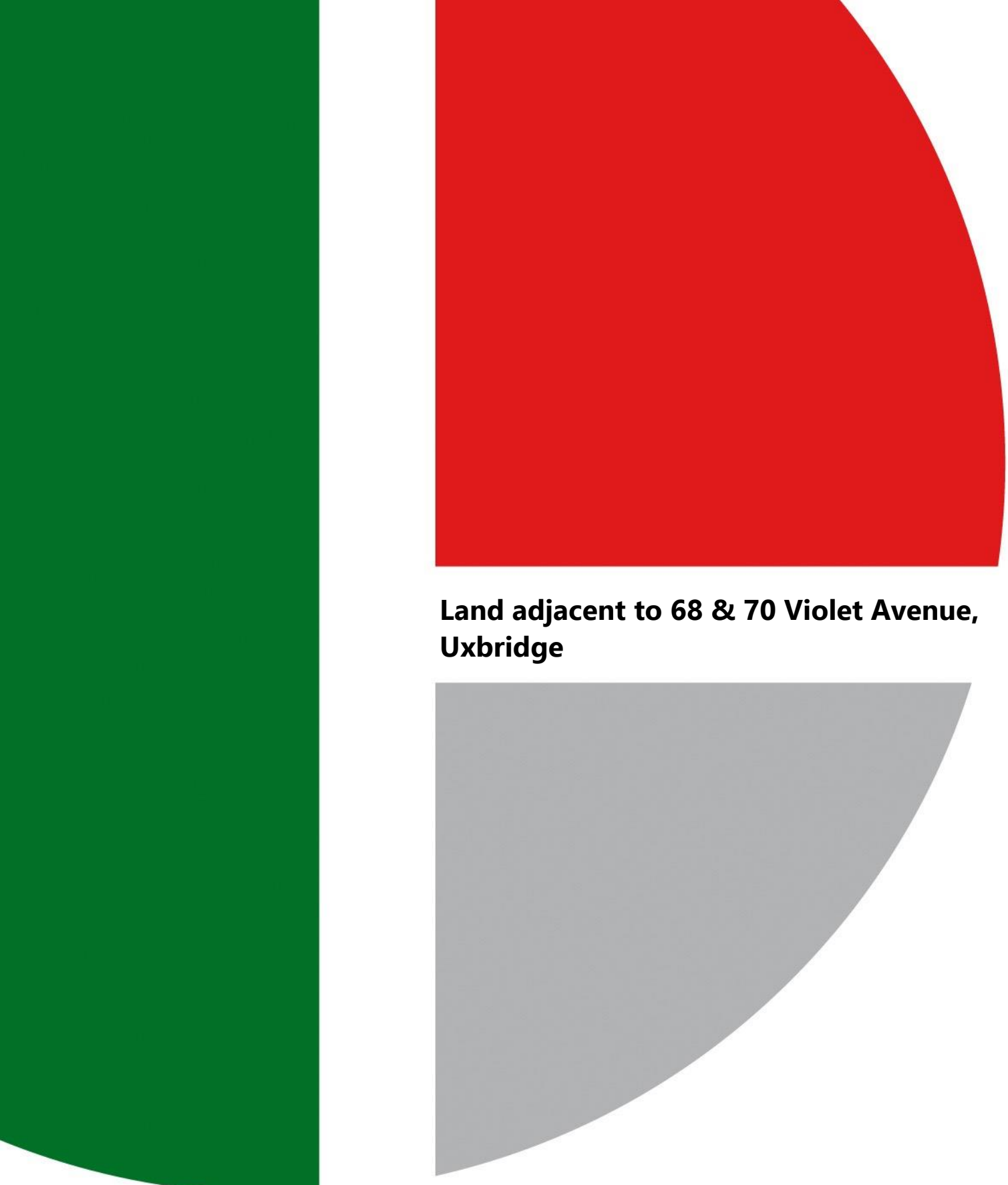




**Land adjacent to 68 & 70 Violet Avenue,
Uxbridge**

Daylight and Sunlight Report

27th September, 2018



2-6 Boundary Row
London SE1 8HP
T 020 3714 4090



Daylight and Sunlight Report

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**Land adjacent to
68 and 70 Violet Avenue,
Uxbridge**

Prepared for:-

MR DURIM TUSHA
78 GREENFIELDS DRIVE
UXBRIDGE
UB8 3QW

Prepared by

James M A Crowley

Date

27th September, 2018



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Appendices

Appendix A	Principles of Daylight and Sunlight
Appendix B	CHP Surveyors Limited drawing numbers: 2301-100, 101, 102, 103, 104 and 105
Appendix C	Daylight Results
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This report is solely for the benefit of **Mr Durim Tusha** and the benefit cannot be transferred to any other party without the express written consent of CHP Surveyors Limited.

CHP Surveyors Limited

CHP Surveyors Limited



1.0 Executive Summary

1.1 This report has been prepared by CHP Surveyors Ltd on behalf of Mr Durim Tusha. It accompanies an application for the redevelopment of the site and considers the implications the proposals for the site will have on the daylight and sunlight enjoyed by the neighbouring residential properties; 68/70, 91 and 93 Violet Avenue.

1.2 To ensure that this assessment has correctly considered the daylight and sunlight enjoyed by the neighbouring residential properties, it has been undertaken in accordance with the Building Research Establishment's publication "*Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice*" (2011) (the "**BRE Guidelines**").

1.3 The standards and tests applied within this assessment are briefly described in Appendix A.

1.4 The results of the daylight analysis demonstrate that the BRE guidelines are achieved and the proposals will not have a significant effect on the daylight enjoyed by the neighbouring properties.

1.5 With regard to sunlight, the analysis demonstrates that the numerical values set out in the BRE Guidelines are achieved.

1.6 The results of the analysis therefore demonstrate that the aims of the Building Research Establishment's publication "*Site Layout Planning for Daylight and Sunlight. A guide to good practice*" (2011) are achieved.

2.0 Instruction

2.1 We have been instructed by Mr Durim Tusha to establish the implications the proposed redevelopment will have upon the daylight and sunlight amenity of the neighbouring residential properties.



3.0 Assessment

- 3.1** To ensure that this assessment has been appropriately considered, daylight and sunlight assessments have been undertaken in accordance with the Building Research Establishment (BRE) publication "*Site Layout Planning for Daylight and Sunlight. A guide to good practice*" (2011). This is the criteria by which daylight and sunlight should be assessed and will be used by the Local Authority when considering this application.
- 3.2** It is suggested within the BRE guidelines that residential properties should have the greatest need for good daylight and sunlight and that key habitable rooms should be considered.
- 3.3** Within the BRE guidelines, there are different methods for calculating daylight. The first method calculates the Vertical Sky Component (VSC). This analysis establishes the amount of available daylight received directly from the sky for each individual window. The reference point for the analysis is the centre point of the window.
- 3.4** The second method is the No Sky Line (NSL) or Daylight Distribution analysis. This assesses the change in position of the No Sky Line between the existing and proposed situations. It does not take into account the number and size of windows to a room.
- 3.5** The final method is to calculate the Average Daylight Factor (ADF). This analysis is more detailed and therefore more exact as it considers not only the amount of sky visible but also the window size, room size and room use.
- 3.6** A more detailed account of the BRE guidelines is attached at Appendix A, entitled the "**Principles of Daylight and Sunlight**".



4.0 Information

4.1 We have made reference to the following information: -

Archaneaum

Drawing numbers 008_A-080_REV01, 008_A-100_REV03, 008_A-101_REV03, 008_A-102_REV03, 008_A-104_REV01, 008_A-200_REV01, 008_A-201_REV01, 008_A-202_REV02, 008_A-203_REV02, 008_A-204_REV03, 008_A-205_REV03

CHP Surveyors Limited

Site photographs and online research

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5.0 Proposals

5.1 The proposals for the site are to construct a new structure on the site as illustrated on drawing numbers 2301-100, 101, 102, and 103 attached at Appendix B.

5.2 From our site visit, the neighbouring residential properties that we consider need to be analysed are: -

- 68/70 Violet Avenue
- 91 Violet Avenue
- 93 Violet Avenue

6.0 Limitations

6.1 Our assessment is based on the proposed development drawings by Archaneaum.

6.2 A site inspection was undertaken to record the location of windows within the neighbouring properties. Our site inspection included an external inspection of the existing site and surrounding buildings. Access was not available to the surrounding properties and so reasonable assumptions have therefore been made as to the internal room sizes, layouts and uses.



- 6.3** We refer you to the drawings set out in clause 4.1 above for a list of the third-party information relied upon which our 3D computer model and resultant analyses are based.

7.0 Methodology

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- 7.1** Based on online research and onsite observations, we have produced a 3D computer model of the neighbouring residential property to the site as set out in the table above. This includes the window locations and internal configuration. We have not had access to the neighbouring properties and therefore the internal configuration and which windows serve habitable rooms has been based on onsite observations and other information we have been able to obtain. We have then produced a 3D computer model of the existing structures on the site and the proposals.
- 7.2** Using a specialist computer programme, we have undertaken the analysis set out in the BRE Guidelines, both in the existing situation to provide a base line and following the implementation of the proposals. There is no requirement to consider the implications during the development process as these will only be short term.
- 7.3** As clearly stated within the BRE Guidelines, its aims are to help designers not constrain them and the numerical values contained within this document should be interpreted flexibly since natural light is only one of many factors in site layout design. It also states that different target levels may be used in such an urban location as we are considering.
- 7.4** The numerical values contained within the BRE Guidelines, to establish whether the proposals will have a significant effect on the daylight enjoyed by the neighbouring properties are based initially on a Vertical Sky Component analysis (VSC). It seeks for each window to achieve a VSC of 27% or 0.8 times the existing. These values are for suburban rather than urban locations where it is considered a VSC of 20% is more appropriate.
- 7.5** In relation to daylight, the BRE Guidelines also set out numerical values for daylight distribution and seeks to ensure that a significant portion, which is considered to mean at least 0.8 times the existing area of each habitable room lies in front of the NSL.



7.6 An alternative method of considering the implications the proposals will have on the neighbouring properties is to calculate the Average Daylight Factor (ADF) in accordance with Appendix C of the BRE guidelines. This takes into account the area of glazing serving the room as well as the size of the room and expresses the ratio of daylight in the room as a portion of the daylight outside. The recommended minimum level is dependent on the room use. For a kitchen the recommended level is 2%, whilst for a living room it is 1.5% and a bedroom 1%.

7.7 With regard to sunlight, the BRE Guidelines seek that all windows within 90° of due south achieve 25% of the Average Probable Sunlight Hours (APSH) with at least 5% during the winter months. Where this is not achieved and the difference between the existing and proposed APSH is more than 4%, the BRE Guidelines state that the proposals will not have a noticeable effect on sunlight provided the total APSH, as well as during the winter months, are within 0.8 times the existing.

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8.0 Daylight Assessment

8.1 General

8.1.1 With regard to daylight enjoyed by the neighbouring residential properties, we have considered where the proposals will subtend a 25° line drawn from their lowest window. The BRE Guidelines state that where the proposals do not subtend this, they will not have significant implications. Where this is not achieved, in accordance with the BRE Guidelines we have calculated the Vertical Sky Component (VSC), both in the existing and proposed situation. This establishes the amount of daylight currently enjoyed on the face of the window and following the implementation of the proposals.

8.1.2 The BRE Guidelines state that if the VSC calculated at the centre of each window is 27% or more, then enough skylight should be reaching the window. If with implementation of the proposals the window does not achieve 27% VSC but is more than 0.8 times its former value, then the BRE Guidelines state that skylight is unlikely to be seriously affected.

8.1.3 In addition to the above, to ensure that the room will achieve good daylight distribution the NSL is plotted. The BRE Guidelines state that for a room to enjoy good daylight distribution a



significant area of the room, which is considered to be 80% or at least 0.8 times the existing area should be in front the NSL.

- 8.1.4** To calculate the ADF, this is set out in Appendix C of the BRE guidelines. The equation used is: -

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$$ADF = \frac{TMA_w\theta}{A(1-R^2)}$$

Where: -

- T** Is the diffuse visible light transmittance of glazing with 0.68 used for clear double glazing
- M** Is the maintenance factor allowing for the effects for dirt where 0.92 is used reflecting a 8% loss.
- A_w** Is the net glazed area of the window which is calculated from the 3D computer model.
- θ** Is the angle of visible sky which can be taken from VSC results.
- A** Is the total area of all the room surfaces (ceilings, floors, walls and windows) which is calculated from the 3D computer model.
- R** Is the area-weighted average reflectance for the room surfaces with 0.85 used for ceilings, 0.81 for walls and 0.4 for floors.

8.2 68/70 Violet Avenue

- 8.2.1** This property is located to the east of the site and would appear to provide residential accommodation over two floors.

- 8.2.2** The results of our VSC analysis set out in the table attached at Appendix C has considered all windows that would appear to serve habitable rooms and demonstrate that in all instances the numerical values set out in the BRE Guidelines are achieved.



8.2.3 We have also considered daylight distribution to the rooms served by the windows in question and as set out in the table attached at Appendix C, these demonstrate that all rooms will have a significant portion of their area (>80%) in front of the No Sky Line.

8.2.4 The results of our analysis demonstrate that the BRE guidelines are achieved and the proposals will not have a significant effect on the daylight enjoyed by this property.

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8.3 91 Violet Avenue

8.3.1 This property is located to the north of the site on the opposite side of Violet Avenue and would appear to provide residential accommodation over two floors.

8.3.2 The results of our VSC analysis set out in the table attached at Appendix C has considered all windows that would appear to serve habitable rooms and demonstrate that in all instances the numerical values set out in the BRE Guidelines are achieved.

8.3.3 We have also considered daylight distribution to the rooms served by the windows in question and as set out in the table attached at Appendix C, these demonstrate that all rooms will have a significant portion of their area (>80%) in front of the No Sky Line.

8.3.4 The results of our analysis demonstrate that the BRE guidelines are achieved and the proposals will not have a significant effect on the daylight enjoyed by this property.

8.4 93 Violet Avenue

8.4.1 This property is located to the north of the site on the opposite side of Violet Avenue and would appear to provide residential accommodation over two floors.

8.4.2 The results of our VSC analysis set out in the table attached at Appendix C has considered all windows that would appear to serve habitable rooms and demonstrate that in all instances the numerical values set out in the BRE Guidelines are achieved.



8.4.3 We have also considered daylight distribution to the rooms served by the windows in question and as set out in the table attached at Appendix C, these demonstrate that all rooms will have a significant portion of their area (>80%) in front of the No Sky Line.

8.4.4 The results of our analysis demonstrate that the BRE guidelines are achieved and the proposals will not have a significant effect on the daylight enjoyed by this property.

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9.0 Sunlight

9.1 General

9.1.1 The BRE Guidelines require that all windows within 90° of due south should be considered. The recommended numerical values set out within the BRE Guidelines are for a window to achieve Annual Probable Sunlight Hours (APSH) of 25%, including at least 5% during the winter months. Where the difference in the APSH is more than 4% between the existing and proposed both the total APSH and those enjoyed within the winter months are more than 0.8 times the existing values. The guidelines however also state that bedrooms are less important than living rooms.

9.2 68/70 Violet Avenue

9.2.1 The results set out in the table attached at Appendix D demonstrates that for those windows that face within 90° of due south, these will achieve the numerical values set out within the BRE Guidelines and therefore the proposals will not have a significant effect on the sunlight enjoyed by this property.

9.3 91 Violet Avenue

9.3.1 The results set out in the table attached at Appendix D demonstrates that for those windows that face within 90° of due south, these will achieve the numerical values set out within the BRE Guidelines and therefore the proposals will not have a significant effect on the sunlight enjoyed by this property.



9.4 93 Violet Avenue

- 9.4.1** The results set out in the table attached at Appendix D demonstrates that for those windows that face within 90° of due south, these will achieve the numerical values set out within the BRE Guidelines and therefore the proposals will not have a significant effect on the sunlight enjoyed by this property.

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10.0 Conclusion

- 10.1** We have considered the implications the proposals will have on the daylight enjoyed by; 68/70, 91 and 93 Violet Avenue.
- 10.2** The results of the daylight and sunlight analysis demonstrate that the proposals will not have a significant impact on the daylight enjoyed by the neighbouring properties.
- 10.3** The analysis therefore demonstrates that the aims of the Building Research Establishments publication "*Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice*" (2011) are achieved.



Appendix A



Principles of Daylight and Sunlight

In 2011 the Building Research Establishment (BRE) published a handbook titled "Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice" to provide advice to building designers on site layout planning in order to achieve good daylight and sunlight amenity to the proposed development, the open spaces between the proposed blocks and the existing surrounding properties.

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As stated within the Introduction of this document, the aim of these guidelines is:- *"To help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions."*

The application of the BRE Guidelines are suited more to low density suburban development sites where there is a greater flexibility for site layout planning. In dense urban development sites, these are usually constrained often by adjacent buildings and the guidelines state that these should be applied more flexibly in these instances, as contained within the introduction of the BRE Guidelines:- *"The Guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the designer. Although it gives numerical guides, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design..."*

It must therefore be appreciated and as can be seen from the above extracts and which is reiterated throughout, the handbook is for guidance only.

Daylight

Daylight assessments should be undertaken to habitable rooms where the occupants can expect to receive a reasonable amount of daylight.

The first assessment is to establish whether the proposals will subtend an angle of 25° from the centre of the window. If it does not, then it is considered there will be good daylight. The BRE Guidelines advise:- *"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 a lowest window, subtends an angle of more than 25° to the horizontal may be affected."*



This assessment is most appropriate for well spaced, low density or low rise, uniform proposed developments. It is not an appropriate assessment for dense urban environments where the existing building on the development site already subtends at an angle greater than 25° to the horizontal from the subject window. It is for this reason that this 25° assessment is generally dispensed with and the more detailed analysis outlined below is undertaken.

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Vertical Sky Component (VSC)

The Vertical Sky Component (VSC) analysis establishes the amount of available daylight received directly from the sky for each individual window. The reference point for the analysis being the centre of the window, on the plane of the outer window wall.

The VSC is the amount of direct sky a window enjoys, expressed as a percentage of the amount of direct sky a horizontal, unobstructed rooflight would receive.

The maximum percentage of direct skylight a vertical window can receive is 40%. The BRE have determined that where a VSC of 27% is achieved, then daylight should reach the window of an existing building.

Where a VSC of less than 27%, is either before the implementation of the proposals enjoyed, or it is enjoyed following the implementation, then the BRE Guidelines state that provided the new value is greater than 0.8 times the existing value, daylight will not be significantly affected.

- **Daylight Distribution**

The Daylight Distribution analysis is undertaken at working plane level, with this set at 0.85m above floor level of a dwelling.

The BRE Guidelines state that provided a significant area of the room, which is considered to be 80% is in front of the No Sky Line (the point behind which at desk top level no sky is visible) or at least 0.8 times the existing area, then the room will enjoy good daylight distribution.

If in the existing situation this is not the case, the BRE Guidelines state that provided that the area following the implementation of the proposals is at least 0.8 times the existing area, there will not be a significant affect.



Sunlight

This analysis is undertaken in a similar method to calculating VSC. Within residential accommodation the analysis for a sunlight analysis relates to the main windows that are within 90° of due south. It is considered that sunlight to kitchens and bedrooms is less important, although care should be taken not to block out too much.

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Within commercial or non-domestic buildings, the use of the building will determine whether a sunlight assessment is required.

In relation to neighbouring residential buildings, if a window is facing within 90° of due south and overlooking any part of the proposals subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlight of the existing dwelling may be affected.

- **Annual Probable Sunlight Hours (APSH)**

The 'Probable Sunlight Hours' can be defined as the total number of hours in the year that sun is expected to shine.

The APSH assessment is undertaken to the main window of residential buildings, where the window faces 90° of due south. Within the BRE Guidelines it sets out the criteria for this assessment:-

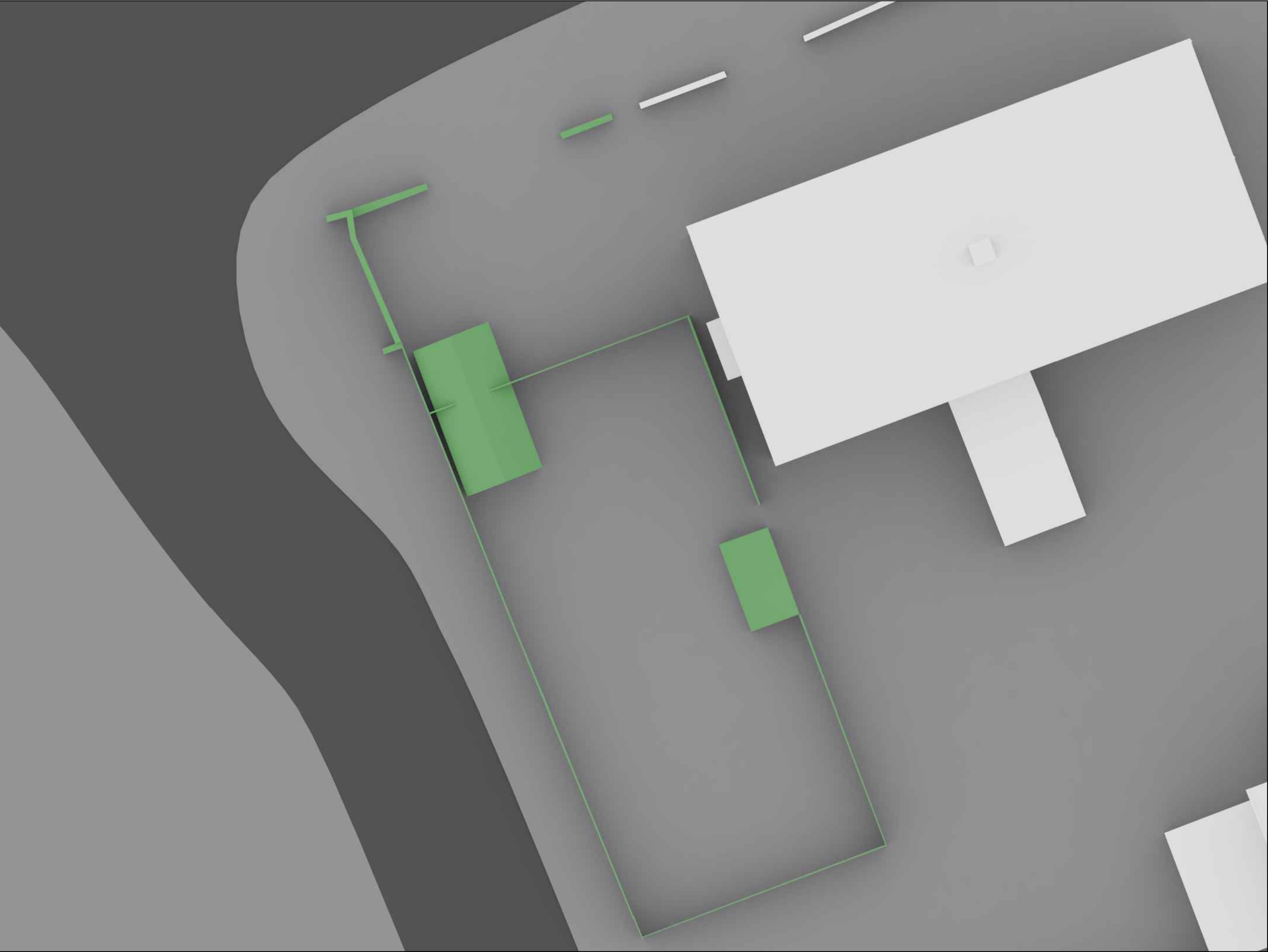
"If a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely effected. This will be the case if a point at the centre of the window, in the plane of the inner window wall, received in the year less than one quarter (25%) of annual probable sunlight hours including at least 5% of annual probable sunlight hours between 21 September and 21 March, and less than 0.8 times its former sunlight hours during either period."

In summary, if it does not achieve the specific numerical values, the sunlight to an existing building may be reduced by 20% in either the annual or winter periods before that loss becomes noticeable as a result of a proposed development.

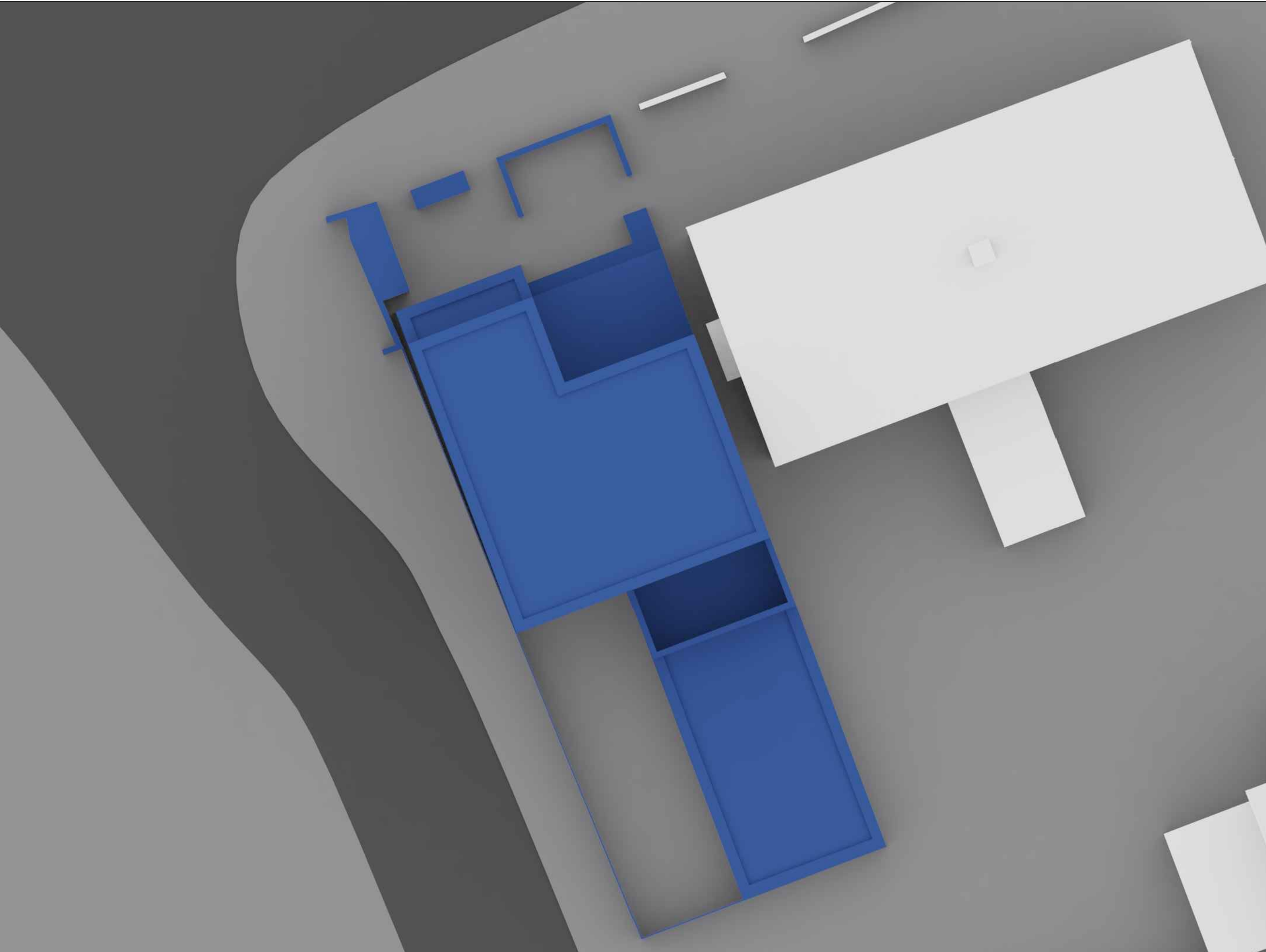


Appendix B

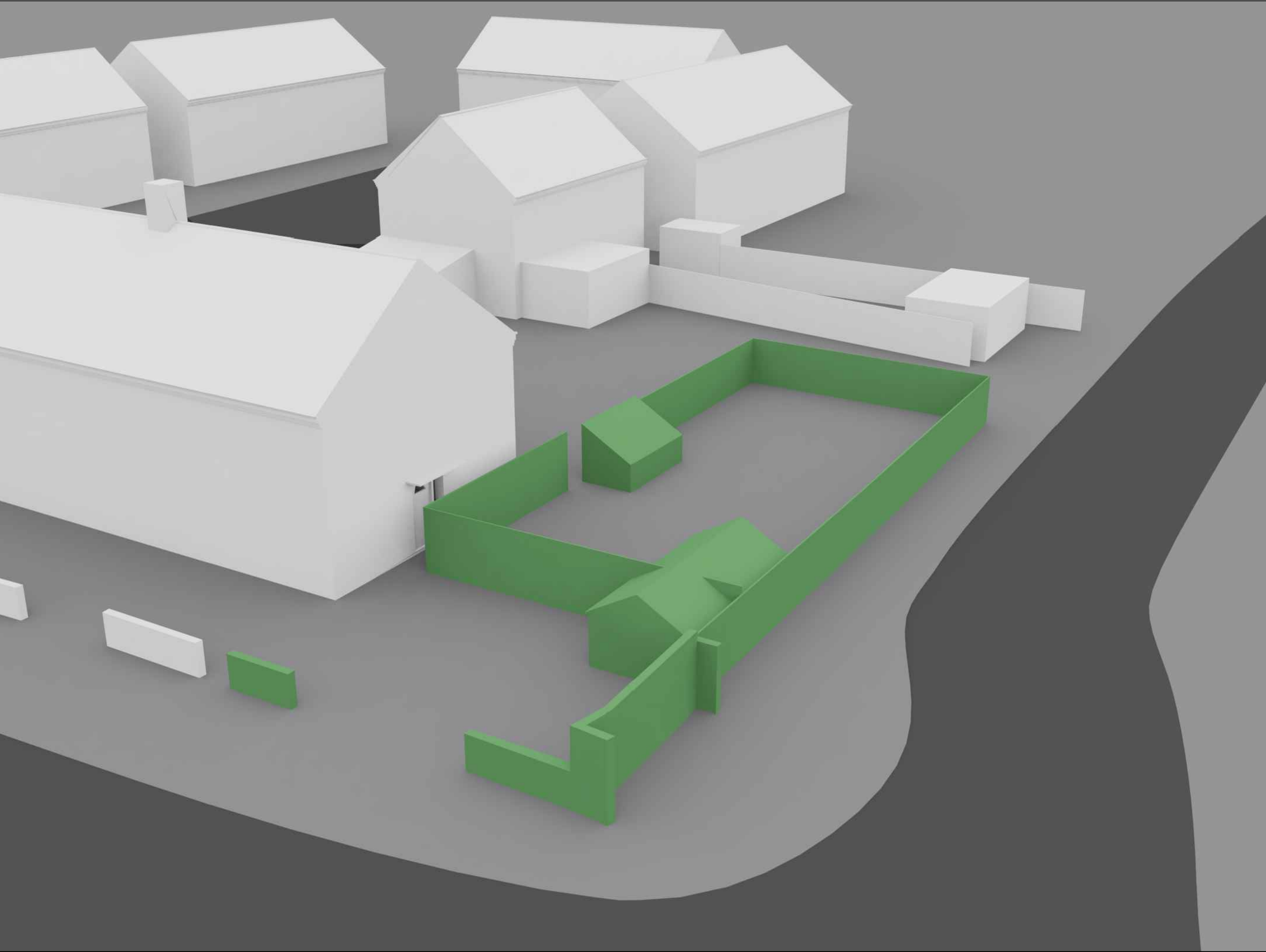
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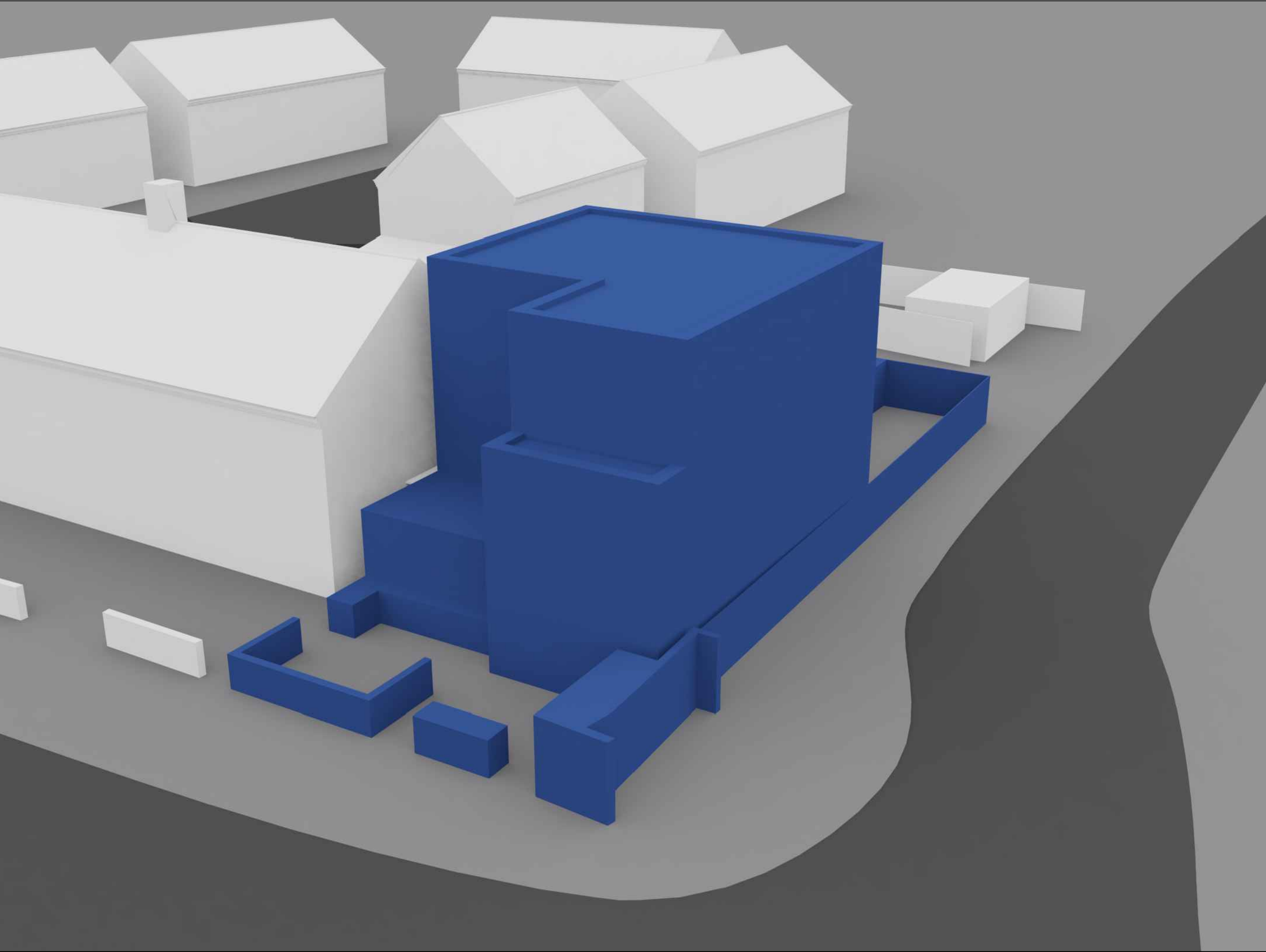
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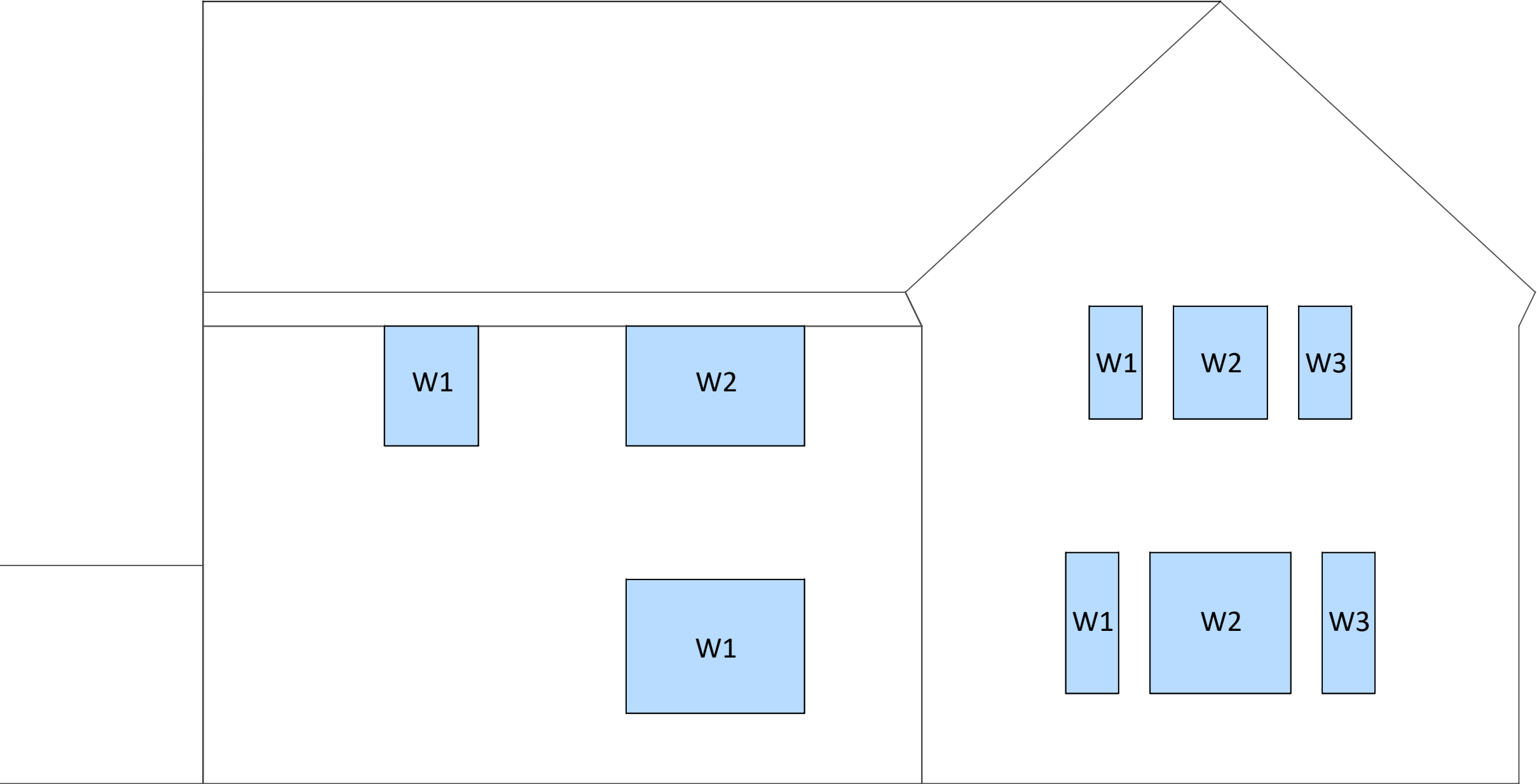
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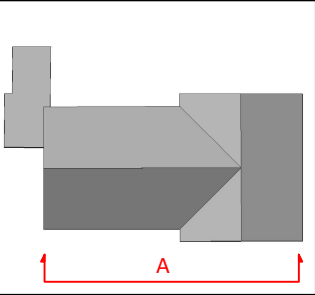
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KEY



View Point - A



KEY

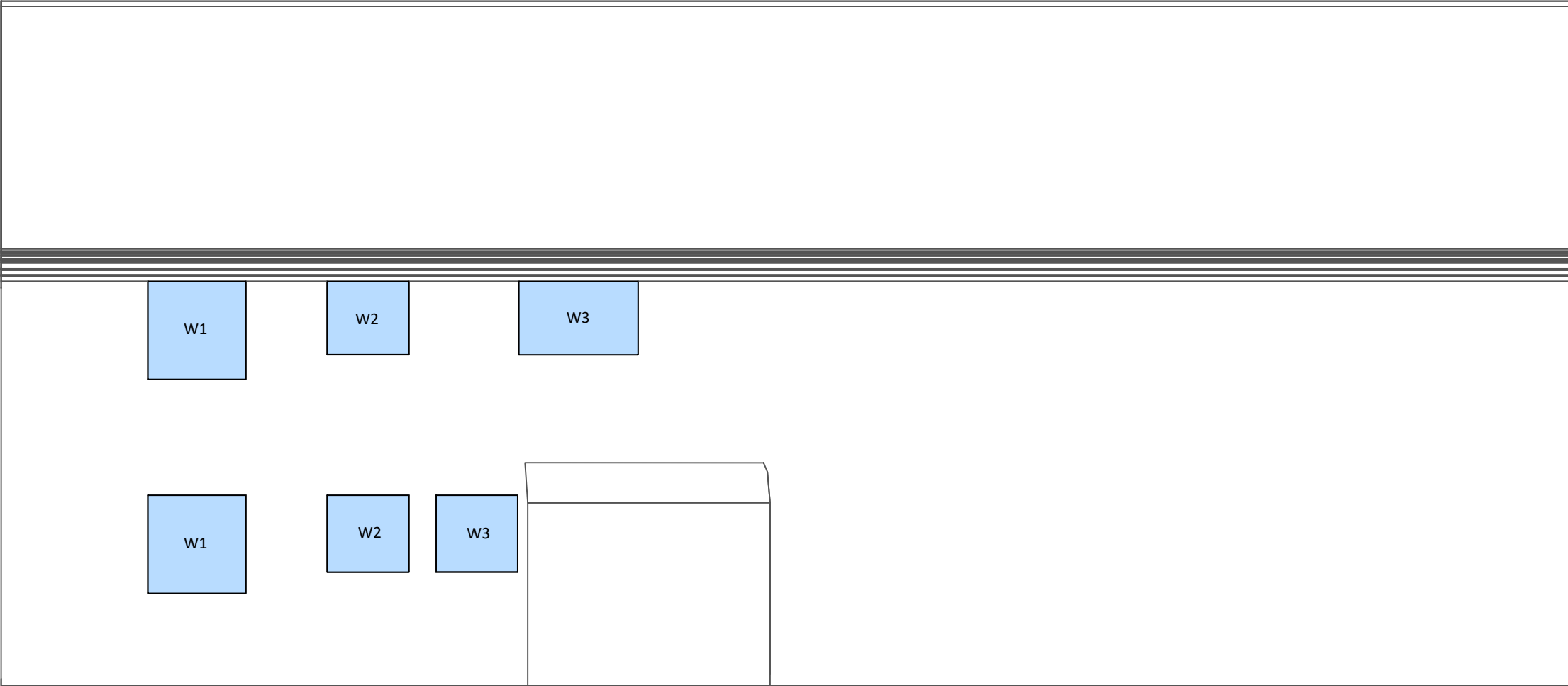


PROJECT TITLE
Violet Avenue - Uxbridge

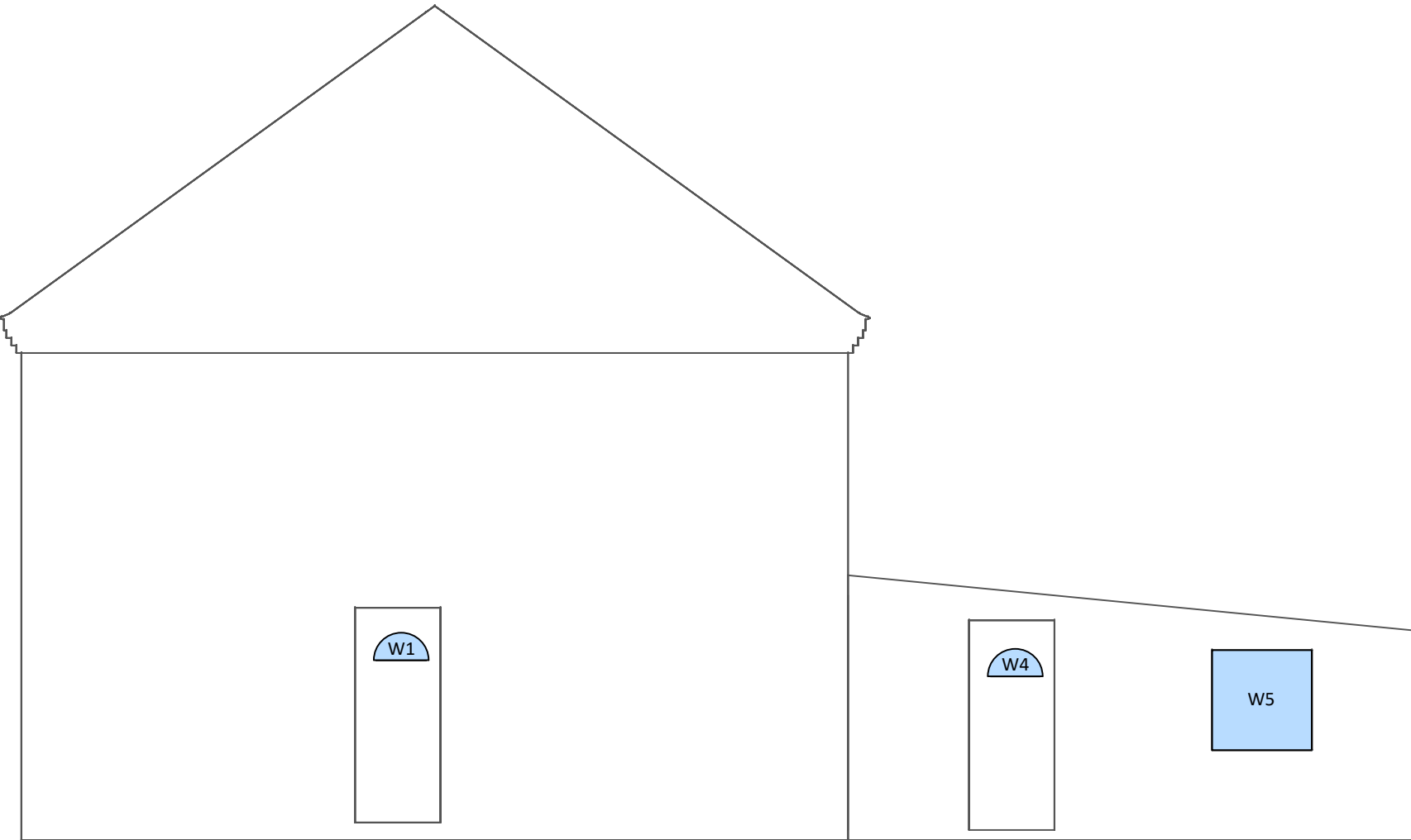
DRAWING TITLE
No. 91 Violet Avenue
Window Map

SCALE NTS	DATE 27-09-2018	ISSUE -
DWG NO 2301_104	REV -	

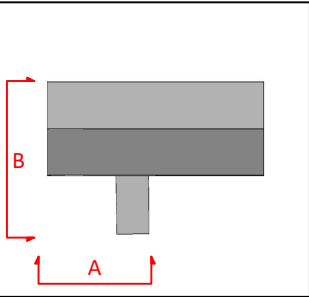
View Point - A



View Point - B



Sources



KEY



PROJECT TITLE
Violet Avenue - Uxbridge

DRAWING TITLE
No. 70 Violet Avenue
Window Map

SCALE NTS	DATE 27-09-2018	ISSUE -
DWG NO 2301_105	REV -	



Appendix C

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Daylight Results

LEVEL	WINDOW	ROOM	VSC		LOSS	% LOSS	NOSKY	
			EXISTING	PROPOSED			EXISTING	PROPOSED
<u>68 and 70 Violet Avenue</u>								
Ground	W1	R1	33.5	30.0	3.5	10.3	>80%	>80%
	W2	R2	33.8	31.9	1.9	5.7	>80%	>80%
	W3		27.1	25.9	1.2	4.6		
First	W1	R1	35.8	32.9	2.9	8.0	>80%	>80%
	W3	R3	35.0	34.6	0.4	1.0	>80%	>80%
<u>91 Violet Avenue</u>								
Ground	W1	R1	36.0	34.9	1.1	3.1	>80%	>80%
First	W1	R1	37.4	36.8	0.6	1.6	>80%	>80%
	W2	R2	36.7	36.1	0.6	1.8	>80%	>80%
<u>93 Violet Avenue</u>								
Ground	W1	R1	37.1	35.9	1.1	3.1	>80%	>80%
	W2		37.0	35.8	1.2	3.2		
	W3		36.9	35.7	1.2	3.2		
First	W1	R1	38.3	37.6	0.7	1.8	>80%	>80%
	W2		38.2	37.5	0.7	1.8		
	W3		38.2	37.5	0.7	1.8		



Appendix D

Land adjacent to 68 and 70 Violet Avenue, Uxbridge

Sept 2018

Sunlight Results

LEVEL	WINDOW	EXISTING			PROPOSED			% LOSS	
		SUMMER	WINTER	TOTAL	SUMMER	WINTER	TOTAL	WINTER	TOTAL
<u>68 and 70 Violet Avenue</u>									
Ground	W1	55%	23%	78%	43%	20%	63%	13.04	19.23
	W2	50%	25%	75%	43%	20%	63%	20.00	16.00
	W3	37%	22%	59%	32%	20%	52%	9.09	11.86
	W1	52%	28%	80%	46%	22%	68%	21.43	15.00
	W3	51%	28%	79%	51%	28%	79%	0.00	0.00
<u>91 Violet Avenue</u>									
Ground	W1	53%	29%	82%	53%	29%	82%	0.00	0.00
First	W1	53%	29%	82%	53%	29%	82%	0.00	0.00
	W2	52%	29%	81%	52%	29%	81%	0.00	0.00
<u>93 Violet Avenue</u>									
Ground	W1	59%	29%	88%	59%	29%	88%	0.00	0.00
	W2	59%	30%	89%	59%	30%	89%	0.00	0.00
	W3	59%	30%	89%	59%	30%	89%	0.00	0.00
First	W1	59%	30%	89%	59%	30%	89%	0.00	0.00
	W2	59%	30%	89%	59%	30%	89%	0.00	0.00
	W3	59%	30%	89%	59%	30%	89%	0.00	0.00