

66 FITZJOHN'S AVENUE, LONDON

Daylight and Sunlight Report



waldrams

Waldrams Ltd
Chartered Surveyors

Daylight and Sunlight Report

Project: 66 Fitzjohn's Avenue, London

Client: Mr Ellis Green

Prepared by: Luke Wilson

Checked By: Michael Harper

Reference: 1986

Date: 11th July 2017

Document History

First Issued: 31st May 2017

Amended (address correction): 11th July 2017

This report is intended solely for Mr Ellis Green and may contain confidential information. The Liability of this Report extends to Mr Ellis Green and their duly appointed advisors. No part or whole of its contents may be disclosed to or relied upon by any Third Parties without the consent of this Practice. This report is accurate as at the date of publication but does not take into account anything that has happened since the date of this report.

Waldrams Ltd Address: Unit 303, The Light Bulb
1 Filament Walk
London SW18 4GQ

Email: contact@waldrams.com

Telephone: 020 7183 9109

Website: www.waldrams.com

Contents

Executive Summary.....	4
1. Introduction	5
2. Summary of how daylight and sunlight are considered for planning	5
3. Assumptions and room layouts used in the analysis	7
4. Sources of Information Used in the Report.....	8
5. The Existing Site	9
6. Daylight & Sunlight Analysis	9
7. Conclusions and Recommendations	13

Appendix 1: Drawings

Appendix 2: Daylight and sunlight results

Executive Summary

- This is a daylight and sunlight analysis of the effect of the proposed development at 66 Fitzjohn's Avenue on the surrounding residential properties. The analysis has been based upon scheme drawings provided by the architect, measured survey, Ordnance Survey information and aerial/satellite photography.
- The analysis has been carried out in accordance with the methodologies contained in the BRE Guidelines, which is used by the local authority to determine the acceptability of a proposal in terms of its effect on neighbouring daylight and sunlight amenity.
- The analysis indicates that all surrounding properties are in accordance with the BRE Guidelines for daylight and sunlight with the proposal in place, meeting the BRE Guidelines in terms of VSC and APSH in the proposed situation.

1. Introduction

Waldrams Ltd has been instructed to provide daylight and sunlight analysis for the proposed scheme at 66 Fitzjohn's Avenue, London. This analysis is based upon a scheme drawings by Webb Architects, received 23rd May 2017, a measured survey of the site and surrounding properties, site photography and Ordnance Survey information.

The analysis has been carried out in accordance with the methodologies contained in the BRE Guidelines (*Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice* by P. Littlefair (2011)), which is used by the local authority to determine the acceptability of a proposal in terms of its effect on neighbouring daylight and sunlight amenity.

The existing site can be seen on drawings 1986-01-01 to -01-03 in Appendix 1, with the proposal on drawings 1986-01-04 to -01-06, also in Appendix 1. The numerical results of the quantitative daylight and sunlight analysis can be found in Appendix 2.

2. Summary of how daylight and sunlight are considered for planning

2.1 Introduction to the BRE Guidelines

Daylight and sunlight are planning considerations. The main reference used by local planning authorities to determine the acceptability of proposals in terms of their internal daylight and sunlight and the impact on daylight and sunlight to the surrounding properties is the Building Research Establishment (BRE) Guidelines, used in conjunction with British Standard BS8206 Part 2. The BRE Guidelines provide scientific, objective methods for establishing the acceptability of daylight and sunlight internal to the scheme and the surrounding properties. In practice it is principally the main habitable rooms internal to the scheme and within the surrounding residential properties which are sensitive in terms of loss of daylight and sunlight. This report therefore focuses on the internal daylight and sunlight and the change in daylight and sunlight to habitable rooms in the surrounding residential property.

The BRE Guidelines specify that the daylight and sunlight results be considered flexibly and in the context of the site. Clearly there would be a higher expectation for daylight and sunlight in a rural or suburban environment than in a dense city centre location. The important factor in all cases is that the levels of daylight and sunlight are appropriate, taking into account all the planning policy requirements of the site. The BRE Guidelines acknowledge this in the introduction where the BRE Guidelines state:

“The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and thus this document should not be seen as an instrument of planning policy. Its aim is to help rather constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values.”

(Page 1, BRE Guidelines)

Thus, the numerical figures should not be rigidly applied, but instead used as part of the overall evaluation of the daylight and sunlight to the surroundings in context of the site, its existing massing, and the need for regeneration and local planning policy guidance for the site. In particular existing local precedents or recent planning consents may provide a good indication as to appropriate levels in the vicinity.

The BRE Guidelines specifies on Page 3 that in calculating daylight, “For calculation purposes, trees may be ignored unless they form dense continuous belts.”

2.2 Daylight and sunlight criteria to surrounding residential property

According to the BRE Guidelines a surrounding existing building to a proposed scheme will retain the potential for good interior daylighting, provided that the scheme subtends less than 25 degrees from the horizontal as measured from the lowest habitable windows in the neighbouring windows. If this is not achieved then good daylighting to the neighbouring properties is still achieved if the Vertical Sky Component (VSC) is in excess of 27% or is reduced by less than 20% from its existing level. Furthermore, if the area of the room that can see the sky at desk height (known as the daylight distribution or no sky contour) is reduced by less than 20% of its existing area, then the loss of daylight will probably be unnoticeable according to the BRE Guidelines.

Where the existing level of VSC or daylight distribution is below the BRE Guideline suggested level, very small absolute losses of daylight can reflect in greater than 20% reductions of VSC and daylight distribution, even though such small losses may not be noticeable.

In these cases, so long as the Average Daylight Factor meets the criteria suggested by the BRE Guidelines (i.e. 1.5% ADF for a living room, 1% ADF for a bedroom and 2% ADF for a kitchen) then good internal daylight can still be achieved.

The ADF measure of daylight takes into account the main factors which affect the actual daylight appearance of a room including the area of the window.

ADF provides an absolute measure of daylight expressed as a ratio of daylight for the room in question as a proportion of the daylight outside at any moment in time.

The test for sunlight to the neighbouring properties is calculated for each main south facing window to habitable rooms and in particular living rooms. Bedrooms and kitchens are considered by the BRE Guidelines as less important for sunlight. The BRE Guidelines state that any south facing window may potentially receive up to 1486 hours of sunlight per year on average, representing 100% of the annual probable sunlight hours (APSH). Of this, each main window to a main habitable room may be adversely affected if it has less than 25% of the total APSH across the whole year or less than 5% APSH during the winter months (defined as the 6 months from September 21st through to March 21st). If the retained total APSH is reduced by less than 4% or the change from the existing is less than 20% for total and winter levels of APSH then this too would meet the BRE Guideline levels.

Following the BRE Guidelines recommendations, VSC and APSH are measured from a point on the outer window wall whilst ADF is measured from the point halfway between the inner and outer window wall.

2.2.1 Surrounding properties

Daylight and sunlight levels comparing the existing and proposed daylight (VSC, daylight distribution and ADF) and sunlight (APSH) situation are then calculated for the surrounding properties. These results are provided in Appendix 2.

3. Assumptions and room layouts used in the analysis

Uses of the surrounding properties have been based on external appearance to determine whether they are residential or commercial use. Where this is ambiguous we have researched the Council Tax records for the property, which if listed would indicate residential use.

It is important to note that the precise position of the surrounding property elevations has been estimated, based on brick counts from site photographs. The floor levels for the surrounding buildings are assumed unless otherwise indicated, which may affect the daylight distribution and ADF calculations.

We have not been able to gain access internally to any of the surrounding properties and so details of the internal layouts and floor level heights have been assumed from the external appearance of the building, and the locations of windows. Unless known or otherwise, appropriate the depths of rooms have been assumed at 4.27m for residential properties and 6m for commercial properties, or half the building depth if this is less than these dimensions.

4. Sources of Information Used in the Report

Webb Architects

0163-SY-01.dwg
0163-SY-02.dwg
0163-SY-03.dwg
0163-SY-04.dwg
0163-SY-05.dwg
0163-SY-06.dwg
0163-SY-07.dwg
0163-SY-08.dwg
1169.01.10(D).dwg
1169.01.11(F).dwg
1169.01.12(D).dwg
1169.01.13(E).dwg
1169.01.14(A).dwg
1169.01.15(A).dwg
1169.01.16(B).dwg
1169.01.11(E).dwg
1169.01.11(D).dwg
1169.01.12(B).dwg
1169.01.13(B).dwg
1169.01.14(B).dwg
1169.SK02-Prpsd Mssng.dwg
1169.SK03-Prpsd Mssng.dwg
1169.SK04-Prpsd Mssng.dwg
1169.SK05-Prpsd Mssng.dwg

Received 23/517

Waldrams Ltd

Site Photographs
Ordnance Survey

5. The Existing Site

The existing site is shown below in photo 1 and can also be seen on drawings 1986-01-01 to -01-03 in Appendix 1.



Photo 1: The existing site

6. Daylight & Sunlight Analysis

The BRE Guidelines make it clear that daylight and sunlight for planning purposes are primarily a concern for surrounding residential properties, since commercial properties will tend to be well served by artificial lighting. Therefore we have only commented on the impact of the proposal on the surrounding residential properties below.

We have considered the following residential or part-residential properties in our analysis due to their proximity to the scheme:

- 62-64 Fitzjohns Avenue
- Madresco House, 15 Akenside Road
- 12 Akenside Road

Further to our research via the Valuations Office Agency (VOA) website, all other surrounding properties are understood to be of commercial use, or are too distant to be materially impacted by the proposed scheme.

In conducting our analysis, we have – in accordance with the recommendations contained in the BRE Guidelines – calculated the level of daylight and sunlight to the surrounding properties in terms of Vertical Sky Component (VSC), Daylight Distribution and Average Probable Sunlight Hours (ASPH). We have assessed the level of daylight and sunlight to the surrounding properties both in the existing situation as well as with the proposed scheme in place, thereby ascertaining the scheme's potential impact on the daylight and sunlight to the neighbouring properties and whether it is in accordance with the BRE Guidelines.

Commentary on the impact to the surrounding residential properties follows below. A window map showing the location of the windows referred to in the daylight and sunlight results are included in Appendix 1 on drawing 1986-01-07.

62-64 Fitzjohn's Avenue

This property is shown below in photo 2. It is entirely residential in use. As can be seen in photo 2 below, the property was covered in scaffolding at the time of our site visit. However, the measured survey provided by the architect has allowed us to accurately model this building in our analysis.



Photo 2: 62-64 Fitzjohn's Avenue

In daylight terms, the analysis shows all windows in this building meet the BRE Guidelines for VSC with the proposal in place.

In sunlight terms, all windows within 62-64 Fitzjohn's Avenue which overlook the development site meet the BRE Guidelines in terms of both annual and winter APSH.

Overall, therefore, 62-64 Fitzjohn's Avenue is in accordance with the BRE Guidelines for daylight and sunlight with the proposal at 66 Fitzjohn's Avenue in place.

Madresco House, 15 Akenside Road

This property is shown below in photo 3. It is entirely residential in use.



Photo 3: Madresco House, 15 Akenside Road

The analysis shows this property is fully compliant with the BRE Guidelines for daylight and sunlight with the proposal in place.

12 Akenside Road

This property is shown below in photo 3. It is entirely residential in use.



Photo 3: 12 Akenside Road

The analysis shows this property is fully compliant with the BRE Guidelines for daylight and sunlight with the proposal in place.

7. Conclusions and Recommendations

This is a daylight and sunlight analysis of the effect of the proposed development at 66 Fitzjohn's Avenue on the surrounding residential properties. The analysis has been based upon scheme drawings provided by the architect, measured survey, Ordnance Survey information and aerial/satellite photography.

The analysis has been carried out in accordance with the methodologies contained in the BRE Guidelines, which is used by the local authority to determine the acceptability of a proposal in terms of its effect on neighbouring daylight and sunlight amenity.

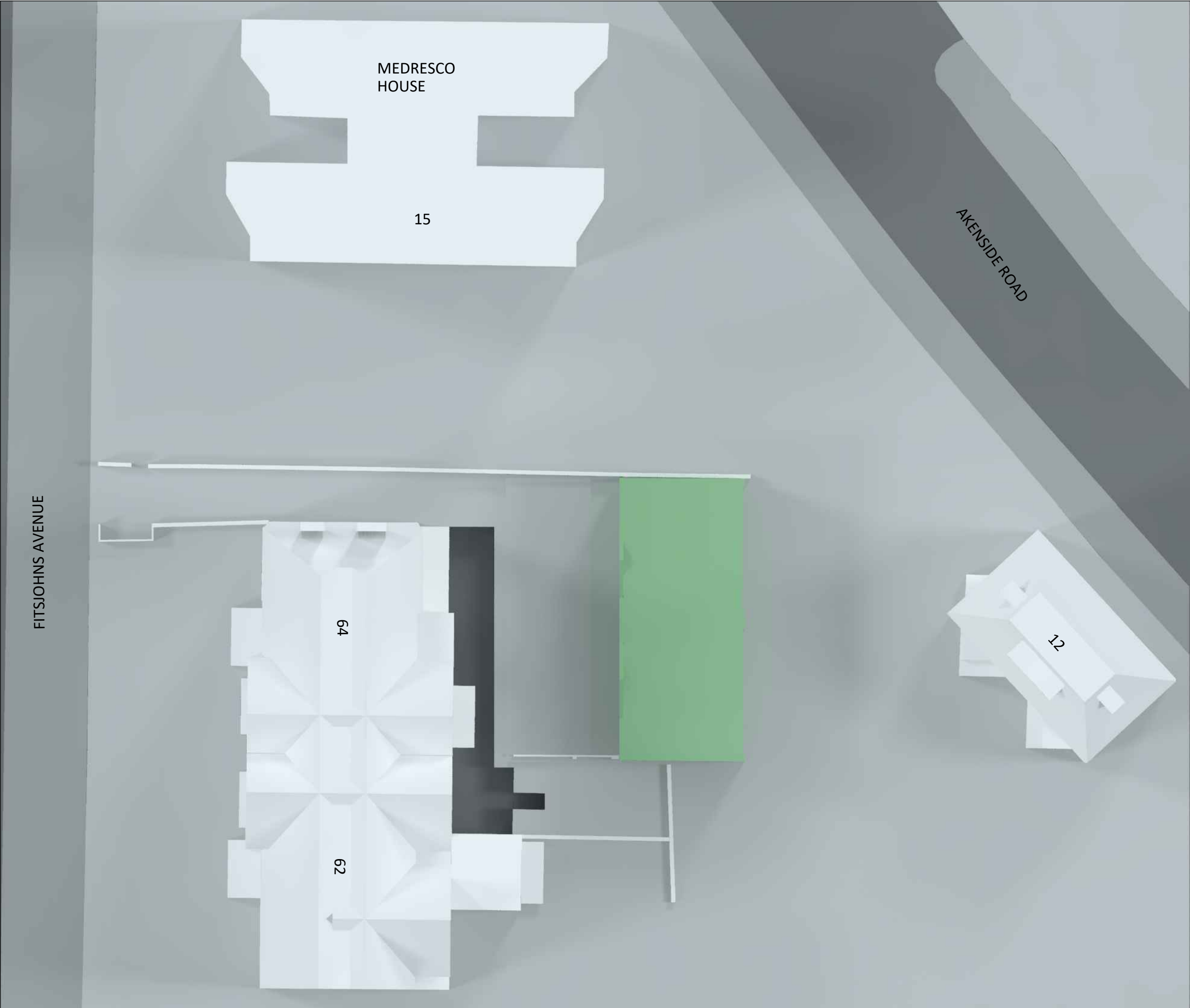
The analysis indicates that all surrounding properties are in accordance with the BRE Guidelines for daylight and sunlight with the proposal in place, meeting the BRE Guidelines in terms of VSC and APSH in the proposed situation.

APPENDIX 1

Drawings



waldrams
daylight & sunlight



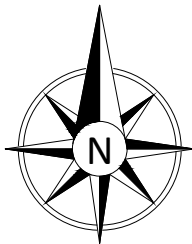
SOURCES OF INFORMATION:

WEBB ARCHITECTS
IR01 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IR02 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION



NOTES:

EXISTING BUILDING SHOWN IN GREEN



waldrams
Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

PROJECT

66 FITSJOHN'S AVENUE
LONDON NW3

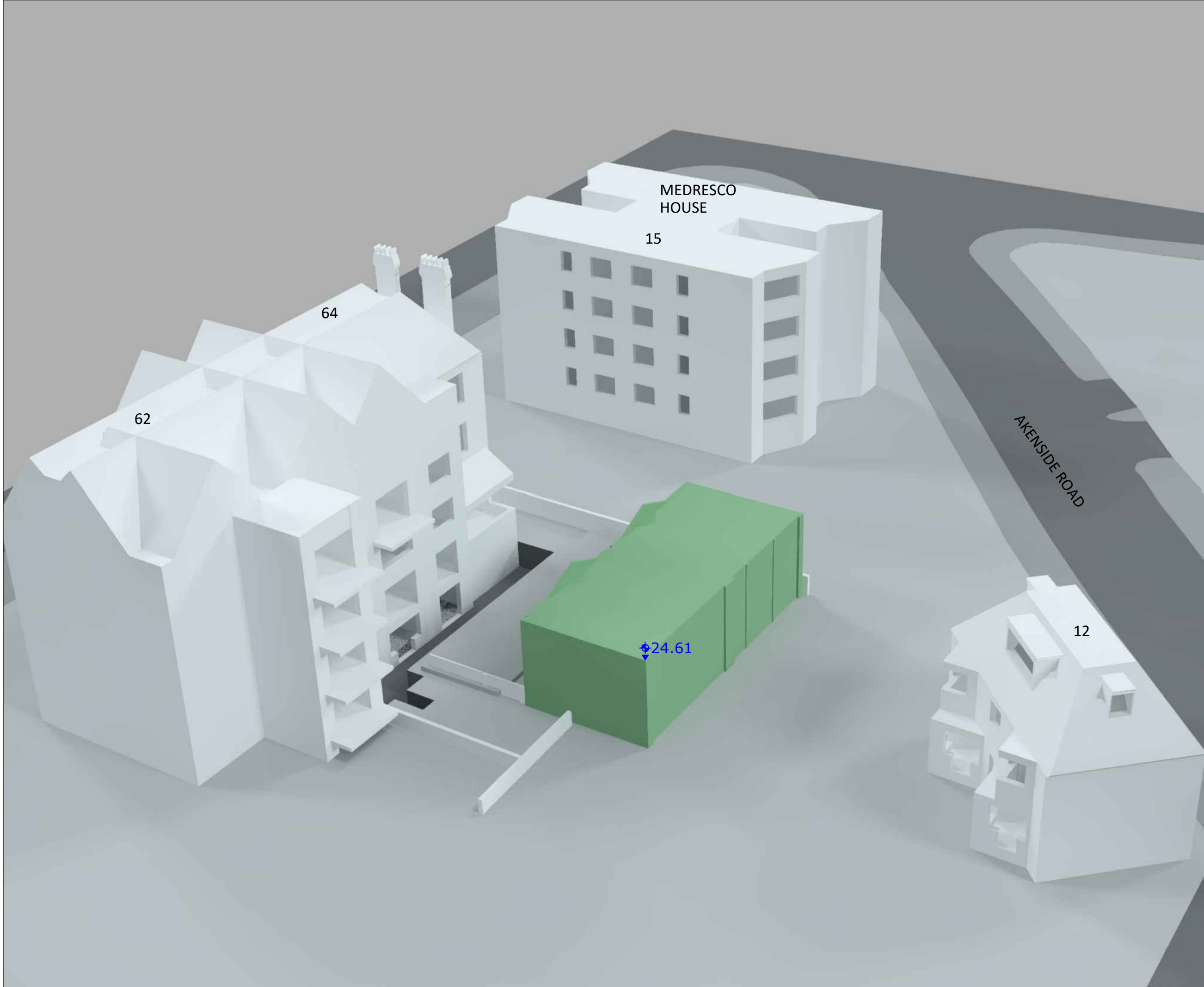
DRAWING

PLAN VIEW
EXISTING CONDITION

DATE	SCALE @ A3
30.05.17	1.200

MODELED BY	DRAWN BY
DF	DF

PROJECT No.	REL No.- DRAWING No.
1986	01-01



SOURCES OF INFORMATION:

WEBB ARCHITECTS
IR01 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IR02 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION

NOTES:

ALL AOD HEIGHTS ARE IN METRES

EXISTING BUILDING SHOWN IN GREEN



waldrams

Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

PROJECT

66 FITSJOHN'S AVENUE
LONDON NW3

DRAWING

3D VIEW
EXISTING CONDITION

DATE
30.05.17

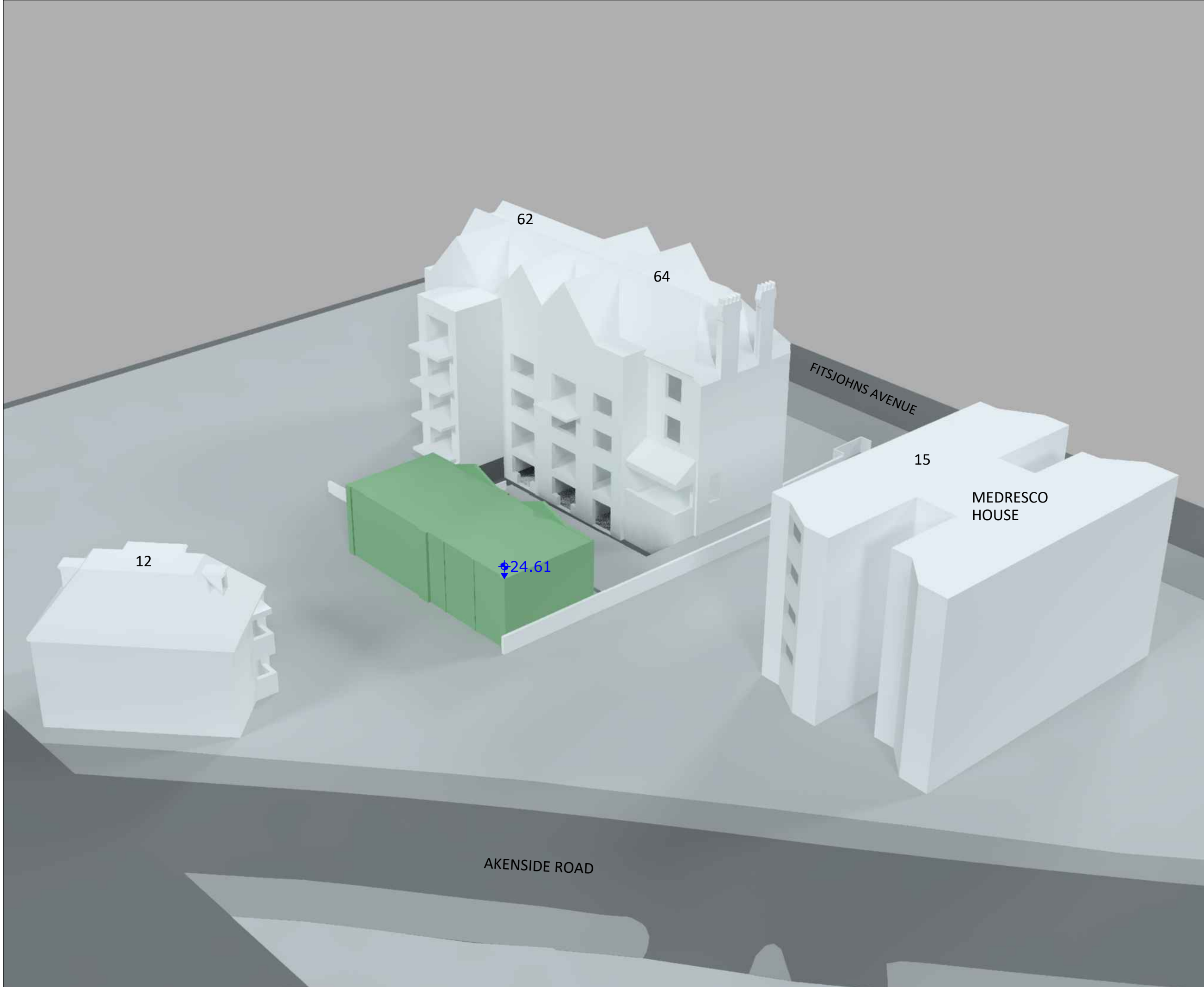
SCALE @ A3
NTS

MODELED BY
DF

DRAWN BY
DF

PROJECT No.
1986

REL No.- DRAWING No.
01-02



SOURCES OF INFORMATION:

WEBB ARCHITECTS
IRO1 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IRO2 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION

NOTES:

ALL AOD HEIGHTS ARE IN METRES

EXISTING BUILDING SHOWN IN GREEN



waldrams

Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

PROJECT

66 FITSJOHN'S AVENUE
LONDON NW3

DRAWING

3D VIEW
EXISTING CONDITION

DATE
30.05.17

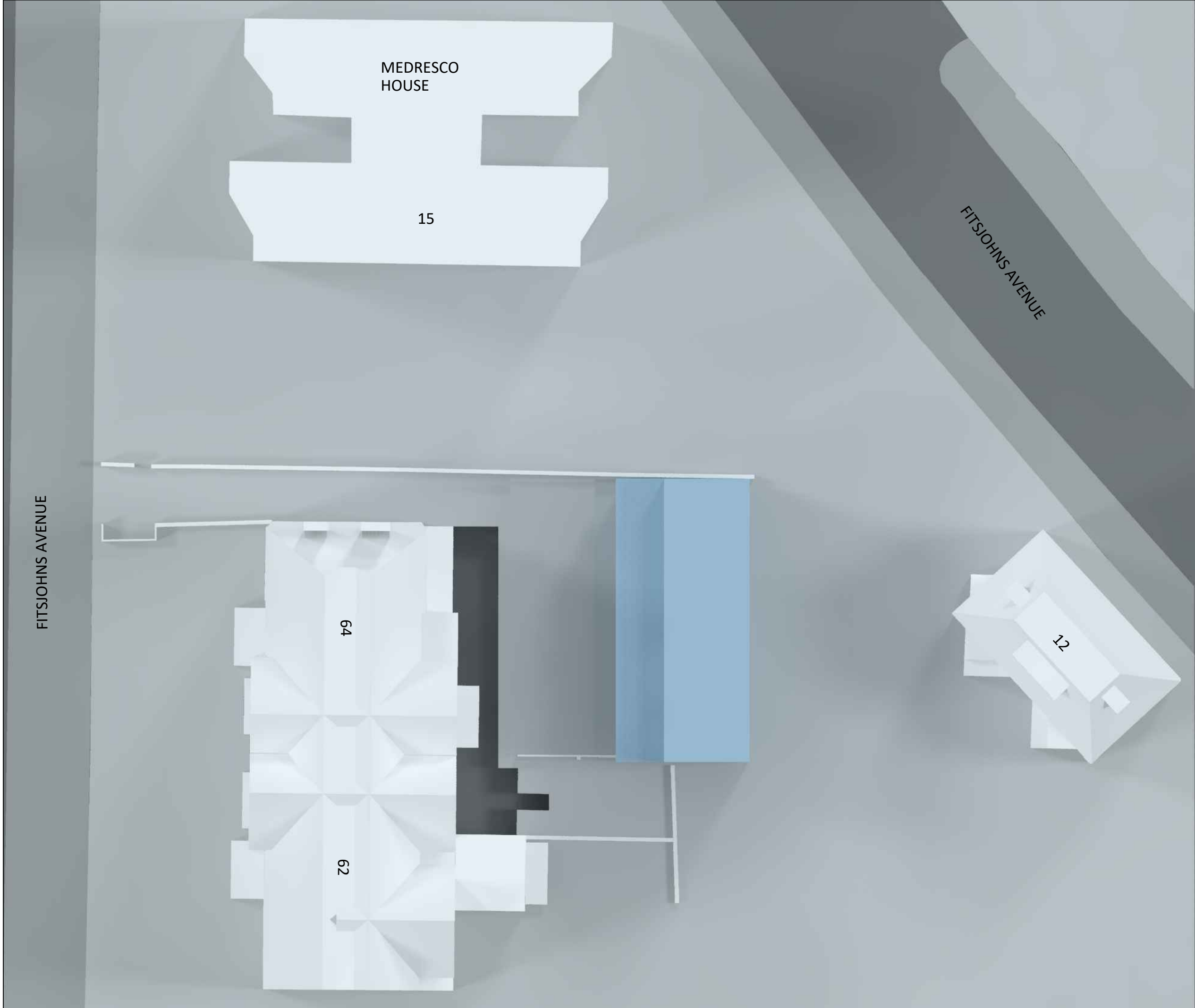
SCALE @ A3
NTS

MODELED BY
DF

DRAWN BY
DF

PROJECT No.
1986

REL No.- DRAWING No.
01-03



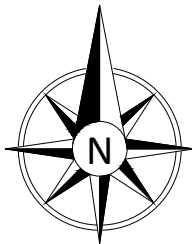
SOURCES OF INFORMATION:

WEBB ARCHITECTS
IR01 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IR02 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION



NOTES:

PROPOSED SCHEME SHOWN IN BLUE



waldrams
Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

PROJECT

66 FITSJOHN'S AVENUE
LONDON NW3

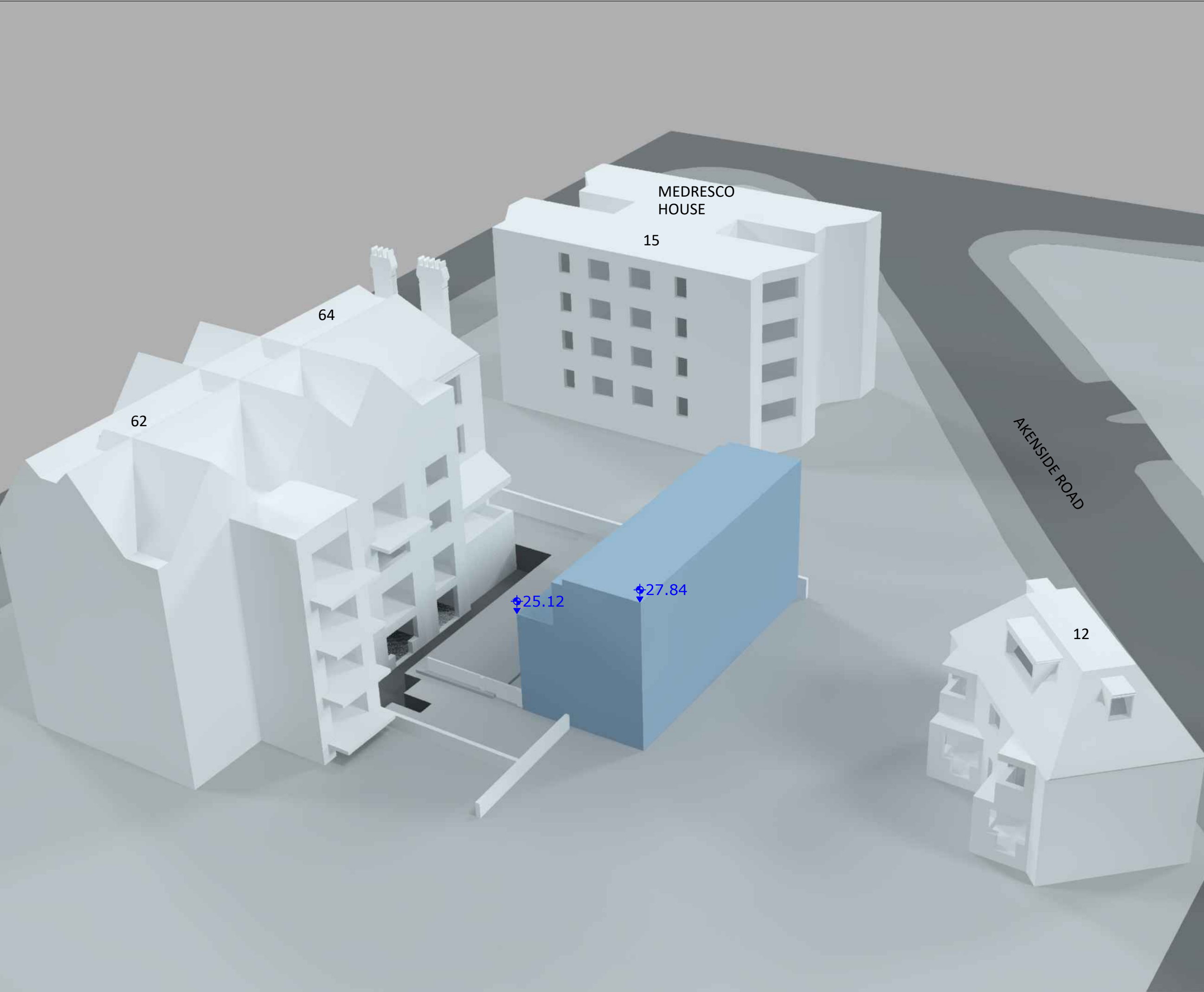
DRAWING

PLAN VIEW
PROPOSED SCHEME

DATE	SCALE @ A3
30.05.17	1.200

MODELED BY	DRAWN BY
DF	DF

PROJECT No.	REL No.- DRAWING No.
1986	01-04



SOURCES OF INFORMATION:

WEBB ARCHITECTS
IRO1 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IRO2 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION

NOTES:

ALL AOD HEIGHTS ARE IN METRES

PROPOSED SCHEME SHOWN IN BLUE



waldrams

Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

PROJECT

66 FITSJOHN'S AVENUE
LONDON NW3

DRAWING

3D VIEW
PROPOSED SCHEME

DATE
30.05.17

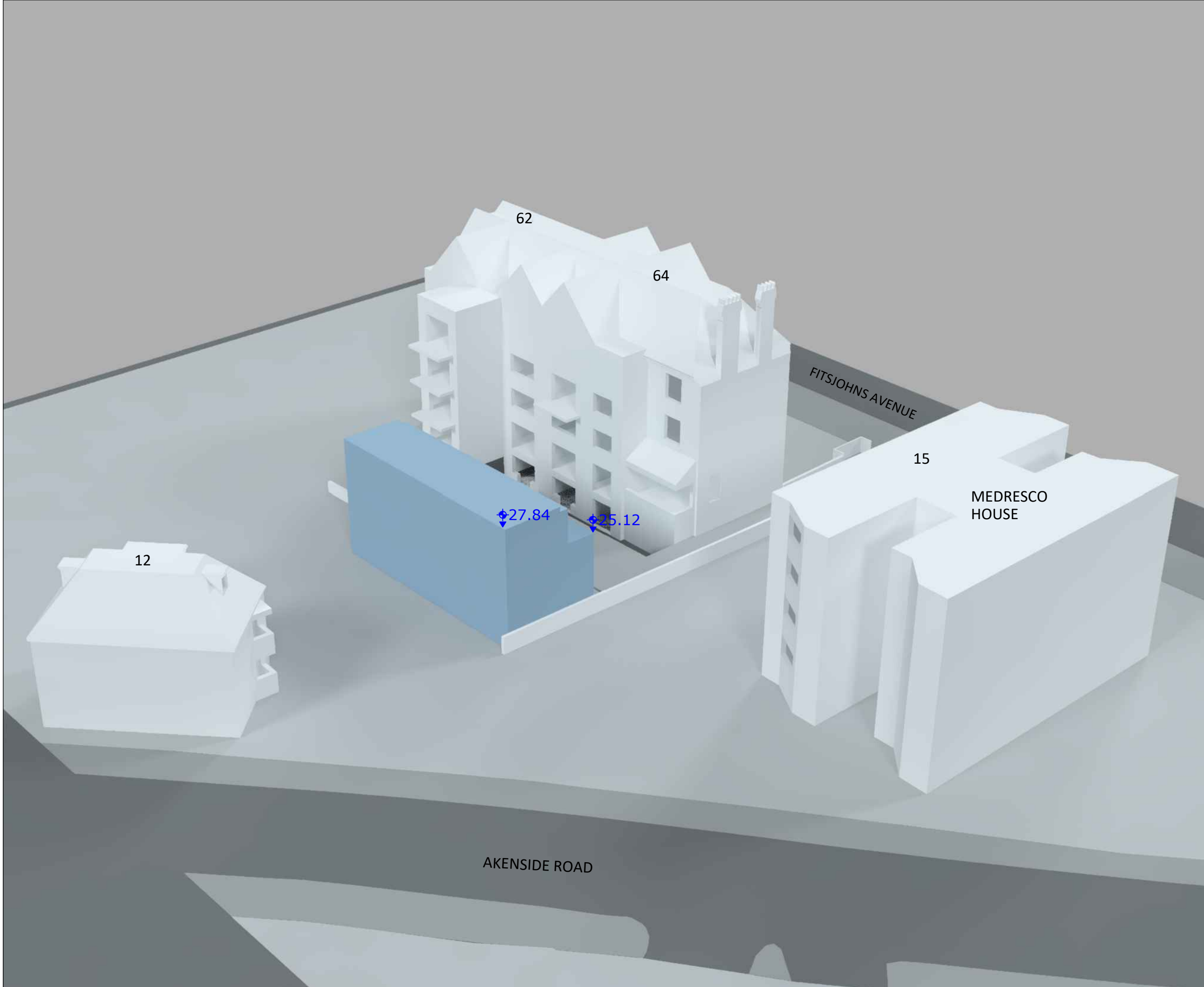
SCALE @ A3
NTS

MODELED BY
DF

DRAWN BY
DF

PROJECT No.
1986

REL No.- DRAWING No.
01-05



SOURCES OF INFORMATION:

WEBB ARCHITECTS
IRO1 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IRO2 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION

NOTES:

ALL AOD HEIGHTS ARE IN METRES

PROPOSED SCHEME SHOWN IN BLUE



waldrams

Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

PROJECT

66 FITSJOHN'S AVENUE
LONDON NW3

DRAWING

3D VIEW
PROPOSED SCHEME

DATE
31.05.17

SCALE @ A3
NTS

MODELED BY
DF

DRAWN BY
DF

PROJECT No.
1986

REL No.- DRAWING No.
01-06

64-62 FITZJOHN'S AVENUE

MEDRESCO HOUSE 15

MEDRESCO HOUSE 15

SOURCES OF INFORMATION:

WEBB ARCHITECTS
IR01 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IR02 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION



waldrams

Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

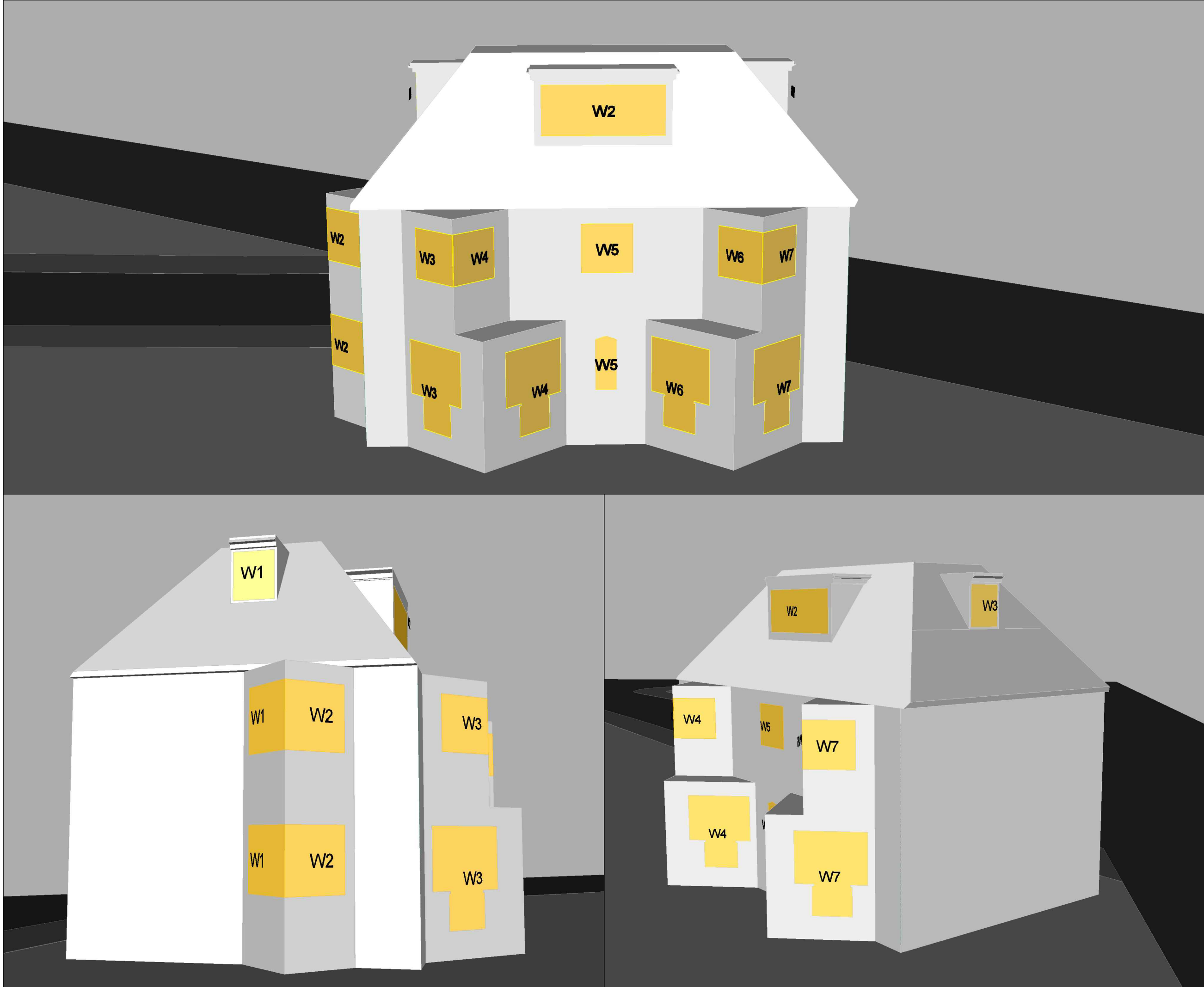
PROJECT
66 FITZJOHN'S AVENUE
LONDON NW3

DRAWING
WINDOW MAP

DATE 31.05.17	SCALE @ A3 NTS
------------------	-------------------

MODELED BY DF	DRAWN BY DF
------------------	----------------

PROJECT No. 1986	REL No.- DRAWING No. 01-07
----------------------------	--------------------------------------



SOURCES OF INFORMATION:

WEBB ARCHITECTS
IR01 RECEIVED (15.05.2017)

WEBB ARCHITECTS
IR02 RECEIVED (23.05.2017)

SITE PHOTOGRAPHY

SURROUNDING PROPERTY
INFORMATION



waldrams
Email: contact@waldrams.com
Tel: 020 7183 9109
www.waldrams.com

PROJECT

66 FITSJOHN'S AVENUE
LONDON NW3

DRAWING

WINDOW MAP

12 AKENSIDE ROAD

DATE	SCALE @ A3
31.05.17	NTS

MODELED BY	DRAWN BY
DF	DF

PROJECT No.	REL No.- DRAWING No.
1986	01-08

APPENDIX 2

Daylight & Sunlight Results

Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.	Window Ref.	Window Attribute	VSC	Pr/Ex	Annual	Pr/Ex	Winter	Pr/Ex
12 Akenside Road												
Ground	R1	Residential	Unknown	W1	Existing	33.78	0.99			*North*		*North*
					Proposed	33.53						
				W2	Existing	29.55	0.92		*North*		*North*	
					Proposed	27.05						
	R2	Residential	Unknown	W3	Existing	29.87	0.90			*North*		*North*
					Proposed	26.96						
				W4	Existing	1.67	0.90		*North*		*North*	
					Proposed	1.50						
	R3	Residential	Unknown	W5	Existing	32.59	0.99	53	0.98	17	1.00	
					Proposed	32.40		52		17		
R3	Residential	Unknown	W6	Existing	28.12	0.96			*North*		*North*	
				Proposed	27.06							
R3	Residential	Unknown	W7	Existing	37.73	1.00	76	1.00	28	1.00		
				Proposed	37.73		76		28			
First	R1	Residential	Unknown	W1	Existing	35.70	0.99			*North*		*North*
					Proposed	35.46						
				W2	Existing	32.48	0.96		*North*		*North*	
					Proposed	31.17						
	R2	Residential	Unknown	W3	Existing	33.40	0.96			*North*		*North*
					Proposed	32.23						
				W4	Existing	36.45	1.00	73	1.00	25	1.00	
					Proposed	36.45		73		25		
	R3	Residential	Unknown	W5	Existing	36.29	0.99	67	0.99	22	1.00	
					Proposed	36.00		66		22		
	R3	Residential	Unknown	W6	Existing	33.39	0.98			*North*		*North*
					Proposed	32.85						
W7				Existing	38.46	1.00	81	1.00	29	1.00		
				Proposed	38.46		81		29			
Second	R1	Residential	Unknown	W1	Existing	36.02	1.00			*North*		*North*
					Proposed	35.94						
				W2	Existing	37.69	1.00	71	1.00	25	1.00	
					Proposed	37.64		71		25		
				W3	Existing	38.09	1.00	75	1.00	26	1.00	
					Proposed	38.09		75		26		
15 Akenside Road												
Ground	R1	Residential	Unknown	W1	Existing	38.00	1.00	54	1.00	17	1.00	
					Proposed	38.00		54		17		
	R2	Residential	Unknown	W2	Existing	32.13	0.98	76	1.00	19	1.00	
					Proposed	31.55		76		19		
	R3	Residential	Unknown	W3	Existing	31.71	0.98	78	1.00	20	1.00	
					Proposed	30.99		78		20		
Ground	R4	Residential	Unknown	W4	Existing	31.57	0.97	79	1.00	22	1.00	
					Proposed	30.68		79		22		
	R5	Residential	Unknown	W5	Existing	31.72	0.97	78	0.99	21	0.95	
					Proposed	30.64		77		20		
	R6	Residential	Unknown	W6	Existing	37.01	0.97	58	0.97	18	0.89	
					Proposed	36.00		56		16		
First	R1	Residential	Unknown	W1	Existing	38.20	1.00	55	1.00	18	1.00	
					Proposed	38.20		55		18		
	R2	Residential	Unknown	W2	Existing	34.18	0.99	80	0.99	22	0.95	
					Proposed	33.69		79		21		

Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.	Window Ref.	Window Attribute	VSC	Pr/Ex	Annual	Pr/Ex	Winter	Pr/Ex
	R3		Residential	Unknown	W3	Existing Proposed	33.92 33.32	0.98	83 82	0.99	25 24	0.96
	R4		Residential	Unknown	W4	Existing Proposed	34.01 33.25	0.98	82 82	1.00	24 24	1.00
	R5		Residential	Unknown	W5	Existing Proposed	34.35 33.41	0.97	81 81	1.00	23 23	1.00
	R6		Residential	Unknown	W6	Existing Proposed	38.24 37.44	0.98	59 59	1.00	19 19	1.00
Second	R1		Residential	Unknown	W1	Existing Proposed	38.41 38.41	1.00	55 55	1.00	18 18	1.00
	R2		Residential	Unknown	W2	Existing Proposed	35.79 35.76	1.00	84 84	1.00	26 26	1.00
	R3		Residential	Unknown	W3	Existing Proposed	35.62 35.59	1.00	85 85	1.00	27 27	1.00
	R4		Residential	Unknown	W4	Existing Proposed	35.69 35.65	1.00	85 85	1.00	27 27	1.00
	R5		Residential	Unknown	W5	Existing Proposed	35.93 35.87	1.00	85 85	1.00	27 27	1.00
	R6		Residential	Unknown	W6	Existing Proposed	38.58 38.53	1.00	60 60	1.00	20 20	1.00
Third	R1		Residential	Unknown	W1	Existing Proposed	38.84 38.84	1.00	60 60	1.00	19 19	1.00
	R2		Residential	Unknown	W2	Existing Proposed	37.34 37.34	1.00	87 87	1.00	29 29	1.00
	R3		Residential	Unknown	W3	Existing Proposed	37.26 37.26	1.00	87 87	1.00	29 29	1.00
	R4		Residential	Unknown	W4	Existing Proposed	37.29 37.29	1.00	87 87	1.00	29 29	1.00
	R5		Residential	Unknown	W5	Existing Proposed	37.40 37.40	1.00	86 86	1.00	28 28	1.00
	R6		Residential	Unknown	W6	Existing Proposed	38.98 38.98	1.00	63 63	1.00	20 20	1.00
64-62 Fitzjohns Avenue												
Below Ground	R1		Residential	Unknown	W1	Existing Proposed	19.94 18.86	0.95	34 34	1.00	14 14	1.00
	R2		Residential	Unknown	W2	Existing Proposed	21.45 20.13	0.94	13 13	1.00	1 1	1.00
	R3		Residential	Unknown	W3	Existing Proposed	24.21 22.21	0.92	22 20	0.91	3 3	1.00
	R4		Residential	Unknown	W4	Existing Proposed	24.23 22.05	0.91	26 21	0.81	5 5	1.00

Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.	Window Ref.	Window Attribute	VSC	Pr/Ex	Annual	Pr/Ex	Winter	Pr/Ex
Ground	R1		Residential	Unknown	W1	Existing Proposed	23.59 21.90	0.93	34 34	1.00	14 14	1.00
	R2		Residential	Unknown	W2	Existing Proposed	25.55 23.56	0.92	16 14	0.88	2 2	1.00
	R3		Residential	Unknown	W3	Existing Proposed	29.88 27.14	0.91	31 29	0.94	6 6	1.00
	R4		Residential	Unknown	W4	Existing Proposed	31.17 27.93	0.90	30 28	0.93	6 6	1.00
	R5		Residential	Unknown	W5	Existing Proposed	34.26 30.75	0.90	42 36	0.86	9 8	0.89
					W6	Existing Proposed	28.77 28.66	1.00	*North*		*North*	
					W7	Existing Proposed	29.15 29.10	1.00	*North*		*North*	
First	R1		Residential	Unknown	W1	Existing Proposed	25.95 24.13	0.93	35 34	0.97	14 14	1.00
	R2		Residential	Unknown	W2	Existing Proposed	28.74 26.79	0.93	19 17	0.89	2 2	1.00
	R3		Residential	Unknown	W3	Existing Proposed	20.00 16.81	0.84	23 21	0.91	6 6	1.00
	R4		Residential	Unknown	W4	Existing Proposed	37.57 33.79	0.90	44 41	0.93	9 8	0.89
	R5		Residential	Unknown	W5	Existing Proposed	34.33 33.22	0.97	31 31	1.00	5 5	1.00
Second	R1		Residential	Unknown	W1	Existing Proposed	26.54 26.10	0.98	35 35	1.00	14 14	1.00
	R2		Residential	Unknown	W2	Existing Proposed	30.50 30.24	0.99	19 19	1.00	2 2	1.00
	R3		Residential	Unknown	W3	Existing Proposed	37.66 36.88	0.98	41 41	1.00	6 6	1.00
	R4		Residential	Unknown	W4	Existing Proposed	38.85 38.31	0.99	47 47	1.00	12 12	1.00
	R5		Residential	Unknown	W5	Existing Proposed	34.96 34.96	1.00	36 36	1.00	5 5	1.00
Third	R1		Residential	Unknown	W1	Existing Proposed	39.48 39.48	1.00	49 49	1.00	14 14	1.00

Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex
12 Akenside Road									
Ground	R1		Residential	Unknown	Area m2	17.32	17.29	17.29	1.00
					% of room		100%	100%	
	R2		Residential	Unknown	Area m2	6.00	5.66	5.66	
					% of room		94%	94%	
	R3		Residential	Unknown	Area m2	16.32	16.26	16.26	1.00
					% of room		100%	100%	
First	R1		Residential	Unknown	Area m2	15.51	15.47	15.47	1.00
					% of room		100%	100%	
	R2		Residential	Unknown	Area m2	6.00	5.90	5.90	
					% of room		98%	98%	
	R3		Residential	Unknown	Area m2	14.49	14.16	14.16	1.00
					% of room		98%	98%	
Second	R1		Residential	Unknown	Area m2	53.84	53.21	53.21	1.00
					% of room		99%	99%	
15 Akenside Road									
Ground	R1		Residential	Unknown	Area m2	23.00	22.48	22.48	1.00
					% of room		98%	98%	
	R2		Residential	Unknown	Area m2	7.73	5.95	5.95	1.00
					% of room		77%	77%	
	R3		Residential	Unknown	Area m2	10.40	9.76	9.76	1.00
					% of room		94%	94%	
	R4		Residential	Unknown	Area m2	11.06	10.18	10.18	1.00
					% of room		92%	92%	
	R5		Residential	Unknown	Area m2	9.01	7.95	7.95	1.00
					% of room		88%	88%	
	R6		Residential	Unknown	Area m2	19.37	18.81	18.81	1.00
					% of room		97%	97%	
First	R1		Residential	Unknown	Area m2	23.00	22.48	22.48	1.00
					% of room		98%	98%	
	R2		Residential	Unknown	Area m2	7.73	6.59	6.59	1.00
					% of room		85%	85%	
	R3		Residential	Unknown	Area m2	10.40	10.01	10.01	1.00
					% of room		96%	96%	
	R4		Residential	Unknown	Area m2	11.06	10.57	10.57	1.00
					% of room		96%	96%	
	R5		Residential	Unknown	Area m2	9.01	8.64	8.64	1.00
					% of room		96%	96%	
	R6		Residential	Unknown	Area m2	19.37	18.81	18.81	1.00
					% of room		97%	97%	
Second	R1		Residential	Unknown	Area m2	23.00	22.48	22.48	1.00
					% of room		98%	98%	
	R2		Residential	Unknown	Area m2	7.73	7.48	7.48	1.00
					% of room		97%	97%	
	R3		Residential	Unknown	Area m2	10.40	10.34	10.34	1.00
					% of room		99%	99%	
	R4		Residential	Unknown	Area m2	11.06	10.97	10.97	1.00
					% of room		99%	99%	
	R5		Residential	Unknown	Area m2	9.01	8.80	8.80	1.00
					% of room		98%	98%	
	R6		Residential	Unknown	Area m2	19.37	18.81	18.81	1.00
					% of room		97%	97%	
Third	R1		Residential	Unknown	Area m2	23.00	22.47	22.47	1.00
					% of room		98%	98%	
	R2		Residential	Unknown	Area m2	7.73	7.61	7.61	1.00
					% of room		98%	98%	
	R3		Residential	Unknown	Area m2	10.40	10.34	10.34	1.00
					% of room		99%	99%	
	R4		Residential	Unknown	Area m2	11.06	10.97	10.97	1.00
					% of room		99%	99%	
	R5		Residential	Unknown	Area m2	9.01	8.80	8.80	1.00
					% of room		98%	98%	
	R6		Residential	Unknown	Area m2	19.37	18.82	18.82	1.00
					% of room		97%	97%	
64-62 Fitzjohns Avenue									
Below Ground	R1		Residential	Unknown	Area m2	15.51	15.45	15.45	

Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex
	R2		Residential	Unknown	% of room	18.49	100%	100%	1.00
					Area m2		17.98	17.07	
	R3		Residential	Unknown	% of room	18.28	97%	92%	0.95
					Area m2		18.03	14.98	
	R4		Residential	Unknown	% of room	14.19	99%	82%	0.83
					Area m2		12.67	7.46	
					% of room		89%	53%	0.59
Ground	R1		Residential	Unknown	Area m2	15.51	15.46	15.46	
					% of room		100%	100%	1.00
	R2		Residential	Unknown	Area m2	18.49	18.00	17.62	
					% of room		97%	95%	0.98
	R3		Residential	Unknown	Area m2	18.28	18.04	15.98	
					% of room		99%	87%	0.89
	R4		Residential	Unknown	Area m2	14.19	14.05	9.80	
					% of room		99%	69%	0.70
	R5		Residential	Unknown	Area m2	20.68	20.67	20.67	
					% of room		100%	100%	1.00
First	R1		Residential	Unknown	Area m2	15.51	15.46	15.46	
					% of room		100%	100%	1.00
	R2		Residential	Unknown	Area m2	18.49	18.00	18.00	
					% of room		97%	97%	1.00
	R3		Residential	Unknown	Area m2	18.28	18.03	18.03	
					% of room		99%	99%	1.00
	R4		Residential	Unknown	Area m2	14.19	14.09	14.09	
					% of room		99%	99%	1.00
	R5		Residential	Unknown	Area m2	18.85	17.74	17.74	
					% of room		94%	94%	1.00
Second	R1		Residential	Unknown	Area m2	15.51	15.46	15.46	
					% of room		100%	100%	1.00
	R2		Residential	Unknown	Area m2	18.49	18.11	18.11	
					% of room		98%	98%	1.00
	R3		Residential	Unknown	Area m2	18.28	18.15	18.15	
					% of room		99%	99%	1.00
	R4		Residential	Unknown	Area m2	14.19	14.11	14.11	
					% of room		99%	99%	1.00
	R5		Residential	Unknown	Area m2	18.85	18.16	18.16	
					% of room		96%	96%	1.00
Third	R1		Residential	Unknown	Area m2	15.51	15.46	15.46	
					% of room		100%	100%	1.00

Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed	
12 Akenside Road															
Ground	R1	Residential	Unknown	W1	0.68	1.51	74.00	73.52	77.40	0.50	1.00	1.31	1.30		
				W2	0.68	1.51	66.05	61.93	77.40	0.50	1.00	1.17	1.10		
				W3-L	0.68	0.41	65.46	60.04	77.40	0.50	0.15	0.05	0.04		
				W3-U	0.68	2.27	67.23	62.61	77.40	0.50	1.00	1.79	1.66		
				W4-L	0.68	0.41	15.58	15.56	77.40	0.50	0.15	0.01	0.01		
				W4-U	0.68	2.29	11.31	11.04	77.40	0.50	1.00	0.30	0.30		
Ground	R2	Residential	Unknown	W5	0.68	0.53	67.65	67.33	37.42	0.50	1.00	4.63	4.41		
												0.86	0.86		
Ground	R3	Residential	Unknown	W6-L	0.68	0.40	62.05	60.04	73.30	0.50	0.15	0.05	0.04		
				W6-U	0.68	2.30	65.15	63.40	73.30	0.50	1.00	1.85	1.80		
First	R1	Residential	Unknown	W7-L	0.68	0.40	82.10	82.10	73.30	0.50	0.15	0.06	0.06		
				W7-U	0.68	2.31	81.98	81.98	73.30	0.50	1.00	2.34	2.34		
				4.30	4.25										
				5.53	5.44										
First	R2	Residential	Unknown	W5	0.68	1.21	76.92	76.37	35.09	0.50	1.00	2.40	2.38		
												2.40	2.38		
First	R3	Residential	Unknown	W6	0.68	1.30	72.74	71.75	64.67	0.50	1.00	1.33	1.31		
				W7	0.68	1.30	82.23	82.23	64.67	0.50	1.00	1.50	1.50		
Second	R1	Residential	Unknown	W1	0.68	0.86	73.52	73.37	195.46	0.50	1.00	0.29	0.29		
				W2	0.68	3.04	79.46	79.37	195.46	0.50	1.00	1.12	1.12		
				W3	0.68	0.86	77.42	77.42	195.46	0.50	1.00	0.31	0.31		
														1.72	1.72
15 Akenside Road															
Ground	R1	Residential	Unknown	W1	0.68	2.92	82.63	82.63	91.63	0.50	1.00	2.39	2.39		
												2.39	2.39		
Ground	R2	Residential	Unknown	W2	0.68	0.98	67.77	66.74	42.67	0.50	1.00	1.42	1.40		
												1.42	1.40		
Ground	R3	Residential	Unknown	W3	0.68	1.82	69.47	68.21	51.34	0.50	1.00	2.24	2.19		
												2.24	2.19		
Ground	R4	Residential	Unknown	W4	0.68	1.83	69.21	67.64	53.47	0.50	1.00	2.14	2.10		
												2.14	2.10		
Ground	R5	Residential	Unknown	W5	0.68	0.98	66.96	65.12	46.82	0.50	1.00	1.27	1.24		
												1.27	1.24		
Ground	R6	Residential	Unknown	W6	0.68	2.92	80.44	78.34	81.05	0.50	1.00	2.63	2.56		
												2.63	2.56		
First	R1	Residential	Unknown	W1	0.68	2.92	82.98	82.98	91.63	0.50	1.00	2.40	2.40		
												2.40	2.40		
First	R2	Residential	Unknown	W2	0.68	0.98	71.44	70.56	42.67	0.50	1.00	1.49	1.48		
												1.49	1.48		
First	R3	Residential	Unknown	W3	0.68	1.82	73.50	72.38	51.34	0.50	1.00	2.37	2.33		
												2.37	2.33		
First	R4	Residential	Unknown	W4	0.68	1.83	73.64	72.22	53.47	0.50	1.00	2.28	2.24		
												2.28	2.24		
First	R5	Residential	Unknown	W5	0.68	0.98	71.70	70.02	46.82	0.50	1.00	1.36	1.33		
												1.36	1.33		
First	R6	Residential	Unknown	W6	0.68	2.92	83.03	81.30	81.05	0.50	1.00	2.71	2.66		
												2.71	2.66		
Second	R1	Residential	Unknown	W1-L	0.68	0.02	84.99	84.99	91.63	0.50	0.15	0.00	0.00		
				W1-U	0.68	2.90	83.27	83.27	91.63	0.50	1.00	2.39	2.39		
				2.39	2.39										
Second	R2	Residential	Unknown	W2-L	0.68	0.01	74.73	74.47	42.67	0.50	0.15	0.00	0.00		
				W2-U	0.68	0.98	74.40	74.35	42.67	0.50	1.00	1.54	1.54		
				1.55	1.54										
Second	R3	Residential	Unknown	W3-L	0.68	0.01	77.54	77.19	51.34	0.50	0.15	0.00	0.00		
				W3-U	0.68	1.81	76.71	76.65	51.34	0.50	1.00	2.45	2.45		
				2.45	2.45										
Second	R4	Residential	Unknown	W4-L	0.68	0.01	77.68	77.24	53.47	0.50	0.15	0.00	0.00		
				W4-U	0.68	1.81	76.84	76.75	53.47	0.50	1.00	2.36	2.36		
				2.37	2.36										
Second	R5	Residential	Unknown	W5-L	0.68	0.01	74.99	74.48	46.82	0.50	0.15	0.00	0.00		
				W5-U	0.68	0.97	74.61	74.51	46.82	0.50	1.00	1.41	1.41		
				1.41	1.41										
Second	R6	Residential	Unknown	W6-L	0.68	0.00	85.29	84.78	81.05	0.50	0.15	0.00	0.00		
				W6-U	0.68	2.92	83.64	83.55	81.05	0.50	1.00	2.73	2.73		
				2.73	2.73										
Third	R1	Residential	Unknown	W1-L	0.68	0.18	85.61	85.61	91.63	0.50	0.15	0.02	0.02		
				W1-U	0.68	2.74	83.61	83.61	91.63	0.50	1.00	2.27	2.27		
				2.29	2.29										
Third	R2	Residential	Unknown	W2-L	0.68	0.06	77.85	77.85	42.67	0.50	0.15	0.02	0.02		
				W2-U	0.68	0.92	77.21	77.21	42.67	0.50	1.00	1.51	1.51		
				1.53	1.53										
Third	R3	Residential	Unknown	W3-L	0.68	0.11	80.97	80.97	51.34	0.50	0.15	0.02	0.02		
				W3-U	0.68	1.71	79.75	79.75	51.34	0.50	1.00	2.41	2.41		
				2.43	2.43										
Third	R4	Residential	Unknown	W4-L	0.68	0.11	81.05	81.05	53.47	0.50	0.15	0.02	0.02		
				W4-U	0.68	1.71	79.81	79.81	53.47	0.50	1.00	2.32	2.32		
				2.34	2.34										
Third	R5	Residential	Unknown	W5-L	0.68	0.06	77.97	77.97	46.82	0.50	0.15	0.01	0.01		
				W5-U	0.68	0.92	77.30	77.30	46.82	0.50	1.00	1.38	1.38		
				1.39	1.39										
Third	R6	Residential	Unknown	W6-L	0.68	0.16	85.96	85.96	81.05	0.50	0.15	0.02	0.02		
				W6-U	0.68	2.76	83.94	83.94	81.05	0.50	1.00	2.59	2.59		

Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Existing	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Existing	ADF Proposed
												2.61	2.61	
64-62 Fitzjohns Avenue														
Below Ground	R1		Residential	Unknown	W1-L	0.68	1.93	58.35	56.48	69.46	0.50	0.15	0.22	0.21
					W1-U	0.68	2.89	40.51	39.91	69.46	0.50	1.00	1.53	1.50
												1.75	1.72	
Below Ground	R2		Residential	Unknown	W2-L	0.68	1.16	53.81	51.09	78.45	0.50	0.15	0.11	0.10
					W2-U	0.68	2.96	54.56	52.27	78.45	0.50	1.00	1.86	1.79
												1.97	1.89	
Below Ground	R3		Residential	Unknown	W3-L	0.68	1.16	58.80	52.99	77.78	0.50	0.15	0.12	0.11
					W3-U	0.68	2.96	60.08	57.05	77.78	0.50	1.00	2.07	1.97
												2.19	2.07	
Below Ground	R4		Residential	Unknown	W4-L	0.68	1.33	58.50	52.48	65.01	0.50	0.15	0.16	0.15
					W4-U	0.68	2.11	59.66	56.18	65.01	0.50	1.00	1.76	1.66
												1.92	1.80	
Ground	R1		Residential	Unknown	W1-L	0.68	1.93	65.08	62.41	69.46	0.50	0.15	0.25	0.24
					W1-U	0.68	2.89	45.67	42.86	69.46	0.50	1.00	1.72	1.61
												1.97	1.85	
Ground	R2		Residential	Unknown	W2-L	0.68	1.86	59.83	56.86	78.45	0.50	0.15	0.19	0.18
					W2-U	0.68	2.96	60.78	57.35	78.45	0.50	1.00	2.08	1.96
												2.27	2.14	
Ground	R3		Residential	Unknown	W3-L	0.68	1.86	67.36	63.19	77.78	0.50	0.15	0.22	0.21
					W3-U	0.68	2.96	68.62	63.62	77.78	0.50	1.00	2.37	2.19
												2.58	2.40	
Ground	R4		Residential	Unknown	W4-L	0.68	1.33	68.50	63.57	65.01	0.50	0.15	0.19	0.18
					W4-U	0.68	2.11	71.05	65.03	65.01	0.50	1.00	2.09	1.92
												2.28	2.09	
Ground	R5		Residential	Unknown	W5-L	0.68	0.66	73.77	68.12	104.51	0.50	0.15	0.06	0.06
					W5-U	0.68	7.00	76.13	69.62	104.51	0.50	1.00	4.62	4.23
					W6-L	0.68	0.23	64.57	64.39	104.51	0.50	0.15	0.02	0.02
					W6-U	0.68	2.39	65.22	65.02	104.51	0.50	1.00	1.35	1.35
					W7-L	0.68	0.22	64.06	64.06	104.51	0.50	0.15	0.02	0.02
					W7-U	0.68	1.74	65.20	65.20	104.51	0.50	1.00	0.98	0.98
First	R1		Residential	Unknown	W1-L	0.68	1.93	69.35	66.13	69.46	0.50	0.15	0.26	0.25
					W1-U	0.68	2.89	49.34	46.48	69.46	0.50	1.00	1.86	1.75
												2.12	2.00	
First	R2		Residential	Unknown	W2-L	0.68	0.25	65.11	61.60	78.45	0.50	0.15	0.03	0.03
					W2-U	0.68	2.96	65.04	61.83	78.45	0.50	1.00	2.22	2.11
												2.25	2.14	
First	R3		Residential	Unknown	W3-L	0.68	0.25	61.73	56.22	77.78	0.50	0.15	0.03	0.02
					W3-U	0.68	2.96	48.34	43.11	77.78	0.50	1.00	1.67	1.49
												1.69	1.51	
First	R4		Residential	Unknown	W4-L	0.68	0.18	80.77	73.03	65.01	0.50	0.15	0.03	0.03
					W4-U	0.68	2.11	81.25	73.87	65.01	0.50	1.00	2.39	2.18
												2.42	2.20	
First	R5		Residential	Unknown	W5-L	0.68	0.12	75.82	72.22	84.28	0.50	0.15	0.01	0.01
					W5-U	0.68	2.34	75.73	73.71	84.28	0.50	1.00	1.91	1.86
												1.92	1.87	
Second	R1		Residential	Unknown	W1-L	0.68	1.93	71.17	69.74	69.46	0.50	0.15	0.27	0.26
					W1-U	0.68	2.89	49.97	49.61	69.46	0.50	1.00	1.88	1.87
												2.15	2.13	
Second	R2		Residential	Unknown	W2-L	0.68	0.25	68.66	67.49	78.45	0.50	0.15	0.03	0.03
					W2-U	0.68	2.96	67.95	67.56	78.45	0.50	1.00	2.32	2.31
												2.35	2.34	
Second	R3		Residential	Unknown	W3-L	0.68	1.86	83.28	80.20	77.78	0.50	0.15	0.27	0.26
					W3-U	0.68	2.96	81.73	80.92	77.78	0.50	1.00	2.82	2.79
												3.09	3.05	
Second	R4		Residential	Unknown	W4-L	0.68	0.18	85.73	82.73	65.01	0.50	0.15	0.03	0.03
					W4-U	0.68	2.11	83.87	82.82	65.01	0.50	1.00	2.47	2.44
												2.50	2.47	
Second	R5		Residential	Unknown	W5-L	0.68	0.12	77.26	77.26	84.28	0.50	0.15	0.01	0.01
					W5-U	0.68	2.34	75.43	75.43	84.28	0.50	1.00	1.90	1.90
												1.91	1.91	
Third	R1		Residential	Unknown	W1-L	0.68	1.93	88.05	88.05	69.46	0.50	0.15	0.33	0.33
					W1-U	0.68	2.89	85.25	85.25	69.46	0.50	1.00	3.21	3.21
												3.54	3.54	