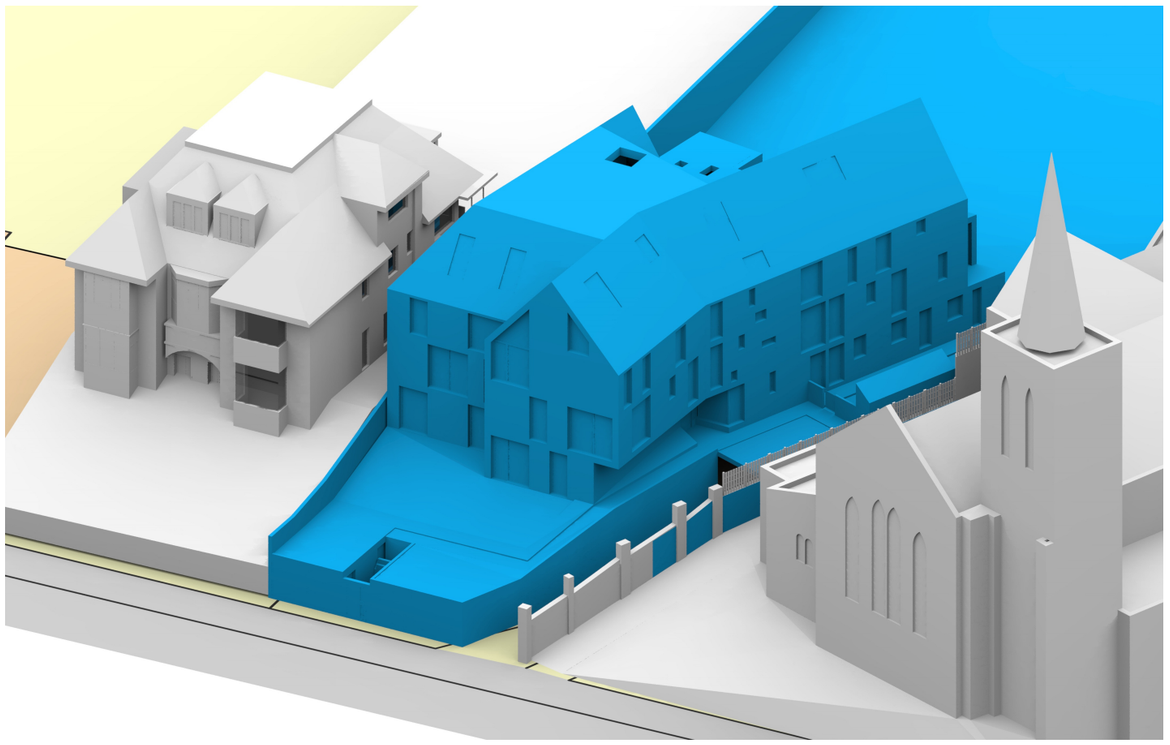
252 Finchley Road
London NW3

Daylight & Sunlight Report



May 2015

WATERSLADE

7 Oasis Park, Eynsham, Oxford, OX29 4TP
t: 01865 881882 **@:** www.waterslade.com

1.0 Introduction and Methodology

1.1 Generally

We have been instructed to provide a report on daylight and sunlight for the development at 252 Finchley Road. It is usual to assess daylight and sunlight in relation to the guidelines set out in the 2011 Building Research Establishment (BRE) Report 'Site layout planning for daylight and sunlight - A guide to good practice' by Paul Littlefair. One of the primary sources for the BRE Report is the more detailed guidance contained within 'British Standard 8206 Part 2:2008'.

As instructed we have examined two aspects of daylight and sunlight. First, we have considered the impact on the daylight and sunlight amenity to the property adjacent to the site.

In an urban location, frequently site constraints and the proximity of neighbouring buildings mean that some windows or rooms will fall short of the guideline figures. However, daylight and sunlight is one of a number of factors to be considered in designing a building. In its introduction, the BRE guide itself urges that the guidelines be interpreted flexibly:

" *The advice given here is not mandatory……Although it gives numerical guidelines these should be interpreted flexibly……For example in an historic city centre a higher degree of obstruction may be unavoidable….*".

The BRE guidelines provide three principal measures of daylight – namely Vertical Sky Component (VSC), Average Daylight Factor (ADF) and No-Sky Line (NSL). In terms of Sunlight, we examine the BRE Annual Probable Sunlight Hours (APSH) and, in relation to overshadowing, we apply the BRE 2 Hour Sunlight Test. These measures of daylight and sunlight are discussed in the following paragraphs.

1.2 Diffuse Daylight

1.2.1 Vertical Sky Component (VSC)

VSC is a measure of the skylight reaching a point from an overcast sky. For Existing buildings, the BRE guideline is based on the loss of VSC at a point at the centre of a window, on the outer plane of the wall. The BRE guidelines state that if the VSC at the centre of a window is less than 27%, and it is less than 0.8 times its former value, then the diffuse daylighting of the existing building may be adversely affected.

1.2.2 No-Sky Line (NSL)

No-Sky Line (NSL) is a measure of the distribution of daylight within a room. As it maps out the region within a room where light can penetrate directly from the sky, it therefore accounts for the size of and number of windows by simple geometry. The BRE suggest the area of the working plane within a room that can receive direct skylight should not be reduced to less than 0.8 times its former value.

1.2.3 Average Daylight Factor (ADF)

ADF is a measure of the daylight within a room, and accounts for factors such as the number of windows and their size in relation to the size of the room. Clearly a small room with a large window will be better illuminated by daylight than a large room with a small window. It also accounts for window transmittance and the reflectance of the internal walls, floor and ceiling. The general idea is that the daylight which reaches each of the windows is first calculated. Then, allowing for the window size, the daylight which then enters the room through the windows is determined. The light is then imagined to bounce around within the room, controlled by the reflectance of the internal surfaces. The ADF is detailed in British Standard 8206 Part 2:2008. As for the BRE report, it provides guidance for acceptable values in the presence of supplementary electric lighting, depending on the room use. These are 1.0% for a bedroom, 1.5% for a living room and 2.0% for a kitchen.

1.3 Sunlight

1.3.1 Annual Probable Sunlight Hours (APSH)

In relation to sunlight, the BRE recommends that the Annual Probable Sunlight Hours (APSH) received at a given window in the proposed case should be at least 25% of the total available including at least 5% in winter. Where the proposed values fall short of these, and the absolute loss is greater than 4%, then the proposed values should not be less than 0.8 times their previous value in each period. We also note that the BRE guidelines state that '..all main living rooms of dwellings .. should be checked if they have a window facing within 90 degrees of due south. Kitchens and bedrooms are less important, although care should be taken not to block out too much sun'.

1.3.2 Overshadowing

Section 3.3 of the BRE guidelines describes the method of assessment of the availability of sunlight within garden/amenity spaces. This relates to the proportion of shading on March 21st.

The BRE criterion for garden or amenity areas is as follows:
'It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity space should receive at least two hours of sunlight on 21 March. If as a result of a new development an existing garden or amenity space does not meet the above, and the area which can receive two hours of sunlight on 21 march is less than 0.8 times its former value, then the loss of amenity is likely to be noticeable.'

Driveways and hard standing for cars should be omitted from the analysis; only the main back garden should be considered. Walls or fences less than 1.5m high should be excluded from the calculation; and sunlight with an altitude of less than 10 degrees above the horizon should not be counted.

2.0 Sources of Information

DOUGLAS AND KING ARCHITECTS
Existing 3D Model and Proposed Scheme

ORDNANCE SURVEY
OS Extract

PARRITT LENG
Topographical Survey

3.0 Drawings Attached

Drawing Number	Title
937/01	Site Plan, As Existing
937/02	3D View, As Existing
937/03	3D View, As Existing
937/07	Site Plan, As Proposed
937/08	3D View, As Proposed
937/09	3D View, As Proposed
937/W/02	Window Locations
937/S/02	2 Hour Shadow Study

4.0 Calculations and assumptions

In order to calculate the various measures of daylight and sunlight it is necessary to construct a 3D computer model.

The analysis model was converted from a 3D model provided by the Architect. In areas where data was incomplete we have made estimates and assumptions with reference to site photography. Information regarding the internal arrangements within the adjacent surrounding property was not available so reasonable assumptions have been made.

5.0 Results and Discussion

5.1 Generally

The model was analysed using proprietary software to calculate the various measures of daylight and sunlight. Existing light levels were then compared to the corresponding levels with the proposed development in place. The resulting levels and their reductions were then compared to the relevant BRE Report guidelines.

Attached drawings 937/01-03, illustrate the site in plan and 3d prior to development. Drawings 937/07-09 illustrate the proposed development. For the purpose of analysis, each window and room to be analysed is given a unique reference. This is necessary to track the windows through the various calculations, and these labels appear in the tables of results. Drawing 937/W/02 shows the window labelling used in the assessment.

5.2 254 Finchley Road

Daylight –

The principal windows serving the main habitable rooms face to the front or the rear of the property. As would be expected, the results confirm that the impact to these will be negligible. There will be an impact to one of the secondary windows (W4/10) in the flank wall but this is unlikely to serve a habitable space. This window appears to be a window within a door, which is likely to serve an entrance. All of the habitable rooms served by flank wall windows comfortably meet the BRE VSC recommendations, and of the five windows serving habitable rooms in the main flank wall, four of them (W6/10, W7/10, W5/11 and W1/12) exhibit VSC gains.

Two of the habitable rooms, R3/10 and R4/10 fall marginally short of BRE compliance as measured by NSL but since VSC is the principal measure of daylight amenity; these effects should not be considered material.

Therefore, the daylight amenity to the neighbouring property will remain very good after development.

Sunlight –

All principal windows on the south west façade of the building comfortably achieve the BRE APSH criteria. The BRE states that '..all main living rooms of dwellings .. should be checked if they have a window facing within 90 degrees of due south. Kitchens and bedrooms are less important, although care should be taken not to block out too much sun'. There appear to be no living rooms served by windows in the flank wall. The one habitable room which falls marginally short of the BRE criteria is most likely to be a kitchen and is less important. Therefore the property will continue to receive good sunlight amenity after development.

5.3 Overshadowing

Drawing 937/S/02 shows the region of the neighbouring garden with the potential to experience more than 2 hours of sunlight on 21st March. Over 50% of this garden will receive more than 2 hours on 21st March and hence, it will comply with the BRE guidelines. Therefore the property will retain good access to sunlight and the overshadowing impact will be small.

5.4 Summary and Conclusions

We have considered the BRE measures of Daylight and of Sunlight in relation to the surrounding residential properties. These were analysed in detail.

The impact to the neighbouring property will be small and accord with the BRE guidelines so that the impact should be regarded as acceptable.

We conclude that the impact of the proposed development accords with the guidance on daylight and sunlight provided by the BRE.

Waterslade Ltd.

Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:
EXISTING
PROPOSED

Project: 252 FINCHLEY ROAD

Drawing Title: SITE PLAN
EXISTING BUILDINGS

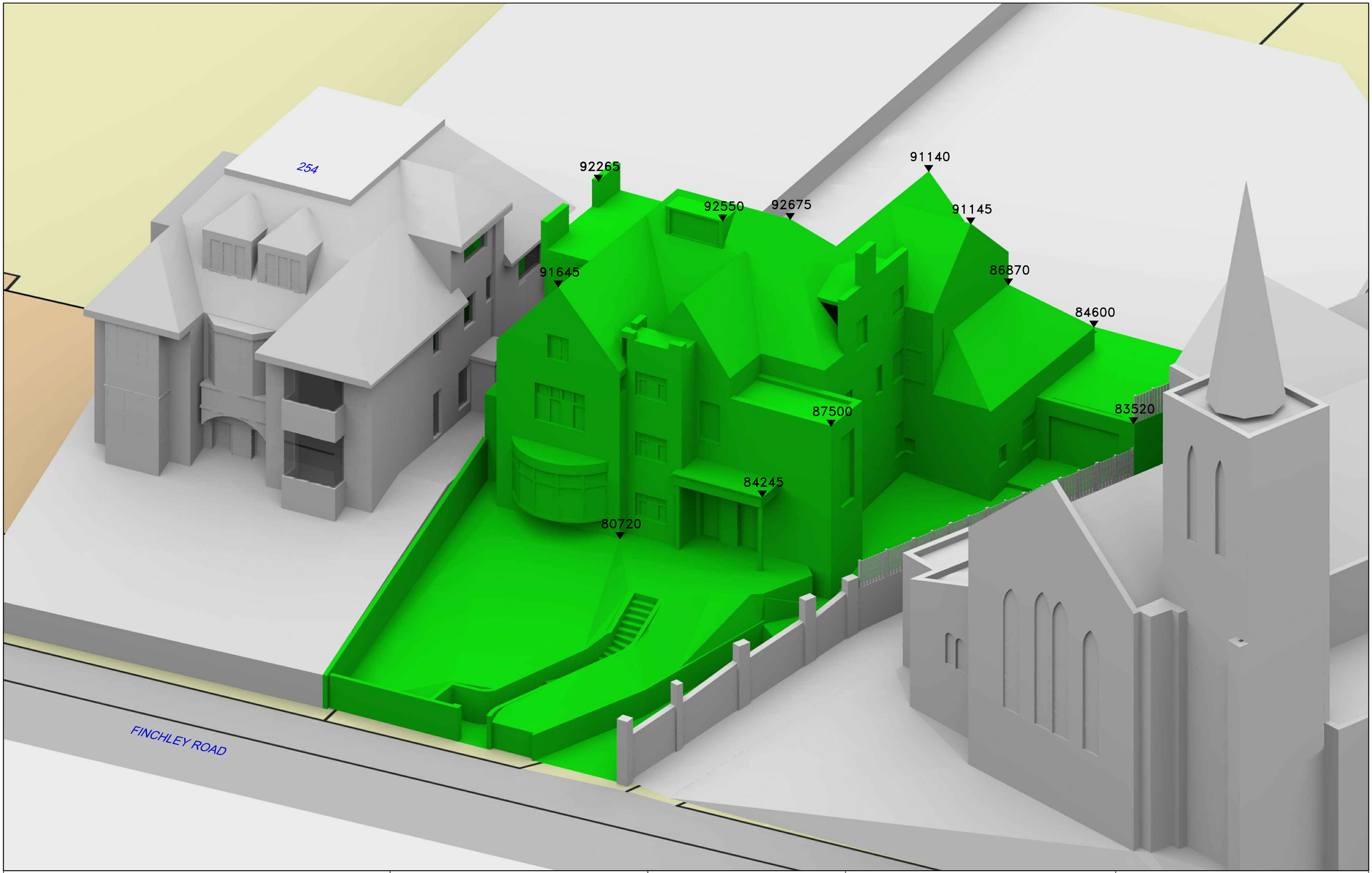
Drawn by: BZW

Date: MAY 2015

Scale: 1:300 @A3

Drawing No: 937/01

WATERSLADE
7 Oasis Park,
Eynsham, Oxford,
OX29 4TP
t: 01865 881882
f: 01865 881891
@: www.waterslade.com



Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:
EXISTING
PROPOSED

All Heights in mm AOD

Project: 252 FINCHLEY ROAD

Drawn by: BZW | Date: MAY 2015

Drawing Title: 3D VIEW
EXISTING BUILDINGS

Scale: NTS @A3 | Drawing No: 937/02

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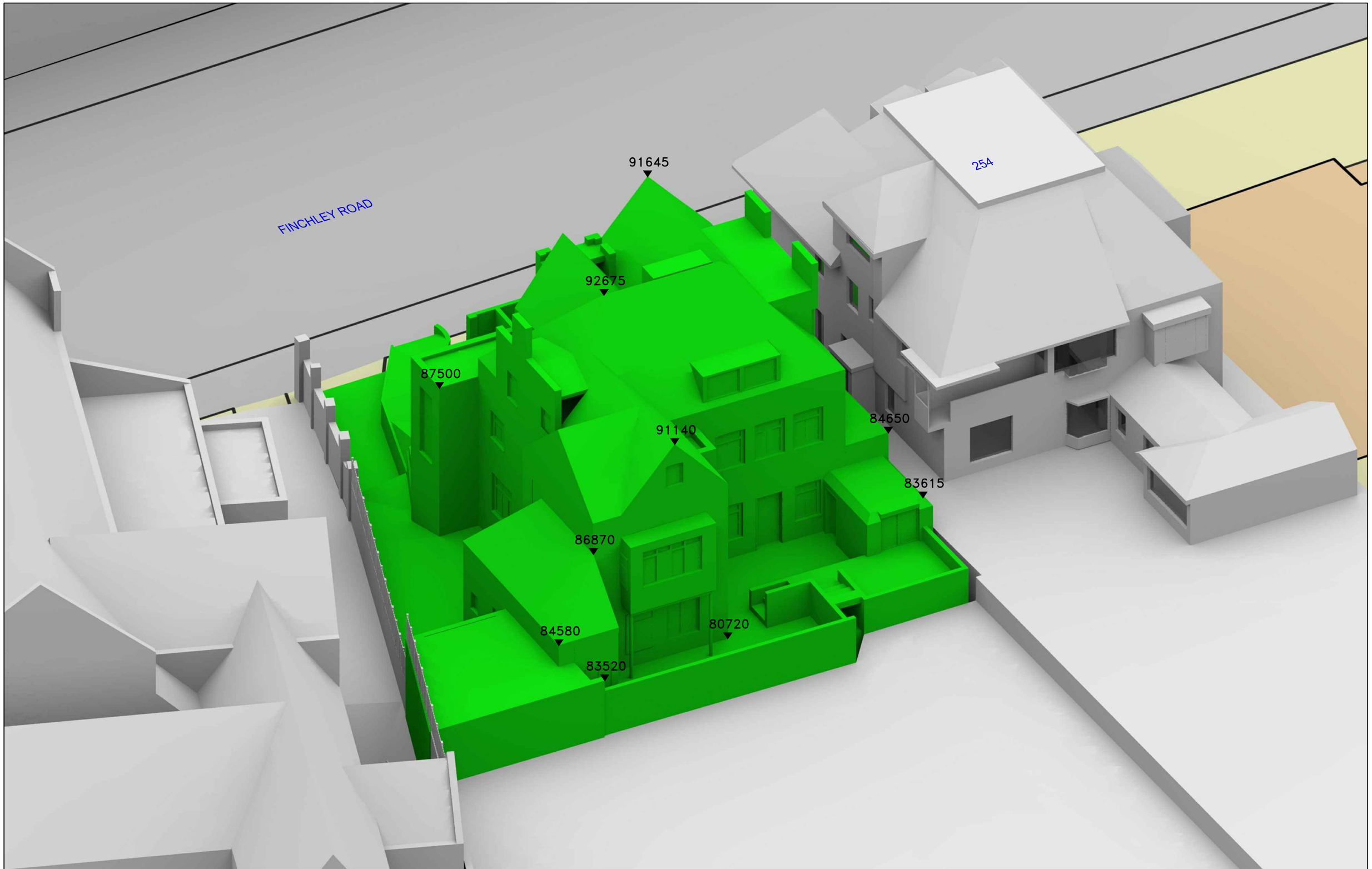

Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:
EXISTING
PROPOSED

All Heights in mm AOD

Project: 252 FINCHLEY ROAD

Drawing Title: 3D VIEW
EXISTING BUILDINGS

Drawn by: BZW

Date: MAY 2015

Scale: NTS @A3

Drawing No: 937/03

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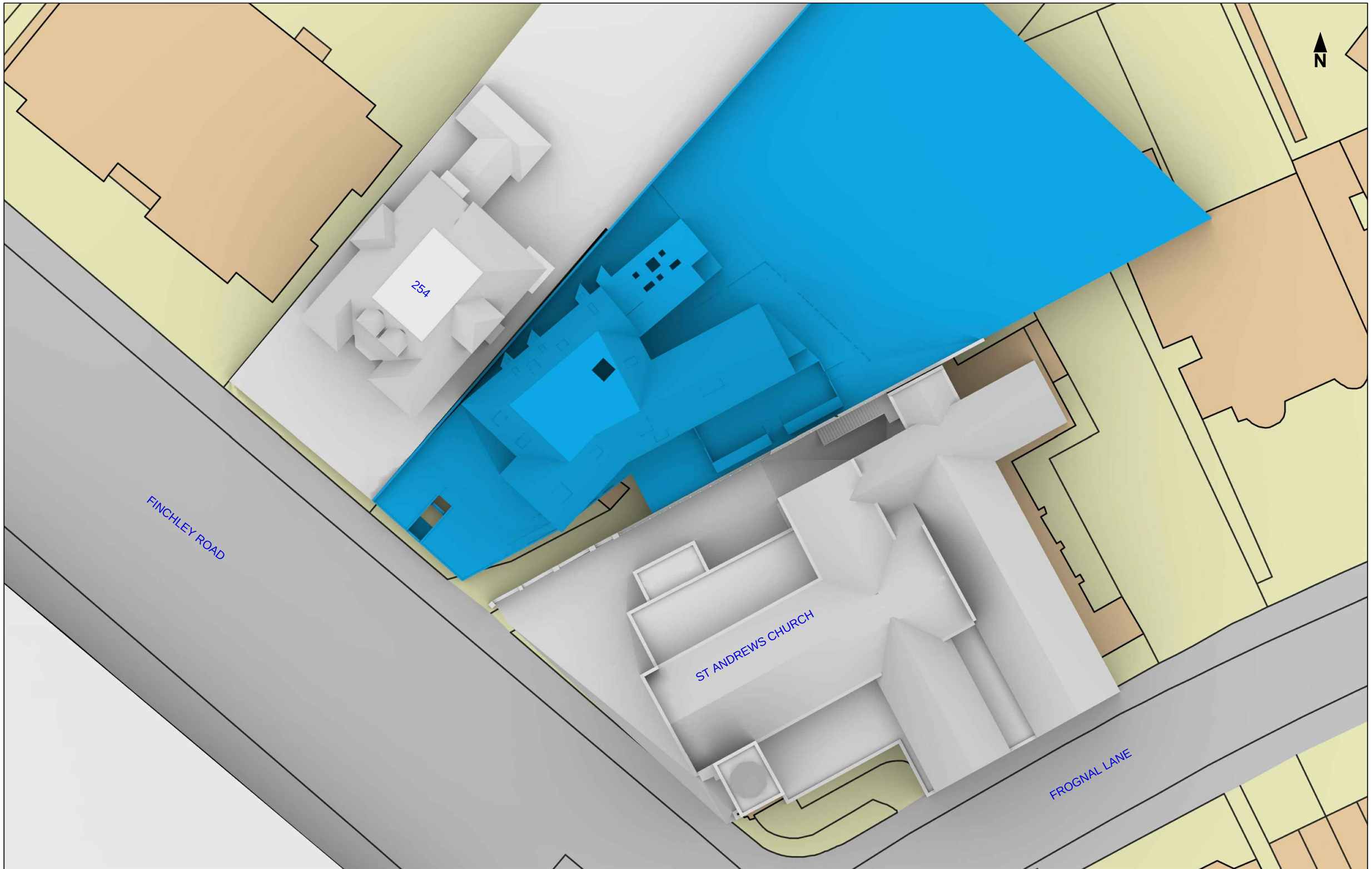

Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:
EXISTING
PROPOSED

Project: 252 FINCHLEY ROAD

Drawing Title: SITE PLAN
PROPOSED SCHEME
20/04/15

Drawn by: BZW

Date: MAY 2015

Scale: 1:300 @A3

Drawing No: 937/07

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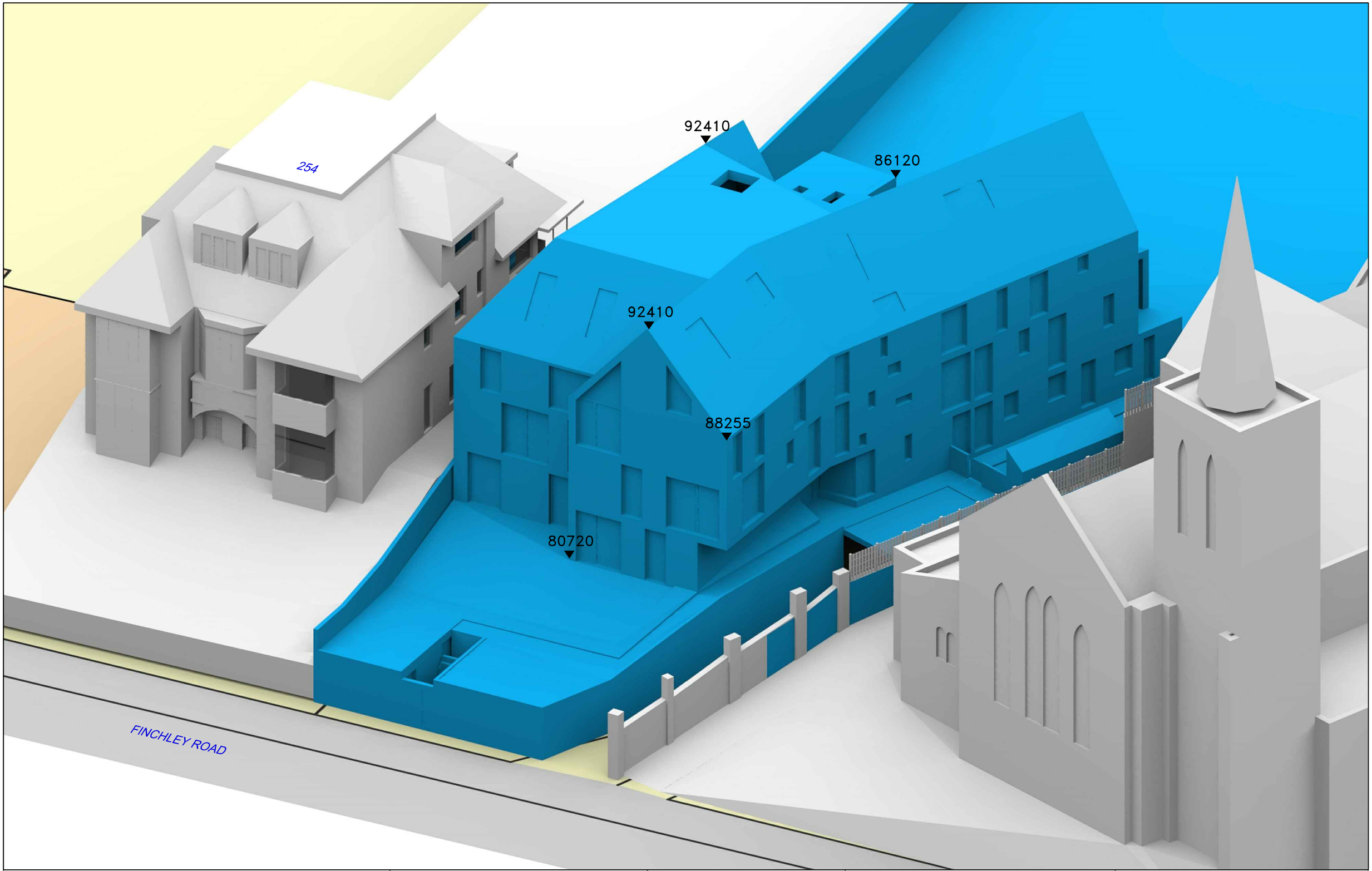

Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:
EXISTING
PROPOSED

All Heights in mm AOD

Project: 252 FINCHLEY ROAD

Drawing Title: 3D VIEW
PROPOSED SCHEME
20/04/15

Drawn by: BZW | Date: MAY 2015 | Scale: NTS @A3 | Drawing No: 937/08

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OX29 4TP
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f: 01865 881891
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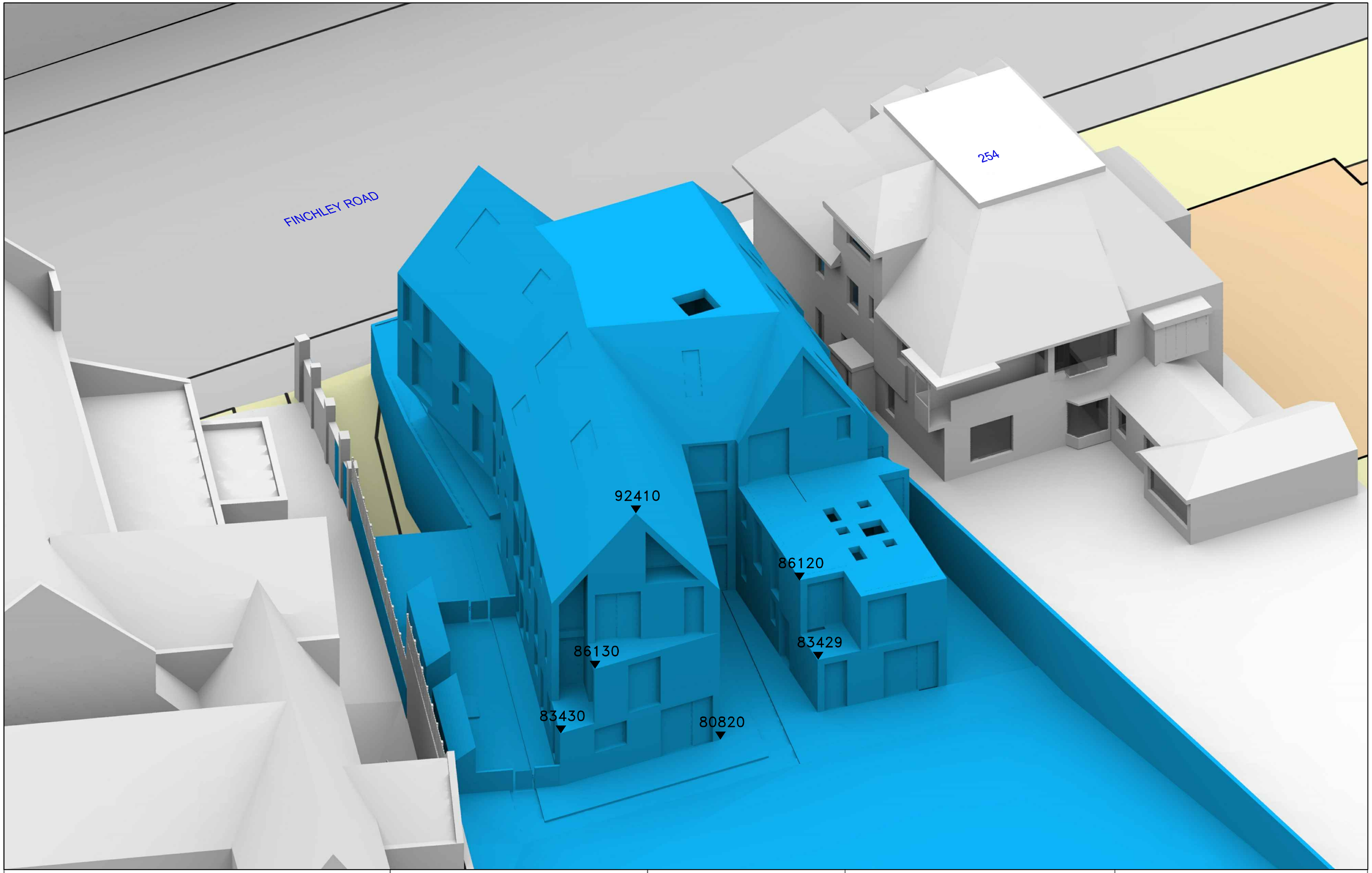

Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:
EXISTING
PROPOSED

All Heights in mm AOD

Project: 252 FINCHLEY ROAD

Drawing Title: 3D VIEW
PROPOSED SCHEME
20/04/15

Drawn by: BZW

Date: MAY 2015

Scale: NTS @A3

Drawing No: 937/09

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Eynsham, Oxford,
OX29 4TP
t: 01865 881882
f: 01865 881891
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Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:

AREA ANALYSED

AREA WITH MORE THAN 2 HOURS OF DIRECT SUNLIGHT

AREA WITH LESS THAN 2 HOURS OF DIRECT SUNLIGHT

% OF AREA WITH MORE THAN 2 HOURS OF DIRECT SUNLIGHT

Project: 252 FINCHLEY ROAD

Drawing Title: 2 HOUR OVERSHADOWING FOR 21ST MARCH
PROPOSED SCHEME
20/04/15

Drawn by: BZW

Date: MAY 2015

Scale: 1:300 @A3

Drawing No: 937/S/02

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OX29 4TP
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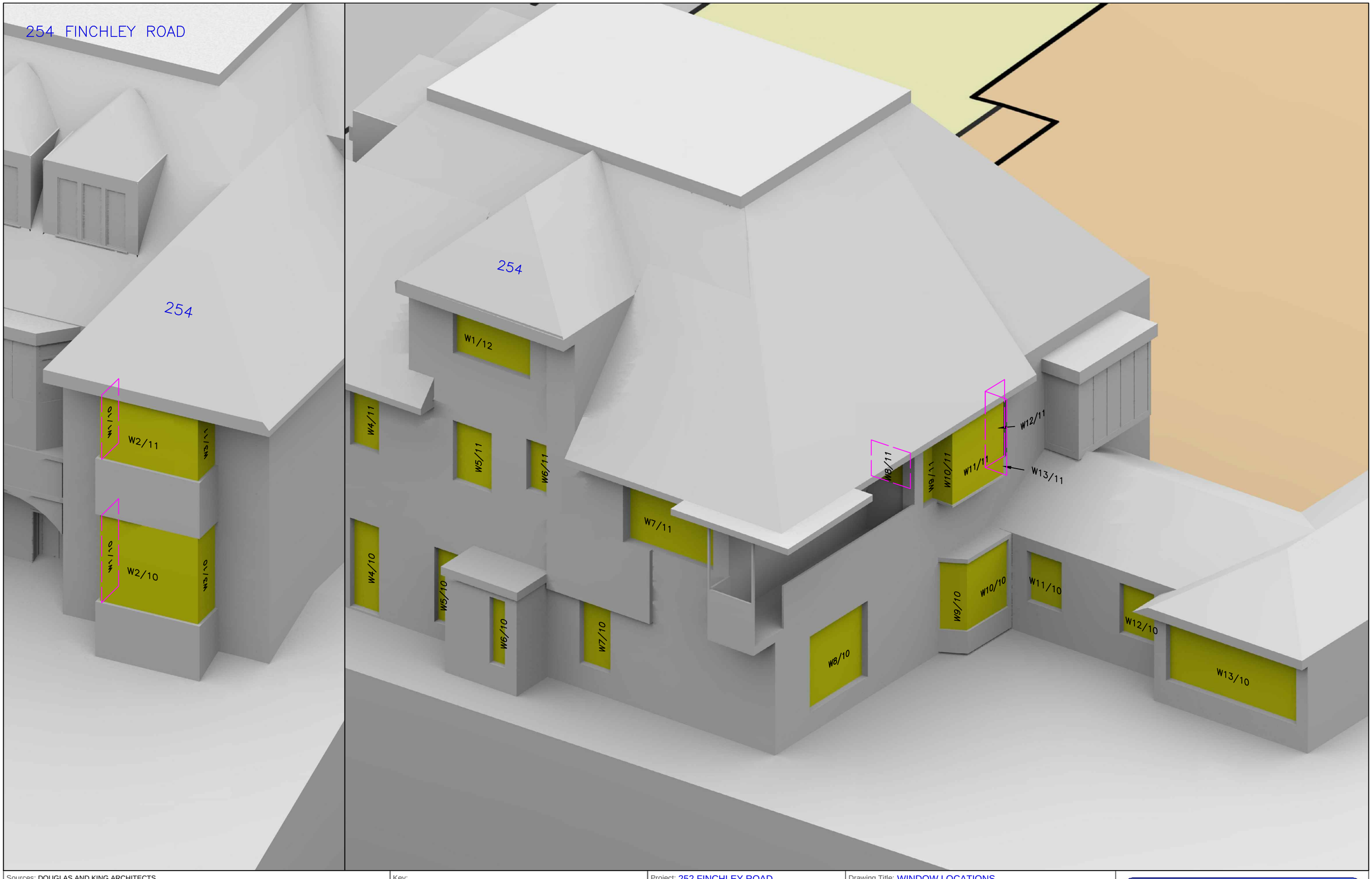
254 FINCHLEY ROAD



Sources: DOUGLAS AND KING ARCHITECTS
Existing 3D Model
Proposed Scheme 3D Model

ORDNANCE SURVEY
OS extract

PARRITT LENG
Topographical Survey

Key:

Project: 252 FINCHLEY ROAD

Drawing Title: WINDOW LOCATIONS
254 FINCHLEY ROAD

Drawn by: BZW

Date: MAY 2015

Scale: NTS @A3

Drawing No: 937/W/02

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t: 01865 881882
f: 01865 881891
@: www.waterslade.com

Location			Vertical Sky Component (VSC)			Average Daylight Factor (ADF)				No-Sky Line (NSL)				Window		Annual Probable Sunlight Hours (APSH) (window)					Annual Probable Sunlight Hours (APSH) (room)				
			EXISTING	PROPOSED	Reduction	EXISTING		PROPOSED		Whole	EXISTING	PROPOSED	Reduction	Angle from	Aspect	EXISTING		PROPOSED		Reduction	Existing		Proposed		Reduction
Room	Room Use	Window	VSC	VSC	Factor	ADF	TOTAL	ADF	TOTAL	Room	sq ft	sq ft	Factor	South		Winter %	Annual %	Winter %	Annual %	Factor	Winter %	Annual %	Winter %	Annual %	Factor
252 FINCHLEY ROAD																									
R1/10	ASSUMED	W1/10	19.1	19.1	**1.00**	0.60		0.60		228.7	225.2	225.2	**1.00**	131.6°W	Northerly	3	26	3	26	**1.00**					
R1/10	ASSUMED	W2/10	37.0	37.0	**1.00**	2.79		2.79						41.6°W	Southerly	23	70	23	70	**1.00**					
R1/10	ASSUMED	W3/10	22.5	20.8	**0.92**	0.66	4.05	0.63	4.02					48.6°E	Southerly	21	52	21	50	**0.96**	24	78	24	76	**0.97**
R2/10	ASSUMED	W4/10	14.7	10.6	**0.72**	0.61	0.61	0.45	0.45	85.3	20.8	13.3	**0.64**	48.4°E	Southerly	16	32	10	21	**0.66**	16	32	10	21	**0.66**
R3/10	ASSUMED	W5/10	8.4	7.0	**0.83**	0.33		0.28		168.0	34.5	25.9	**0.75**	48.4°E	Southerly	10	25	6	17	**0.68**					
R3/10	ASSUMED	W6/10	5.9	6.2	**1.07**	0.01	0.33	0.06	0.34					48.4°E	Southerly	4	13	2	9	**0.69**	10	26	6	18	**0.69**
R4/10	ASSUMED	W7/10	8.9	10.0	**1.12**	0.24	0.24	0.24	0.24	116.7	20.8	15.6	**0.75**	48.4°E	Southerly	0	11	0	12	**1.09**	0	11	0	12	**1.09**
R5/10	ASSUMED	W8/10	36.5	34.0	**0.93**	2.67	2.67	2.52	2.52	144.0	141.9	140.5	**0.99**												
R6/10	ASSUMED	W9/10	26.2	23.2	**0.88**	0.50		0.46		167.9	164.6	164.6	**1.00**	76.3°E	Southerly	3	22	0	18	**0.82**					
R6/10	ASSUMED	W10/10	30.1	28.9	**0.96**	1.34	1.83	1.30	1.76					136.9°E	Northerly	3	26	0	23	**0.88**	3	26	0	23	**0.88**
R7/10	ASSUMED	W11/10	21.3	19.0	**0.89**	0.41		0.37		199.1	183.3	169.1	**0.92**	48.4°E	Southerly	4	31	0	27	**0.87**					
R7/10	ASSUMED	W12/10	24.2	21.7	**0.90**	0.44	0.85	0.41	0.78					48.4°E	Southerly	5	40	4	39	**0.98**	5	45	4	44	**0.98**
R8/10	ASSUMED	W13/10	29.5	26.5	**0.90**	2.31	2.31	2.11	2.11	161.8	161.8	156.9	**0.97**	48.4°E	Southerly	9	51	7	49	**0.96**	9	51	7	49	**0.96**
R1/11	ASSUMED	W1/11	13.0	13.0	**1.00**	0.39		0.39		228.7	225.3	225.3	**1.00**	131.6°W	Northerly	5	28	5	28	**1.00**					
R1/11	ASSUMED	W2/11	38.9	38.9	**1.00**	2.42		2.42						41.6°W	Southerly	25	72	25	72	**1.00**					
R1/11	ASSUMED	W3/11	12.5	11.3	**0.90**	0.39	3.20	0.37	3.18					48.6°E	Southerly	21	31	19	29	**0.94**	27	74	25	72	**0.97**
R2/11	WC?	W4/11	15.4	13.0	**0.84**	0.69	0.69	0.55	0.55	55.3	41.6	31.6	**0.76**	48.4°E	Southerly	13	31	9	22	**0.71**	13	31	9	22	**0.71**
R3/11	ASSUMED	W5/11	16.5	17.1	**1.04**	0.62	0.62	0.64	0.64	129.9	50.1	48.3	**0.96**	48.4°E	Southerly	9	27	5	26	**0.96**	9	27	5	26	**0.96**
R4/11	ASSUMED	W7/11	13.9	11.9	**0.85**	1.10	1.10	0.91	0.91	148.2	126.5	66.3	**0.52**	48.4°E	Southerly	3	31	5	30	**0.97**	3	31	5	30	**0.97**
R5/11	ASSUMED	W8/11	4.7	4.4	**0.94**	0.20		0.20		157.2	156.9	156.9	**1.00**	49.4°E	Southerly	0	6	0	6	**1.00**					
R5/11	ASSUMED	W9/11	21.5	21.5	**1.00**	0.48		0.48						136.9°E	Northerly	0	12	0	12	**1.00**					
R5/11	ASSUMED	W10/11	12.2	11.7	**0.96**	0.38		0.37						46.9°E	Southerly	2	18	1	17	**0.94**					
R5/11	ASSUMED	W11/11	39.1	38.9	**1.00**	2.80		2.79						136.9°E	Northerly	2	23	1	22	**0.96**					
R5/11	ASSUMED	W12/11	23.0	23.0	**1.00**	0.67		0.67						136.9°E	Northerly	0	1	0	1	**1.00**					
R5/11	ASSUMED	W13/11	13.3	13.3	**1.00**	0.43	4.96	0.43	4.93					133.1°W	Northerly	0	0	0	0	**-**	2	23	1	22	**0.96**
R6/11	WC?	W6/11	16.4	17.6	**1.07**	0.41	0.41	0.51	0.51	48.2	28.4	31.5	**1.11**	47.1°E	Southerly	9	33	6	35	**1.06**	9	33	6	35	**1.06**
R1/12	ASSUMED	W1/12	18.4	19.1	**1.04**	0.86	0.86	0.87	0.87	172.9	142.1	116.6	**0.82**	48.4°E	Southerly	13	39	14	42	**1.08**	13	39	14	42	**1.08**

Rooms likely to be non-habitable