DAYLIGHT/SUNLIGHT ANALYSIS

in connection with the proposed redevelopment at

1-8 COLLEGE YARD
LONDON
NW5 1NX

Prepared by:

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EXECUTIVE SUMMARY

1.1 This Report has been commissioned to determine and demonstrate the effect of the redevelopment on daylight and sunlight to the windows of the adjoining residential buildings, and the internal illuminance of the proposed development. The proposals include the demolition of existing buildings and the construction of a ground and two upper storeys of residential accommodation providing nine residential units.

1.2 Assessments have been carried out in accordance with the *Building Research Establishment* Report document entitled "*Site Layout planning for daylight and sunlight: A guide to good practice*" Second Edition by Paul Littlefair (2011). This publication has superseded the previous Guidance dated 1991 which was generally taken by the majority of Planning Authorities as the accepted basis for assessment.

1.3 The *BRE* Report does give numerical guidelines, but recommends that these should be interpreted flexibly because natural lighting is only one of a number of factors in site layout design. In special circumstances a planning authority may wish to use different target values.

1.4 Daylight

The analysis confirms that the reduction in *VSC* to all adjacent residential windows to 47, 49, 51, 53 and 55 Lady Somerset Road, Rear of 3 Evangelist Road, 7, 9, 11A & C, 13, 15 and 17 Evangelist Road, 64 and 66 Highgate Road is within the recommendations of the *BRE* Guidance and as such will not be discernible to the human eye.

At 60, 62, 62A and 62 B Highgate Road, the resultant losses are in excess of 20% although the majority have resultant *VSC* which are nearly 20% which would be considered an acceptable level in an urban location particularly having regard to the site circumstances.

Sunlight

Similarly with regard to sunlight, those windows which meet the criteria for assessment accord with the recommendations of the *BRE* Guidance.

1.5 Internal Illuminance of the Proposed Development

Sample analysis for internal illuminance using the test set down within *Appendix C Interior Daylighting Recommendations* of the *BRE* Guidance, indicates that all proposed living rooms will have an improved daylight provision with *ADF* being in excess of 3% which, in accordance with *BS 8206-2 Code of practice for daylighting* is an improved daylighting provision, as well as meeting the standard.

It should further be noted that this analysis would also indicate that in accordance with the *Code for Sustainable Homes - Catergory 7 Health & Well Being* that a credit will be achieve as the kitchens will have an internal illuminance of more than 2% and a further credit for living rooms, dining rooms and studies having internal illuminance in excess of 1.5%.

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INTRODUCTION

2.1 This Report is produced to determine and demonstrate the effect on daylight and sunlight to the windows of the adjoining residential buildings and the internal illuminance of the proposed development.

2.2 For the purposes of this Report, I would like to confirm that I am a Chartered Building Surveyor (**MRICS**) working predominately in the field of boundary disputes dealing with matters arising under *The Party Wall etc. Act, 1996*, neighbourly matters including boundary disputes and rights of light including daylight and sunlight assessments. I have an extensive and highly specialised knowledge, in these areas having worked in the past for both Anstey Horne & Co. for five years and Schatunowski Brooks (formerly known as Michael Brooks Associates as it was when I joined and now known as GVA Schatunowski Brooks) for three years, as well as Delva Patman Associates for four years prior to joining in Partnership Dixon Payne in 2001. All are acknowledged Experts in these fields. I regularly provide Expert Witness advice in respect of Planning Applications in respect of daylight and sunlight at Planning Inquiries acting for both Appellants and Planning Authorities. I was consulted by the *Building Research Establishment* with regards to the revision of their guidelines as well as the *RICS* in respect of their Protocol in respect of Rights to Light.

2.3 The analysis and assessment is described in more detail in subsequent sections of this Report.

SITE LOCATION & PROPOSALS

3.1 The proposals upon which this Report has been prepared are those produced by Martin Evans Architects, *inter alia,* include the demolition of the existing buildings and the construction of a ground and two upper storeys building to provide nine residential units.

LIMITATIONS OF ASSESSMENT

4.1 The assessment has been carried out in accordance with *BS 8206-2 Code of practice for daylighting* This document superseded the previous advice document "*Site Layout planning for daylight and sunlight: A guide to good practice*" by Paul Littlefair (1991) which in turn had superseded the advice document "Sunlight and Daylight" produced by the Department of Environment in 1971.

4.2 The existing site 3D model has been constructed by reference to Martin Evans Architects drawings and a 3D site model prepared by Zmapping Limited.

4.3 Assessments have been undertaken to all adjoining residential properties with windows overlooking the site to demonstrate the affect upon daylight and sunlight.

METHODOLOGY

5.1 Following the publication of the information paper entitled "*Site Layout planning for daylight and sunlight: A guide to good practice*" by the B*RE*, the assessment of daylight and sunlight has been generally carried out in accordance with the criteria set by this publication and which is generally taken to be the accepted basis for such assessment and adopted by most Planning Authorities.

5.2 *Camden Planning Guidance 2011 CP6 Amenity* states:

6 Daylight and sunlight

KEY MESSAGES:
• We expect all buildings to receive adequate daylight and sunlight.
• Daylight and sunlight reports will be required where there is potential to reduce existing levels of daylight and sunlight.
• We will base our considerations on the Average Daylight Factor and Vertical Sky Component.
6.1 Access to daylight and sunlight is important for general amenity, health and well-being, for bringing warmth into a property and to save energy from reducing the need for artificial lighting and heating. The Council will carefully assess proposals that have the potential to reduce daylight and sunlight levels for existing and future occupiers.
6.2 This guidance relates to:
• Camden Core Strategy policy CS5 - Managing the Impact of Growth and Development;
• Core Strategy policy CS14 - Promoting high quality places and conserving our heritage; and
• Policy DP26 – Managing the impact of development on occupiers and neighbours of the Camden Development Policies.
DP26 sets out how the Council will protect the quality of life of building occupiers and neighbours by only granting permission for development that does not cause harm to amenity.
When will a daylight/sunlight report be required?
6.3 The Council expects that all developments receive adequate daylight and sunlight to support the activities taking place in that building.
6.4 A daylight and sunlight report should assess the impact of the development following the methodology set out in the most recent version of Building Research Establishment' (BRE) " layout planning for daylight and sunlight: A guide to good practice" Reports may be required for both minor and major applications depending on whether a proposal has the potential to reduce daylight and sunlight levels. The impact will be affected by the location of the proposed development and its proximity to, and position in relation to, nearby windows
WHAT DOES THE COUNCIL REQUIRE?
The Council will require a daylight and sunlight report to accompany planning applications for development that has the potential to reduce levels of daylight and sunlight on existing and future occupiers, near to and within the proposal site. Daylight and sunlight reports should also demonstrate how you have taken into consideration the guidance contained in the BRE document on passive solar design; and have optimised solar gain. Please refer to the BRE guidance on daylight and sunlight.
6.5 While we strongly support the aims of the BRE methodology for assessing sunlight and daylight we will view the results flexibly and where appropriate we may accept alternative targets to address any special circumstances of a site. For example, to enable new development to respect the existing layout and form in some historic areas. This flexible approach is at the Council' discretion and any exception from the targets will assessed on a case by case basis.

5.3 The *BRE* Report does give numerical guidelines, but recommends that these should be interpreted flexibly because natural lighting is only one of a number of factors in site layout design. In special circumstances a planning authority may wish to use different target values.

5.4 The Guidance states that if a proposed development subtends a line drawn at 25° from the centre of the lowest window then more detailed checks are required in respect of both daylight and sunlight.

5.5 Daylight

The primary assessment of daylight is based on the calculation of the vertical sky component (*VSC*) to an affected window in both the existing and proposed condition. The *VSC*, simply put, is the amount of light received at the centre of a window. It does not indicate distribution within a room for which other assessments are required.

5.6 The guide states that this assessment should be undertaken for habitable rooms that include living rooms, dining rooms and kitchens. Windows to bathrooms, toilets, storerooms and circulation areas need not be analysed.

5.7 The guide states than if at the centre of a window the *VSC* is greater than 27% of the visible dome then enough skylight should be reaching the window. To put this into terms more readily understood, when looking at the sky dome within an open field you would be able to see 40% of the total sky dome.

5.8 This said, a *VSC* of 27% is the ideal, but in most urban situations unlikely to be achieved. The guide states, however, that if the *VSC* is below 27%, and as long as any reduction is within 0.8 of the original value, no significant loss will occur (a reduction which is deemed to be of no consequence and not readily identifiable). In the event that this standard is not achieved then the area lit by the affected window may appear less well lit and supplemental lighting may be required more of the time.

5.9 Sunlight

In respect of sunlight, the guide details the assessment of this by way of calculating the number of probable sunlight hours. The amount of sunlight that will be received is dependant upon orientation and the assessment is only of use where a window is within 90° of south.

5.10 Probable sunlight hours take into account the total number of hours a year that the sun is expected to shine taking into account average levels of cloud cover for the geographical location.

5.11 Sunlight is considered important for living rooms, but less so for bedrooms and kitchens. If the assessment is appropriate, the guide states that a window should receive at least 25% of annual probable sunlight hours with at least 5% of winter probable sunlight hours, but no less than 0.8 times the former if the sunlight is originally below these levels.

5.12 The orientation of a window is important when considering sunlight. A south facing window, generally, will receive the most sunlight whilst east and west facing windows will only receive sunlight at certain times of the day. A north facing window will only receive sunlight on a very few occasions during early morning and late evening in summer.

5.13 Internal Illuminance

There is a further assessment which the Guide details that assesses the distribution of daylight within a room. This is called the average daylight factor (*ADF*). Whereas *VSC* assessments are influenced by the size of obstruction, the *ADF* is more influenced by the room area, the area of room surfaces, the reflectance of room surfaces and the transmittance of the glazing with the size of the obstruction being a smaller influence. The guide states that where a predominately daylit appearance is required, the *ADF* should be at least 5% or more if there is no supplementary electric lighting or 2% or more if there is. In respect of kitchens, living rooms and bedrooms there are additional recommendations of 2%, 1.5% and 1% respectively.

5.14 *BS 8206-2 Code of practice for daylighting* states further that achieving 2% in living rooms will give an improved daylight provision and 3% or 4% would be better still.

5.15 *Code for Sustainable Homes - Catergory 7 Health & Well Being* provides that a credit is given where kitchens will have an internal illuminance of more than 2% and a further credit for living rooms, dining rooms and studies having internal illuminance in excess of 1.5%.

METHODS OF ASSESSMENT

6.1 If a proposed development subtends a line drawn at 25° from the centre of the lowest window then more detailed checks are required in respect of both daylight and sunlight.

6.2 A 3D model of the existing and proposed sites has been constructed and using a specialist computer programme, the *VSC* and sunlight hours have been calculated.

6.3 Sample analysis has been undertaken to consider internal illuminance.

RESULTS

7.1 **Analysis of Impact on Surrounding Properties**

Tables of results are attached within the Appendix for *VSC* (daylight) and sunlight hours.

7.2 Daylight

The analysis confirms that the reduction in *VSC* to all adjacent residential windows to 47, 49, 51, 53 and 55 Lady Somerset Road, Rear of 3 Evangelist Road, 7, 9, 11A & C, 13, 15 and 17 Evangelist Road, 64 and 66 Highgate Road is within the recommendations of the *BRE* Guidance and as such will not be discernible to the human eye.

7.3 At 60, 62, 62A and 62 B Highgate Road, the resultant losses are in excess of 20% although the majority have resultant *VSC* which are nearly 20% which would be considered an acceptable level in an urban location particularly having regard to the site circumstances.

7.4 The *ADF* results are produced for illustration purposes only based upon assumed room layouts. The *Second Edition (2011)* Guidance advises that it is no longer appropriate to use these as a material consideration, but I do consider it appropriate to provide these as it demonstrates that the majority of rooms should be adequately illuminated.

7.5 Sunlight

The analysis confirms that the effect upon sunlight to those windows which meet the criteria for assessment accords with the recommendations of the *BRE* Guidance

7.6 **Analysis of Internal Illuminance of Proposed Development**

7.7 Sample assessments have been carried out in respect of the *BRE* Guidance for internal illuminnace. The proposed accomondation achieves the minimum requirements for internal illuminace in accordance with *BS 8206-2 Code of practice for daylighting*, with all proposed living rooms having an improved daylight provision with *ADF*s being in excess of 3%.

7.8 It should further be noted that this analysis would also indicate that in accordance with the *Code for Sustainable Homes - Catergory 7 Health & Well Being* that a credit will be achieve as the kitchens will have an internal illuminance of more than 2% and a further credit for living rooms, dining rooms and studies having internal illuminance in excess of 1.5%.

CONCLUSION

8.1 Within the *Building Research Establishment* guideline document entitled "*Site Layout planning for daylight and sunlight: A guide to good practice*" by Paul Littlefair *Second Edition* (2011) it does give numerical guidelines, but recommends that these should be interpreted flexibly because natural lighting is only one of a number of factors in site layout design.

8.2 For the majority of the adjoining residential properties, the reduction in daylight received to the windows of the adjacent residential properties which would be discernible to the human eye.

8.3 The analysis of the effect upon sunlight meet the recommendations of the *BRE* Guidance.

8.4 The sample analysis of the proposals with regard to internal illuminance demonstrates that the habitable rooms as detailed within the *BRE* Guidance accord with the advice given, with all proposed living rooms having an improved daylight provision with *ADF* being in excess of 3% which, in accordance with *BS 8206-2 Code of practice for daylighting*, is an improved daylighting provision.

8.5 In accordance with the *Code for Sustainable Homes - Catergory 7 Health & Well Being* a credit will be awarded as the kitchens will have an internal illuminance of more than 2% and a further credit awarded for living rooms, dining rooms and studies having internal illuminance in excess of 1.5%.

8.5 The scheme as designed can be seen to have had careful regard to the effect upon daylight and sunlight upon adjoining properties in respect of the *Building Research Establishment* Report document entitled "*Site Layout planning for daylight and sunlight: A guide to good practice*" by Paul Littlefair *Second Edition* (2011).

Wednesday, November 28, 2012

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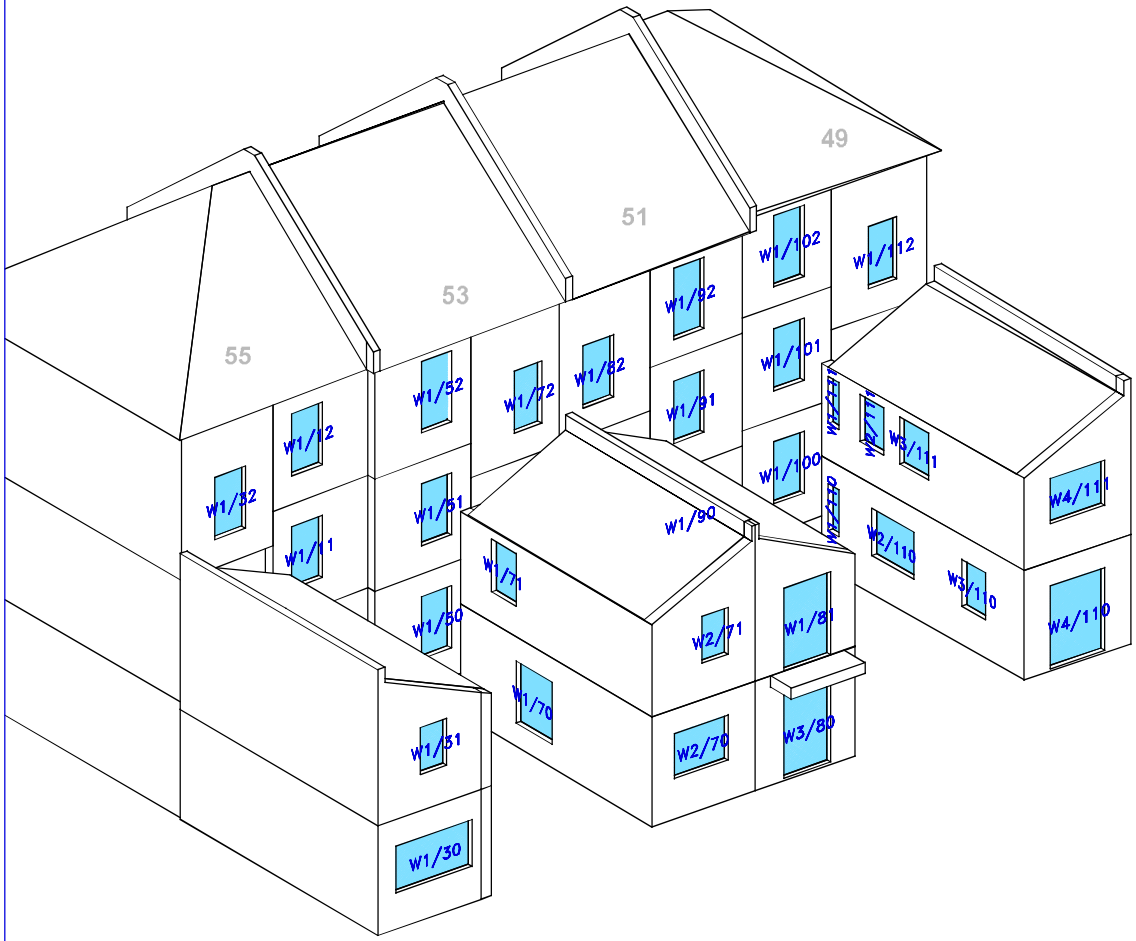
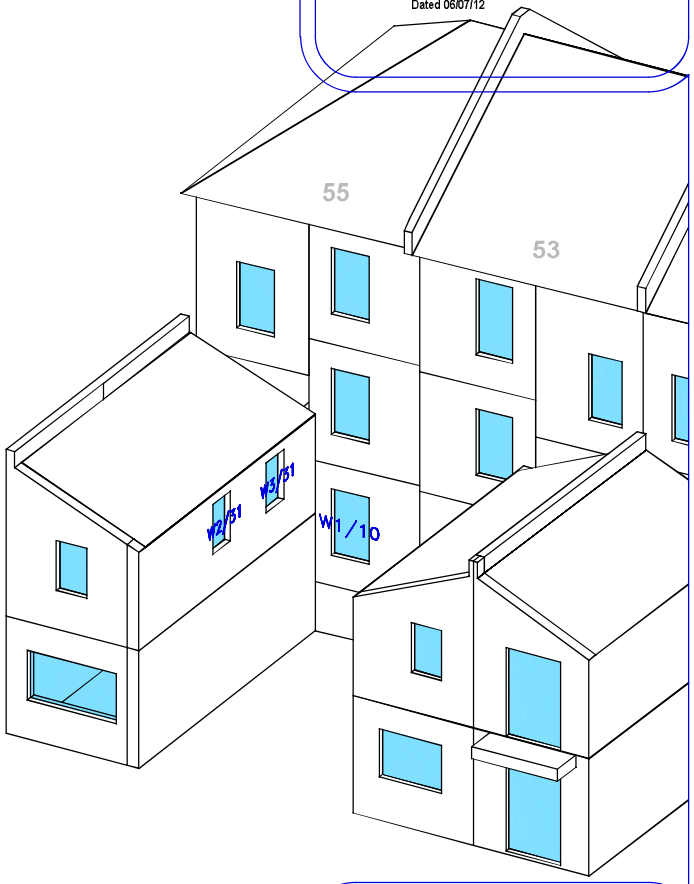
APPENDIX A





Sources: DANDO SURVEYING LTD
Site Topographical Survey, Drawing no.
MEcollegeTOPO1

MARTIN EVANS ARCHITECTS
Proposed Scheme, Drawings no.
CY-PL-PR-02 to 15
Dated 06/07/12

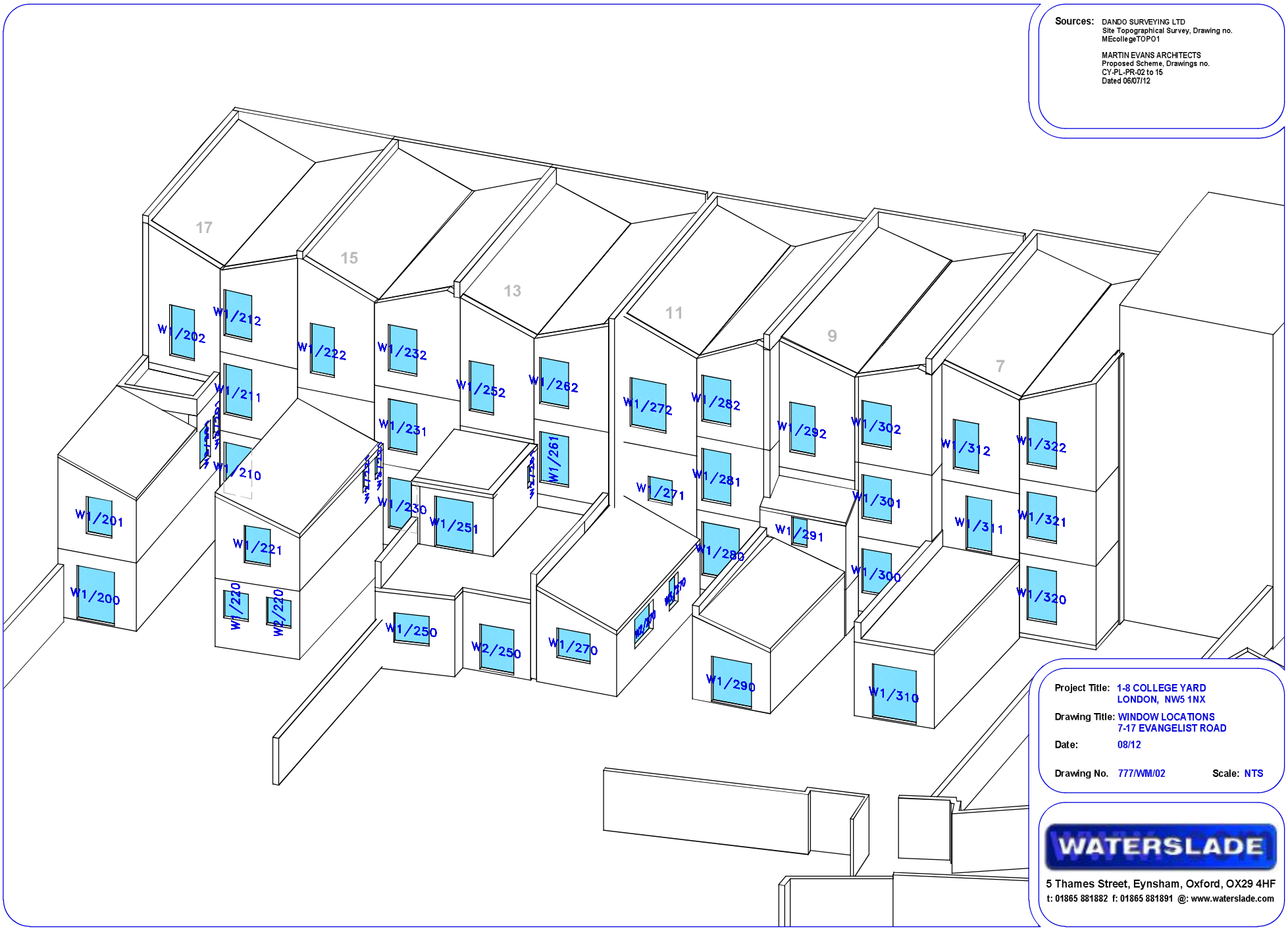
Project Title: 1-8 COLLEGE YARD
LONDON, NW5 1NX

Drawing Title: WINDOW LOCATIONS
49-55 LADY SOMERSET ROAD

Date: 08/12

Drawing No. 777/WM/01 Scale: NTS

WATERSLADE
5 Thames Street, Eynsham, Oxford, OX29 4HF
t: 01865 881882 f: 01865 881891 @: www.waterslade.com



Sources: DANDO SURVEYING LTD
Site Topographical Survey, Drawing no. MEcollegeTOPO1

MARTIN EVANS ARCHITECTS
Proposed Scheme, Drawings no. CY-PL-PR-02 to 15
Dated 06/07/12

Project Title: 1-8 COLLEGE YARD
LONDON, NW5 1NX

Drawing Title: WINDOW LOCATIONS
7-17 EVANGELIST ROAD

Date: 08/12

Drawing No. 777/WM/02 Scale: NTS

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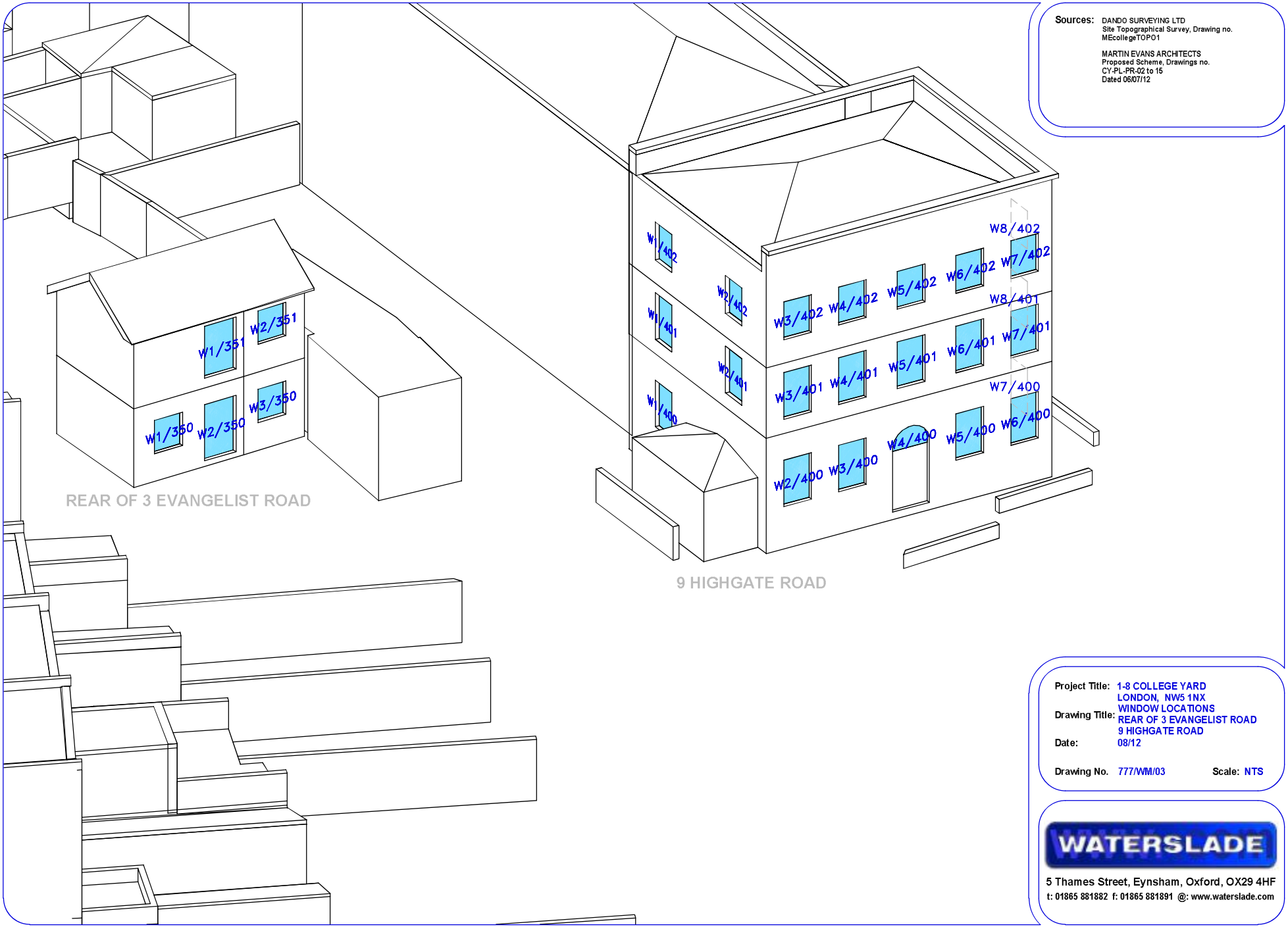

Sources: DANDO SURVEYING LTD
Site Topographical Survey, Drawing no. MEcollegeTOPO1

MARTIN EVANS ARCHITECTS
Proposed Scheme, Drawings no. CY-PL-PR-02 to 15
Dated 06/07/12

Project Title: 1-8 COLLEGE YARD
LONDON, NW5 1NX

Drawing Title: WINDOW LOCATIONS
REAR OF 3 EVANGELIST ROAD
9 HIGHGATE ROAD

Date: 08/12

Drawing No. 777/WM/03 **Scale:** NTS

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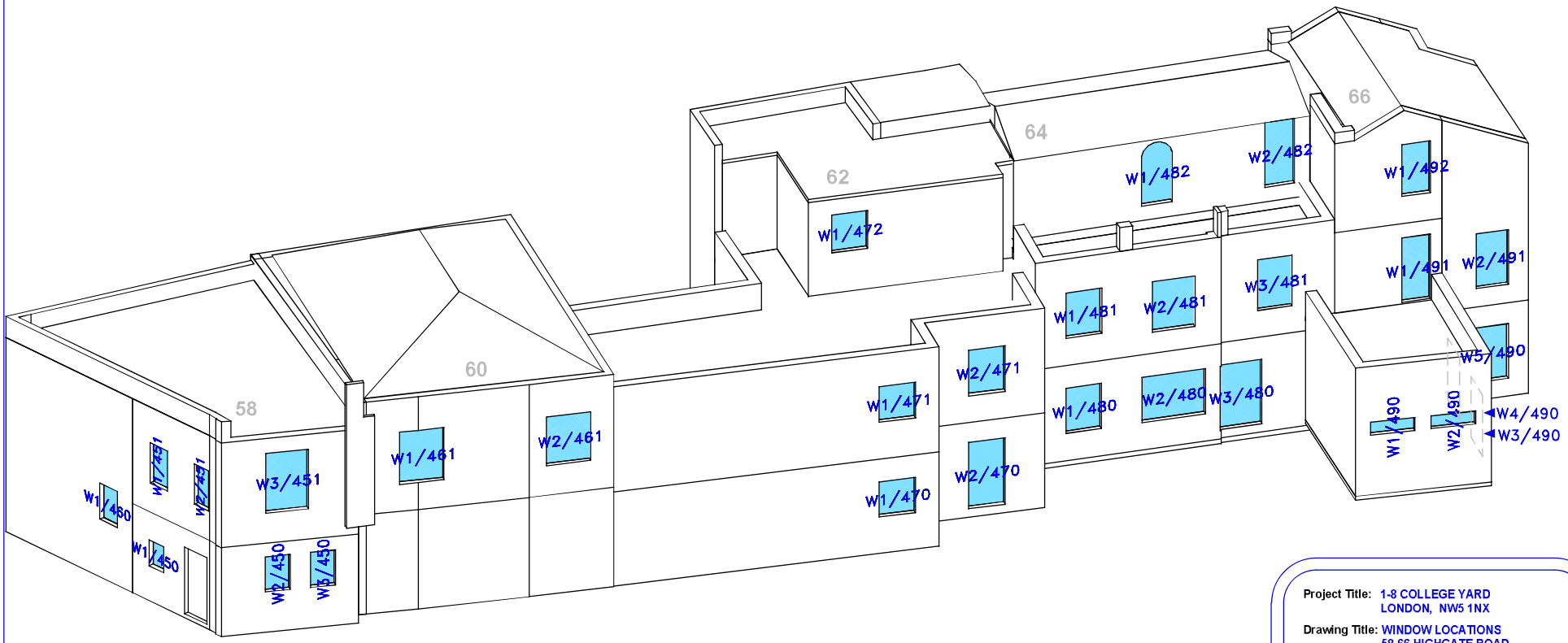
MEcollegeTOPO1

MARTIN EVANS ARCHITECTS
Proposed Scheme, Drawings no.
CY-PL-PR-02 to 15
Dated 06/07/12



Project Title: 1-8 COLLEGE YARD
LONDON, NW5 1NX

Drawing Title: WINDOW LOCATIONS
58-66 HIGHGATE ROAD

Date: 08/12

Drawing No. 777/WM/04 **Scale:** NTS

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1-8 COLLEGE YARD **DAYLIGHT ANALYSIS** **AUG 2012**
COLLEGE LANE **MARTIN EVANS PROPOSED SCHEME DATED 06/07/12**
LONDON, NW5 1NX

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	%LOSS VSC	PASS/ FAIL
55 Lady Somerset Road							
R1/10		W1/10	19.29	18.62	0.67	3.47	PASS
R1/11		W1/11	34.57	34.07	0.50	1.45	PASS
R1/12		W1/12	36.77	36.72	0.05	0.14	PASS
R1/30		W1/30	27.96	26.90	1.06	3.79	PASS
R1/31		W1/31	33.31	32.11	1.20	3.60	PASS
R1/31		W2/31	25.56	25.25	0.31	1.21	PASS
R2/31		W3/31	20.71	20.48	0.23	1.11	PASS
R1/32		W1/32	36.90	36.73	0.17	0.46	PASS
53 Lady Somerset Road							
R1/50		W1/50	18.37	17.95	0.42	2.29	PASS
R1/51		W1/51	34.28	33.82	0.46	1.34	PASS
R1/52		W1/52	36.98	36.98	0.00	0.00	PASS
R1/70		W2/70	29.98	28.97	1.01	3.37	PASS
R2/70		W1/70	14.09	14.07	0.02	0.14	PASS
R1/71		W2/71	34.72	33.28	1.44	4.15	PASS
R2/71		W1/71	19.85	19.83	0.02	0.10	PASS
R1/72		W1/72	37.21	37.18	0.03	0.08	PASS
51 Lady Somerset Road							
R1/80		W3/80	24.31	23.59	0.72	2.96	PASS
R1/81		W1/81	34.36	33.11	1.25	3.64	PASS
R1/82		W1/82	37.22	37.20	0.02	0.05	PASS
R1/90		W1/90	21.42	21.34	0.08	0.37	PASS
R1/91		W1/91	35.10	34.94	0.16	0.46	PASS
R1/92		W1/92	37.05	37.05	0.00	0.00	PASS
49 Lady Somerset Road							
R1/100		W1/100	20.78	20.35	0.43	2.07	PASS

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	%LOSS VSC	PASS/ FAIL
R1/101		W1/101	34.54	34.48	0.06	0.17	PASS
R1/102		W1/102	35.91	35.91	0.00	0.00	PASS
R1/110		W3/110	19.23	18.88	0.35	1.82	PASS
R1/110		W4/110	30.63	30.02	0.61	1.99	PASS
R2/110		W2/110	14.25	13.98	0.27	1.89	PASS
R3/110		W1/110	10.64	10.42	0.22	2.07	PASS
R1/111		W4/111	34.98	34.36	0.62	1.77	PASS
R2/111		W2/111	19.05	18.94	0.11	0.58	PASS
R2/111		W3/111	22.90	22.75	0.15	0.66	PASS
R3/111		W1/111	15.11	15.03	0.08	0.53	PASS
R1/112		W1/112	37.18	37.18	0.00	0.00	PASS
17 Evangelist Road							
R1/200		W1/200	25.27	24.63	0.64	2.53	PASS
R1/201		W1/201	33.12	31.88	1.24	3.74	PASS
R2/201		W2/201	13.79	13.66	0.13	0.94	PASS
R3/201		W3/201	13.21	13.11	0.10	0.76	PASS
R1/202		W1/202	36.85	36.41	0.44	1.19	PASS
R1/210		W1/210	12.31	11.87	0.44	3.57	PASS
R1/211		W1/211	30.12	29.29	0.83	2.76	PASS
R1/212		W1/212	37.55	37.35	0.20	0.53	PASS
15 Evangelist Road							
R1/220		W1/220	27.87	26.84	1.03	3.70	PASS
R1/220		W2/220	27.57	26.43	1.14	4.13	PASS
R1/221		W1/221	32.72	30.83	1.89	5.78	PASS
R4/221		W2/221	15.16	14.91	0.25	1.65	PASS
R5/221		W3/221	12.51	12.29	0.22	1.76	PASS
R1/222		W1/222	37.34	36.96	0.38	1.02	PASS

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	%LOSS VSC	PASS/ FAIL
R1/230		W1/230	14.01	13.50	0.51	3.64	PASS
R1/231		W1/231	35.92	34.81	1.11	3.09	PASS
R1/232		W1/232	37.66	37.42	0.24	0.64	PASS
13 Evangelist Road							
R1/250		W1/250	27.93	26.08	1.85	6.62	PASS
R2/250		W2/250	23.79	22.34	1.45	6.09	PASS
R1/251		W1/251	34.19	32.38	1.81	5.29	PASS
R2/251		W2/251	21.19	20.98	0.21	0.99	PASS
R1/252		W1/252	37.29	36.74	0.55	1.47	PASS
R1/261		W1/261	31.40	30.32	1.08	3.44	PASS
R1/262		W1/262	37.61	37.30	0.31	0.82	PASS
11a & c Evangelist Road							
R1/270		W1/270	29.03	26.26	2.77	9.54	PASS
R1/270		W2/270	17.29	16.58	0.71	4.11	PASS
R2/270		W3/270	13.19	12.77	0.42	3.18	PASS
R1/271		W1/271	31.76	30.01	1.75	5.51	PASS
R1/272		W1/272	31.42	30.87	0.55	1.75	PASS
R1/280		W1/280	26.82	25.40	1.42	5.29	PASS
R1/281		W1/281	35.57	33.94	1.63	4.58	PASS
R1/282		W1/282	37.13	36.83	0.30	0.81	PASS
9 Evangelist Road							
R1/290		W1/290	27.16	23.24	3.92	14.43	PASS
R1/291		W1/291	34.97	32.83	2.14	6.12	PASS
R1/292		W1/292	32.06	31.48	0.58	1.81	PASS
R1/300		W1/300	21.13	19.39	1.74	8.23	PASS
R1/301		W1/301	35.57	34.11	1.46	4.10	PASS
R1/302		W1/302	37.10	36.85	0.25	0.67	PASS

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	%LOSS VSC	PASS/ FAIL
7 Evangelist Road							
R1/310		W1/310	28.98	25.75	3.23	11.15	PASS
R1/311		W1/311	30.44	29.10	1.34	4.40	PASS
R1/312		W1/312	30.89	30.54	0.35	1.13	PASS
R1/320		W1/320	17.08	16.54	0.54	3.16	PASS
R1/321		W1/321	30.96	29.98	0.98	3.17	PASS
R1/322		W1/322	36.72	36.57	0.15	0.41	PASS
Rear of 3 Evangelist Road							
R1/350		W1/350	21.80	21.67	0.13	0.60	PASS
R1/350		W2/350	21.80	20.76	1.04	4.77	PASS
R2/350		W3/350	20.90	19.80	1.10	5.26	PASS
R1/351		W1/351	32.49	30.71	1.78	5.48	PASS
R2/351		W2/351	31.61	29.80	1.81	5.73	PASS
9 Highgate Road							
R1/400		W1/400	30.59	27.28	3.31	10.82	PASS
R2/400		W2/400	25.47	17.51	7.96	31.25	FAIL
R2/400		W3/400	24.66	19.80	4.86	19.71	PASS
R3/400		W5/400	21.45	19.67	1.78	8.30	PASS
R3/400		W6/400	21.21	20.00	1.21	5.70	PASS
R3/400		W7/400	22.46	22.46	0.00	0.00	PASS
R4/400	ENTRANCE	W4/400	24.31	21.45	2.86	11.76	PASS
R1/401		W1/401	34.41	32.32	2.09	6.07	PASS
R2/401		W2/401	34.52	28.89	5.63	16.31	PASS
R2/401		W3/401	35.12	28.62	6.50	18.51	PASS
R2/401		W4/401	34.94	31.48	3.46	9.90	PASS
R3/401		W6/401	33.72	32.30	1.42	4.21	PASS
R3/401		W7/401	33.35	32.35	1.00	3.00	PASS
R3/401		W8/401	26.08	26.08	0.00	0.00	PASS
R4/401		W5/401	34.37	32.31	2.06	5.99	PASS
R1/402		W1/402	36.65	36.15	0.50	1.36	PASS

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	%LOSS VSC	PASS/ FAIL
R2/402		W2/402	36.74	35.01	1.73	4.71	PASS
R2/402		W3/402	37.44	35.52	1.92	5.13	PASS
R2/402		W4/402	37.45	36.35	1.10	2.94	PASS
R3/402		W6/402	37.44	37.02	0.42	1.12	PASS
R3/402		W7/402	37.43	37.14	0.29	0.77	PASS
R3/402		W8/402	29.25	29.25	0.00	0.00	PASS
R4/402		W5/402	37.45	36.79	0.66	1.76	PASS
58 Highgate Road							
R1/450		W1/450	13.05	11.00	2.05	15.71	PASS
R1/450		W2/450	23.22	10.38	12.84	55.30	FAIL
R2/450		W3/450	21.78	8.77	13.01	59.73	FAIL
R1/451		W1/451	17.21	15.71	1.50	8.72	PASS
R1/451		W2/451	19.03	16.56	2.47	12.98	PASS
R1/451		W3/451	29.89	19.68	10.21	34.16	FAIL
R1/460		W1/460	13.52	12.36	1.16	8.58	PASS
60 Highgate Road							
R1/461		W1/461	24.96	20.54	4.42	17.71	PASS
R2/461		W2/461	28.26	20.96	7.30	25.83	FAIL
62. 62a & b Highgate Road							
R1/470		W1/470	12.40	10.31	2.09	16.85	PASS
R2/470		W2/470	14.46	11.12	3.34	23.10	FAIL
R1/471		W1/471	30.58	21.28	9.30	30.41	FAIL
R2/471		W2/471	29.04	22.16	6.88	23.69	FAIL
R3/472		W1/472	36.92	34.40	2.52	6.83	PASS
64 Highgate Road							
R1/480		W1/480	21.45	18.52	2.93	13.66	PASS
R2/480		W2/480	24.76	22.16	2.60	10.50	PASS
R3/480		W3/480	20.91	18.76	2.15	10.28	PASS
R1/481		W1/481	29.95	26.33	3.62	12.09	PASS

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	%LOSS VSC	PASS/ FAIL
R2/481		W2/481	32.76	29.47	3.29	10.04	PASS
R3/481		W3/481	34.00	31.73	2.27	6.68	PASS
R1/482		W2/482	27.26	26.59	0.67	2.46	PASS
R2/482		W1/482	36.17	34.89	1.28	3.54	PASS
66 Highgate Road							
R1/490		W1/490	27.22	26.39	0.83	3.05	PASS
R1/490		W2/490	28.94	27.84	1.10	3.80	PASS
R1/490		W3/490	16.44	16.44	0.00	0.00	PASS
R1/490		W4/490	14.31	14.31	0.00	0.00	PASS
R2/490		W5/490	19.76	19.76	0.00	0.00	PASS
R1/491		W1/491	33.91	32.43	1.48	4.36	PASS
R2/491		W2/491	32.39	31.23	1.16	3.58	PASS
R1/492		W1/492	36.74	36.22	0.52	1.42	PASS

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			Window							Room						
			Existing		Proposed					Existing		Proposed				
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail
55 Lady Somerset Road																
R1/10	**W1/10**		6	33	7	34	-16.7	-3.0	PASS	6	33	7	34	-16.7	-3.0	PASS
R1/11	**W1/11**		25	79	25	79	0.0	0.0	PASS	25	79	25	79	0.0	0.0	PASS
R1/12	**W1/12**		28	78	28	78	0.0	0.0	PASS	28	78	28	78	0.0	0.0	PASS
R1/30	**W1/30**		14	63	11	60	21.4	4.8	PASS	14	63	11	60	21.4	4.8	PASS
R1/31	**W1/31**		22	76	20	74	9.1	2.6	PASS							
R1/31	**W2/31**		7	33	6	32	14.3	3.0	PASS	22	76	21	75	4.5	1.3	PASS
R1/32	**W1/32**		27	81	27	81	0.0	0.0	PASS	27	81	27	81	0.0	0.0	PASS
53 Lady Somerset Road																
R1/50	**W1/50**		14	43	14	43	0.0	0.0	PASS	14	43	14	43	0.0	0.0	PASS
R1/51	**W1/51**		24	75	24	75	0.0	0.0	PASS	24	75	24	75	0.0	0.0	PASS
R1/52	**W1/52**		28	79	28	79	0.0	0.0	PASS	28	79	28	79	0.0	0.0	PASS
R1/70	**W2/70**		19	71	16	68	15.8	4.2	PASS	19	71	16	68	15.8	4.2	PASS
R2/70	**W1/70**		13	38	11	36	15.4	5.3	PASS	13	38	11	36	15.4	5.3	PASS
R1/71	**W2/71**		26	80	24	78	7.7	2.5	PASS	26	80	24	78	7.7	2.5	PASS
R2/71	**W1/71**		18	49	18	49	0.0	0.0	PASS	18	49	18	49	0.0	0.0	PASS
R1/72	**W1/72**		27	79	27	79	0.0	0.0	PASS	27	79	27	79	0.0	0.0	PASS
51 Lady Somerset Road																

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			Window							Room						
			Existing		Proposed					Existing		Proposed				
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail
R1/80	W3/80		16	65	15	64	6.3	1.5	PASS	16	65	15	64	6.3	1.5	PASS
R1/81	W1/81		24	78	22	76	8.3	2.6	PASS	24	78	22	76	8.3	2.6	PASS
R1/82	W1/82		27	79	27	79	0.0	0.0	PASS	27	79	27	79	0.0	0.0	PASS
R1/90	W1/90		6	35	6	35	0.0	0.0	PASS	6	35	6	35	0.0	0.0	PASS
R1/91	W1/91		23	76	23	76	0.0	0.0	PASS	23	76	23	76	0.0	0.0	PASS
R1/92	W1/92		28	78	28	78	0.0	0.0	PASS	28	78	28	78	0.0	0.0	PASS
49 Lady Somerset Road																
R1/100	W1/100		14	41	13	40	7.1	2.4	PASS	14	41	13	40	7.1	2.4	PASS
R1/101	W1/101		23	69	23	69	0.0	0.0	PASS	23	69	23	69	0.0	0.0	PASS
R1/102	W1/102		25	71	25	71	0.0	0.0	PASS	25	71	25	71	0.0	0.0	PASS
R1/110	W3/110		15	43	13	41	13.3	4.7	PASS							
R1/110	W4/110		20	69	19	68	5.0	1.4	PASS	22	74	20	72	9.1	2.7	PASS
R2/110	W2/110		13	39	13	39	0.0	0.0	PASS	13	39	13	39	0.0	0.0	PASS
R3/110	W1/110		12	36	11	35	8.3	2.8	PASS	12	36	11	35	8.3	2.8	PASS
R1/111	W4/111		24	77	24	77	0.0	0.0	PASS	24	77	24	77	0.0	0.0	PASS
R2/111	W2/111		19	46	19	46	0.0	0.0	PASS							
R2/111	W3/111		19	50	19	50	0.0	0.0	PASS	19	50	19	50	0.0	0.0	PASS
R3/111	W1/111		19	44	19	44	0.0	0.0	PASS	19	44	19	44	0.0	0.0	PASS

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			Window							Room						
			Existing		Proposed					Existing		Proposed				
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail
R1/112	**W1/112**		27	79	27	79	0.0	0.0	PASS	27	79	27	79	0.0	0.0	PASS
17 Evangelist Road																
R1/200	**W1/200**		14	49	14	49	0.0	0.0	PASS	14	49	14	49	0.0	0.0	PASS
R1/201	**W1/201**		20	60	19	59	5.0	1.7	PASS	20	60	19	59	5.0	1.7	PASS
R2/201	**W2/201**		11	40	11	40	0.0	0.0	PASS	11	40	11	40	0.0	0.0	PASS
R3/201	**W3/201**		13	39	13	39	0.0	0.0	PASS	13	39	13	39	0.0	0.0	PASS
R1/202	**W1/202**		21	61	21	61	0.0	0.0	PASS	21	61	21	61	0.0	0.0	PASS
R1/210	**W1/210**		2	25	2	25	0.0	0.0	PASS	2	25	2	25	0.0	0.0	PASS
R1/211	**W1/211**		21	56	20	55	4.8	1.8	PASS	21	56	20	55	4.8	1.8	PASS
R1/212	**W1/212**		21	62	21	62	0.0	0.0	PASS	21	62	21	62	0.0	0.0	PASS
15 Evangelist Road																
R1/220	**W1/220**		15	54	13	51	13.3	5.6	PASS							
R1/220	**W2/220**		13	51	11	48	15.4	5.9	PASS	15	54	13	51	13.3	5.6	PASS
R1/221	**W1/221**		20	61	18	59	10.0	3.3	PASS	20	61	18	59	10.0	3.3	PASS
R4/221	**W2/221**		10	40	9	39	10.0	2.5	PASS	10	40	9	39	10.0	2.5	PASS
R5/221	**W3/221**		9	37	8	36	11.1	2.7	PASS	9	37	8	36	11.1	2.7	PASS
R1/222	**W1/222**		23	64	23	64	0.0	0.0	PASS	23	64	23	64	0.0	0.0	PASS

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			Window							Room						
			Existing		Proposed					Existing		Proposed				
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail
R1/230	**W1/230**		2	22	2	22	0.0	0.0	PASS	2	22	2	22	0.0	0.0	PASS
R1/231	**W1/231**		22	62	21	61	4.5	1.6	PASS	22	62	21	61	4.5	1.6	PASS
R1/232	**W1/232**		23	64	23	64	0.0	0.0	PASS	23	64	23	64	0.0	0.0	PASS
13 Evangelist Road																
R1/250	**W1/250**		17	56	14	52	17.6	7.1	PASS	17	56	14	52	17.6	7.1	PASS
R2/250	**W2/250**		5	40	5	40	0.0	0.0	PASS	5	40	5	40	0.0	0.0	PASS
R1/251	**W1/251**		21	62	20	60	4.8	3.2	PASS	21	62	20	60	4.8	3.2	PASS
R2/251	**W2/251**		22	51	21	50	4.5	2.0	PASS	22	51	21	50	4.5	2.0	PASS
R1/252	**W1/252**		23	64	23	64	0.0	0.0	PASS	23	64	23	64	0.0	0.0	PASS
R1/261	**W1/261**		22	57	20	55	9.1	3.5	PASS	22	57	20	55	9.1	3.5	PASS
R1/262	**W1/262**		23	64	23	64	0.0	0.0	PASS	23	64	23	64	0.0	0.0	PASS
11a & c Evangelist Road																
R1/270	**W1/270**		18	54	14	48	22.2	11.1	PASS							
R1/270	**W2/270**		11	45	8	42	27.3	6.7	PASS	20	64	16	58	20.0	9.4	PASS
R2/270	**W3/270**		6	37	4	35	33.3	5.4	PASS	6	37	4	35	33.3	5.4	PASS
R1/271	**W1/271**		21	61	20	59	4.8	3.3	PASS	21	61	20	59	4.8	3.3	PASS
R1/272	**W1/272**		23	62	23	62	0.0	0.0	PASS	23	62	23	62	0.0	0.0	PASS
R1/280	**W1/280**		4	38	4	38	0.0	0.0	PASS	4	38	4	38	0.0	0.0	PASS

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			Window							Room						
			Existing		Proposed					Existing		Proposed				
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail
R1/281	**W1/281**		22	63	20	61	9.1	3.2	PASS	22	63	20	61	9.1	3.2	PASS
R1/282	**W1/282**		23	64	23	64	0.0	0.0	PASS	23	64	23	64	0.0	0.0	PASS
9 Evangelist Road																
R1/290	**W1/290**		15	49	12	43	20.0	12.2	PASS	15	49	12	43	20.0	12.2	PASS
R1/291	**W1/291**		21	62	19	59	9.5	4.8	PASS	21	62	19	59	9.5	4.8	PASS
R1/292	**W1/292**		23	63	23	63	0.0	0.0	PASS	23	63	23	63	0.0	0.0	PASS
R1/300	**W1/300**		6	40	4	38	33.3	5.0	PASS	6	40	4	38	33.3	5.0	PASS
R1/301	**W1/301**		23	65	21	63	8.7	3.1	PASS	23	65	21	63	8.7	3.1	PASS
R1/302	**W1/302**		24	66	24	66	0.0	0.0	PASS	24	66	24	66	0.0	0.0	PASS
7 Evangelist Road																
R1/310	**W1/310**		14	50	13	47	7.1	6.0	PASS	14	50	13	47	7.1	6.0	PASS
R1/311	**W1/311**		15	56	14	54	6.7	3.6	PASS	15	56	14	54	6.7	3.6	PASS
R1/312	**W1/312**		24	63	24	63	0.0	0.0	PASS	24	63	24	63	0.0	0.0	PASS
R1/320	**W1/320**		4	22	3	21	25.0	4.5	PASS	4	22	3	21	25.0	4.5	PASS
R1/321	**W1/321**		8	49	7	48	12.5	2.0	PASS	8	49	7	48	12.5	2.0	PASS
R1/322	**W1/322**		24	66	24	66	0.0	0.0	PASS	24	66	24	66	0.0	0.0	PASS
9 Highgate Road																

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			Window							Room						
			Existing		Proposed					Existing		Proposed				
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Pass/ Fail
R3/400	W5/400		2	17	2	17	0.0	0.0	PASS							
R3/400	W6/400		2	20	2	20	0.0	0.0	PASS							
R3/400	W7/400		6	49	6	49	0.0	0.0	PASS	8	52	8	52	0.0	0.0	PASS
R3/401	W6/401		3	25	3	25	0.0	0.0	PASS							
R3/401	W7/401		3	25	3	25	0.0	0.0	PASS							
R3/401	W8/401		11	57	11	57	0.0	0.0	PASS	13	61	13	61	0.0	0.0	PASS
R3/402	W6/402		4	28	4	28	0.0	0.0	PASS							
R3/402	W7/402		4	28	4	28	0.0	0.0	PASS							
R3/402	W8/402		14	61	14	61	0.0	0.0	PASS	16	63	16	63	0.0	0.0	PASS
58 Highgate Road																
R1/450	W1/450		3	18	3	18	0.0	0.0	PASS							
R1/450	W2/450		0	12	0	8	-	33.3	PASS	3	28	3	26	0.0	7.1	PASS
R1/451	W1/451		5	23	5	23	0.0	0.0	PASS							
R1/451	W2/451		3	27	3	27	0.0	0.0	PASS							
R1/451	W3/451		0	21	0	17	-	19.0	PASS	5	41	5	41	0.0	0.0	PASS
R1/460	W1/460		4	19	4	19	0.0	0.0	PASS	4	19	4	19	0.0	0.0	PASS