  - 4 × 3 bed 5 person maisonettes
  - New shop fronts and signage for existing commercial tenants
  - 1 loading space and parking spaces, inclusive of EV charging points and cycle parking
  - Greening of the site with green roofs and green walls.
  - Roof top amenity space for residents
  - Play area for children on the first floor
- 1.2.6 Following pre-application advice (Ref: 3723/PRC/2023/40, Dated 29th January 2024, Haydon Richardson, Principal Planning Officer at London Borough of Hillingdon), within section 3. Amenity,
- "...B) Development proposals should not adversely impact on the amenity, daylight and sunlight of adjacent properties and open space..."*
- 1.2.7 The standard limitations associated with this assessment are presented in **Appendix A.**

## 2.0 Current Policies, Regulations and Benchmark

- 2.1.1 The Building Research Establishment (BRE) sets out good practice daylight and sunlight guidance in BR209 "Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice"<sup>1</sup>, 2nd Ed, guidelines and methodology for the measurement and assessment of daylight and sunlight within proposed buildings. This document states that it is also intended to be used in conjunction with the interior daylight recommendations found within the British Standard BS8206-2:2008 and the Applications Manual on Window Design of the Chartered Institution of Buildings Services Engineers (CIBSE).
- 2.1.2 The provision of daylight is as important as ensuring low levels of noise or low levels of odour in maintaining the enjoyment of one's property. Adequate levels of daylight are important not only to light and heat the home, but also for an occupant's emotional well-being.
- 2.1.3 Daylight is widely accepted to have a positive psychological effect on human beings and there is a great deal of evidence to suggest that people who are deprived of daylight are more susceptible to depression and mood swings. This is common in northern countries, such as Norway, Iceland, and Canada where daylight is scarce during the winter months.
- 2.1.4 The Daylight and Sunlight Assessment, analysed in this report, has been carried out in compliance with the methodology outlined in the Building Research Establishment (BRE) Guide 'Site Layout Planning for Sunlight and Daylight - A Guide to Good Practice'.
- 2.1.5 When assessing the effects of proposed building projects on the potential to cause issues relating to light, it is important to recognise the distinction between daylight and sunlight. Daylight is the combination of all direct and indirect sunlight during the daytime, whereas sunlight comprises only the direct elements of sunlight. On a cloudy or overcast day, diffused daylight still shines through windows, even when sunlight is absent.
- 2.1.6 Care should also be taken when the development is situated to the south of existing buildings, as in the northern hemisphere, the majority of the sunlight comes from the south. In the UK (and other northern hemisphere countries) south-facing facades will, in general, receive most sunlight, while north-facing facades will receive few sunlight hours during winter months, specifically early mornings and late evenings.
- 2.1.7 The government wish to densify sites to maximise the delivery of housing for the UK and maximise the sustainability credentials by maximising the use on-site. The NPPF states at para.123 in relation to achieving appropriate densities that:

*"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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<sup>1</sup> 'Site Layout Planning for Daylight and Sunlight: a guide to good practice' (BRE209 2022)

## 3.0 Scope and Methodology

### 3.1 Scope

3.1.1 The BRE guidelines are as follows:

### 3.2 Vertical Sky Component (VSC)

3.2.1 The Vertical Sky Component (VSC) quantifies the amount of available daylight received at a particular window and measured on the outer pane of the window. This is the ratio, expressed as a percentage, of the direct illuminance falling on a reference point (usually the centre of the window) to the simultaneous horizontal illuminance under an unobstructed sky (overcast sky conditions).

3.2.2 In order to maintain good levels of daylight the BRE guidance recommends that the VSC of a window should be 27% or greater.

3.2.3 The comparison test considers the VSC results of the baseline/existing condition and the VSC results assuming that the new development is in place. The 2011 BRE Handbook states that where the proposed VSC is less than 27%, the comparison with the existing situation should be analysed and if the VSC is less than 0.8 times its former value, occupants of the existing building may notice a reduction in the amount of daylight.

### 3.3 Annual Probable Sunlight Hours (APSH)

3.3.1 The assessment of the APSH demonstrates that all examined windows will achieve the minimum % requirement for compliance which corresponds to not less than 392 hours. The total annual sunlit hours according to BRE are 1486.

3.3.2 BRE guidance recommends that the APSH received at a given window in the proposed case should be at least 25% of the total available.

3.3.3 The comparison test considers the APSH results of the existing and proposed development in place. The BRE guidance say that if the reduction in sunlight between the existing and the proposed one results in an APSH and of at least 0.8 times its former value, then it is considered that the sunlight received is adequate.

3.3.4 In accordance with BRE 'Site Layout Planning for Sunlight and Daylight: A Guide to Good Practice' section 3.2.3, only windows facing south are to be examined and therefore all north facing are excluded from the assessment.

### 3.4 Methodology

#### Modelling Methodology

3.4.1 Using architectural drawings prepared by Create Design and Architecture and review of online mapping data, 3D models were created in industry accepted daylight and sunlight software. These included the on-site existing structures within the site boundary and the proposed development.

#### Daylight Assessment

3.4.2 The assessment of daylight is required for windows serving rooms in adjoining dwellings where daylight is required, most importantly living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be assessed. The guidelines also apply to any room that may have a reasonable expectation of daylight, including schools, hospitals, hotels and some offices.

3.4.3 When assessing daylight, the numerical criteria must be viewed flexibly and should be considered against other issues such as site layout constraints. In addition, it is important to consider whether the existing building is itself a good neighbour, being a reasonable distance from the boundary and not taking more than its fair share of light.

3.4.4 The assessment takes on several specific stages:

- 1) **The Distance Test:** loss of light to windows need not be analysed if the distance from the existing window to the development is three or more times its height above the centre of the existing window.
- 2) **The 25° Rule:** loss of light to windows need not be analysed if the angle to the horizontal subtended by the new development from the centre of the existing window is less than 25° (as an angle of 25° equates to a VSC of 27%).
- 3) **Daylight Assessment:** diffuse daylight of an existing building may be adversely affected by a proposed development if either:
  - a) the Vertical Sky Component (VSC) measured at the centre of an existing main window is less than 27%, and less than 0.8 times its former value; or
  - b) the area of the working plane which can receive direct skylight is reduced to less than 0.8 times its former value.

### Sunlight Assessment

3.4.5 The assessment of sunlight is required for rooms in neighbouring dwellings where sunlight is required. Generally, all main living rooms and conservatories should have access to direct sunlight. Kitchens and bedrooms are less important, although care should be taken not to block too much sun.

3.4.6 As with daylight, the numerical criteria for sunlight should be viewed flexibly and should be considered against other site layout constraints. It is important to understand that people like and appreciate sunlight and may dislike the loss of sunlight, although it is not an essential requirement of a dwelling, unlike daylight availability or access to a quiet noise environment. Therefore, larger reductions in sunlight may be acceptable, for example if new development is to match the height and proportion of existing buildings nearby.

3.4.7 The assessment of sunlight takes on several specific stages:

- 1) **Facing South:** loss of sunlight to windows only needs to be assessed if the window faces within 90° of due south.
- 2) **The Distance Test:** loss of sunlight to windows need not be analysed if the distance from the existing window to the development is three or more times its height above the centre of the existing window.
- 3) **The 25° Rule:** loss of sunlight to windows need not be analysed if the angle to the horizontal subtended by the new development from the centre of the existing window is less than 25°.
- 4) **Sunlight Assessment:** direct sunlight of existing windows may be adversely affected by a proposed development if at the centre of a window:
  - a) It receives less than 25% of Annual Probable Sunlight Hours (APSH), or less than 5% APSH between 21st September and 21st March; and
  - b) it receives less than 0.8 times its former APSH during either period; and
  - c) it has a reduction in sunlight over the whole year of greater than 4% APSH.

## 3.5 Sensitive Receptors

3.5.1 The neighbouring properties assessed are detailed in below and the windows identified in **Table 1**.

- 25 Reynolds Road

- 27 Reynolds Road
- 29 Reynolds Road
- 31 Reynolds Road
- 33 Reynolds Road
- 35 Reynolds Road

**Table 1 - Neighbouring Receptor Locations**

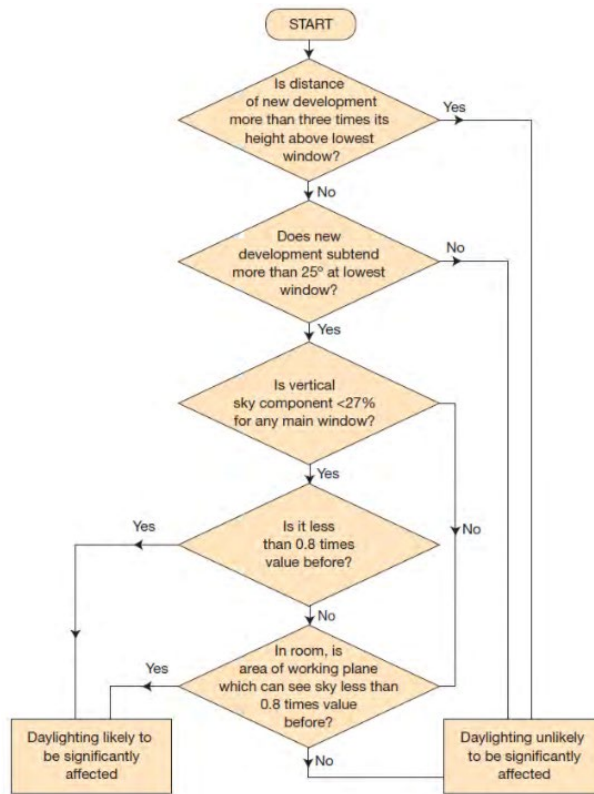
Receptor ID	Location	Floor	Window No.	Orientation	APSH require?
R1	25 Reynolds Road	G	1	WNW	No
		G	2	WNW	No
		1	3	WNW	No
		1	4	WNW	No
R2	27 Reynolds Road	G	5	WNW	No
		G	6	WNW	No
		1	7	WNW	No
		1	8	WNW	No
R3	29 Reynolds Road	G	9	WNW	No
		G	10	WNW	No
		1	11	WNW	No
		1	12	WNW	No
R4	31 Reynolds Road	G	13	WNW	No
		G	14	WNW	No
		1	15	WNW	No
		1	16	WNW	No
R5	33 Reynolds Road	G	17	WNW	No
		G	18	WNW	No
		1	19	WNW	No
		1	20	WNW	No
R6	35 Reynolds Road	G	21	WNW	No
		G	22	WNW	No
		1	23	WNW	No

Receptor ID	Location	Floor	Window No.	Orientation	APSH require?
		1	24	WNW	No

### 3.6 Significance Criteria

- 3.6.1 The guidance states that rooms to be assessed should be living rooms, kitchens and bedrooms in residential properties. In non-domestic buildings rooms where occupants 'have a reasonable expectation of daylight' should be assessed. Although these spaces are not defined, examples are given of the type of non-domestic buildings that would normally fall into this category. These include schools, hospitals, hotels and hostels, small workshops and some offices.
- 3.6.2 As it is difficult to be sure of the specific use of neighbouring spaces, a view has been taken on the relevance of the spaces adjacent to the proposed development. If there is any doubt, an assessment has been carried out. However, it should be noted some of the spaces assessed could fall outside the test requirement criteria.
- 3.6.3 Site Layout Planning for Daylight & Sunlight contains the following flow chart showing the steps which should be taken to establish whether a building will receive adequate daylight:

**Figure 1: Daylight Flow Chart (SLPDS, BR209)**



### 3.7 Distance Check

3.7.1 Site Layout Planning for Daylight & Sunlight (2022) states: "Loss of light to existing windows need not be analysed if the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window. In these cases, the loss of light will be small.

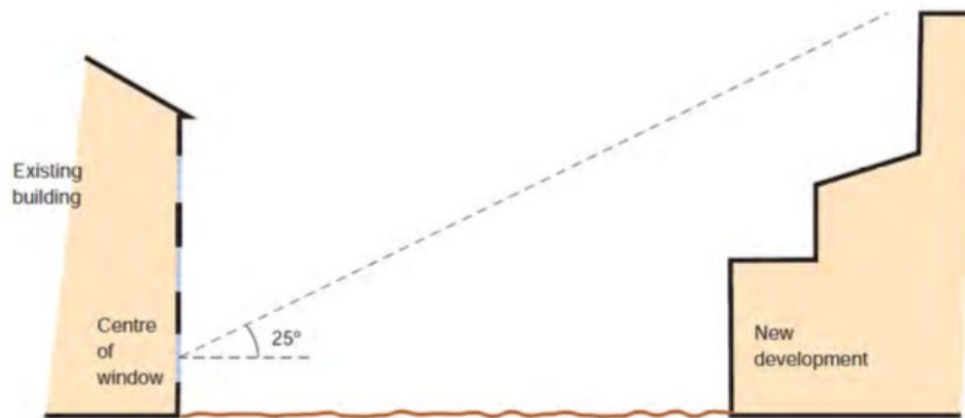
#### Distance Check Results

3.7.2 The new development will be 12m tall, and a typical existing ground floor window would be 1.5m above the ground, the effect on existing buildings more than  $3 \times (12 - 1.5) = 31.5\text{m}$  away need not be analysed.

### 3.8 25° Rule

3.8.1 The angle to the horizontal subtended by the new development at the level of the centre of the lowest affected window should be no greater than 25°. If this is the case, then it is unlikely to have a noticeable effect on diffuse skylight enjoyed by the existing building.

**Figure 2: 25° Rule (SLPDS, BR209)**



3.8.2 If, for any part of the development, the angle is more than 25°, a more detailed check is needed to find the loss of skylight to the existing building.

### 25° Rule Results

3.8.3 On this occasion the angle to the horizontal subtended by the new development at the level of the centre of the lowest affected window will be greater than 25° and more detailed checks are necessary.

## 4.0 Daylight Results

4.1.1 Calculations were undertaken in accordance with the planning guidance contained in BRE document 209 'Site Layout Planning for Daylight & Sunlight'. Locations of the windows are identified in **Appendix B**.

**Table 2 - Neighbouring Receptor Existing Daylight**

Receptor ID	Location	Floor	Window No.	Existing VSC	Proposed VSC	Ratio
R1	25 Reynolds Road	G	1	<b>26.4</b>	<b>24.1</b>	0.9
		G	2	34.7	30.5	0.9
		1	3	37.1	34.3	0.9
		1	4	37.3	34.3	0.9
R2	27 Reynolds Road	G	5	34.9	30.2	0.9
		G	6	<b>25.2</b>	<b>22.5</b>	0.9
		1	7	37.4	34.2	0.9
		1	8	37.2	33.9	0.9
R3	29 Reynolds Road	G	9	33.0	29.2	0.9
		G	10	34.6	30.7	0.9
		1	11	36.1	32.9	0.9
		1	12	37.0	33.8	0.9
R4	31 Reynolds Road	G	13	33.7	30.0	0.9
		G	14	32.2	28.7	0.9
		1	15	30.4	27.5	0.9
		1	16	33.5	30.7	0.9
R5	33 Reynolds Road	G	17	32.5	30.0	0.9
		G	18	29.8	27.4	0.9
		1	19	27.9	26.0	0.9
		1	20	29.2	27.6	0.9
R6	35 Reynolds Road	G	21	30.5	28.0	0.9
		G	22	<b>18.3</b>	<b>17.7</b>	1.0

Receptor ID	Location	Floor	Window No.	Existing VSC	Proposed VSC	Ratio
		1	23	31.4	30.1	1.0
		1	24	<b>13.7</b>	<b>12.6</b>	0.9

4.1.2 As indicated in **Table 2**, although there are windows below the recommended 27% VSC, the daylight does not decrease by less than a ratio of 0.8 compared to the original value. Therefore, as none of the windows in the neighbouring properties are both below 27% **and** have a ratio of 0.8 or below, so it still likely that the rooms the windows serve receive adequate daylight.

## 5.0 Sunlight Results

- 5.1.1 As none of the existing neighbouring windows in 25 - 35 Reynolds Road face within 90° of south, a sunlight assessment will not be required in accordance with the planning guidance contained in BRE document 209 'Site Layout Planning for Daylight & Sunlight'.

## 6.0 Self-Assessment

### 6.1 Daylight and Sunlight

6.1.1 For the proposed development all of the windows are predicted to receive an adequate amount of daylight and as the windows are all within 90° of south, a sunlight assessment has also been undertaken and all windows exceed the BRE guidance levels. The windows locations are identified in **Appendix C**.

**Table 3 - Proposed Receptor - Daylight**

Location	Floor	Window No.	Proposed VSC	Annual APSH	Winter APSH
Yeading Lane	1	1	37.5	62	20
		2	37.4	61	19
		3	37.7	62	20
		4	37.4	61	19
		5	37.3	62	20
		6	37.3	61	19
		7	37.3	61	19
		8	37.3	61	19
	2	9	39.5	62	20
		10	39.5	62	20
		11	39.5	62	20
		12	39.5	62	20
		13	39.5	62	20
		14	39.5	62	20
		15	39.5	62	20
		16	39.4	62	20

## 7.0 Summary and Conclusions

- 7.1.1 Lucion Lucion("Lucion") was instructed by Threshold Land and Estates Ltd (the 'Client') to undertake a daylight and sunlight assessment in support of a planning application for the proposed redevelopment site (the 'Proposed Development') at 266 - 278 Yeading Lane, Hayes, UB4 9AX (the 'Site').
- 7.1.2 The daylight and sunlight assessment has been undertaken following request from Hillingdon Council to assess the impact of surrounding trees to the proposed development in accordance with the Building Research Establishment's publication "Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice" (2022) (the "BRE Guidelines").
- 7.1.3 There are no windows which will be adversely affected by the proposed development, and all of the proposed windows will meet the recommended levels of daylight and sunlight.



# Appendix A - Limitations

## Limitations

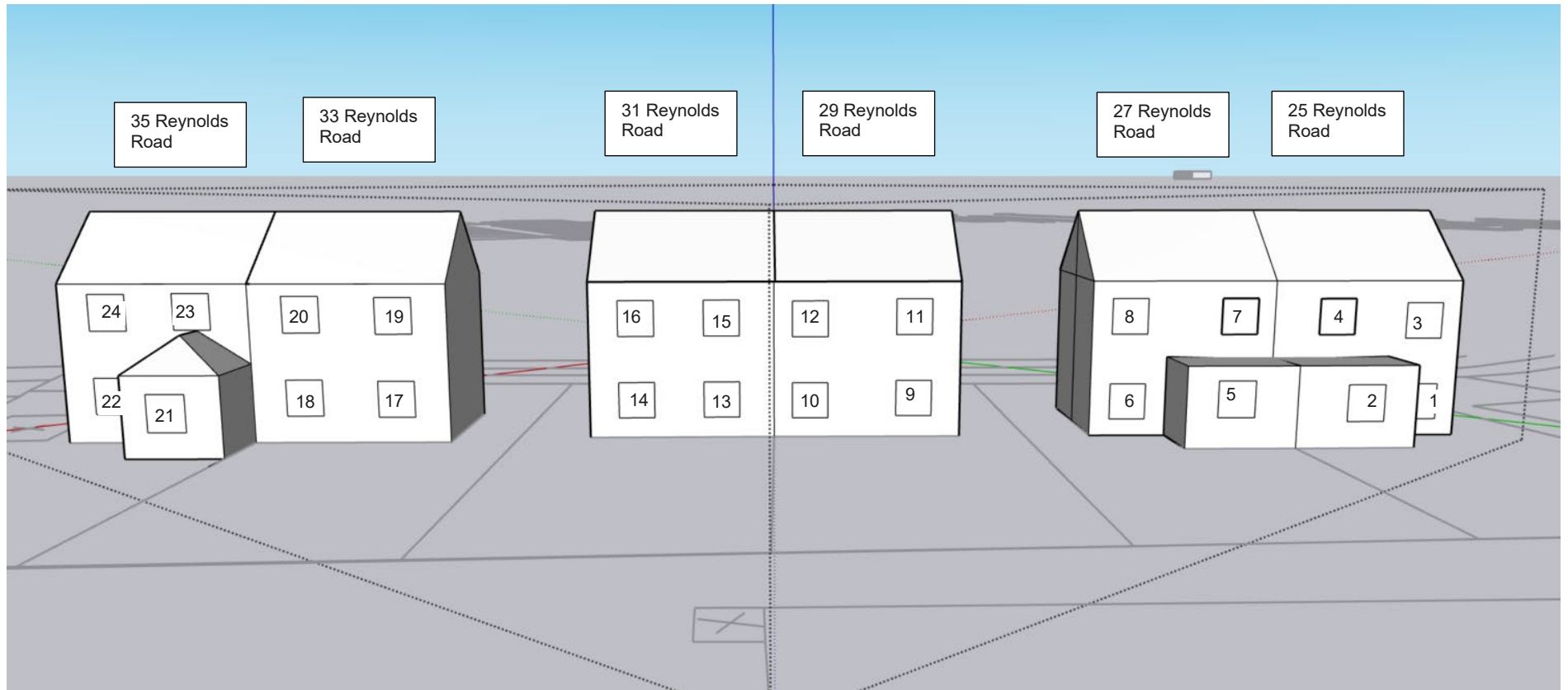
The recommendations contained in this Report represent Lucion professional opinions, based upon the information listed in the Report, exercising the duty of care required of an experienced Environmental Consultant. Lucion does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

Lucion obtained, reviewed and evaluated information in preparing this Report from the Client and others. Lucion conclusions, opinions and recommendations has been determined using this information. Lucion does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Lucion has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

This Report was prepared by Lucion for the sole and exclusive use of the Client and for the specific purpose for which Lucion was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Lucion, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Lucion does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Lucion from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.



# Appendix B - Windows of Neighbouring Properties



# Appendix C - Windows of the Proposed Development



YEADING LANE

