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# Daylight and Sunlight Amenity

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Proposed Development at  
77 Brookmans Avenue  
Hatfield  
AL9 7QG

## **Version**

01

## **Report Date**

11 June 2018

# Project Preface

## Client Names and Addresses

Raeen Corporation Limited  
24 Widecombe Way  
East Finchley  
London  
N2 0HL

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## Watts Details

<b>Supervising Director</b>	Robert Hillman
<b>Prepared at</b>	Watts Group PLC 25 Marsh Street Bristol BS1 4AQ
<b>Document prepared by</b>	Richard Howard
<b>Job reference</b>	126228
<b>Reviewed by</b>	Keir Davidson



# Executive Summary

We have assessed the impact of the proposed development upon the daylight and sunlight currently enjoyed by the two properties that are in closest proximity to the site – in accordance with the guidance set out by the BRE.

The results from the analysis confirm all the rooms within the buildings surrounding the proposed development will continue to enjoy satisfactory levels of daylight and sunlight with the proposed development in place.



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# 1. Introduction

## 1.1 Instructions

Raean Corporation Ltd instructed us to undertake a daylight and sunlight analysis of the proposed development at 77 Brookmans Avenue, Hatfield on 22 May 2018.

## 1.2 Brief

In conjunction with, and as part of, the application for planning permission for the development, we are required to:

- 1) study the architect's drawings for the proposed development and other relevant documentation;
- 2) conduct an appropriate technical assessment of the impact that the proposed development will have on surrounding properties;
- 3) consider the relevant published planning policy statements and associated guidance documents; and
- 4) prepare a daylight and sunlight amenity study reporting our findings and the results of our technical assessment.

## 1.3 Documents Received and Information Utilized for the Analysis

The analysis carried out has been based on a 3D AutoCAD model of the development site and the relevant surrounding buildings. The model has been prepared using a 3D laser survey information, undertaken by a sub-contractor. Into the model we incorporated the latest proposals for the proposed scheme, supplied by the project architects, Alexander Gemini Ltd, on 29 May 2018.



## 2. Guidelines for the Assessment

### 2.1 General Approach

BRE Report 209, "Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice" provides guidance to designers, clients, consultants and planning officials on laying out proposed development sites to minimise impact on surrounding buildings and open spaces. This document is widely used in the construction industry and we have undertaken many studies on this basis for a variety of local planning authorities.

The BRE report states that living rooms, dining rooms and kitchens within dwellings should be assessed. Bedrooms should also be checked although it is acknowledged that they are less important. Non-domestic buildings where the occupants have a reasonable expectation of daylight should also be considered, although these are usually less sensitive than dwellings. Also, garages, hallways, storage, circulation areas and bathrooms "need not be assessed".

The BRE guide sets out criteria against which an assessment may be made of the levels of daylight / sunlight and the impact that development may cause. The advice given in the BRE report is not mandatory. Specifically, in the introduction to the report, it states that:

*"The guide is intended for building designers and their clients, consultants and planning officials. The advice given 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. 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."*

### 2.2 Preliminary Test

The BRE report contains a preliminary test (known as the 25° test) to find out whether an existing building within a reasonable distance should continue to receive enough skylight following the construction of a proposed development:

*"draw a section in plane perpendicular to each affected main window wall of the existing building. Measure the angle to the horizontal subtended by the new development at the same level of the centre of the lowest window. If this angle is less than 25 degrees for the whole of the development then it is unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building. If for any part of the new development, this angle is more than 25 degrees, a more detailed check is needed to find the loss of skylight to the existing building."*



'Reasonable distance' is defined as where a proposal is three or more times the height of a neighbouring building above the centre of the existing window. For example, if a new development were 10m tall and a typical existing ground floor window would be 1.5m above the ground, the effect on existing buildings more than  $3 \times (10 - 1.5) = 25.5\text{m}$  away need not be analysed.

Following this 25° test, we have identified the following properties as requiring further investigation and included them within this study:

- 75 Brookmans Avenue
- 79 Brookmans Avenue

Plans showing the locations of the proposed development and the neighbouring properties are located in Appendix I.

## 2.3 Vertical Sky Component (VSC)

The VSC is a measure of the amount of light falling on a window and it is quantified as a ratio of the direct sky illuminance falling on the surface at a specific reference point against the horizontal illuminance under an unobstructed sky. The maximum possible ratio is just under 40% for a completely unobstructed vertical wall. The VSC values attained by windows of a building will not vary with the compass orientation of that building, therefore orientation does not give an appreciation of the interior daylighting.

The target value recommended is 27% but this is not to be strictly applied. This is because if the VSC for a window is less than 27% and is less than 0.8 times its former value, then the BRE numerical guidelines will not be satisfied.

Alternatively, if the Vertical Sky Component is less than 27%, but more than 0.8 times its former value then daylight levels might still be adequate to the neighbouring property.

It is notoriously difficult to achieve a level of 27% and it is notable that the diagrams in the BRE report show low rise suburban examples rather than a dense urban environment such as this. Therefore the degree of flexibility mentioned within the report should certainly be exercised in this instance as recommended in the guidelines.

## 2.4 Daylight Distribution (DD)/No Sky Line Test

The no-sky line divides those areas of the working plane in a room (normally at 850mm above floor level), which can receive direct sunlight, from those, which cannot. It is important because it provides an indication of how good the distribution of daylight is in a room. Areas beyond the no-sky line in a room will generally look gloomy.

The BRE report recommends that for a room to receive adequate daylight distribution, 80% of the working plane should have a view of the sky. In dense urban environments, it is generally accepted that this is difficult to achieve and a flexible approach should be adopted.

## 2.5 Sunlight

With regard to assessing sunlight, the BRE report gives recommendations for the assessment of the effect on sunlight enjoyed by individual windows. When considering sunlight, in the northern hemisphere, it is only those windows that face within 90 degrees of due south that will enjoy significant amounts of sunlight and the BRE



**Client:** Raean Corporation Limited  
**Development:** 77 Brookmans Avenue

**Job Reference:** 126228

Report limits the extent of assessments required to only these windows. Sunlight amenity is measured in terms of Annual Probable Sunlight Hours (APSH).

The assessment analyses a point in each window which receives at least a quarter of annual probable sunlight hours (represented as 25% in the results tables), including at least 5% of annual probable sunlight hours during the winter months, between 21 September and 21 March. Again, a ratio reduction of 0.8x is also applied to the results.



## 3. Surrounding Properties

We have assessed the VSC, DD and APSH to each of the habitable rooms within the residential properties surrounding the site that could be affected by the proposed development. We review the results on a property-by-property basis below.

The results of our analysis can be found in Appendix II of this report.

### 3.1 75 Brookmans Avenue

#### 3.1.1 Description

75 Brookmans Avenue is a three-storey, detached residential property located to the west of the proposed development. The property has habitable rooms facing the site on all floors, with a living room and kitchen at ground floor and bedrooms above. We have based the room layouts in our analysis upon information obtained from the laser survey.

#### 3.1.2 Daylight Results

Our study shows that all of the 13 windows assessed will meet the VSC target values set out by the BRE.

In terms of daylight distribution, all seven rooms will meet or exceed the BRE guidelines.

#### 3.1.3 Sunlight Results

All windows potentially affected by the proposed development meet the BRE guidance.

### 3.2 79 Brookmans Avenue

#### 3.2.1 Description

This house is a two-storey, detached property located to the east of the proposed development. The property has habitable rooms facing the site on both floors, with a living room at ground floor and two bedrooms above. We have based the room layouts in our analysis upon information obtained from the laser survey.

#### 3.2.2 Daylight Results

Our study shows that all of the 7 windows assessed will meet the VSC target values set out by the BRE.

In terms of daylight distribution, all three rooms will meet or exceed the BRE guidelines.

#### 3.2.3 Sunlight Results

All windows potentially affected by the proposed development meet the BRE guidance. One window serving the first floor bedroom loses 1% of the winter APSH, however the total APSH is within BRE guidance.



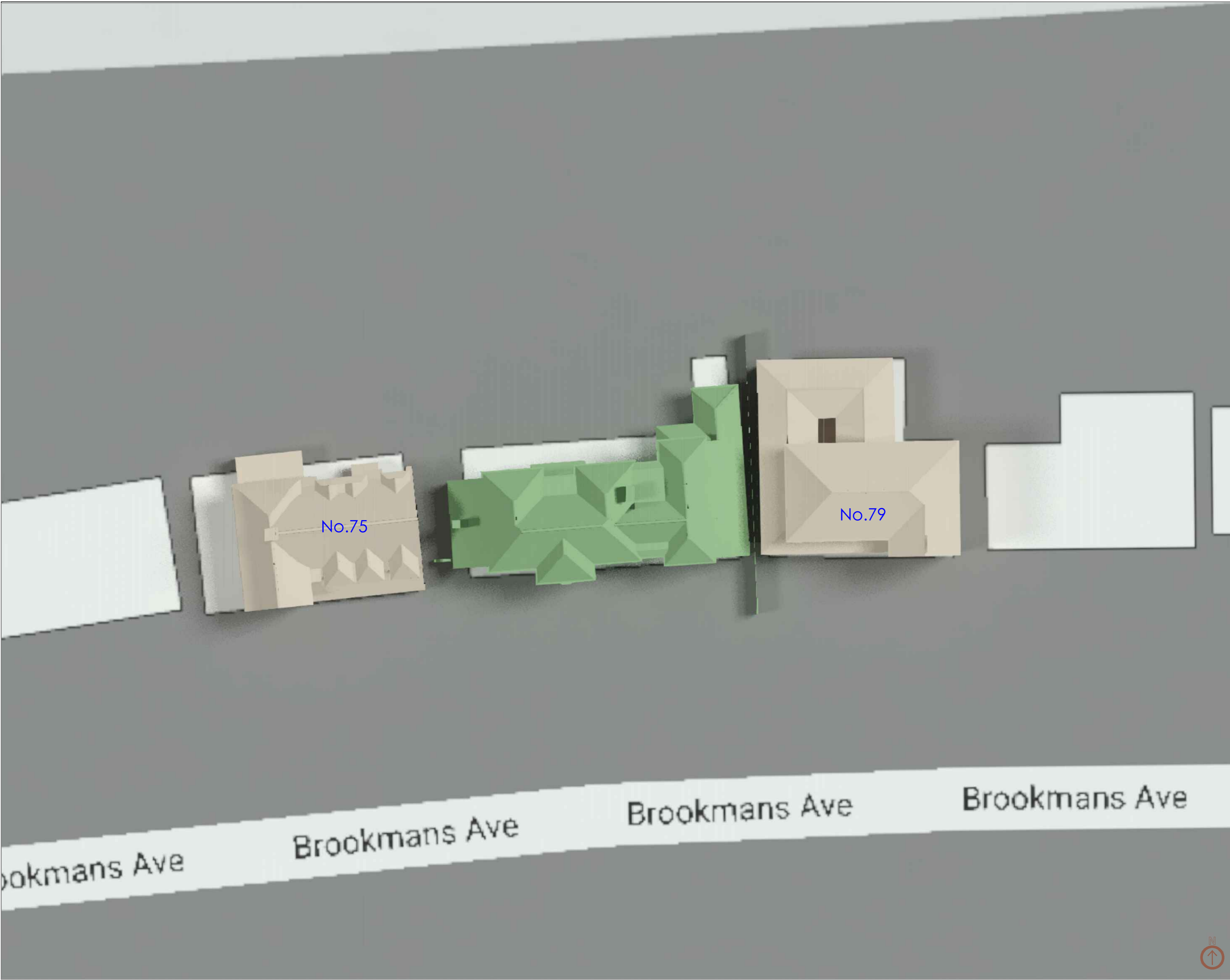
**Client:** Raean Corporation Limited  
**Development:** 77 Brookmans Avenue

**Job Reference:** 126228

# Appendix I

## General Context Drawings of the Site – as existing and proposed





NOTES:  
No dimensions are to be scaled from this drawing.  
All dimensions are to be checked on site, where  
discrepancy occurs between specification and  
drawings the supervising officer must be notified.

<div>Analysis</div> <div>Produced using Waldram Tools MBS Survey Software Ltd (www.surveymbs.com)</div> <div>Existing Model &amp; Surrounding Model</div> <div>Models derived from 3d terrestrial laser scan survey pointcloud.  Internal room layouts derived from pointcloud wherever possible. All other room information is assumed or from plans.  Supplemented with site photography, Bing maps and Google Streetmaps.</div> <div>Proposed Model</div> <div>Model derived from supplied 3D data - Received 29.05.2018 Ref: 77 Brookmans Av.skp Best fitted using: 77 Brookmans Av. PRE APP REVA (1).DWG</div>		
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REV:	DATE:	DESCRIPTION:
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Watts.

Watts Group Limited

1 Great Tower Street

London EC3R 5AA

T: 020 7280 8000

watts.co.uk

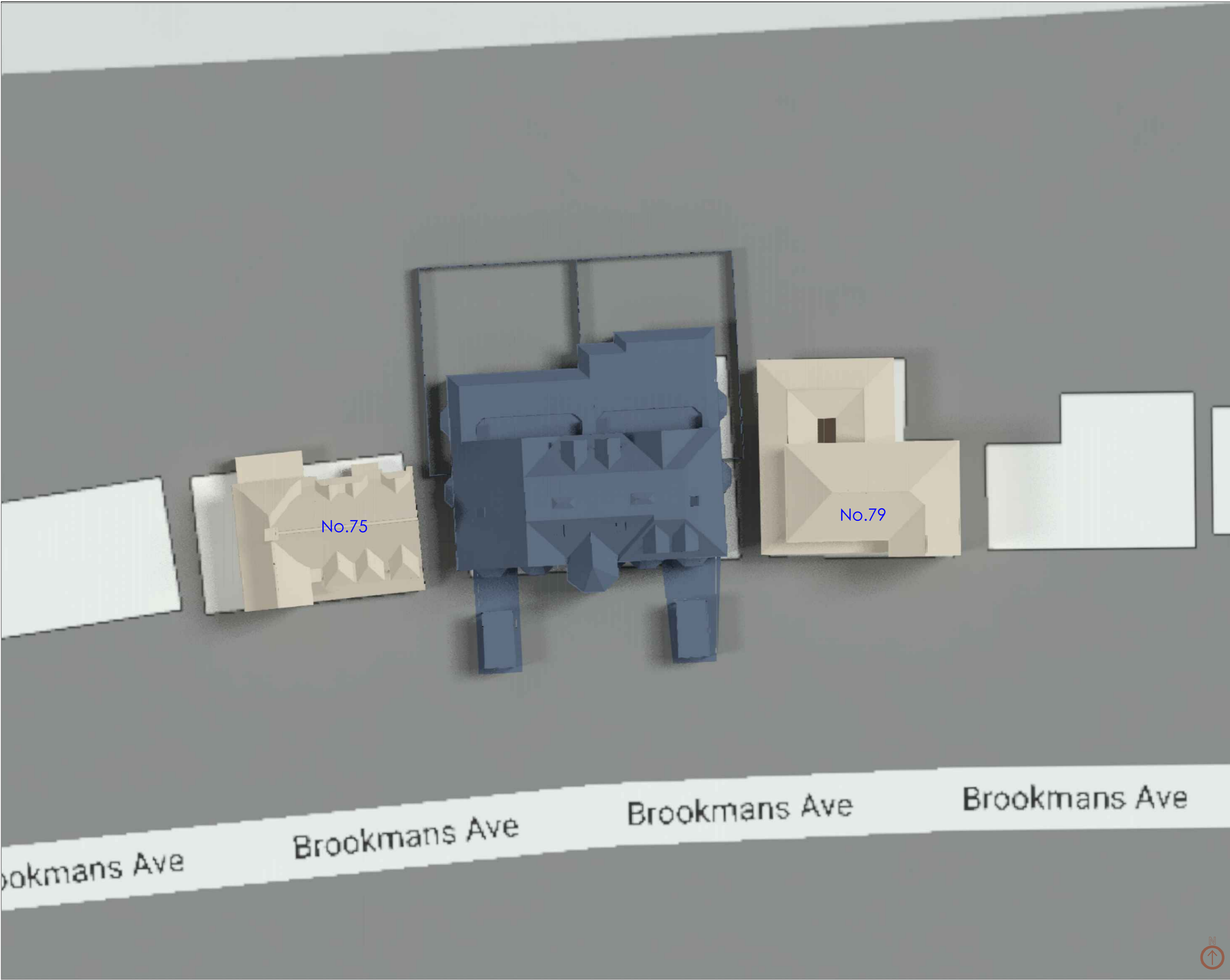
CLIENT:  
**Raheen Corporation**

PROPERTY:  
**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:  
**Existing Site Layout**

SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN:	RH
		CHECKED:	RH

DRAWING NUMBER: 126228-02-01	REV:
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NOTES:  
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<div>Analysis</div> <div>Produced using Waldram Tools MBS Survey Software Ltd (www.surveymbs.com)</div> <div>Existing Model &amp; Surrounding Model</div> <div>Models derived from 3d terrestrial laser scan survey pointcloud. Internal room layouts derived from pointcloud wherever possible All other room information is assumed or from plans.</div> <div>Supplemented with site photography, Bing maps and Google Streetsmaps.</div> <div>Proposed Model</div> <div>Model derived from supplied 3D data - Received 29.05.2018 Ref: 77 Brookmans Av.skp Best fitted using: 77 Brookmans Av. PRE APP REVA (1).DWG</div>		
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REV:	DATE:	DESCRIPTION:
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Watts.

Watts Group Limited

1 Great Tower Street

London EC3R 5AA

T: 020 7280 8000

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CLIENT:  
**Raheen Corporation**

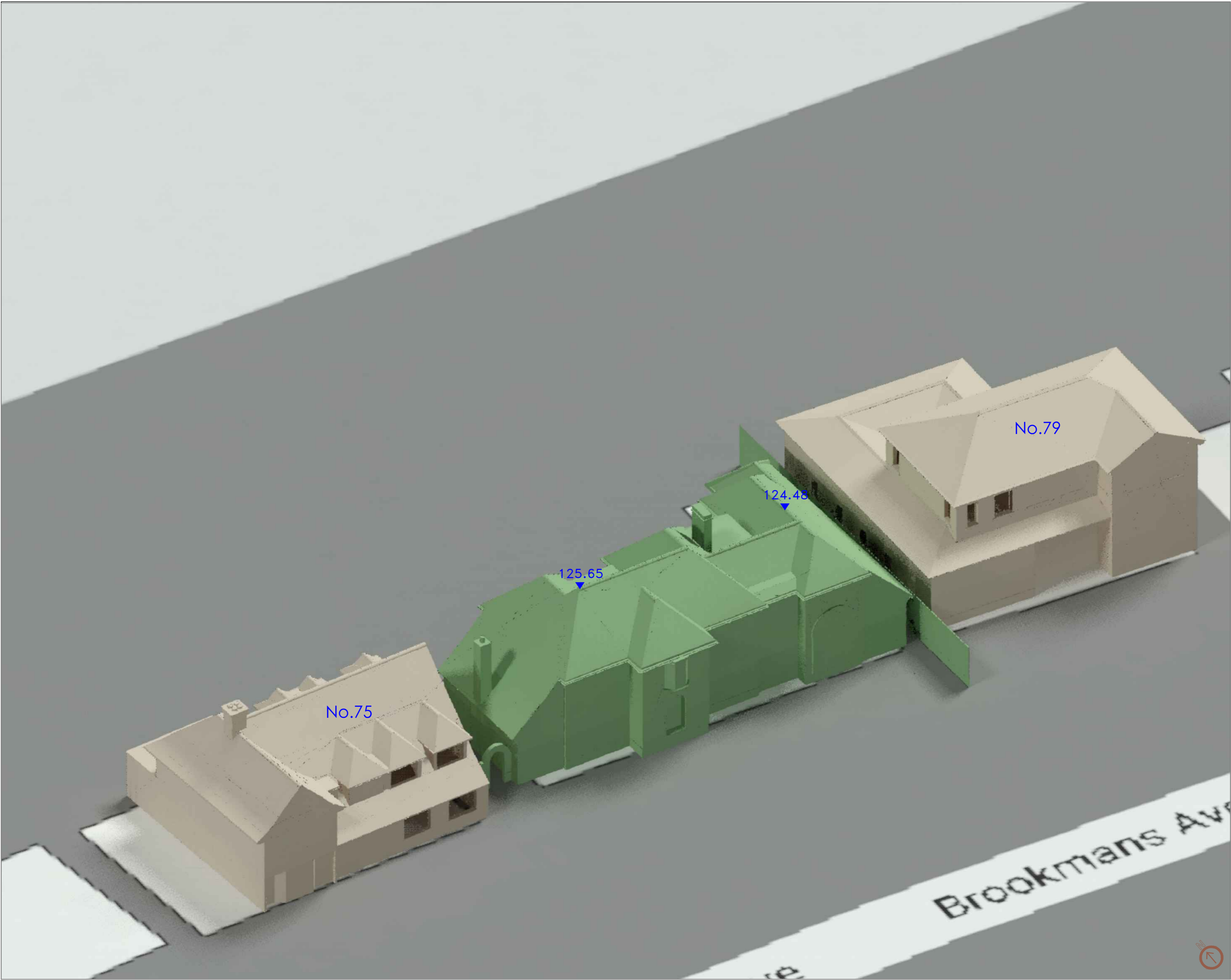
PROPERTY:  
**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:  
**Proposed Site Layout**

SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN: RH
		CHECKED: RH

DRAWING NUMBER: 126228-02-02	REV:
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NOTES:  
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REV:	DATE:	DESCRIPTION:

Watts.

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1 Great Tower Street  
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T: 020 7280 8000  
watts.co.uk

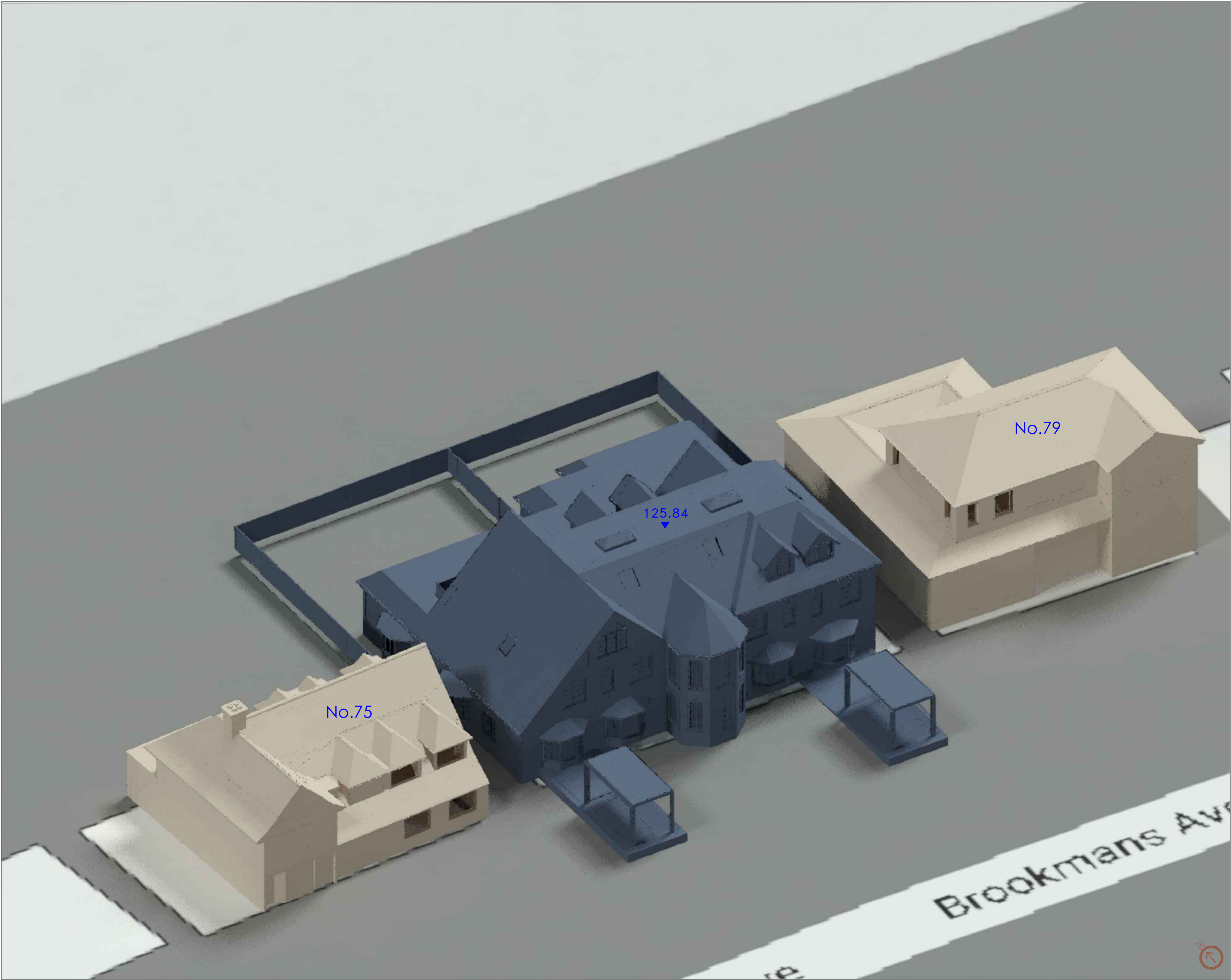
CLIENT:  
**Raheen Corporation**

PROPERTY:  
**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:  
**Existing 3D View  
Looking Northeast.**

SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN: RH
		CHECKED: RH

DRAWING NUMBER: 126228-02-03	REV:
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NOTES:  
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REV:	DATE:	DESCRIPTION:

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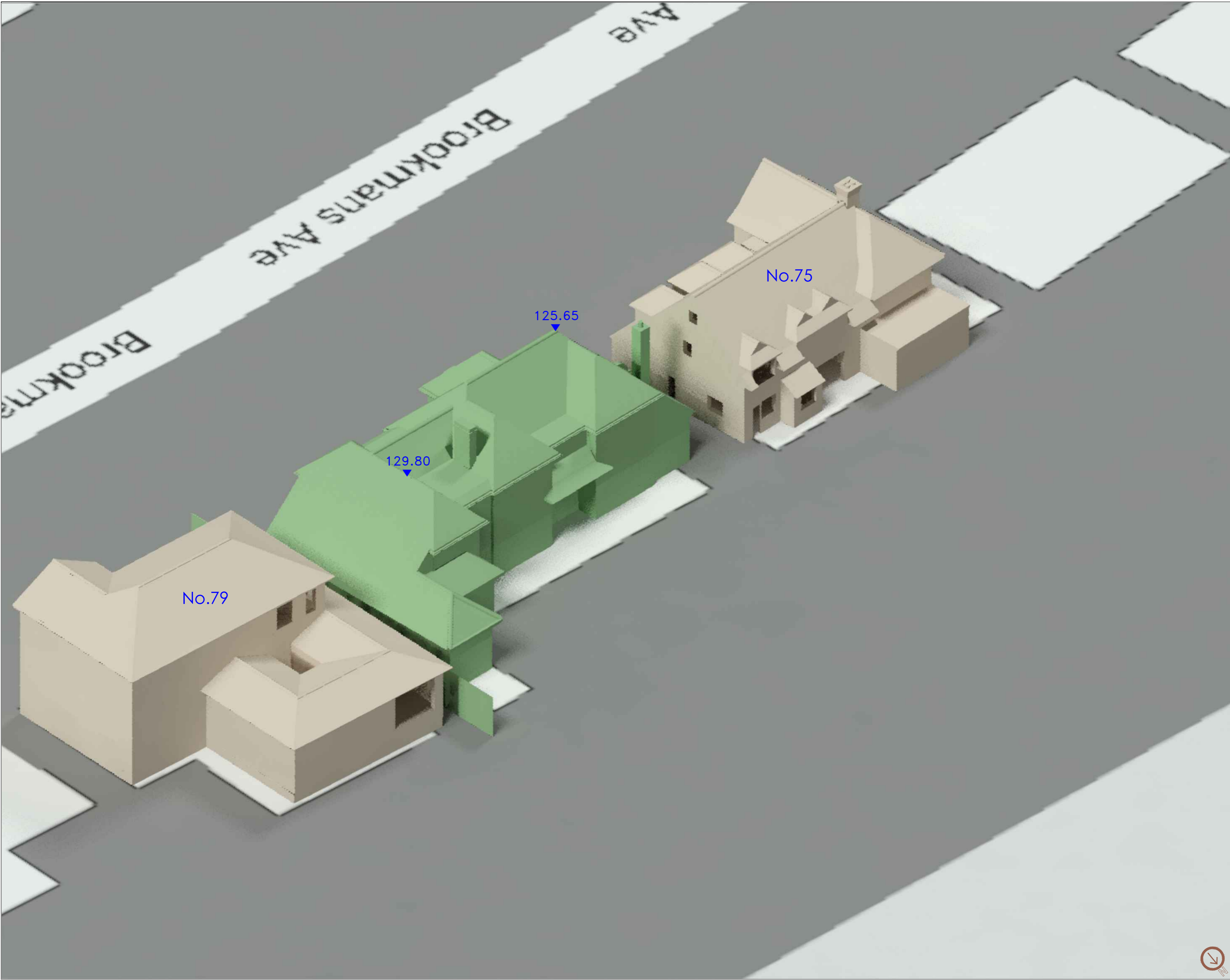
CLIENT:  
**Raheen Corporation**

PROPERTY:  
**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:  
**Proposed 3D View  
Looking Northeast.**

SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN: RH
		CHECKED: RH

DRAWING NUMBER: 126228-02-04	REV:
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NOTES:  
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discrepancy occurs between specification and  
drawings the supervising officer must be notified.

Analysis		
Produced using Waldram Tools MBS Survey Software Ltd (www.surveymbs.com)		
Existing Model & Surrounding Model		
Models derived from 3d terrestrial laser scan survey pointcloud. Internal room layouts derived from pointcloud wherever possible All other room information is assumed or from plans.		
Supplemented with site photography, Bing maps and Google Streetsmaps.		
Proposed Model		
Model derived from supplied 3D data - Received 29.05.2018 Ref: 77 Brookmans Av.skp Best fitted using: 77 Brookmans Av. PRE APP REVA (1).DWG		
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REV:	DATE:	DESCRIPTION:
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# Watts.

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CLIENT:  
**Raheen Corporation**

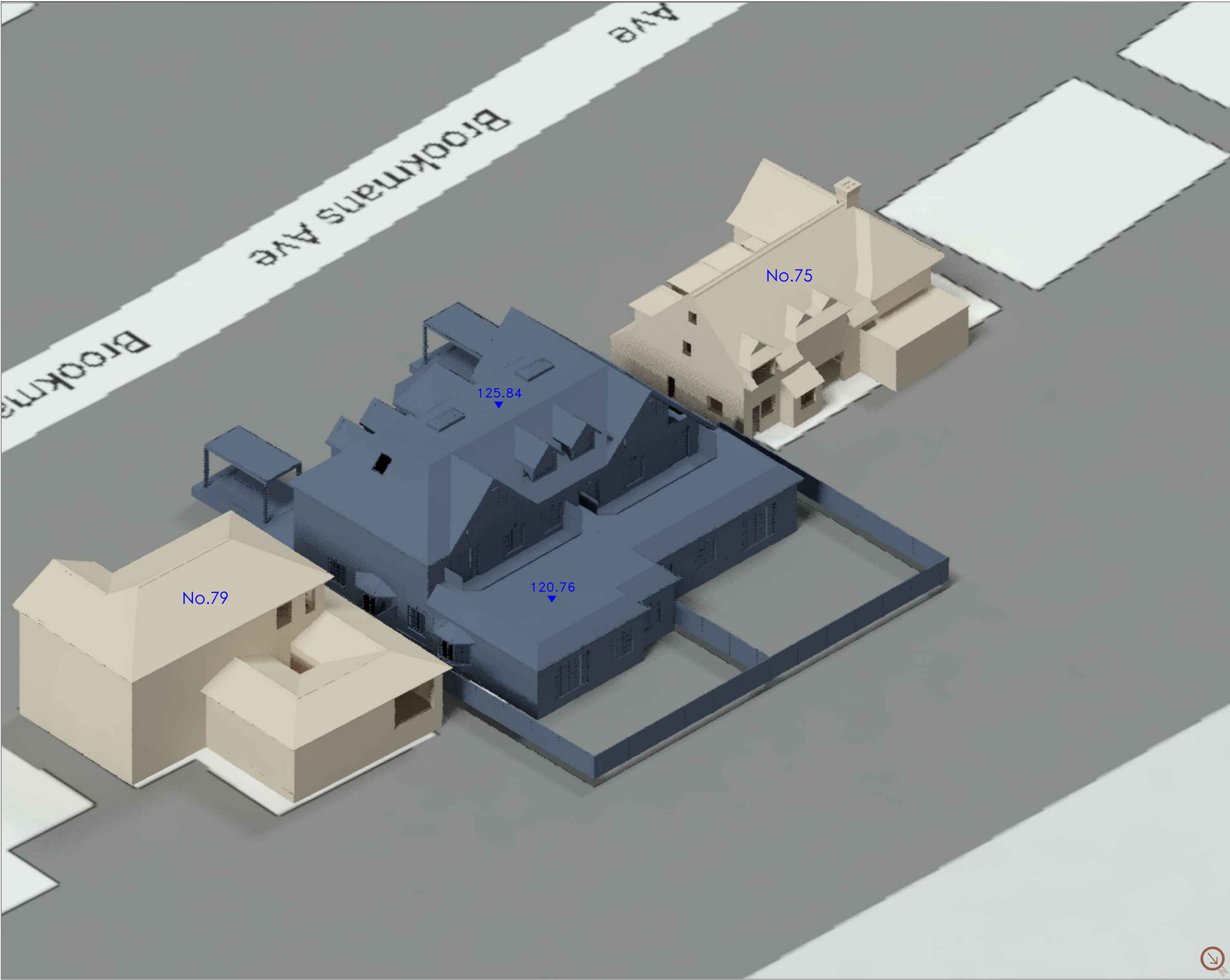
PROPERTY:  
**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:  
**Existing 3D View  
Looking Southwest.**

SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN:	RH
		CHECKED:	RH

DRAWING NUMBER: 126228-02-05	REV:
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NOTES:  
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All dimensions are to be checked on site, where  
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drawings the supervising officer must be notified.

Analysis		
Produced using Waldram Tools MBS Survey Software Ltd (www.surveymbs.com)		
Existing Model & Surrounding Model		
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Proposed Model		
Model derived from supplied 3D data - Received 29.05.2018 Ref: 77 Brookmans Av.skp Best fitted using: 77 Brookmans Av. PRE APP REVA (1).DWG		
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REV:	DATE:	DESCRIPTION:
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[watts.co.uk](http://watts.co.uk)

CLIENT:  
**Raheen Corporation**

PROPERTY:  
**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:  
**Proposed 3D View  
Looking Southwest.**

SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN: RH
		CHECKED: RH

DRAWING NUMBER: 126228-02-06	REV:
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**Client:** Raean Corporation Limited  
**Development:** 77 Brookmans Avenue

**Job Reference:** 126228

# Appendix II

## Daylight and Sunlight Results to Surrounding Properties



Project Name: 77 Brookmans Avenue  
Project No.: 126228-02  
Report Title: Daylight & Sunlight - Neighbour Analysis Existing Vs. Proposed  
Date of Analysis: 31/05/2018

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria														
75 Brookmans Avenue																																	
Ground	R1	Residential	Living Room	W1	Existing Proposed	38.51 38.24	0.99	YES	174°	69 68	0.98	YES	28 27	0.96	YES	69 69	YES	28 28	YES														
				W2	Existing Proposed	38.51 37.86	0.98	YES	174°	69 67	0.97	YES	28 26	0.92	YES																		
	R2	Residential	Utility Room	W3	Existing Proposed	17.86 18.89	1.05	YES	84°N	*North*		*North*																					
	R3	Residential	Kitchen	W4	Existing Proposed	23.88 19.30	0.80	YES	84°N	*North*		*North*																					
				W5	Existing Proposed	37.75 33.16	0.87	YES	354°N	*North*		*North*																					
				W6	Existing Proposed	34.55 31.71	0.91	YES	354°N	*North*		*North*																					
				W7	Existing Proposed	36.49 35.00	0.95	YES	354°N	*North*		*North*																					
				W8	Existing Proposed	33.45 32.91	0.98	YES	354°N	*North*		*North*																					
*North*																*North*	*North*	*North*															
First	R1	Residential	Bedroom	W1	Existing Proposed	35.99 35.98	0.99	YES	174°	49 49	1.00	YES	28 28	1.00	YES	49 49	YES	28 28	YES														
				W2	Existing Proposed	36.22 36.20	0.99	YES	174°	49 49	1.00	YES	28 28	1.00	YES																		
	R2	Residential	Bathroom	W3	Existing Proposed	29.37 27.95	0.95	YES	84°N	*North*		*North*																					
	R3	Residential	Bedroom	W4	Existing Proposed	36.77 36.25	0.98	YES	354°N	*North*		*North*																					
											*North*																*North*	*North*	*North*				
											*North*																*North*	*North*	*North*				
	Second	R1	Residential	Bathroom	W1	Existing Proposed	36.68 33.90	0.92	YES	84°N	*North*																						

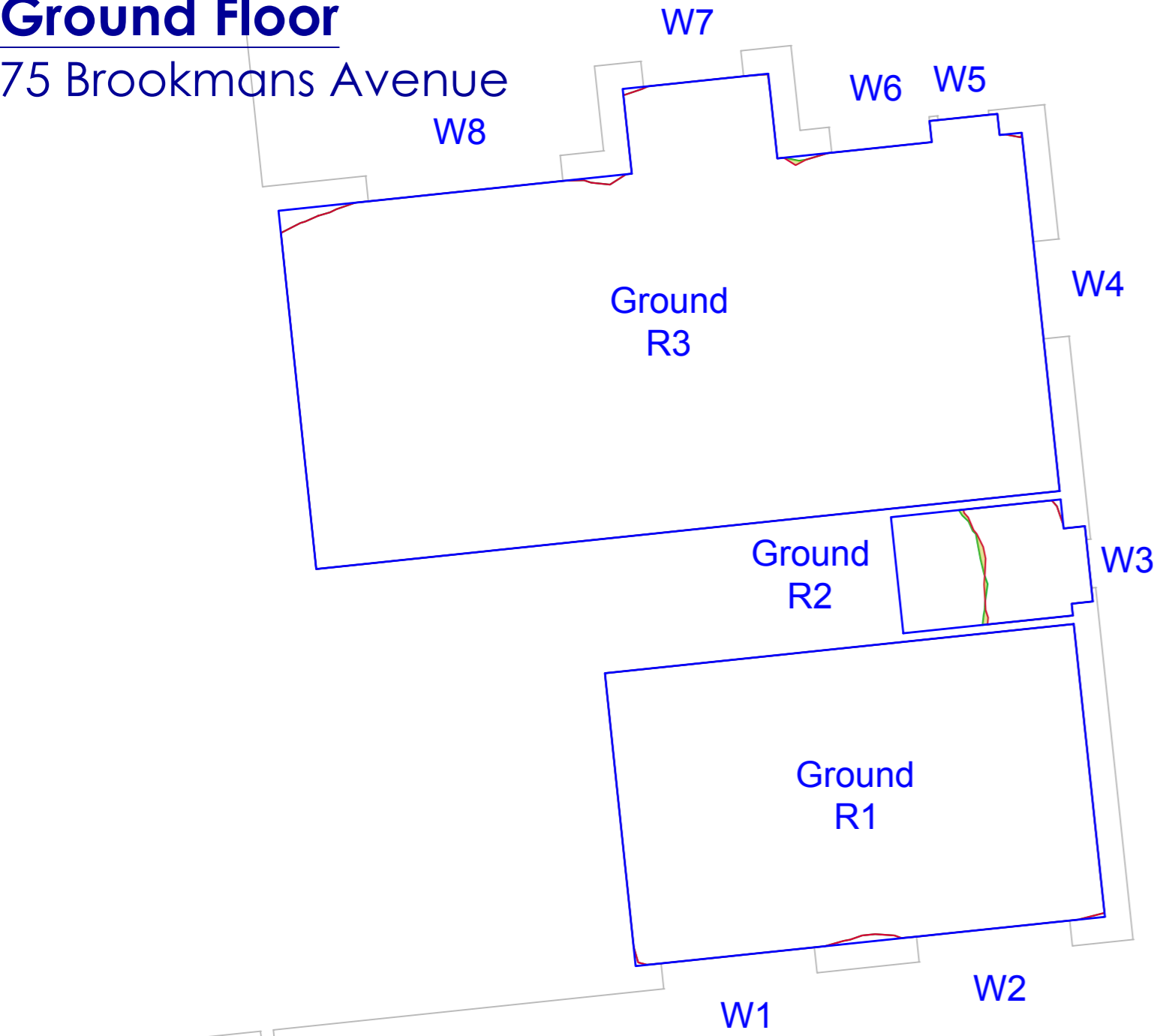
Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria			
79 Brookmans Avenue																						
Ground	R1	Residential	Living Room	W1	Existing Proposed	37.20 36.90	0.99	YES	359°N	*North*			*North*									
										*North*			*North*			*North*	*North*	*North*	*North*			
First	R1	Residential	Bedroom	W1	Existing Proposed	36.64 36.60	0.99	YES	359°N	*North*			*North*									
				W2	Existing Proposed	36.72 36.65	0.99	YES	359°N	*North*			*North*									
				W3	Existing Proposed	33.80 31.10	0.92	YES	269°	25 22	0.88	YES	4 3	0.75	NO	26 23		4 3				
	R2	Residential	Bedroom	W4	Existing Proposed	33.48 31.27	0.93	YES	269°	26 23	0.88	YES	6 6	1.00	YES	26 23	1.00	YES				
				W5	Existing Proposed	36.60 36.58	0.99	YES	179°	48 48	1.00	YES	23 23	1.00	YES							
				W6	Existing Proposed	36.36 36.34	0.99	YES	179°	59 59	1.00	YES	26 26	1.00	YES							
														26 23				YES	4 3	NO		
														75 72				YES	28 28	YES		

Project Name: 77 Brookmans Avenue  
Project No.: 126228-02  
Report Title: Daylight Distribution Analysis - Neighbour Existing Vs. Proposed  
Date of Analysis: 31/05/2018

Floor Ref.	Room Ref.	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
<b>75 Brookmans Avenue</b>									
Ground	R1	Residential	Living Room	Area m2	19.11	19.06	19.06		
				% of room		100%	100%	0.99	YES
	R2	Residential	Utility Room	Area m2	2.96	1.62	1.59		
				% of room		55%	54%	0.98	YES
	R3	Residential	Kitchen	Area m2	38.97	38.80	38.79		
				% of room		100%	100%	0.99	YES
	R1	Residential	Bedroom	Area m2	17.59	17.19	17.19		
				% of room		98%	98%	0.99	YES
First	R2	Residential	Bathroom	Area m2	3.07	2.87	2.87		
				% of room		94%	93%	0.99	YES
	R3	Residential	Bedroom	Area m2	9.66	9.61	9.59		
				% of room		99%	99%	0.99	YES
Second	R1	Residential	Bathroom	Area m2	6.13	5.04	4.59		
				% of room		82%	75%	0.91	YES
<b>79 Brookmans Avenue</b>									
Ground	R1	Residential	Living Room	Area m2	10.01	9.97	9.96		
				% of room		100%	100%	0.99	YES
First	R1	Residential	Bedroom	Area m2	10.68	10.66	10.66		
				% of room		100%	100%	0.99	YES
	R2	Residential	Bedroom	Area m2	10.74	10.72	10.72		
				% of room		100%	100%	1.00	YES

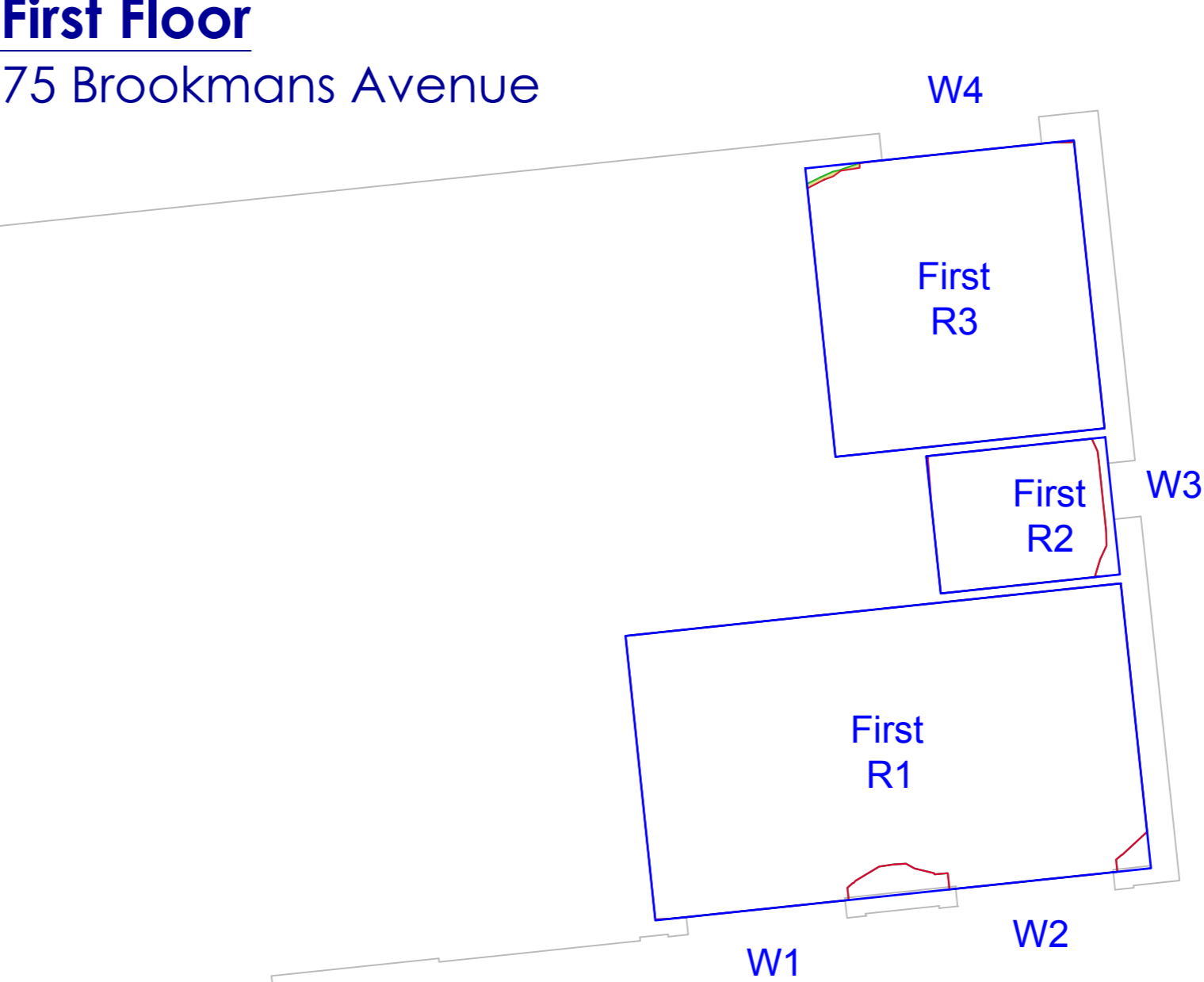
Ground Floor

75 Brookmans Avenue



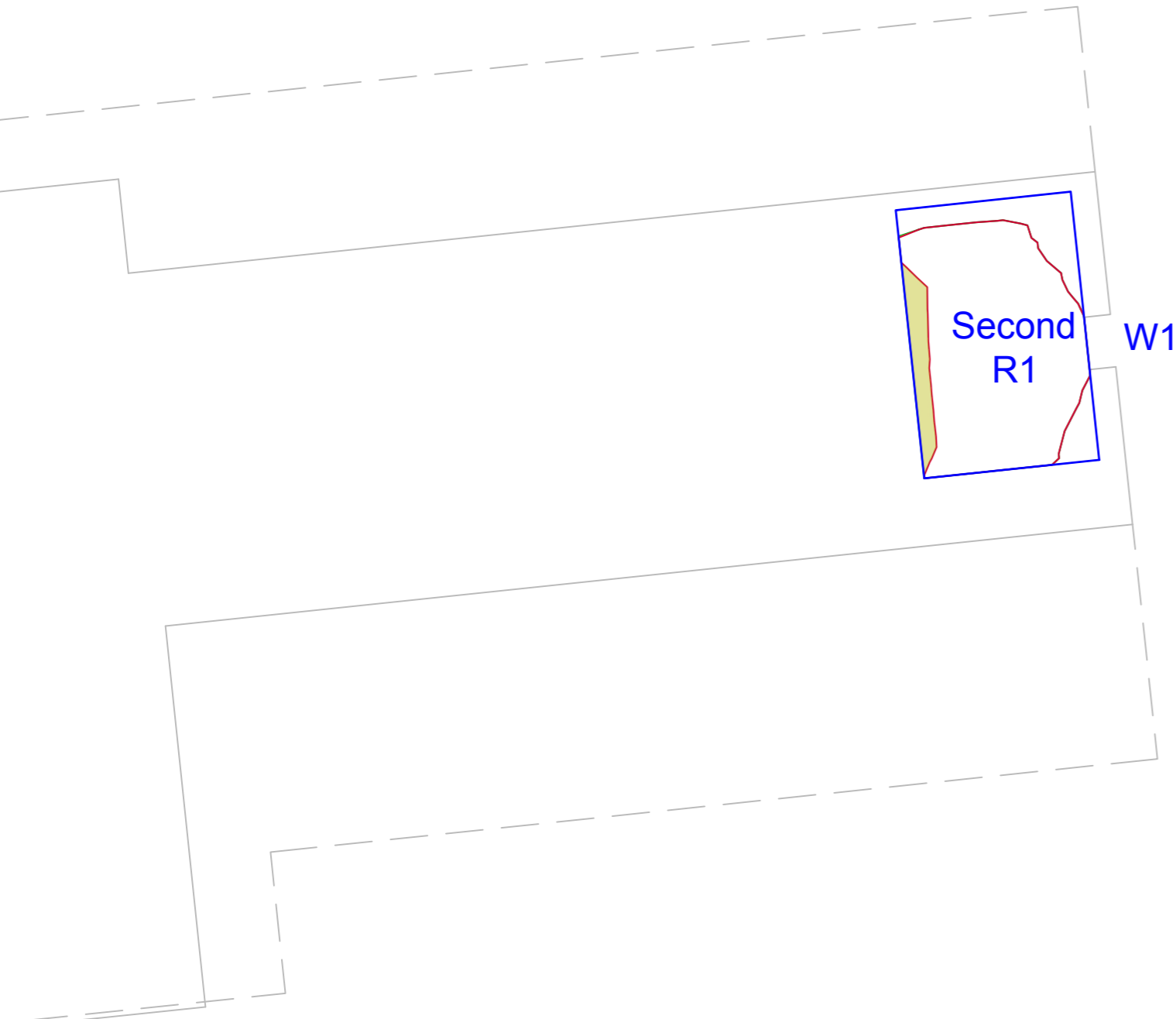
First Floor

75 Brookmans Avenue



Second Floor

75 Brookmans Avenue



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Analysis		
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Supplemented with site photography, Bing maps and Google Streetmaps.		
Proposed Model		
Model derived from supplied 3D data - Received 29.05.2018 Ref: 77 Brookmans Av.skp Best fitted using: 77 Brookmans Av. PRE APP REVA (1).DWG		
KEY		
Room Area (Measured Layout)		
Room Area (Assumed Layout)		
Existing No Sky Area		
Proposed No Sky Area		
Area of Loss/Gain		
.	.	.

REV:	DATE:	DESCRIPTION:
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Watts.

Watts Group Limited

1 Great Tower Street

London EC3R 5AA

T: 020 7280 8000

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CLIENT:  
**Raheen Corporation**

PROPERTY:  
**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:  
**Daylight Distribution Contours**

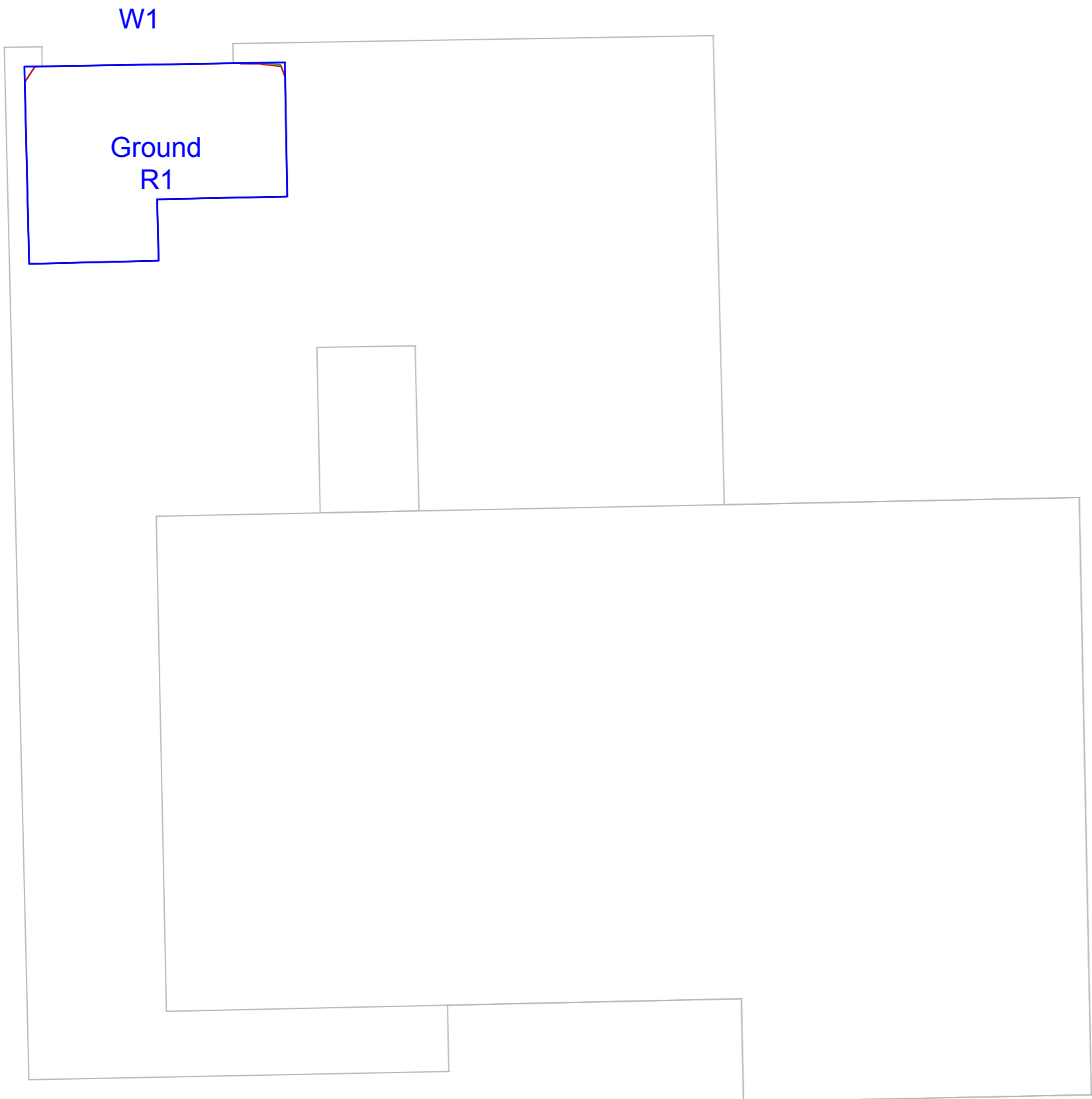
SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN: RH
		CHECKED: RH

DRAWING NUMBER: 126228-02-07	REV:
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Ground Floor

79 Brookmans Avenue



First Floor

79 Brookmans Avenue



NOTES:

No dimensions are to be scaled from this drawing. All dimensions are to be checked on site, where discrepancy occurs between specification and drawings the supervising officer must be notified.

<p><b>Analysis</b></p> <p>Produced using Waldram Tools MBS Survey Software Ltd (www.surveymbs.com)</p> <p><b>Existing Model &amp; Surrounding Model</b></p> <p>Models derived from 3d terrestrial laser scan survey pointcloud.</p> <p>Internal room layouts derived from pointcloud wherever possible. All other room information is assumed or from plans.</p> <p>Supplemented with site photography, Bing maps and Google Streetmaps.</p> <p><b>Proposed Model</b></p> <p>Model derived from supplied 3D data - Received 29.05.2018 Ref: 77 Brookmans Av.skp Best fitted using: 77 Brookmans Av. PRE APP REVA (1).DWG</p> <p><b>KEY</b></p> <ul style="list-style-type: none"><li>Room Area (Measured Layout)</li><li>Room Area (Assumed Layout)</li><li>Existing No Sky Area</li><li>Proposed No Sky Area</li><li>Area of Loss/Gain</li></ul>		
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REV:	DATE:	DESCRIPTION:
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CLIENT:

**Raheen Corporation**

PROPERTY:

**77 Brookmans Avenue,  
Brookmans Park.**

DRAWING TITLE:

**Daylight Distribution Contours**

SCALE @ A1: <b>NTS</b>	DATE: 31.05.18	DRAWN:	RH
		CHECKED:	RH

DRAWING NUMBER: 126228-02-08	REV:
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