

GL Hearn Limited 280 High Holborn London WC1V 7EE

T: +44 (0)20 7851 4900 alhearn.com

Mr D Peres da Costa Development Control London Borough of Camden 5 Pancras Road London N1C 4AG

4 October 2018

Dear Mr Peres da Costa

# Proposed redevelopment of the land to the rear of 222 Euston Road (Ref: 2018\2316\P) Daylight and Sunlight Amenity

We have been instructed by Thurston Corporation to advise them in relation to potential daylight and sunlight matters arising from the proposed redevelopment of the land to the rear of 222 Euston Road, London ('the Site').

Thurston Corporation own 222 Euston Road ('the Property') which is directly to the south of the Site and is occupied by University College London ('UCL') as the Institute of Health Informatics. We understand that approval is being sought for the erection of a seven storey building, plus basement for student accommodation/hotel uses ('the Proposed Scheme').

We have been provided with a copy of the council's pre-application response letter to the applicant dated 24 October 2017 and in it we note confirmation that Policy A1 of Camden's Local Plan requires a daylight/sunlight report to accompany the planning application. However, having reviewed the application documents, we note that a daylight and sunlight report has not been submitted. In the absence of this, we have been instructed to undertake technical analysis to assess the impact on the daylight received to the Property and secondly consider the light that will be received to the proposed micro studios within the Proposed Scheme. We deal with each in turn below and refer to the following documents which should be read alongside our findings:

Appendix 1: GL Hearn Drawings

Appendix 2: Vertical Sky Component (VSC) results spreadsheet for 222 Euston Road

Appendix 3: Daylight Distribution (DD) results spreadsheet and contour drawings for 222 Euston Road

Appendix 4: Average Daylight Factor (ADF) results spreadsheet

Appendix 5: Annual Probable Sunlight Hours (APSH) results spreadsheet

### 1. Impact on 222 Euston Road

The applicant's planning statement notes at paragraph 6.3.9 that "there are no surrounding habitable rooms surrounding the site therefore, a Daylight and Sunlight report is not required." However, paragraph 6.5 contained within Policy A1 of Camden's Local Plan states:

"Loss of daylight and sunlight can be caused if spaces are overshadowed by development. To assess whether acceptable levels of daylight and sunlight are available to habitable, outdoor amenity and open spaces, the Council will take into account the most recent guidance published by the Building Research Establishment (currently the Building Research Establishment's Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice 2011)".

Whilst it is recognised that the BRE Guidance document ('the BRE Report') is primarily set up to protect residential amenity, paragraph 2.2.3 of the document confirms the following:

"The guidelines may also be applied to any non-domestic building where occupants have a reasonable expectation of daylight; this will normally include schools, hospitals, hotels and hostels, small workshops and some offices."

We have inspected the Property to confirm the use and internal arrangements of the rooms with windows facing the Proposed Scheme. At lower ground floor there are three teaching rooms and at ground floor a seminar room and public engagement space. On the upper floors are offices and break out areas used by UCL staff. It was evident from our inspection that the Property does contain habitable rooms with windows facing the Site and a daylight and sunlight report should have been submitted. It was further evident that the occupants and visitors of the Property have a reasonable expectation of daylight.

As the windows facing the Site are predominantly north facing, it is acknowledged that sunlight received to the Property would not be adversely affected by the Proposed Scheme. Similarly, our assessment does not include non-habitable rooms such as WCs, corridors and store rooms.

The drawings under Appendix 1 illustrate our 3D assessment model. The Proposed Scheme was modelled in accordance with the applicant's submitted drawings with the Property and other neighbouring buildings based on a 3D photogrammetry model.

The BRE Report states that:

".....the diffuse daylighting of the existing building may be adversely affected. This will be the case if either:

- the vertical sky component ['VSC'] measured at the centre of an existing main window is less than 27%, and less than 0.8 times its former value; or
- the area of the working plane ..... in a room which can receive direct skylight is reduced to less than 0.8 times it former value."

Starting with the VSC test and by reference to the results spreadsheet under Appendix 2, it can be seen from the right-hand column that **39 of the 49 windows assessed would not meet the BRE guidelines**. Indeed, the majority of windows experience reductions significantly beyond the guidance values. To give an example, a classroom on the ground floor (Ref: R5) is served by two windows (W5 and W6) which currently receive VSC values of 20.14% and 21.78% respectively. These values would be reduced to 3.64% and 4.70%, approximately **0.2 times their current value**. In other words, the windows experience 80% reductions in the amount of visible sky.

Turning to the area of working plane that can receive direct skylight, by reference to the DD results under Appendix 3, it can be seen that **13 of the 19 rooms assessed would not meet the BRE guidelines** with most rooms experiencing a reduction of at ;least 50%. Again, using the ground floor classroom as an example, currently 60% of the working plane receives direct sky visibility and this would be reduced to 23%, **0.39 times its current value**. Included at Appendix 3 are contour plots which show the reduction in direct sky visibility to each habitable room, illustrated by yellow hatching.

### 2. Light within proposed micro studios

We have been provided with a copy of Camden's Design Review Panel Report dated 10 November 2017, on page 3 of which we note that the panel would "welcome analysis of rights to light to explore basic issues around the habitability of the building, in addition to the potential constraints on future development of 222 Euston Road." We assume that the Panel's reference to rights to light is intended to be with regard to daylight and sunlight amenity and we have assessed the 30 micro studios from first to sixth floor which are designed to take their light from over the Property.

In terms of daylight, the BRE Report suggests that ADF is used as the measure of general illumination from skylight and that values of at least 1% in bedrooms, 1.5% in living rooms and 2% in kitchens are recommended, even if a predominantly daylit appearance is not required, clearly the micro studios contain all three of these uses.

As can be seen from the ADF results spreadsheet under Appendix 4, all but one of the rooms on first to third floor achieve values between 1% and 2% with five rooms achieving a value between 1% and 1.5%.

In terms of sunlight, it is recommended that interiors in which the occupants have a reasonable expectation of direct sunlight should receive at least 25% of probable sunlight hours with at least 5% received during the winter months. As can be seen from the APSH results under Appendix 5, only one window on the first floor would meet the recommended minimum value for annual or winter sun. On the floors above, where there is greater access to sunlight, there would be greater compliance with the BRE Report guidelines.

#### 3. Conclusion

Whilst it is acknowledged that the numerical guidelines set-out in the BRE Report are purely advisory, our technical analysis confirms that there would be a significant loss of daylight to 222 Euston Road, well in excess of the BRE guidelines. In our opinion, loss could adversely affect the current and potential future use of the building.

Analysis of the light to the rooms within the Proposed Scheme highlights that the extremely narrow gap between the Site and the Property would result in low levels of daylight and sunlight to the proposed single aspect rooms on the lower floors.

We therefore strongly object to the proposals in daylight and sunlight terms. In the possible event that the proposed scheme is given consent our client will not consent to the interference of their right to light and they fully reserve their position in respect of taking all necessary action to prevent the adverse effect upon their building.

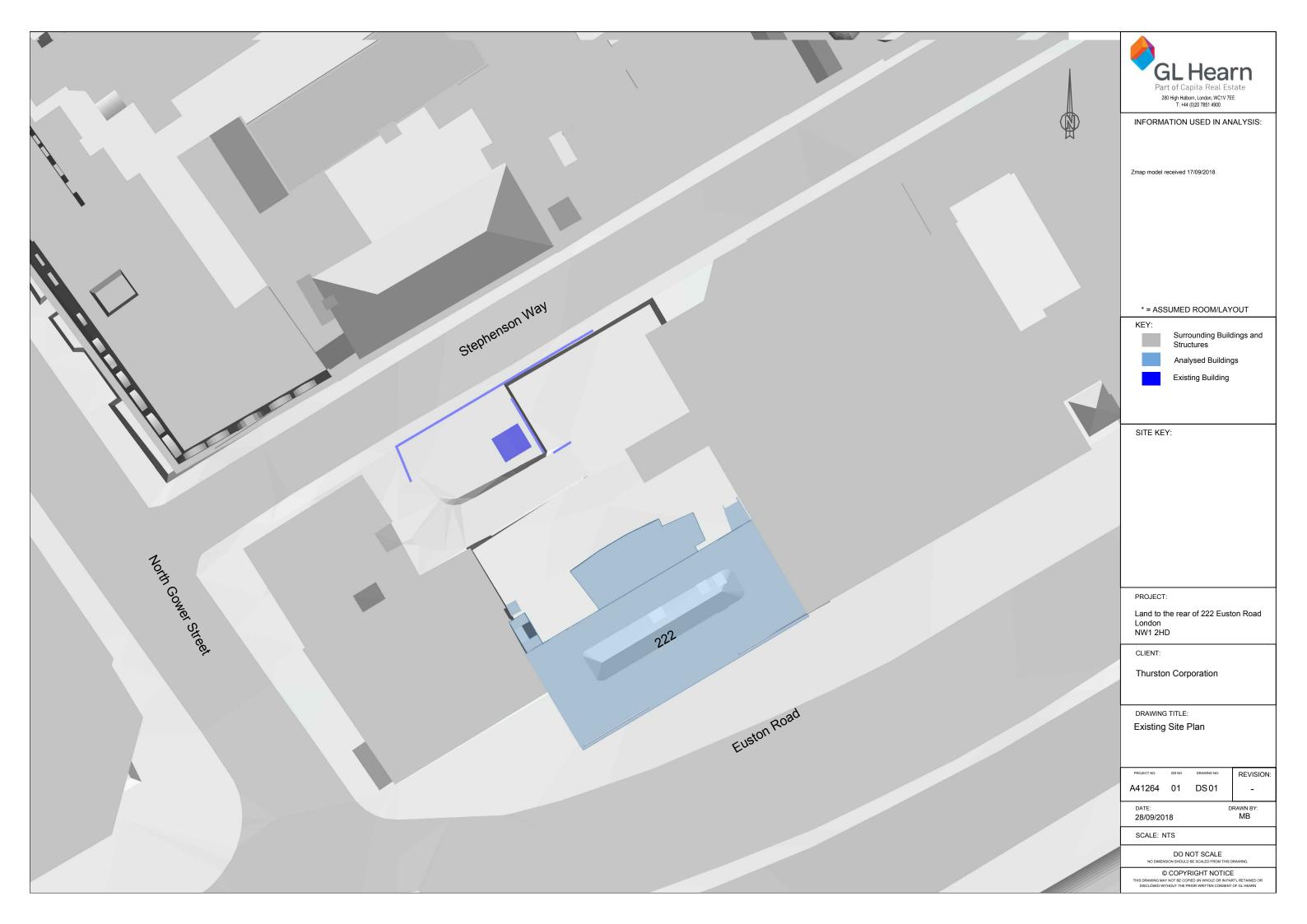
Yours sincerely

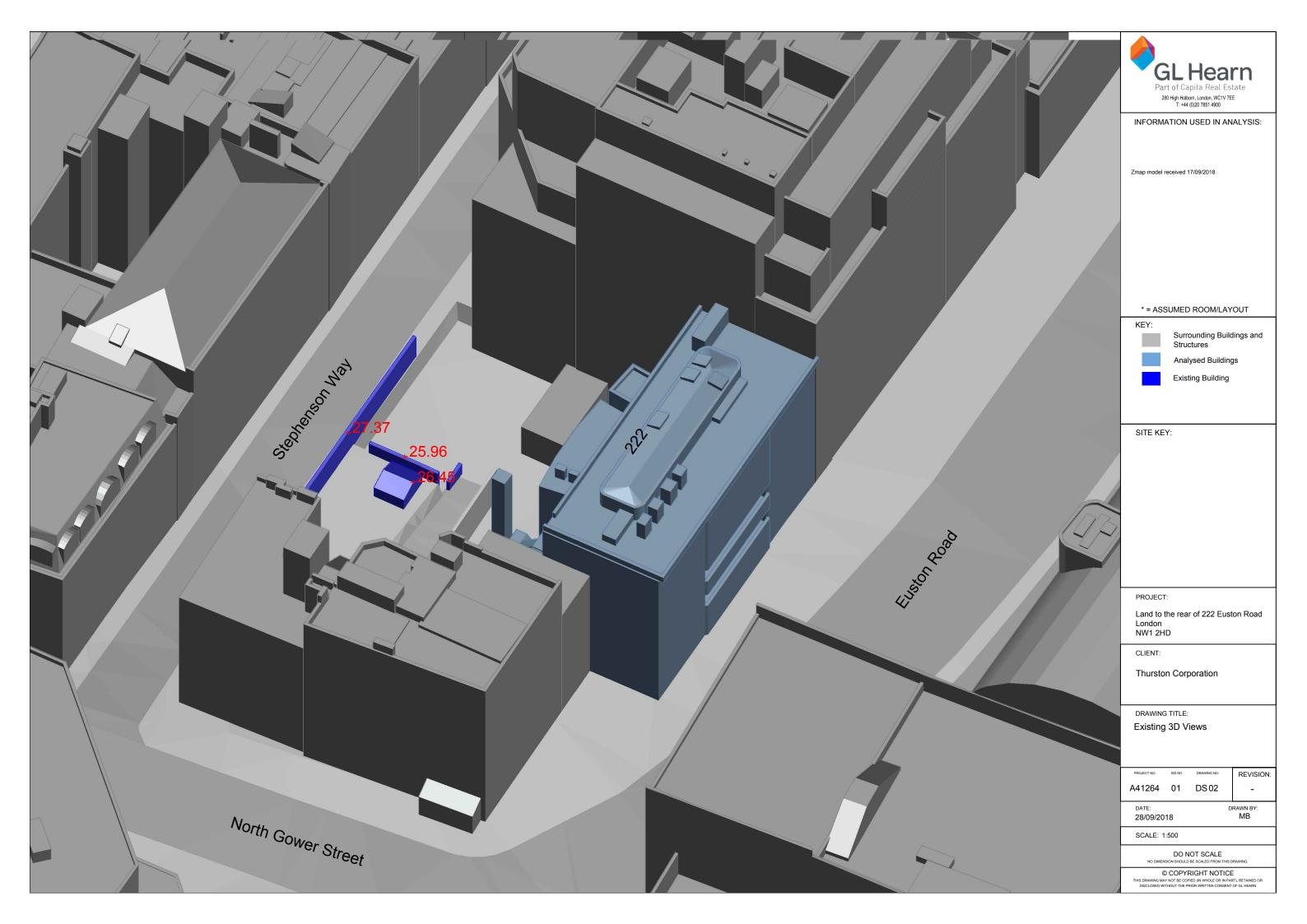
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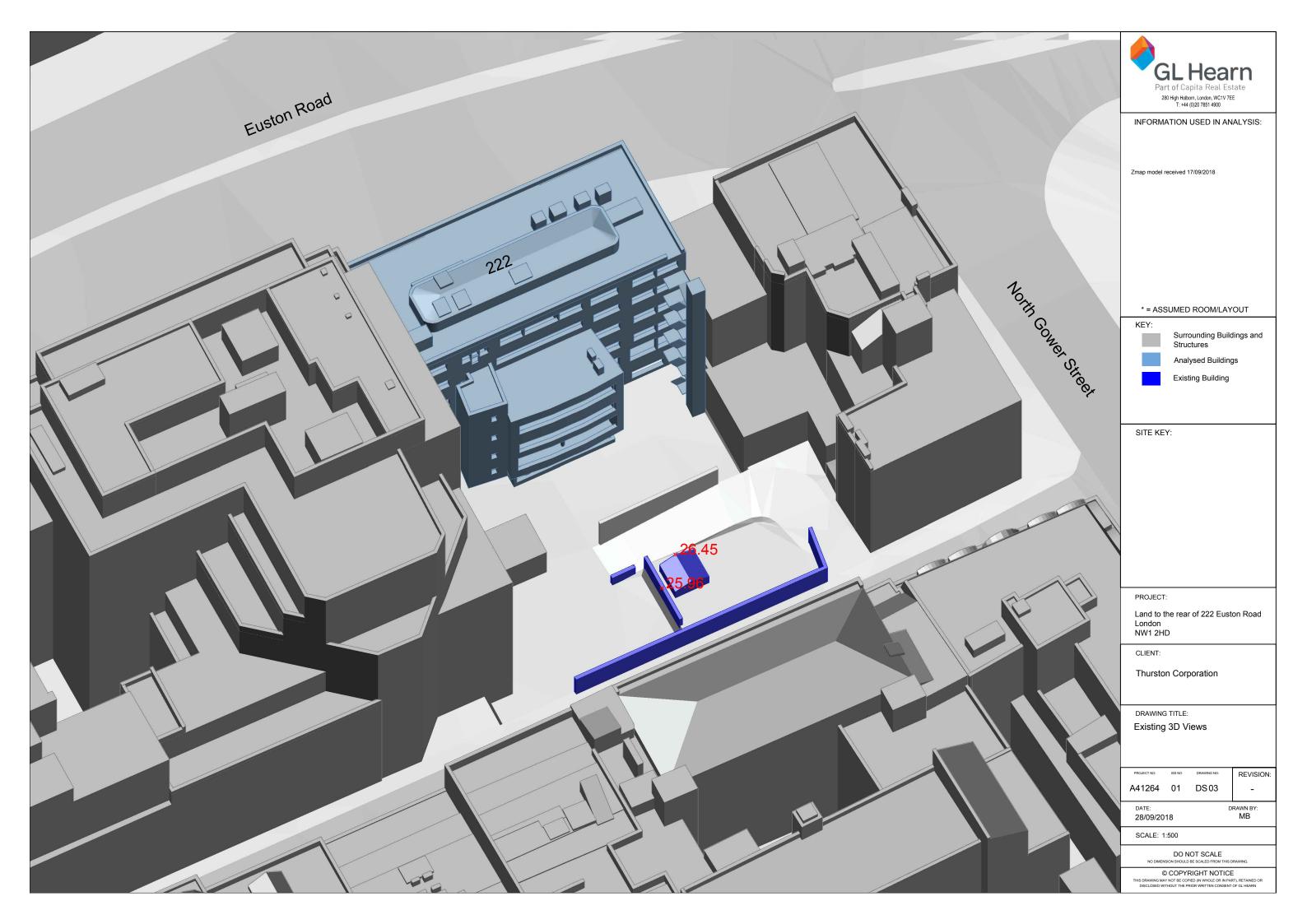
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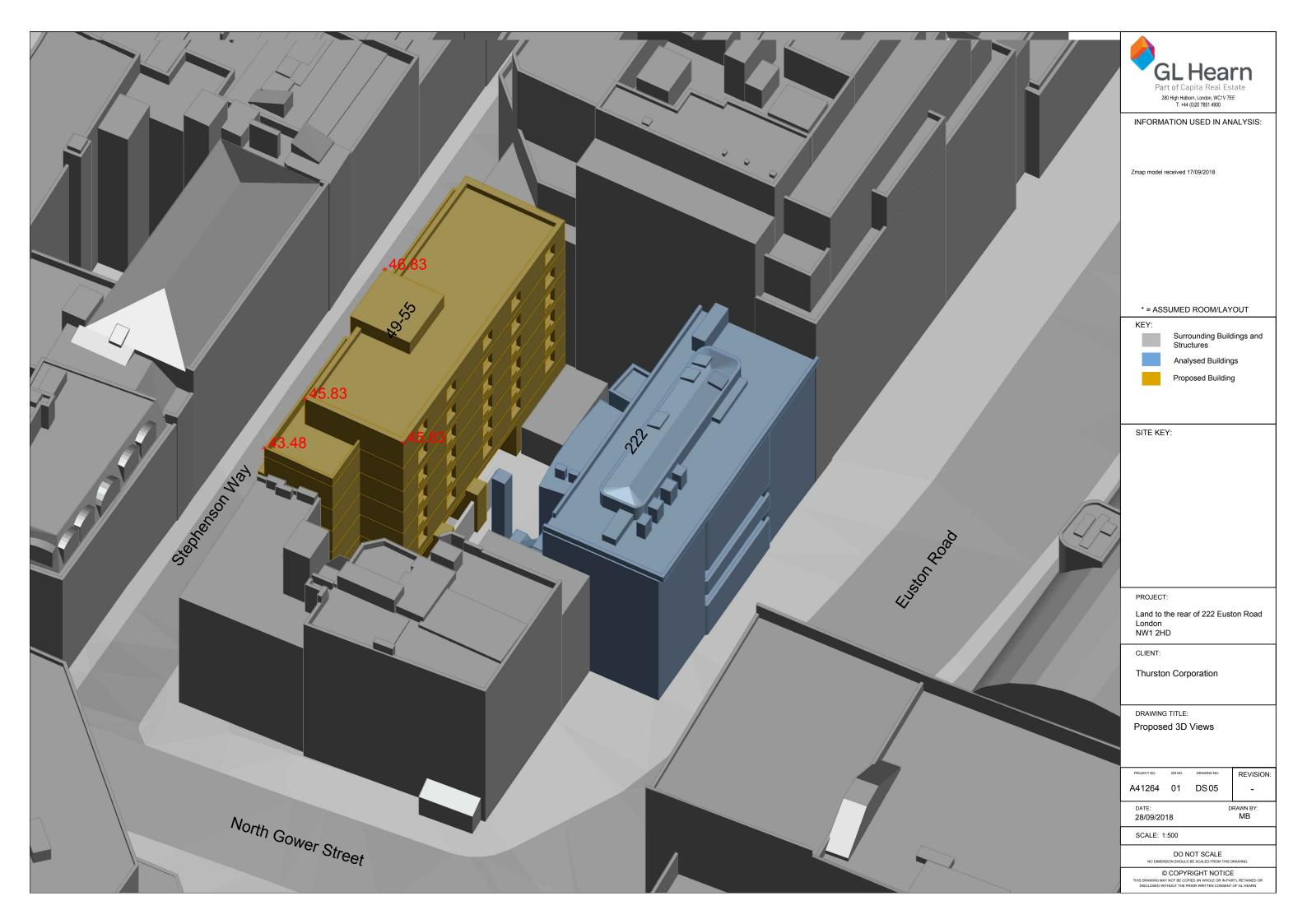
## Appendix 1: GL Hearn Drawings

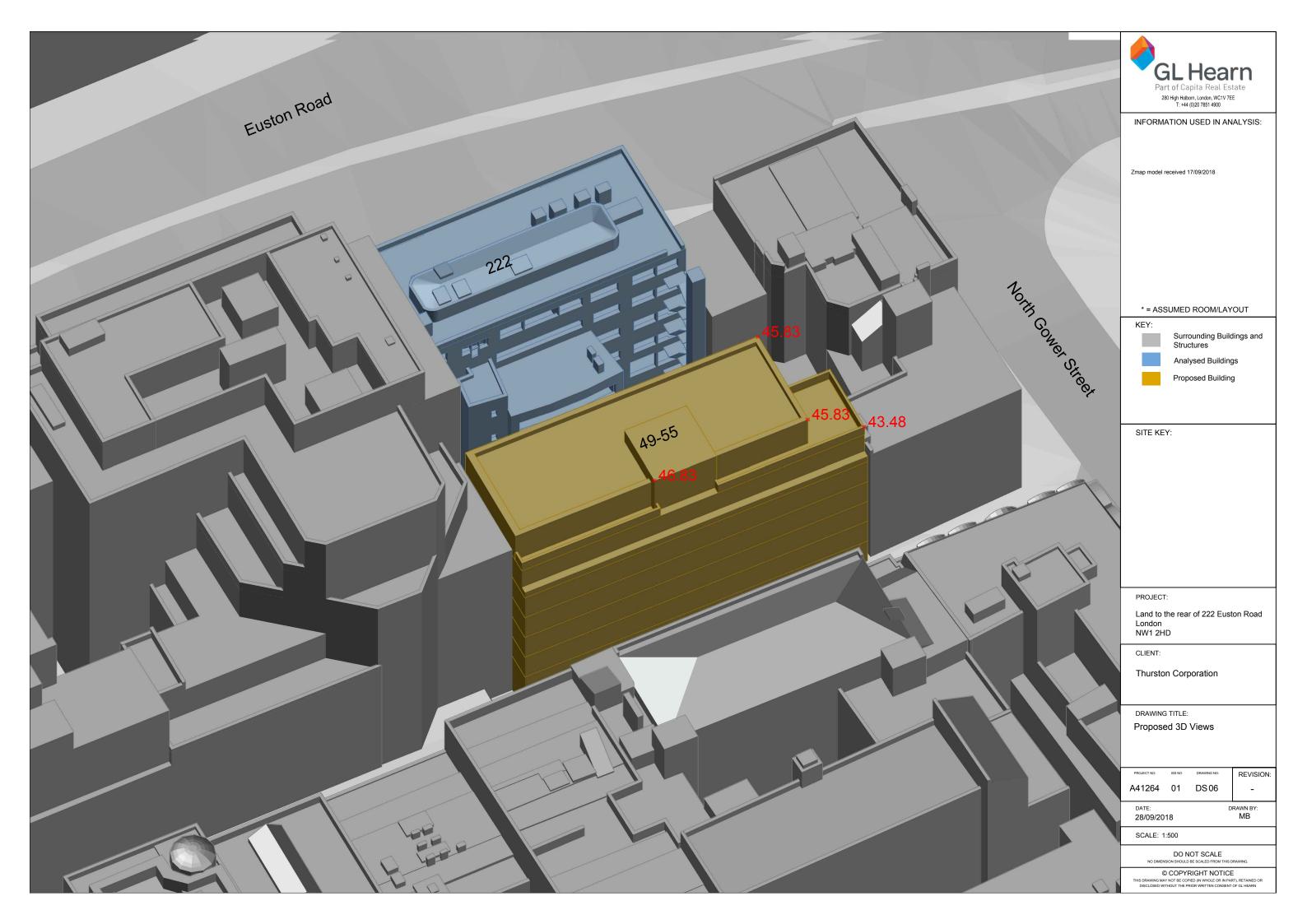














## Appendix 2: Vertical Sky Component (VSC) results spreadsheet for 222 Euston Road



Land to the rear of 222 Euston Road London NW1 2HD Sunlight VSC Results

Floor Ref.	Room Ref.	Room Use.	Window Ref.		VSC	<u>Pro</u> Ex	Meets BRE Criteria
		<b>222</b> Eus	ton Road				
Lower Ground	R1	Class Room	W1	Existing Proposed	4.70 1.19	0.25	NO
	R3	Class Room	W3	Existing Proposed	12.83 0.24	0.01	NO
			W4	Existing Proposed	5.26 3.53	0.67	NO
	R5	Class Room	W6	Existing Proposed	11.80 2.78	0.23	NO
			W7	Existing Proposed	0.00	0.00	YES
Ground	R2	Quiet Room	W2	Existing Proposed	5.76 1.77	0.30	NO
	R5	Class Room	W5	Existing	20.14	0.18	NO
	5	ciass noom	W6	Proposed Existing Proposed	3.64 21.78 4.70	0.21	NO
	R6	Public Engagement	W7	Existing	11.83	0.42	NO
			W8	Proposed Existing Proposed	4.99 14.66 4.66	0.31	NO
			W9	Existing Proposed	7.52 1.38	0.18	NO
First	R1	Breakout Room	W1	Existing	12.57	0.36	NO
			W2	Proposed Existing Proposed	4.63 11.61 4.19	0.36	NO
			W3	Existing Proposed	9.16 3.33	0.36	NO
			W4	Existing Proposed	5.77 2.31	0.40	NO



Land to the rear of 222 Euston Road London NW1 2HD Sunlight VSC Results

Floor Ref.	Room Ref.	Room Use.	Window Ref.		VSC	<u>Pro</u> Ex	Meets BRE Criteria
First	R4	Office	W7	Existing	22.93	0.21	NO
				Proposed	4.93		
			W8	Existing	24.79	0.25	NO
				Proposed	6.20		
			W12	Existing	15.73	1.00	YES
				Proposed	15.73		
			W13	Existing	14.51	1.00	YES
				Proposed	14.51		
			W14	Existing	17.55	1.00	YES
				Proposed	17.55		
	R5	Office	W9	Existing	14.59	0.50	NO
				Proposed	7.40		
			W10	Existing	17.04	0.41	NO
				Proposed	7.03		
			W11	Existing	11.04	0.36	NO
				Proposed	3.98		
Second	R1	Breakout Room	W1	Existing	15.02	0.50	NO
Second	KI	breakout Room	VVI	Proposed	7.56	0.30	NO
			W2	Existing	14.35	0.50	NO
			VVZ	Proposed	7.26	0.50	NO
			W/2		11.72	0.51	NO
			W3	Existing		0.51	NO
			14/4	Proposed	6.04	0.53	NO
			W4	Existing	7.46	0.53	NO
				Proposed	4.00		
	R4	Office	W7	Existing	26.36	0.28	NO
				Proposed	7.44		
			W8	Existing	28.49	0.31	NO
				Proposed	9.00		
			W12	Existing	17.15	1.00	YES
				Proposed	17.15		
			W13	Existing	15.37	1.00	YES
				Proposed	15.37		
			W14	Existing	18.67	1.00	YES
				Proposed	18.67		
	R5	Office	W9	Existing	21.70	0.62	NO
				Proposed	13.66		
			W10	Existing	21.11	0.52	NO
				Proposed	11.00	3.52	



Land to the rear of 222 Euston Road London NW1 2HD Sunlight VSC Results

Floor Ref.	Room Ref.	Room Use.	Window Ref.		VSC	<u>Pro</u> Ex	Meets BRE Criteria
Second	R5	Office	W11	Existing Proposed	12.59 5.99	0.47	NO
Third	R1	Breakout Room	W1	Existing Proposed	19.69 12.56	0.63	NO
	R5	Office	W5	Existing Proposed	30.44 19.92	0.65	NO
	R6	Office	W6	Existing Proposed	30.64 20.76	0.67	NO
			W7 W8	Existing Proposed Existing	27.22 18.67 15.11	0.68	NO NO
			Wo	Proposed	9.64	0.03	110
Fourth	R1	Office	W1	Existing Proposed	21.10 16.18	0.76	NO
			W2	Existing Proposed	24.91 19.13	0.76	NO
	R3	Office	W7	Existing Proposed	32.18 24.90	0.77	NO
			W8 W9	Existing Proposed Existing	33.50 26.09 34.21	0.77	NO NO
				Proposed	26.88		
	R4	Office	W9	Existing Proposed	34.21 26.88	0.78	NO
	R5	Office	W10	Existing Proposed	34.18 27.24	0.79	YES
			W11	Existing Proposed	31.58 25.71	0.81	YES
			W12	Existing Proposed	30.64 26.76	0.87	YES



Appendix 3: Daylight Distribution (DD) results spreadsheet and contour drawings for 222 Euston Road

Land to the rear of 222 Euston Raod, London NW1 2HD

### Daylight Distribution Results



Floor Ref.	Room Ref.	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Proposed Existing	Meets BRE Criteria			
222 Euston Road											
Lower Ground	R1	Class Room	Area m2	22.78	8.68	1.71					
			% of room		38%	7%	0.19	NO			
	R3	Class Room	Area m2	73.58	25.47	11.80					
			% of room		35%	16%	0.46	NO			
	R5	Class Room	Area m2	21.02	12.68	2.64					
			% of room		60%	13%	0.20	NO			
Ground	R2	Quiet Room	Area m2	6.78	4.82	2.06					
			% of room		71%	30%	0.42	NO			
	R5	Class Room	Area m2	78.29	46.79	18.26					
			% of room		60%	23%	0.39	NO			
	R6	Public Engagement	Area m2	50.20	48.53	16.26					
			% of room		97%	32%	0.33	NO			
First	R1	Breakout Room	Area m2	31.64	20.76	5.27					
			% of room		66%	17%	0.25	NO			
	R4	Office	Area m2	133.81	65.58	41.67					
			% of room		49%	31%	0.63	NO			
	R5	Office	Area m2	48.12	39.71	13.60					
			% of room		83%	28%	0.34	NO			
Second	R1	Breakout Room	Area m2	31.64	27.21	7.59					
			% of room		86%	24%	0.27	NO			
	R4	Office	Area m2	133.81	84.33	51.58					
			% of room		63%	39%	0.61	NO			
	R5	Office	Area m2	48.12	47.41	19.01					
			% of room		99%	40%	0.40	NO			
Third	R1	Breakout Room	Area m2	13.03	12.91	5.75					
			% of room		99%	44%	0.44	NO			
	R5	Office	Area m2	35.29	34.87	29.53					
			% of room		99%	84%	0.84	YES			
	R6	Office	Area m2	41.41	41.08	34.04					
			% of room		99%	82%	0.82	YES			
Fourth	R1	Office	Area m2	23.46	20.93	19.63					
			% of room		89%	84%	0.93	YES			
	R3	Office	Area m2	23.54	23.33	21.57					
			% of room		99%	92%	0.92	YES			
	R4	Office	Area m2	9.75	9.70	8.08					
			% of room		100%	83%	0.83	YES			
	R5	Office	Area m2	41.22	40.88	40.62					
			% of room		99%	99%	0.99	YES			





INFORMATION USED IN ANALYSIS:

Zmap model received 17/09/2018

KEY:

Surrounding Buildings and



Room Layout **Existing Contour** 



Proposed Contour



Area of Loss

SITE KEY:

PROJECT:

Land to the rear of 222 Euston Road London NW1 2HD

CLIENT:

Thurston Corporation

DRAWING TITLE:

**Daylight Distribution Contours** 222 Euston Road

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28/09/2018

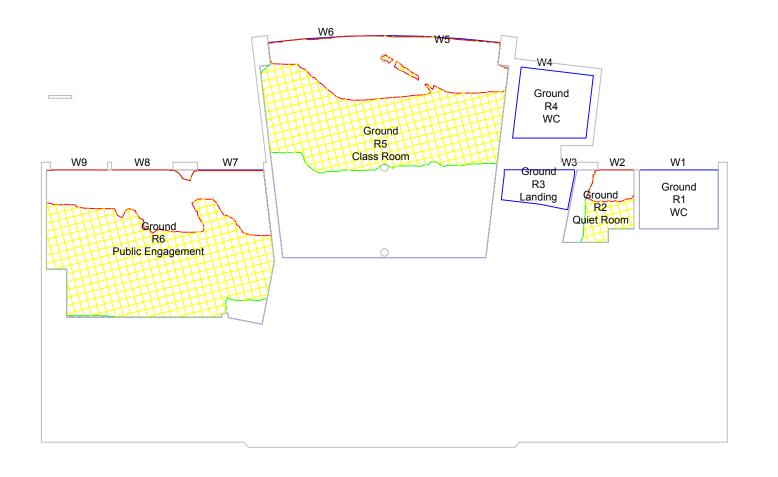
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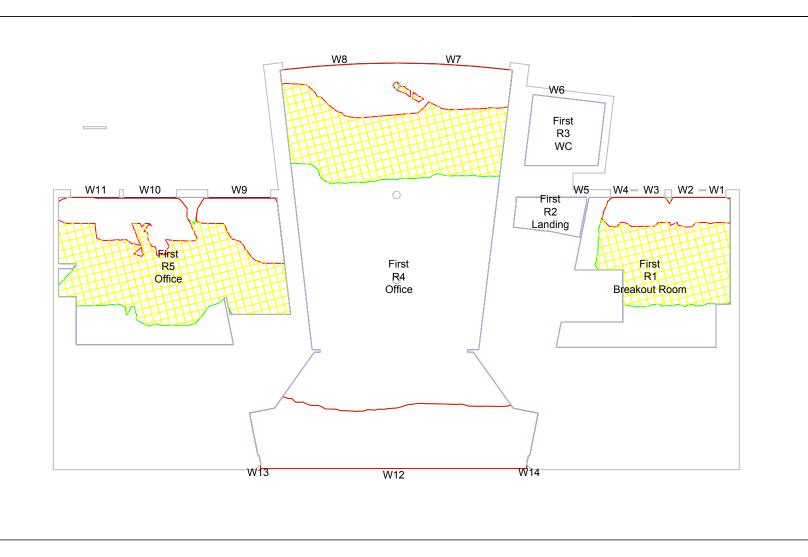
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Lower Ground Floor





INFORMATION USED IN ANALYSIS:

Zmap model received 17/09/2018

KEY:

Surrounding Buildings and

Room Layout
Existing Contour



Proposed Contour

Froposed Co

Area of Loss

SITE KEY:

PROJECT:

Land to the rear of 222 Euston Road London NW1 2HD

CLIENT:

Thurston Corporation

DRAWING TITLE:

Daylight Distribution Contours 222 Euston Road

A41264 01 202

DATE: 28/09/2018 DRAWN BY:

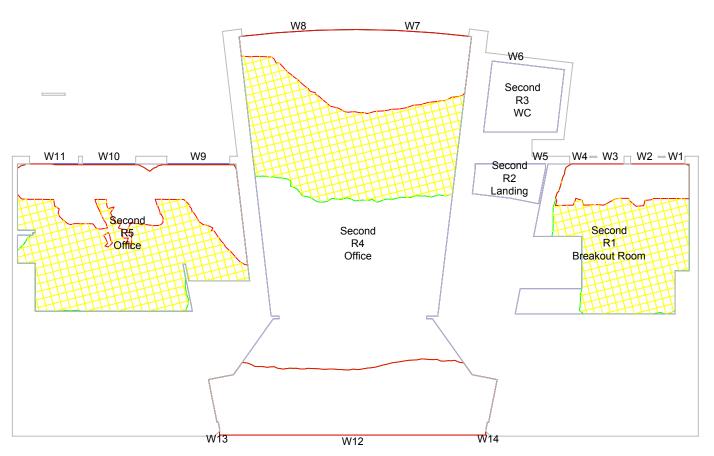
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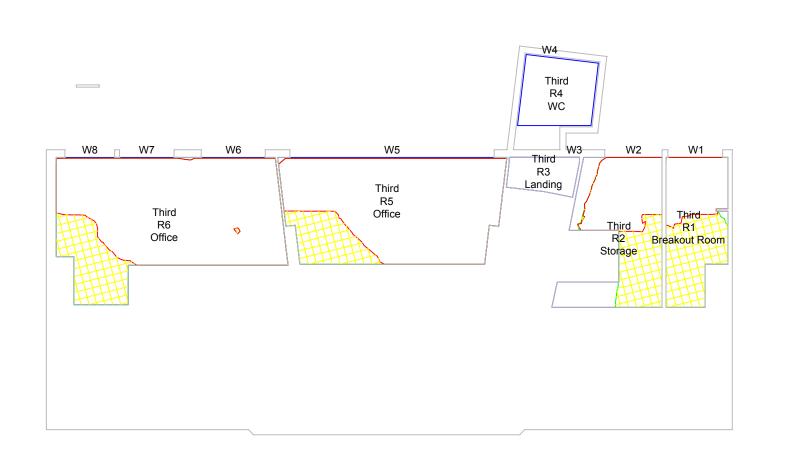
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First Floor

Second Floor



Third Floor

Fourth Floor



INFORMATION USED IN ANALYSIS:

Zmap model received 17/09/2018

KEY:

Surrounding Buildings and Structures



Room Layout **Existing Contour** 



Proposed Contour



Area of Loss

SITE KEY:



PROJECT:

Land to the rear of 222 Euston Road London NW1 2HD

CLIENT:

Thurston Corporation

DRAWING TITLE:

Daylight Distribution Contours 222 Euston Road

A41264 01 203

28/09/2018

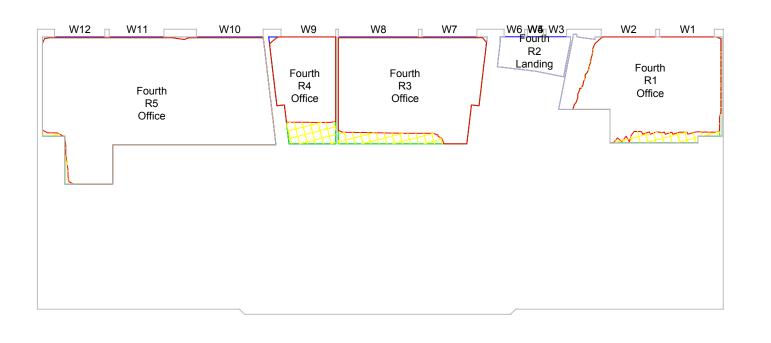
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## Appendix 4: Average Daylight Factor (ADF) results spreadsheet

# Average Daylight Factor Results



Land to the rear of 222 Euston Road, London NW1 2HD

Floor Ref.	Room Ref.	Room Use	Window Ref.	ADF Proposed	Req'd Value	Meets BRE Criteria
		Proposed Scheme at lan	d to the rear of 222	Euston Road		
First	R1	MicroStudio	W1-L	0.01		
			W1-U	0.49		
			W2-L	0.01		
			W2-U	0.68		
				1.20	2.00	NO
First	R2	MicroStudio	W3-L	0.01		
			W3-U	0.59		
			W4-L	0.02		
			W4-U	0.82 1.44	2.00	NO
First	R3	MicroStudio	W5-L	0.01	2.00	NO
11130	N.S	Microstadio	W5-U	0.62		
			W6-L	0.02		
			W6-U	0.86		
				1.51	2.00	NO
First	R4	MicroStudio	W7-L	0.01		
			W7-U	0.63		
			W8-L	0.02		
			W8-U	0.88		
				1.55	2.00	NO
First	R5	MicroStudio	W9-L	0.01		
			W9-U	0.60		
			W10-L	0.02		
			W10-U	0.86	2.00	
Cocond	R1	MicroStudio	W1-L	1.49 0.05	2.00	NO
Second	KI	Microstudio	W1-L W1-U	0.54		
			W2	0.72		
				1.31	2.00	NO
Second	R2	MicroStudio	W3-L	0.06		
			W3-U	0.65		
			W4	0.88		
				1.59	2.00	NO
Second	R3	MicroStudio	W5-L	0.06		
			W5-U	0.69		
			W6	0.93 1.69	2.00	NO
Second	R4	MicroStudio	W7-L	0.07	2.00	NO
2230			W7-U	0.71		
			W8	0.96		
				1.74	2.00	NO
Second	R5	MicroStudio	W9-L	0.06		
			W9-U	0.69		
			W10	0.94	2.00	
Thind	D1	MicroStudio	18/4 1	1.70	2.00	NO
Third	R1	MicroStudio	W1-L W1-U	0.06 0.61		
			W1-0 W2	0.82		
				1.48	2.00	NO
Third	R2	MicroStudio	W3-L	0.07		
			W3-U	0.75		
			W4	1.01		
				1.83	2.00	NO
Third	R3	MicroStudio	W5-L	0.07		
			W5-U	0.80		
			W6	1.08	2.00	NO
				1.96	2.00	NO

# Average Daylight Factor Results



Land to the rear of 222 Euston Road, London NW1 2HD

Floor Ref.	Room Ref.	Room Use	Window Ref.	ADF Proposed	Req'd Value	Meets BRE Criteria
Third	R4	MicroStudio	W7-L	0.08		
			W7-U	0.83		
			W8	1.13		
				2.04	2.00	YES
Third	R5	MicroStudio	W9-L	0.08		
			W9-U W10	0.81		
			WIO	1.11 1.99	2.00	NO
Fourth	n R1	MicroStudio	W1-L	0.06	2.00	
			W1-U	0.65		
			W2	0.89		
				1.60	2.00	NO
Fourth	n R2	MicroStudio	W3-L	0.08		•
			W3-U	0.82		
			W4	1.11		
				2.01	2.00	YES
Fourth	n R3	MicroStudio	W5-L	0.08		
			W5-U W6	0.88 1.18		
			VVO	2.15	2.00	YES
Fourth	n R4	MicroStudio	W7-L	0.09	2.00	11.5
l ourt		c. obtains	W7-U	0.92		
			W8	1.24		
				2.24	2.00	YES
Fourth	n R5	MicroStudio	W9-L	0.08		•
			W9-U	0.89		
			W10	1.23		
				2.21	2.00	YES
Fifth	R1	MicroStudio	W1-L	0.01		
			W1-U	0.68		
			W2-L	0.02		
			W2-U	0.96 1.68	2.00	NO
Fifth	R2	MicroStudio	W3-L	0.02	2.00	NO
1	NZ	Wilciostadio	W3-U	0.87		
			W4-L	0.02		
			W4-U	1.22		
				2.13	2.00	YES
Fifth	R3	MicroStudio	W5-L	0.02		•
			W5-U	0.93		
			W6-L	0.02		
			W6-U	1.30		
E:01	D.4	NA' Ct d' -	14/7.1	2.28	2.00	YES
Fifth	R4	MicroStudio	W7-L W7-U	0.02 0.97		
			W8-L	0.03		
			W8-U	1.37		
			*****	2.38	2.00	YES
Fifth	R5	MicroStudio	W9-L	0.02		
			W9-U	0.97		
			W10-L	0.03		
			W10-U	1.38		
				2.39	2.00	YES
Sixth	R1	MicroStudio	W1-L	0.01		
			W1-U	0.72		
			W2-L	0.01		
			W2-U	1.02 1.76	2.00	NO
Sixth	R2	MicroStudio	W3-L	0.01	2.00	NU
Sixth	KΖ	พแต่งวเนนเบ	W3-L W3-U	0.01		
			W4-L	0.02		
			W4-U	1.31		
			-	2.27	2.00	YES

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Thurston Corporation

# Average Daylight Factor Results



Land to the rear of 222 Euston Road, London NW1 2HD

Floor Ref.	Room Ref.	Room Use	Window Ref.	ADF Proposed	Req'd Value	Meets BRE Criteria
Sixth	R3	MicroStudio	W5-L	0.01		
			W5-U	0.99		
			W6-L	0.02		
			W6-U	1.38		
				2.40	2.00	YES
Sixth	R4	MicroStudio	W7-L	0.01		
			W7-U	1.02		
			W8-L	0.02		
			W8-U	1.44		
				2.49	2.00	YES
Sixth	R5	MicroStudio	W9-L	0.01		
			W9-U	1.03		
			W10-L	0.02		
			W10-U	1.46		
				2.53	2.00	YES



## Appendix 5: Annual Probable Sunlight Hours (APSH) results spreadsheet



# Daylight and Sunlight APSH Results



Land to the rear of 222 Euston Road, London NW1 2HD

					Available Su	ınlight Hours	
Floor Ref.	Room Ref.	Room Use.	Window Ref.	Annual (%)	Meets BRE Criteria	Winter (%)	Meets BRE Criteri
	Propos	ed Scheme at I	and to the	rear of 22	2 Euston F	Road	
First	R1	MicroStudio	W1	24	NO	2	NO
			W2	19	NO	1	NO
	R2	MicroStudio	W3	26	YES	2	NO
			W4	22	NO	2	NO
	R3	MicroStudio	W5	22	NO	0	NO
			W6	19	NO	0	NO
	R4	MicroStudio	W7	24	NO	0	NO
			W8	18	NO	0	NO
	R5	MicroStudio	W9	19	NO	0	NO
			W10	15	NO	0	NO
Second	R1	MicroStudio	W1	26	YES	2	NO
			W2	21	NO	1	NO
	R2	MicroStudio	W3	32	YES	3	NO
			W4	27	YES	2	NO
	R3	MicroStudio	W5	29	YES	0	NO
			W6	25	YES	0	NO
	R4	MicroStudio	W7	33	YES	0	NO
			W8	28	YES	0	NO
	R5	MicroStudio	W9	29	YES	0	NO
			W10	27	YES	0	NO
Third	R1	MicroStudio	W1	31	YES	6	YES
			W2	25	YES	4	NO
	R2	MicroStudio	W3	38	YES	7	YES
			W4	33	YES	5	YES
	R3	MicroStudio	W5	39	YES	5	YES
			W6	36	YES	4	NO
	R4	MicroStudio	W7	42	YES	4	NO
			W8	37	YES	4	NO
	R5	MicroStudio	W9	40	YES	2	NO
			W10	37	YES	4	NO
Fourth	R1	MicroStudio	W1	35	YES	10	YES
			W2	30	YES	8	YES



# Daylight and Sunlight APSH Results



Land to the rear of 222 Euston Road, London NW1 2HD

					Available Su	ınlight Hours	
Floor Ref.	Room Ref.	Room Use.	Window Ref.	Annual (%)	Meets BRE Criteria	Winter (%)	Meets BRE Criteria
Fourth	R2	MicroStudio	W3	43	YES	11	YES
			W4	37	YES	9	YES
	R3	MicroStudio	W5	47	YES	11	YES
			W6	41	YES	9	YES
	R4	MicroStudio	W7	48	YES	10	YES
			W8	43	YES	8	YES
	R5	MicroStudio	W9	48	YES	8	YES
			W10	44	YES	6	YES
r:f+b	D1	MicroCtud: a	\A/1	20	VEC	12	VEC
Fifth	R1	MicroStudio	W1	38	YES	13	YES
			W2	32	YES	10	YES
	R2	MicroStudio	W3	44	YES	11	YES
	112	Wilciostaalo	W4	38	YES	9	YES
			***	30	1123	J	123
	R3	MicroStudio	W5	50	YES	12	YES
			W6	45	YES	10	YES
	R4	MicroStudio	W7	53	YES	13	YES
			W8	47	YES	12	YES
	R5	MicroStudio	W9	56	YES	12	YES
			W10	49	YES	9	YES
Sixth	R1	MicroStudio	W1	39	YES	13	YES
			W2	35	YES	11	YES
	R2	MicroStudio	W3	49	YES	15	YES
			W4	42	YES	12	YES
	R3	MicroStudio	W5	54	YES	14	YES
	1/3	wiiciostuuio	W6	54 47	YES	14 11	YES
			****	7,	123		123
	R4	MicroStudio	W7	60	YES	16	YES
			W8	53	YES	13	YES
	R5	MicroStudio	W9	61	YES	16	YES
			W10	53	YES	12	YES