Prepared for County Gate Properties Ltd

Daylight and Sunlight Report for the Development at 29 Charles Street, Barnes, **London SW13 0NZ**

Prepared for County Gate Properties Ltd Prepared by Ian McKenna BSc (Hons) MRICS

Date 02 July 2012 Reference 27585/IM/nms

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1. Executive Summary

1.1 Scope

1.1.1 We have been instructed by County Gate Properties Ltd to provide advice on the daylight and sunlight impacts of the development at 29 Charles Street, Barnes, London SW13 ONZ, upon the existing surrounding buildings and in relation to the proposed development's daylight and sunlight availability.

1.2 Assessment Criteria

- 1.2.1 Section 3 (Residential Amenity Standards) of London Borough of Richmond upon Thames' supplementary planning document, Residential Development Standards (adopted March 2010) refers to the following documents as those being used to review adequacy of daylight and sunlight.
 - Building Research Establishment (BRE) Report "Site Layout Planning for Daylight and Sunlight – a guide to good practice" ("the BRE guide").
- 1.2.2 This assessment was produced using the BRE standards as cited in the Council's planning guidance, and the tests applied within this assessment are briefly described in Appendix A.

1.3 Daylight

- 1.3.1 In relation to the existing surrounding buildings, the BRE Vertical Sky Component (VSC) and Daylight Distributions tests were fully met. Therefore we conclude that no adverse impacts will be felt to the surrounding properties.
- 1.3.2 The results for the proposed development indicate that all of the rooms assessed will meet the target ADF values as recommended by the BRE guide. In relation to daylight distribution (DD), again, the results indicate that the rooms will meet the BRE target DD criterion.

1.4 Sunlight

- 1.4.1 Similarly to daylight, all of the surrounding buildings' windows tested for sunlight availability fully accord with the BRE tests for Annual Probable Sunlight Hours (APSH), both in terms of the Annual and Winter targets. Again, the design of the scheme ensures that no adverse impacts will arise.
- 1.4.2 The results for the proposed development indicate that the target APSH values as recommended by the BRE guide will be met.



1.5 Overshadowing

- 1.5.1 The results for the permanent overshadowing tests show that the existing gardens all meet the BRE criteria. Again, the proposed development has been carefully designed to ensure that no adverse impacts will arise in relation natural light amenity.
- 1.5.2 The results of the tests to the courtyard gardens of the proposed development show that the BRE criterion will be met. No adverse impacts in relation to overshadowing will therefore arise.

1.6 Generally

- 1.6.1 The proposals have been carefully designed to ensure that no adverse impacts arise in respect of the existing surrounding buildings, and the results of the BRE tests confirm that this aim has been fully achieved.
- 1.6.2 In respect of the proposed development, again the design has carefully considered daylight and sunlight amenity for future occupiers and the results of the tests clearly show that scheme will provide good levels of natural light.
- 1.6.3 The proposals fully accord with the BRE guide and therefore with the policy objectives of London Borough of Richmond upon Thames.





2. Introduction

2.1 Scope

2.1.1 We have been instructed by County Gate Properties Ltd to provide advice on the daylight and sunlight impacts of the development at 29 Charles Street, Barnes, London SW13 ONZ, upon the existing surrounding buildings and in relation to the proposed development's daylight and sunlight availability.

2.2 Planning Policy

- 2.2.1 Section 3 (Residential Amenity Standards) of London Borough of Richmond upon Thames' supplementary planning document, Residential Development Standards (adopted March 2010) refers to the following documents as those being used to review adequacy of daylight and sunlight.
 - Building Research Establishment (BRE) Report "Site Layout Planning for Daylight and Sunlight – a guide to good practice" ("the BRE guide").

2.3 Assessment Criteria

- 2.3.1 To ensure that this assessment can be appropriately evaluated against Richmond upon Thames' planning policy, daylight and sunlight calculations have been undertaken in accordance with the Building Research Establishment Report 'Site Layout Planning for Daylight and Sunlight A Guide to Good Practice' (the "BRE guide") and also on British Standard 8206 2: 2008 'Lighting for Buildings Part 2: Code of Practice for Daylighting', to which the BRE report refers.
- 2.3.2 The standards and tests applied within this assessment are briefly described in Appendix A.
- 2.3.3 The existing buildings adjacent to the proposed development site are shown on the Site Location Plan (see below) and comprise of:

Table 1: Surrounding buildings considered in the assessment

Name/Address of Building	Assumed Use	Position in Relation to the Development
71-85 Elm Bank Gardens	Residential	North
St Michael and All Angels Church	Worship	East
21 - 27f Charles Street	Residential	South
40 Charles Street	Residential	South



Diagram 1 - Site Plan



2.4 Limitations

2.4.1 Our assessment is based on the scheme drawings provided by Giles Jollands Architect. The following scheme drawings have been considered and used for the basis of this study:

Table 2: Drawings considered within the assessment

Author	Drawing Number	Title	Date
M.J. Zara Associates	6898	Survey Plan	Apr 2011
M.J. Zara Associates	6898ELEV	Survey Elevations	Apr 2011
Maltby Land Surveys Ltd	-	Point Cloud Survey	May 2011
Giles Jolland Architects	-	29 Charles Street FFP 19 06.dwg	June 2012
Giles Jolland Architects	-	29 Charles Street GFP 19 06.dwg	June 2012
Giles Jolland Architects	-	29 Charles Street N W Elevs.dwg	June 2011
Giles Jolland Architects	-	29 Charles St S E Elevs.dwg	June 2012



- 2.4.2 A topographical survey of the site and surrounding buildings was produced by Zara Surveys. This showed the land and building levels and also the elevations of the surrounding buildings. As access was restricted for the purposes of the topographical survey, the site and surrounding buildings were also surveyed by Maltby Land Surveys Limited using a high resolution digital scanning instrument mounted on an elevated tripod. This ensured, as far as reasonably practicable, that accurate information in respect of the surrounding buildings was available for use in the assessments.
- 2.4.3 The tests were undertaken using a 3D AutoCAD model and EOS daylight and sunlight software.





3. Assessment

3.1 Daylight

- 3.1.1 The existing buildings adjacent to the proposed development site are shown on the Site Location Plan (see above) and comprise of:
 - 71-85 Elm Bank Gardens
 - St Michael and All Angels Church
 - 21 27f Charles Street
 - 40 Charles Street
- 3.1.2 All habitable room windows, which we considered would be affected by the proposals, within the surrounding residential properties and the Church listed above have been assessed.
- 3.1.3 Habitable rooms within the proposed development have also been assessed.
- 3.1.4 Locations of each assessment point can be seen on the Window Reference Drawings in Appendix C.

3.2 Sunlight

- 3.2.1 The BRE report recommends that if an existing property faces within 90° of due south and overlooks the development, an assessment for sunlight availability should be undertaken. Sunlight assessment have therefore been undertaken to the following properties.
 - 71-85 Elm Bank Gardens
 - St Michael and All Angels Church
- 3.2.2 Habitable rooms within the proposed development have also been assessed.

3.3 Overshadowing

- 3.3.1 In addition to the daylight and sunlight received by the adjoining properties it is important to ensure any open spaces or gardens are not excessively overshadowed by the proposed development.
- 3.3.2 Pursuant to the BRE guide, only gardens and public open spaces such as parks or playgrounds need to be assessed. We have therefore undertaken overshadowing assessments to the following areas:
 - Gardens to 71-85 Elm Bank Gardens
 - Courtyard gardens to the proposed development





4. Results

4.1 Daylight

4.1.1 <u>Vertical Sky Component ("VSC") tests</u> have been undertaken to the windows at the surrounding properties. The location of the assessment points can be seen on the Window Reference Drawing within Appendix C. The table below summarises the results of the tests, which can be seen in full at Appendix D:

Table 3: Surrounding VSC summary results

	Vertical Sky Component Test			
Property Ref	No. of Windows Tested	No. of Windows Passed VSC Test	No. of Windows Failed VSC Test	
71-85 Elm Bank Gardens	36	36	0	
St Michael and All Angels Church	3	3	0	
21 - 27f Charles Street	32	32	0	
40 Charles Street	1	1	0	
Total	72	72	0	

- 4.1.2 The results above show that all windows meet the BRE guide target for VSC. Therefore no adverse effects will be noted in relation to the surrounding houses.
- 4.1.3 The <u>Daylight Distribution (DD) test</u> results are shown in full in Appendix D. Below is a summary of our findings:

Table 4: Surrounding DD summary results

	Daylight Distribution (DD) Test			
Property Ref	No. of Rooms	No. of Rooms Passed	No. of Rooms Failed	
71-85 Elm Bank Gardens	23	23	0	
St Michael and All Angels Church	2	2	0	
21 - 27f Charles Street	18	18	0	
40 Charles Street	1	1	0	
Total	44	44	0	

4.1.4 The results above show that all rooms meet the BRE guide target for DD.

Proposed Development

4.1.5 Consideration has also been given to the proposed development. The full results are included at Appendix D.



Table 5: Proposed building ADF summary results

Property Ref	No. of Rooms Tested	No. of Rooms Passed ADF Test	No. of Rooms Failed ADF Test
House 1	3	3	0
House 2	3	3	0
House 3	4	4	0
House 4	3	3	0
House 5	3	3	0
House 6	4	4	0
Total	20	20	0

- 4.1.6 The results in the table above indicate that all of the rooms assessed will meet the target ADF values as recommended by the BRE guide. The levels of exceedance are generally high ranging from circa 2 times to circa 4 times the BRE targets. The rooms should therefore be very well lighted.
- 4.1.7 We have also assessed the proposed development for daylight distribution and full test results are contained in Appendix D. The test results show that all of the rooms analysed to the proposed development meet the recommendations set out in the BRE guide for daylight distribution.

4.2 Sunlight

- 4.2.1 In accordance with the BRE Guide, our analysis of the plans provided and our observations on site, a number of the surrounding buildings require <u>Annual Probable</u> Sunlight Hours (APSH) testing (see Appendix A):
- 4.2.2 The table below shows a summary of the results of the APSH testing. Full test results are contained in Appendix E.

Table 6: Surrounding building APSH summary results

Property Ref	No. of Windows Tested	No. of Windows Passed APSH Test	No. of Windows Failed APSH Test
71-85 Elm Bank Gardens	34	34	0
Total	34	34	0

4.2.3 Of the 34 windows which face in a southerly direction over the site, all meet the BRE target criteria for APSH. The sunlight results are particularly good due to the low nature of the proposed buildings and the gaps between the buildings, and in most cases, the BRE target criteria are exceeded by a factor of between 2 and 4.



Proposed Development

- 4.2.4 <u>APSH tests</u> have been undertaken to the principal habitable rooms within the proposed development. The full APSH test results are shown in full in Appendix E.
- 4.2.5 The BRE guide suggests that living rooms should be tested and the test will be met if each dwelling has a main living room which receives a reasonable amount of sunlight. The results of the tests demonstrate that all of the living rooms will meet the target values as set out by the BRE.

4.3 Overshadowing

- 4.3.1 In accordance with the BRE guide we have undertaken overshadowing assessments to the following areas:
 - Rear Gardens to 71-85 Elm Bank Garden
 - Proposed Courtyards within the proposed development
- 4.3.2 A reference plan and the results of the overshadowing analysis are shown in full in Appendix F. The table below summarises the results:

Table 7: Existing and proposed building overshadowing results

Area Reference	Proportion in Shade on 21 March	BRE Compliant?
87 Elm Bank Gardens	20%	Yes
85 Elm Bank Gardens	46%	Yes
83 Elm Bank Gardens	32%	Yes
81 Elm Bank Gardens	28%	Yes
79 Elm Bank Gardens	28%	Yes
77 Elm Bank Gardens	34%	Yes
75 Elm Bank Gardens	45%	Yes
73 Elm Bank Gardens	45%	Yes
71 Elm Bank Gardens	48%	Yes
Proposed House 1	49%	Yes
Proposed House 2	32%	Yes
Proposed House 3	40%	Yes
Proposed House 4	41%	Yes
Proposed House 5	37%	Yes
Proposed House 6	30%	Yes

4.3.3 Our results demonstrate that all of the gardens and amenity areas tested, both to the surrounding buildings and to the proposed development, meet or exceed the BRE target criteria for sunlight because at least 50% of their area receives direct sunlight for a minimum of two hours on 21 March.



Appendix A Tests to be Applied



Tests to be Applied

Introduction

The main purpose of the guidelines in the Building Research Establishment Report "Site Layout Planning for Daylight and Sunlight – a guide to good practice 1991" ("the BRE report") is to assist in the consideration of the relationship of new and existing buildings to ensure that each retains a potential to achieve good daylighting and sunlighting levels. That is, by following and satisfying the tests contained in the guidelines, new and existing buildings should be sufficiently spaced apart in relation to their relative heights so that both continue to have the potential to achieve good levels of daylight and sunlight. The guidelines have been drafted primarily for use with low density suburban developments and should therefore be used flexibly when dealing with dense urban city centre sites and extensions to existing buildings, a fact recognised by the BRE Report's author in the Introduction where Dr Paul Littlefair says:

'The Guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not been seen as an instrument of planning policy. Its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design..... In special circumstances the developer or Planning Authority may wish to use different target values. For example, in a historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.....'

In addition, the block spacing criteria for daylight and sunlight are a major determinant of other amenity considerations such as *sense of enclosure, privacy, overlooking and overshadowing*. That is to say, if the relationship between height, distance and massing of the new and existing buildings is sufficient to meet the daylight and sunlight criteria, they should generally be sufficiently well-spaced as not to be oppressive by creating an unacceptable degree of sense of enclosure, nor would they unreasonably interfere with privacy or overlooking or cast an unreasonable amount of shadow.

Daylight

The criteria for protecting daylight to existing buildings is contained in Section 2.2 of the BRE reportlines. There are various methods of measuring and assessing daylight and the choice of test depends on the circumstances of each particular window. For example, greater protection should be afforded to windows which serve habitable dwellings and, in particular, those serving living rooms and family kitchens, with lower requirements required for bedrooms and circulation spaces. The tests should also be applied to non-domestic uses such as offices and workplaces where such uses will ordinarily have a reasonable expectation of daylight and where the areas may be considered a principal workplace.

The BRE have developed a series of tests which can be used to assess daylight. These tests range from simple block layout tests, to calculations which predict the internal daylight environment. For the purposes of this report and as suggested within the BRE report lines, three tests will be administered consecutively to establish whether acceptable levels of daylight will be achieved. For this report to conclude that levels of daylight are below the recommendations of the BRE guidelines, each test, in turn, must fail to meet the relevant criteria. It also follows that if a design passes one of the daylight tests, the proposed level of daylight will be considered acceptable and it is therefore unnecessary to proceed to any further, more detailed, tests.



Explanation of Daylight Tests applied:

A very simple test for block spacing used where the obstruction opposite the assessment window is of a reasonably uniform profile. Its use is most appropriate for low density well-spaced developments such as new sub-urban housing schemes and often it is not a particularly useful tool for assessing urban and in-fill sites.

The Vertical Sky Component ("VSC") is a unit of measurement that represents the amount of available daylight from the sky, received at a particular window. It is measured on the outside face of the window. The 'unit' is expressed as a percentage as it is the ratio between the amount of sky visible at the given reference point compared to the amount of light that would be available from a totally unobstructed sky.

To put this unit of measurement into perspective, the maximum percentage for a vertical window with a completely unobstructed outlook (i.e. with a totally unobstructed view through 90° in every direction) is 40%. The target figure for VSC recommended by the BRE is 27%. 27% is considered a good level of daylight by the BRE guidelines and the level recommended for habitable rooms with windows on principal elevations. For comparison with test 1, a window receiving 27% VSC is approximately equivalent to a window that would have a continuous obstruction opposite it which subtends an angle of 25°.

Through research the BRE have determined that daylight (and sunlight levels) can be reduced by approximately 20% of their original value before the loss is materially noticeable. It is for this reason that they consider that a 20% reduction is permissible in circumstances where the existing VSC value is below the 27% threshold.

The Average Daylight Factor (ADF) takes account of the interior dimensions and surface reflectance within the room being tested and is a more detailed and representative measure of the adequacy of light for this reason. The ADF values recommended in BS8206 Part 2 are: 2% for family kitchens, 1.5% for living rooms and 1% for bedrooms. When using the ADF method, it is also necessary to undertake a daylight distribution analysis as described below.

Daylight distribution within buildings can be found by plotting the no-sky line in each room. The BRE guide suggests that areas beyond the no-sky line may look dark and gloomy compared with the rest of the room and BS8206 states that electric lighting is likely to be needed if a significant part of the working plane lies beyond the no-sky line. Ideally, sky visibility should be available in the part of the room which is most used, such as in kitchens to light the main work area surfaces.

Sunlight

Sunlight is an important 'amenity' in both domestic and some non-domestic settings. The way in which a building's windows are orientated and the overall position of a building on a site will have an impact on the sunlight it receives but, importantly, will also have an effect on the sunlight neighbouring buildings receive. Unlike daylight, which is non-directional and assumes that light from the sky is uniform, the availability of sunlight is dependent on direction. That is, as the United Kingdom is in the northern hemisphere, we receive the majority of our sun from the south with the sun rising in the east and setting in the west. The availability of sunlight is therefore dependent on the orientation of the window or area of ground being assessed relative to position of due south.



Accordingly, the BRE recommend that sunlight need only be measured where an existing building has a 'window wall' (i.e. a wall with a window serving a habitable room) within 90° of due south. The guidelines also state that the sunlight criteria will be met if either of the following is true: -

The window wall faces within 90° of due south and no obstruction measured in the section perpendicular to the window wall, subtends an angle of more than 25° from the horizontal. Obstructions within 90° due north of the reference point need not count.

The window wall faces within 20° of due south and the reference point has a Vertical Sky Component of 27% or more.

The criteria should also be viewed flexibly with account taken for the actual orientation relative to due south. These initial tests are used as a rule of thumb. Where sunlight needs to be tested to a greater level of detail, sunlight is measured using the Sunlight Availability Indicator contained in Appendix 1 of the guidelines. The indicator calculates the anticipated Annual Probable Sunlight Hours that a window can receive over and around a proposed new building. The sunlight criteria primarily apply to windows serving living rooms of an existing dwelling. This is in contrast to the daylight criteria which apply to kitchens and bedrooms as well as living rooms. The sunlight criteria taken from section 3.2 of the BRE guidelines are as follows: -

'If a <u>living room</u> of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely effected. This will be the case if a point at the centre of the window, in the plane of the inner window wall, received in the year less than one quarter of annual probable sunlight hours including at least 5% of annual probable sunlight hours between 21 September and 21 March, and less than 0.8 times its former sunlight hours during either period.'

Sunlight - Gardens and Open Spaces

As well as ensuring the surrounding buildings receive a good level of sunlight to their interior space, it is also important to ensure that the open spaces between buildings are suitably lit. The recommendations as set out in the BRE guidelines are meant to ensure that spaces between buildings are not permanently in shade for a large part of the year. The BRE states that, "for it to appear adequately sunlight throughout the year, no more than two-fifths and preferably no more than a quarter of any garden or amenity area should be prevented by buildings from receiving any sun at all on 21 March".

If, as a result of the new development, the amenity areas are not lit to these recommended levels, the guidelines allow for a reduction of 20% between the existing and proposed situations, as a reduction of this level is accepted as not being materially noticeable.

Appendix G of the BRE reportlines describes a methodology for calculating sunlight availability for amenity spaces. For this report, computer software has been used to establish the sunlight availability. Each amenity area has been modelled along with the existing and proposed developments within the computer aided design software package AutoCAD. The sunpath tracking feature within the software has then be used to produce images of the shadows, produced at hourly intervals on 21 March. By measuring the total area of shade on an amenity area, numeric results to compare against the criteria above can be obtained.

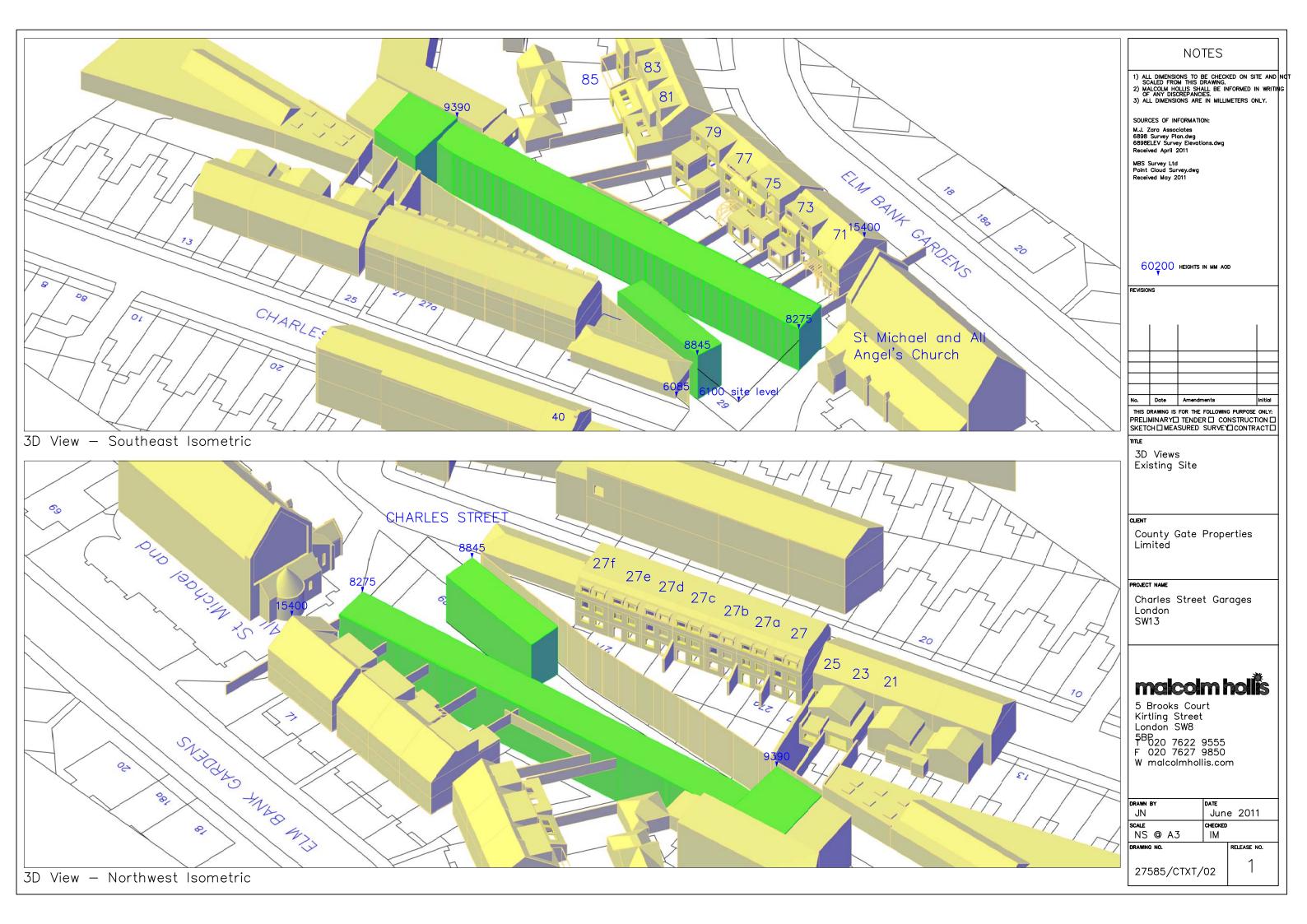


Appendix B

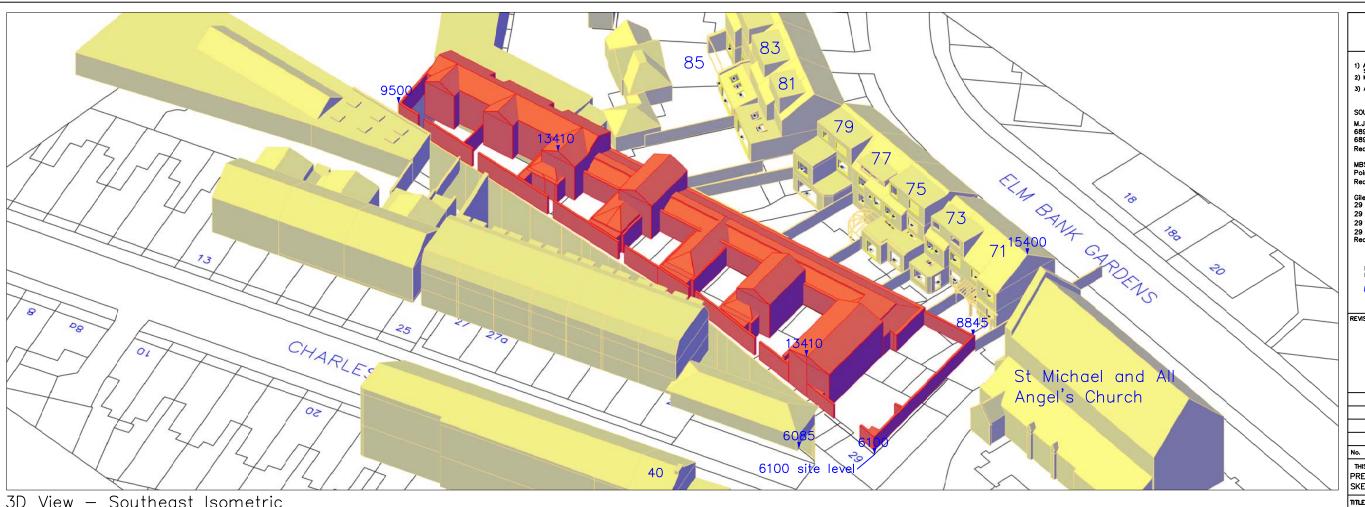
Context Drawings



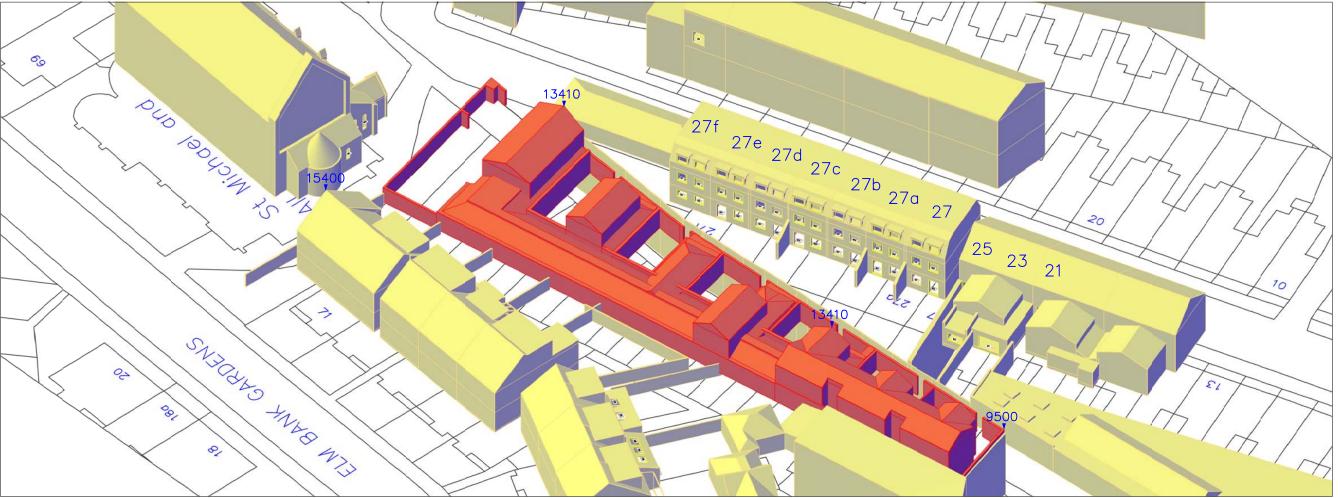








3D View — Southeast Isometric



NOTES

1) ALL DIMENSIONS TO BE CHECKED ON SITE AND NOT SCALED FROM THIS DRAWING.
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3) ALL DIMENSIONS ARE IN MILLIMETERS ONLY.

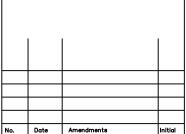
SOURCES OF INFORMATION: M.J. Zara Associates 6898 Survey Plan.dwg 6898ELEV Survey Elevations.dwg Received April 2011

MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012

ENVELOPE SLICED AT 2700mm FLOOR TO FLOOR HEIGHTS

60200 HEIGHTS IN MM AOD



THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

3D Views Proposed Scheme

County Gate Properties Limited

PROJECT NAME

Charles Street Garages London SW13

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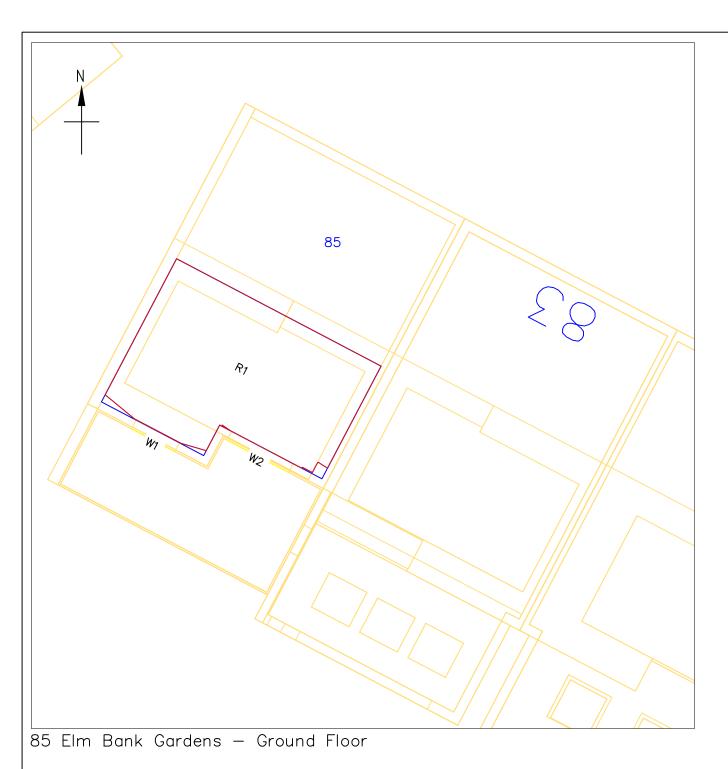
3D View - Northwest Isometric

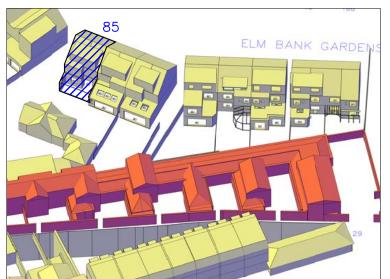


Appendix C

Daylight Distribution Drawings



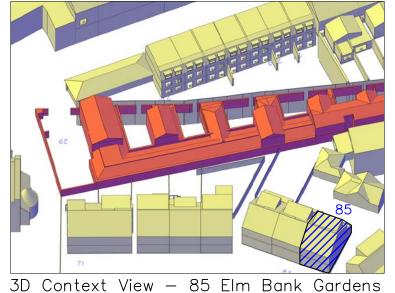




3D Context View — 85 Elm Bank Gardens

KEY		
	- T-	Existing contour
<u></u>	# [Proposed contour
		Area of loss/gain
ATIH		Subject room

Building/Floor/ Reference	Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
85 Elm Bank Ga	rdens					
Constant	D4	251.24	248.17	248.17	4.00	,
Ground	R1		99%	100%	1.00	/

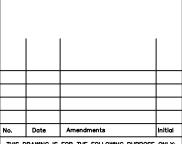


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THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Distribution Contours/Referencing Plans 85 Elm Bank Gardens Ground Floor

County Gate Properties Limited

PROJECT NAME

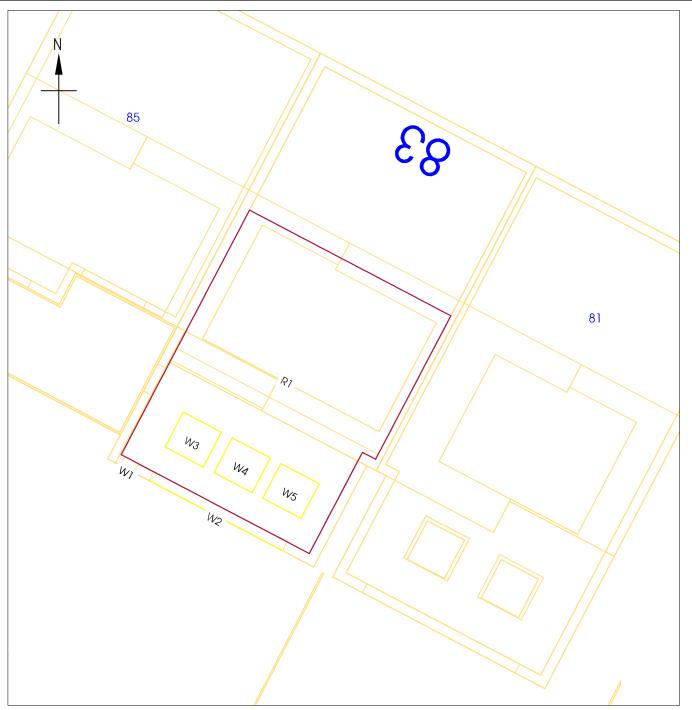
Charles Street Garages London SW13

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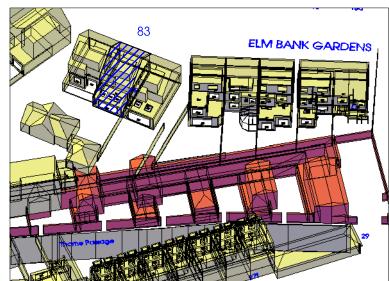
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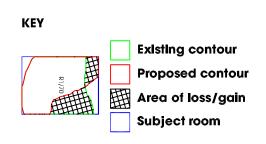


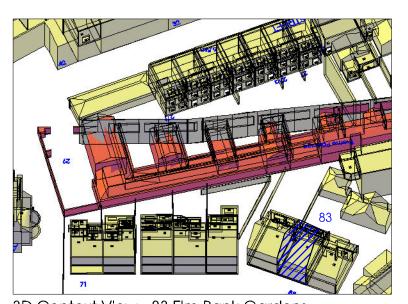
Building/Floor/ Room Reference Reference		Whole Room sq m	Existing Area	Proposed Area sq m		Does it meet the BRE Guidelines?
83 Elm Bank Ga	rdens					
Ground	R1	447.80	447.80 100%	447.80 100%	1.00	





3D Context View - 83 Elm Bank Gardens





3D Context View - 83 Elm Bank Gardens

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SKETCH | MEASURED SURVEY | CONTRACT |

REVISIONS

Daylight Distribution Contours/Referencing Plans 83 Elm Bank Gardens **Ground Floor**

County Gate Properties Limited

PROJECT NAME

Charles Street Garages London SW13

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5 Brooks Court Kirtling Street London SW8 5BP

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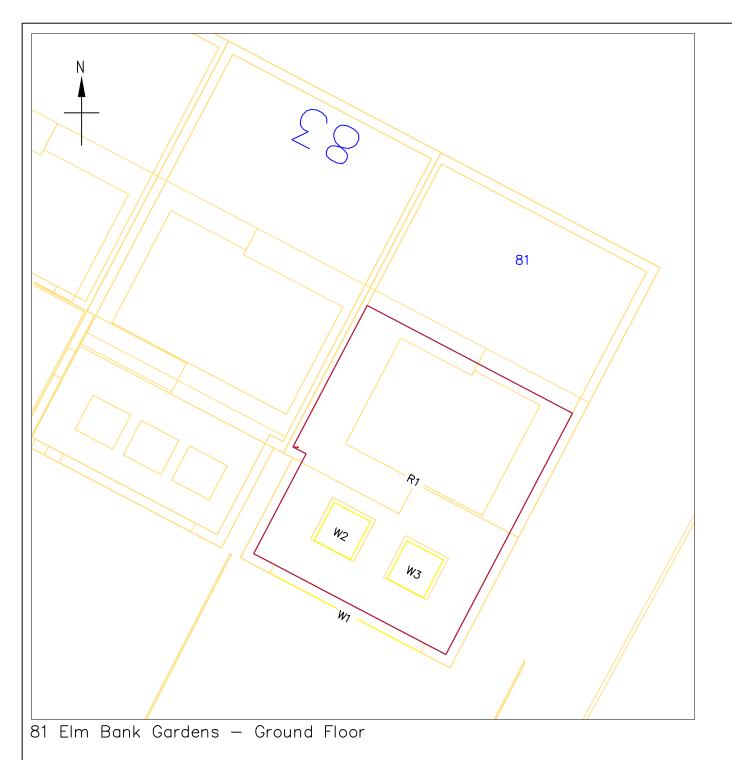
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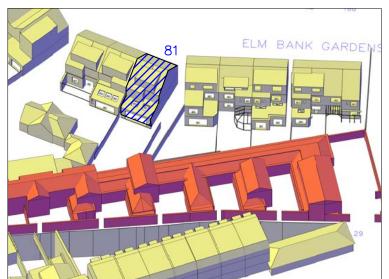
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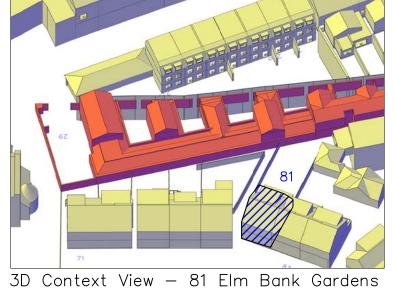




3D Context View — 81 Elm Bank Gardens

KEY	
THE STATE OF THE S	Existing contour
/ R ³ ∰	Proposed contour
	Area of loss/gain
	Subject room

Building/Floor/ Reference	Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
81 ElmBank Ga	rdens					
Ground	D4	463.16	463.15	463.15	1.00	,
Ground	R1		100%	100%	1.00	



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SOURCES OF INFORMATION: M.J. Zara Associates 6898 Survey Plan.dwg 6898ELEV Survey Elevations.dwg Received April 2011

MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012

THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Disribution Contours/Referencing Plans 81 Elm Bank Gardens Ground Floor

County Gate Properties Limited

PROJECT NAME

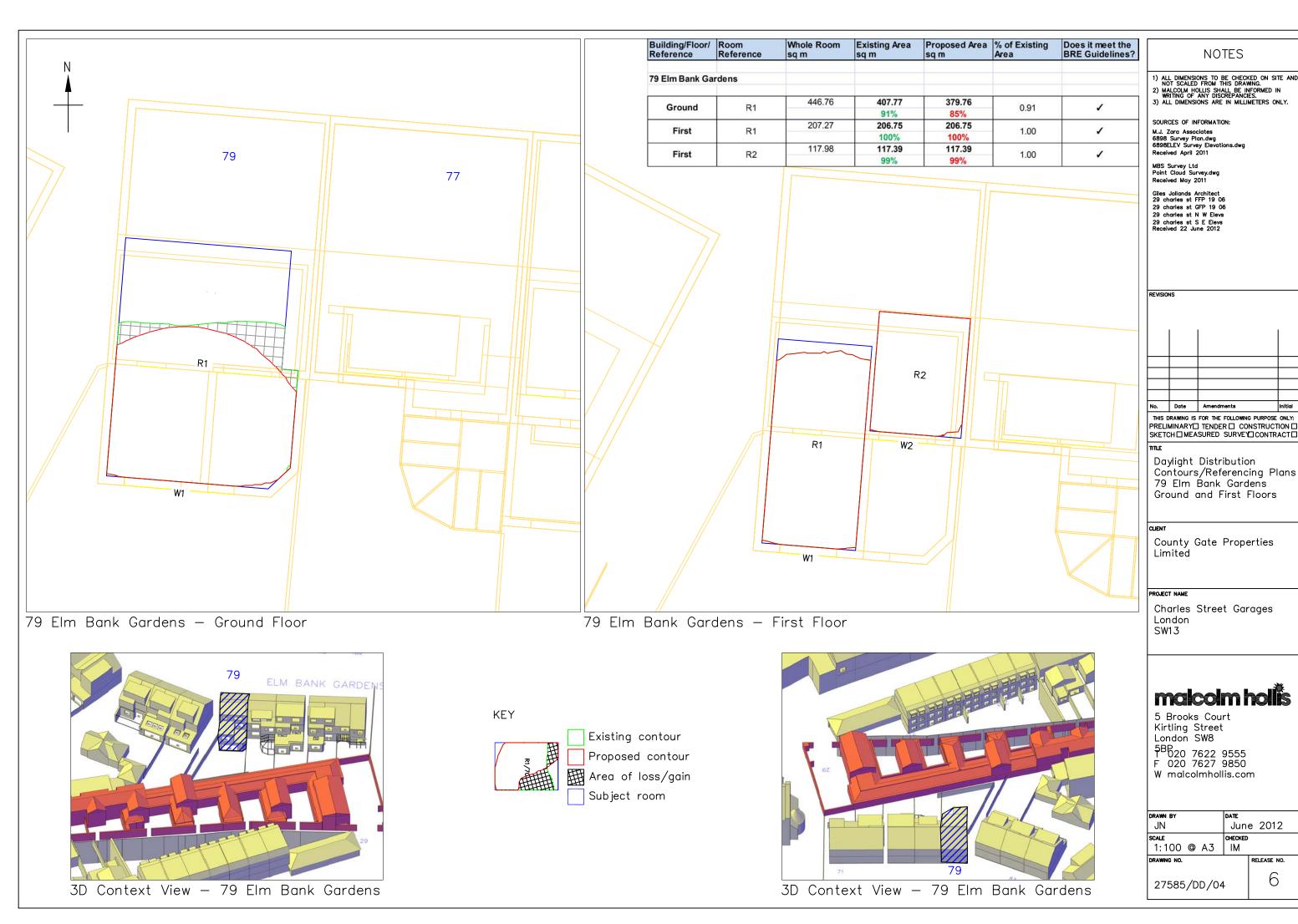
Charles Street Garages London SW13

malcolm hollis

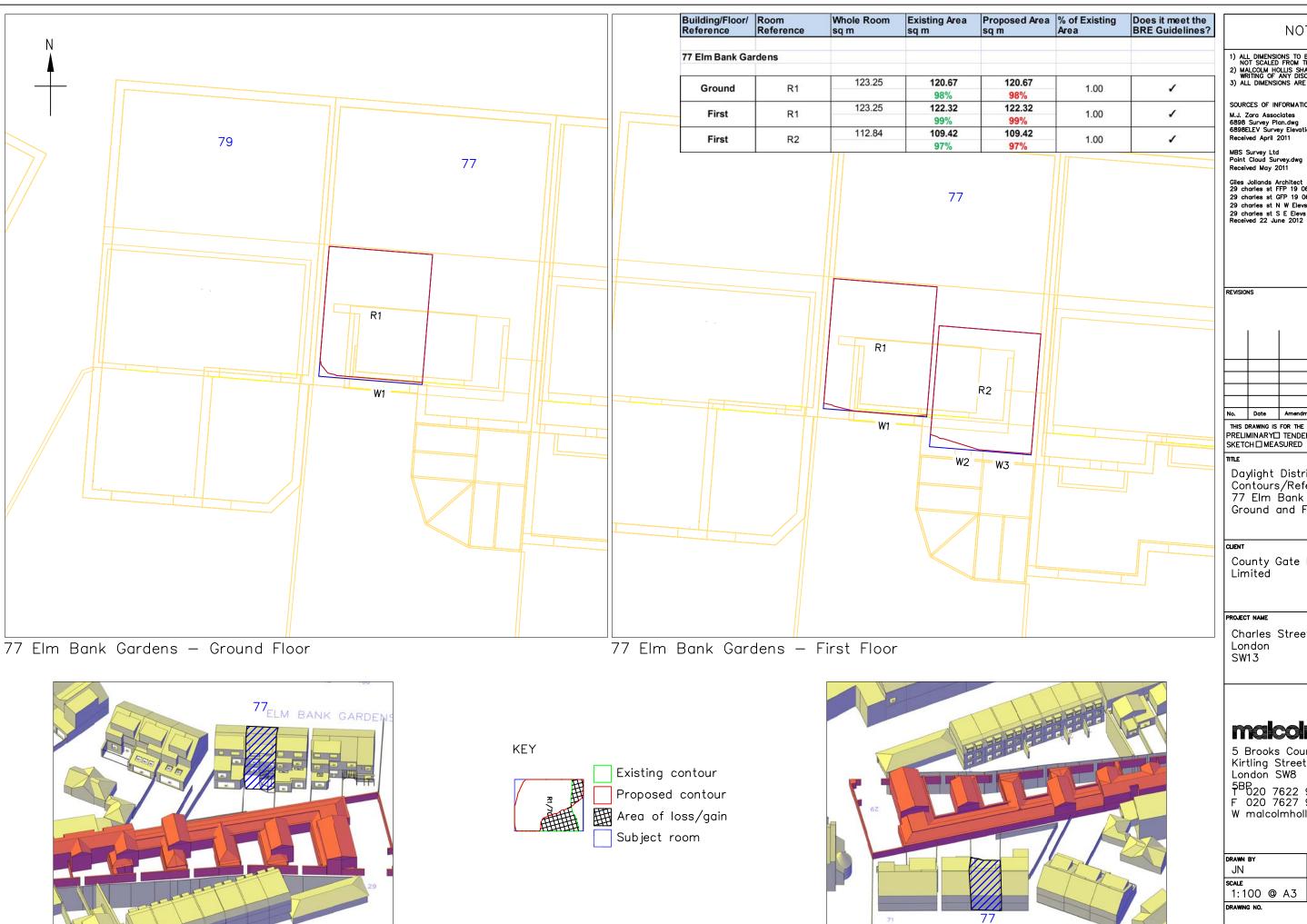
5 Brooks Court Kirtling Street London SW8 5BP 7 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

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JN	June 2012
SCALE	CHECKED
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6



RELEASE NO. 6



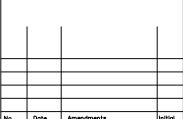
3D Context View - 77 Elm Bank Gardens

NOTES

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Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012



THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY: PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Distribution Contours/Referencing Plans 77 Elm Bank Gardens Ground and First Floors

County Gate Properties

Charles Street Garages

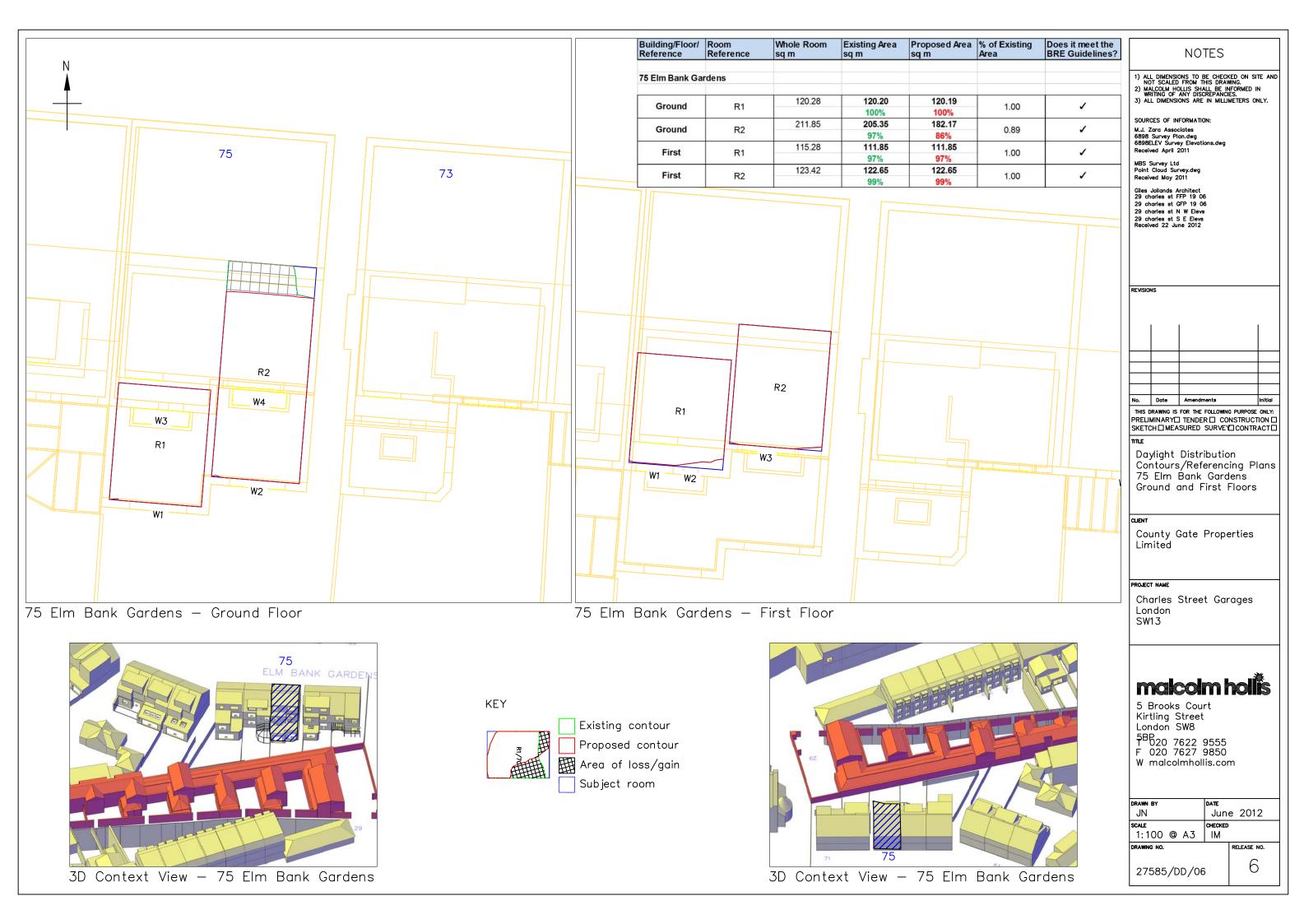
malcolm hollis

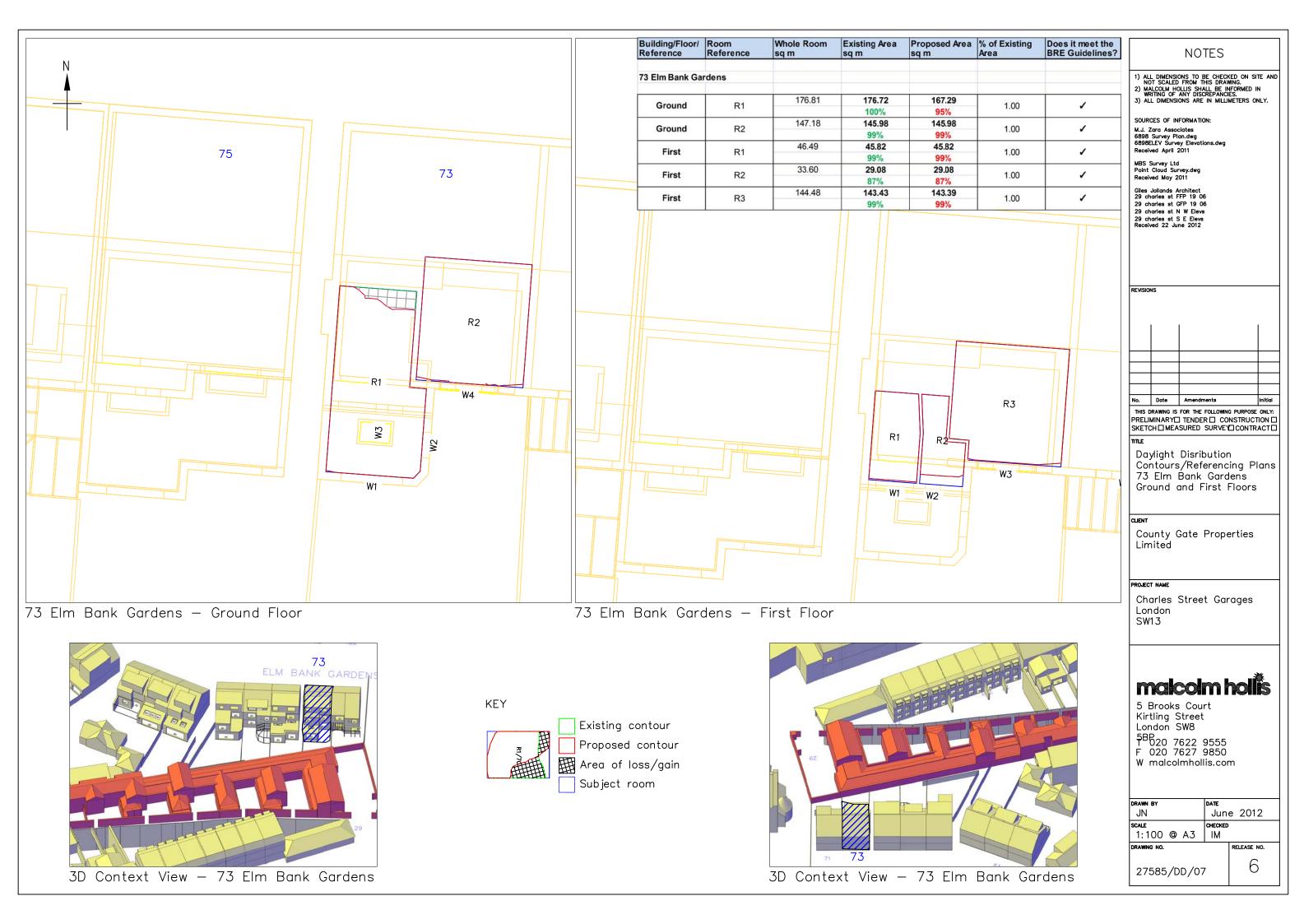
5 Brooks Court Kirtling Street London SW8 5BP 7 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

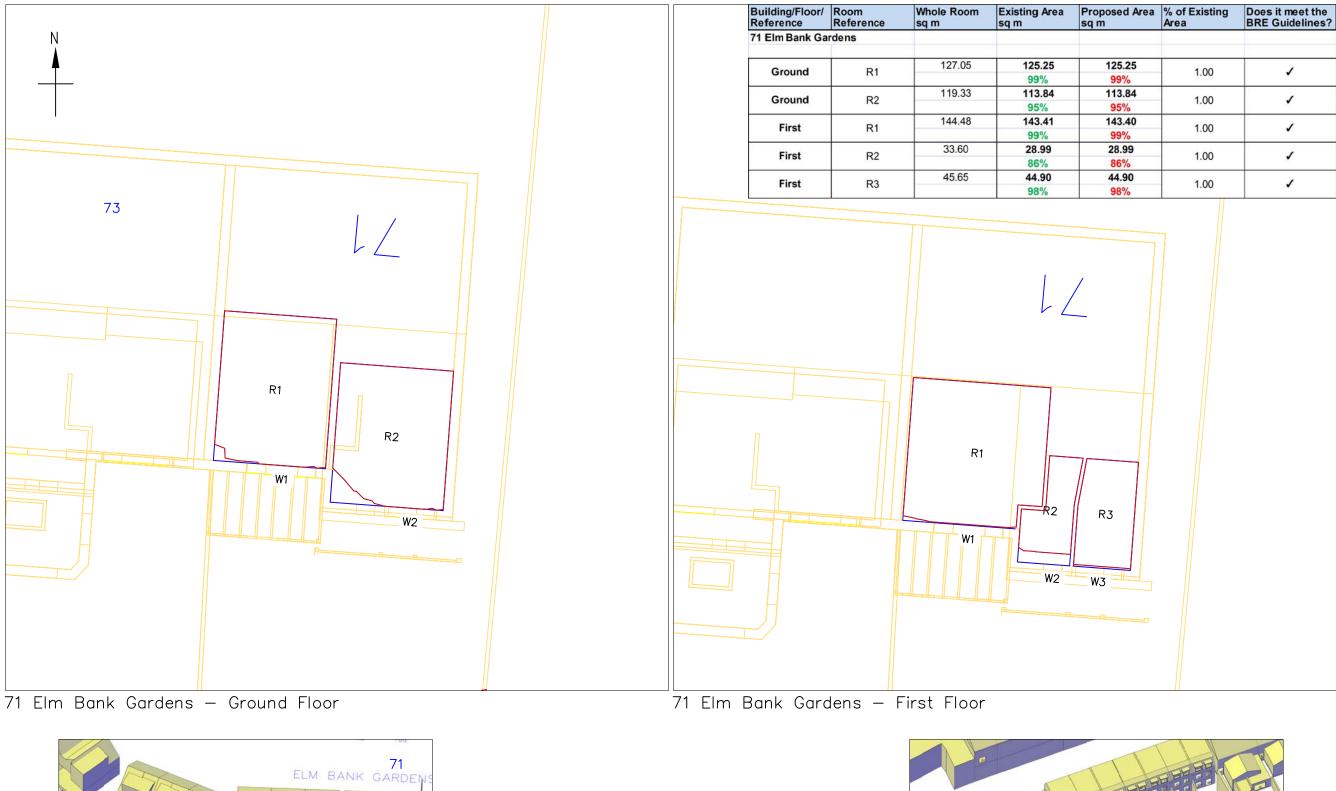
DRAWN BY	DATE
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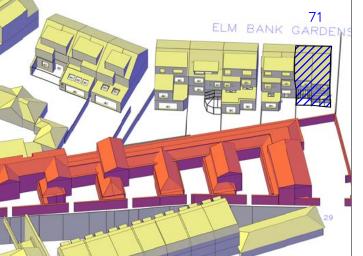
6 27585/DD/05

3D Context View - 77 Elm Bank Gardens

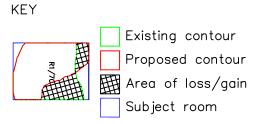


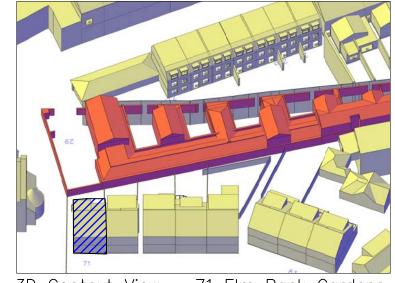






3D Context View — 71 Elm Bank Gardens





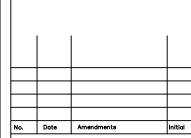
3D Context View - 71 Elm Bank Gardens

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SOURCES OF INFORMATION: M.J. Zara Associates 6898 Survey Plan.dwg 6898ELEV Survey Elevations.dwg

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Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012



THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY: PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Distribution Contours/Referencing Plans 71 Elm Bank Gardens Ground and First Floors

County Gate Properties Limited

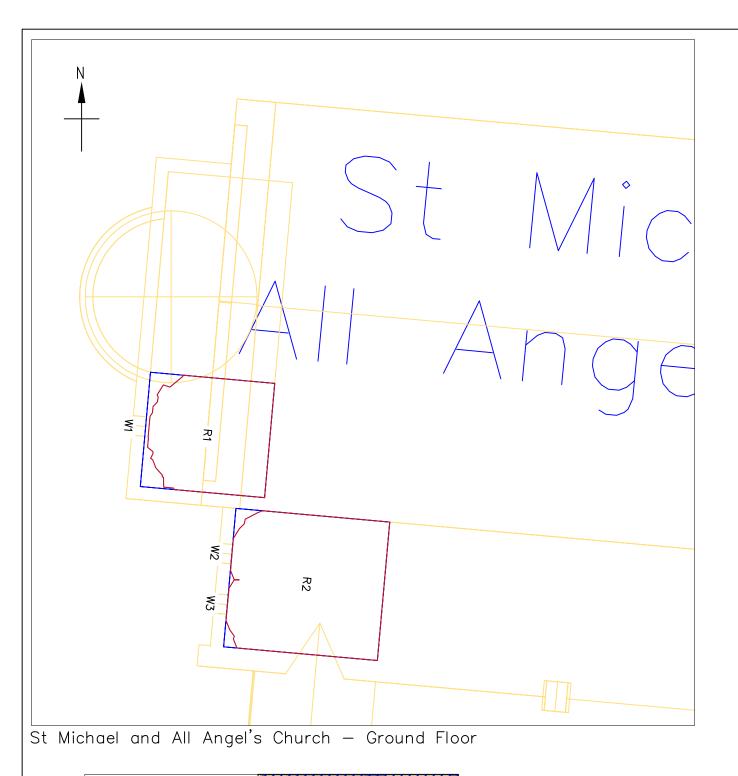
PROJECT NAME

Charles Street Garages London SW13

malcolm hollis

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Building/Floor/ Reference	Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
St Michael and	All Angel's Chu	rch				
Ground	R1	107.74	97.70	97.70	1.00	
Ground	KI		91%	91%	1.00	_
Ground	R2	161.60	157.58	157.58	1.00	,
	R2		98%	98%		,

neet the delines?	
	1) ALL DII NOT S
	2) MALCO WRITIN
,	3) ALL DI

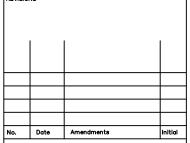
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NOTES

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MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012



THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

TITLE

Daylight Distribution Contours/Referencing Plans St Michael and All Angel's Church Ground Floor

CLIENT

County Gate Properties Limited

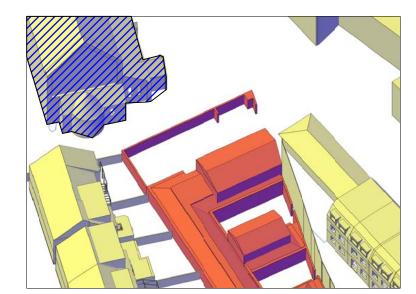
PROJECT NAME

Charles Street Garages London SW13

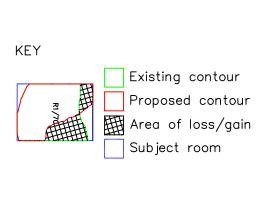
malcolm holis

5 Brooks Court Kirtling Street London SW8 5BP T 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

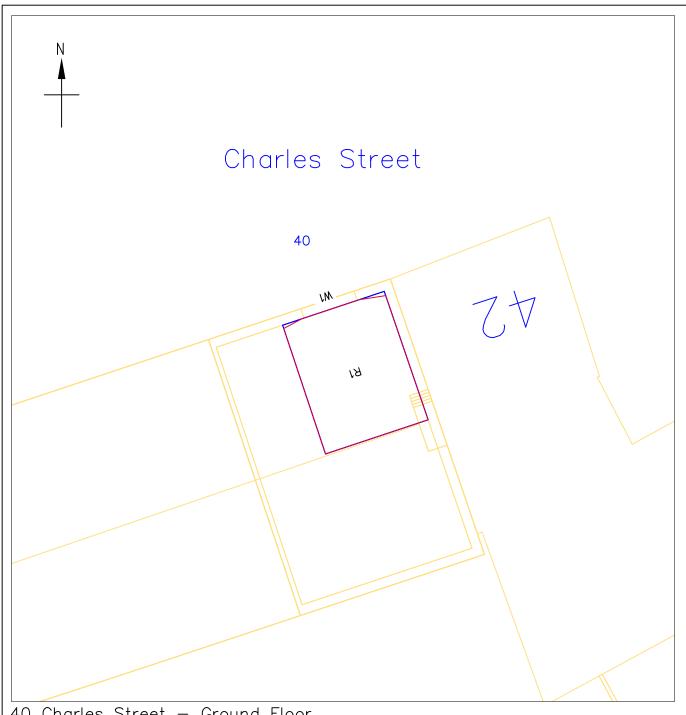
JIN	June 2012
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DRAWING NO.	RELEASE NO.
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3D Context View — St Michael and All Angel's Church



3D Context View — St Michael and All Angel's Church



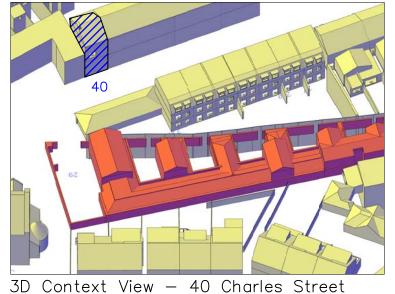
40	Charles	Street	_	Ground	Floor	
----	---------	--------	---	--------	-------	--



3D Context View — 40 Charles Street

KEY		
(T)	Existing contour	
_ ₹	Proposed contou	ır
	Area of loss/ga	in
ATHTIHI	Subject room	

Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
et					
R1	109.99	109.27	109.27	1.00	
	Reference	Reference sq m	Reference sq m sq m et R1 109.99 109.27	Reference sq m sq m sq m	Reference sq m sq m sq m Area et R1 109.99 109.27 109.27 100.27

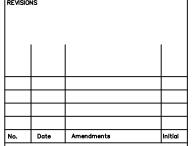


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MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012



THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Distribution Contours/Referencing Plans 40 Charles Street Ground Floor

County Gate Properties Limited

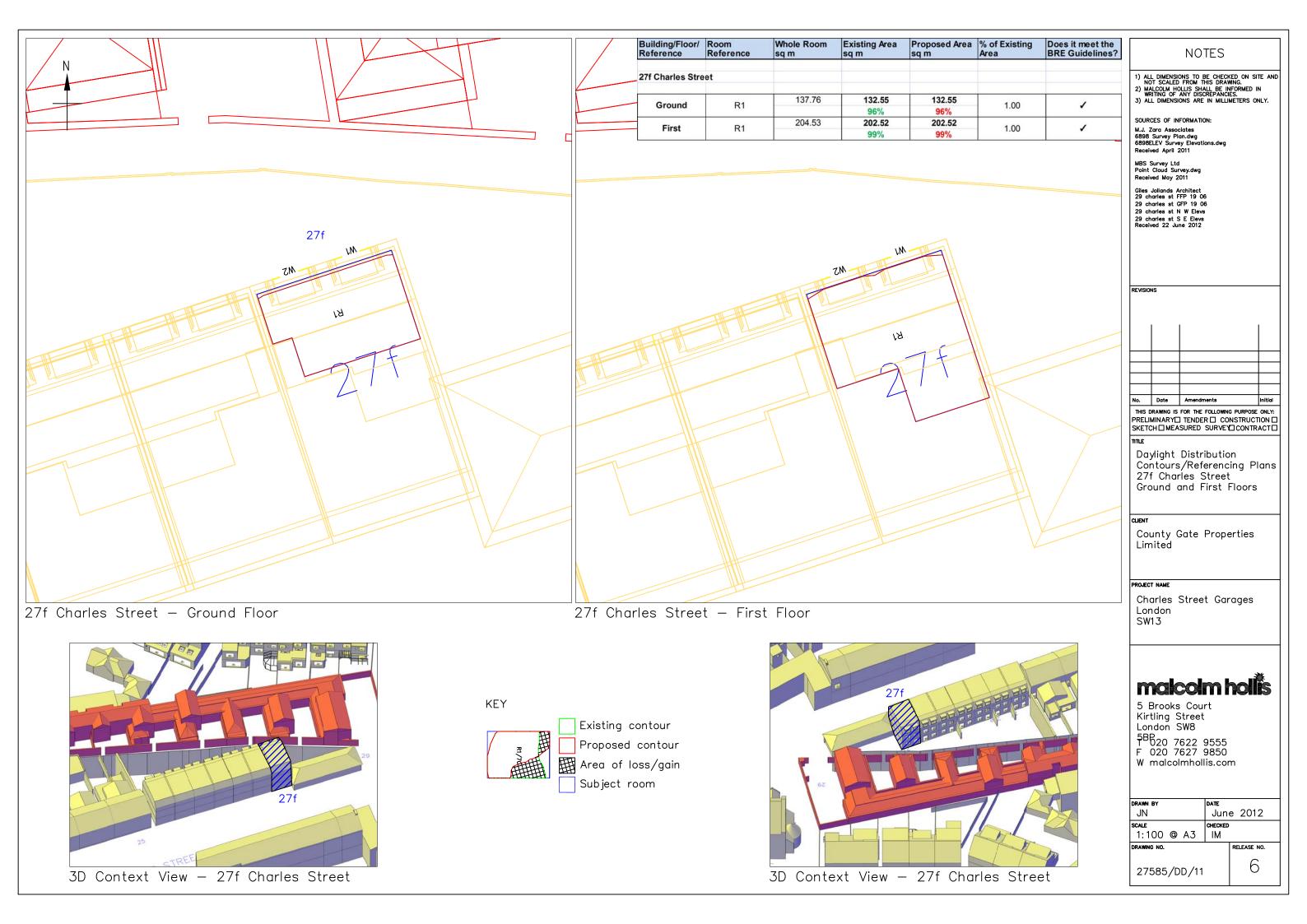
PROJECT NAME

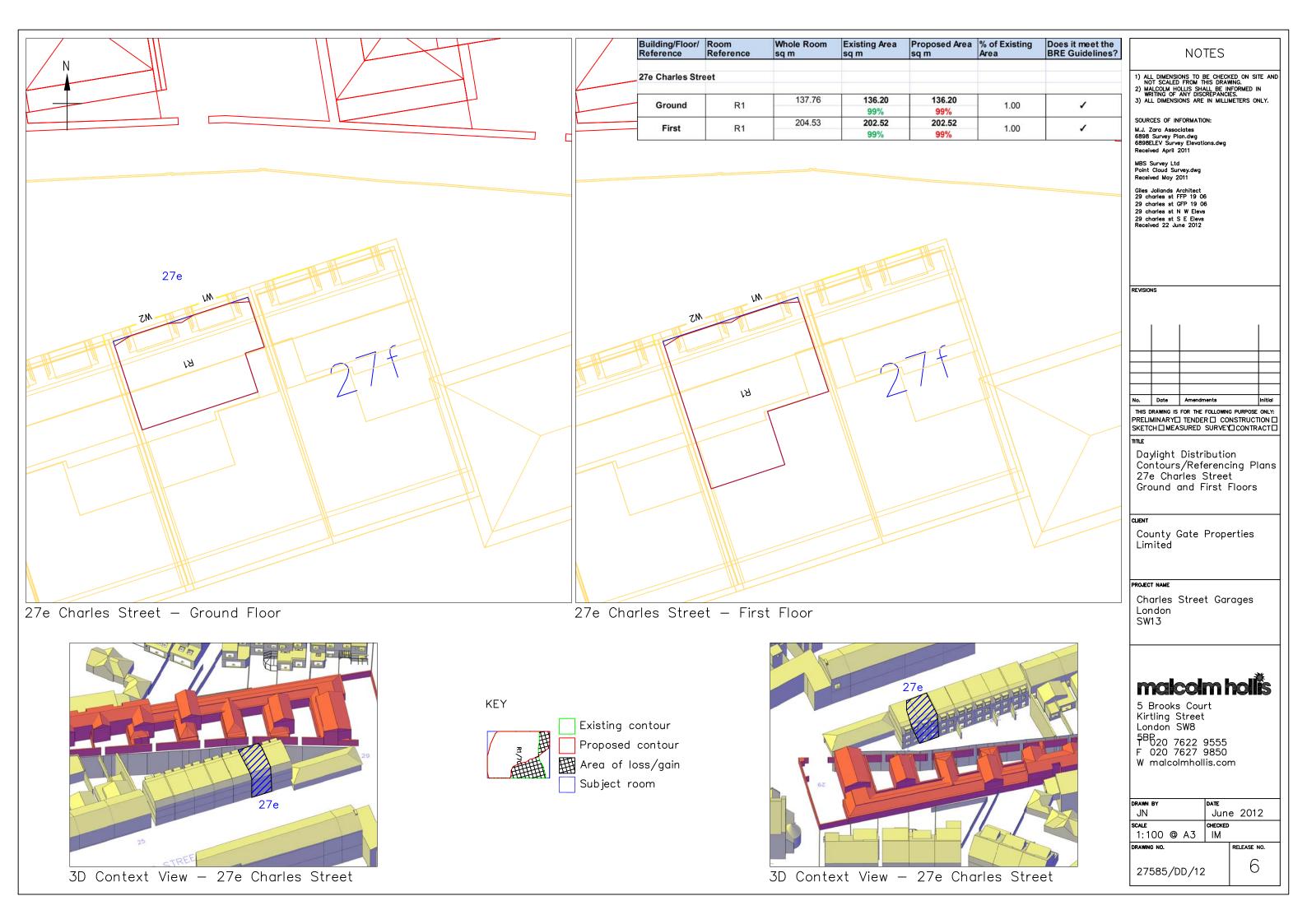
Charles Street Garages London SW13

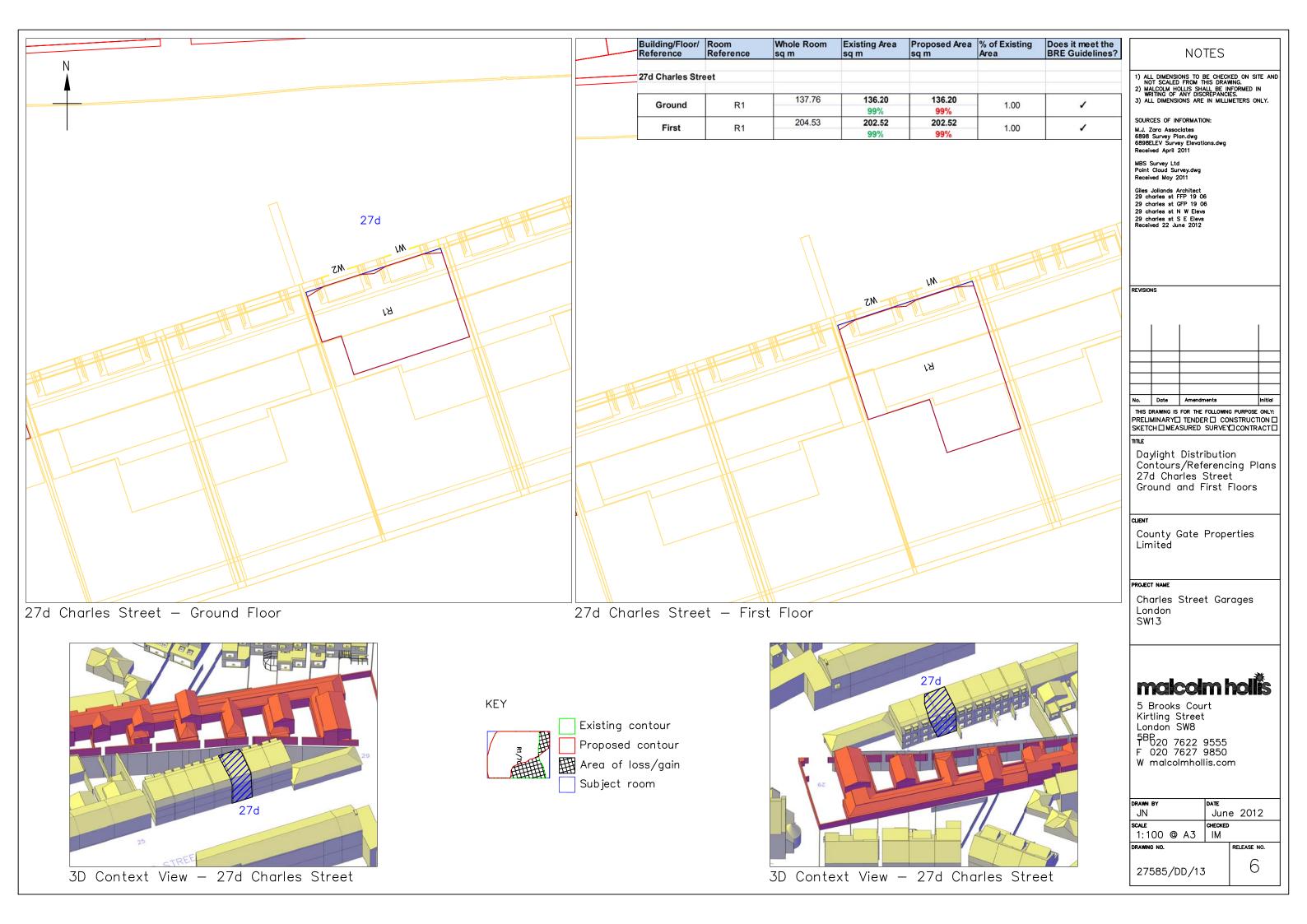
malcolm holis

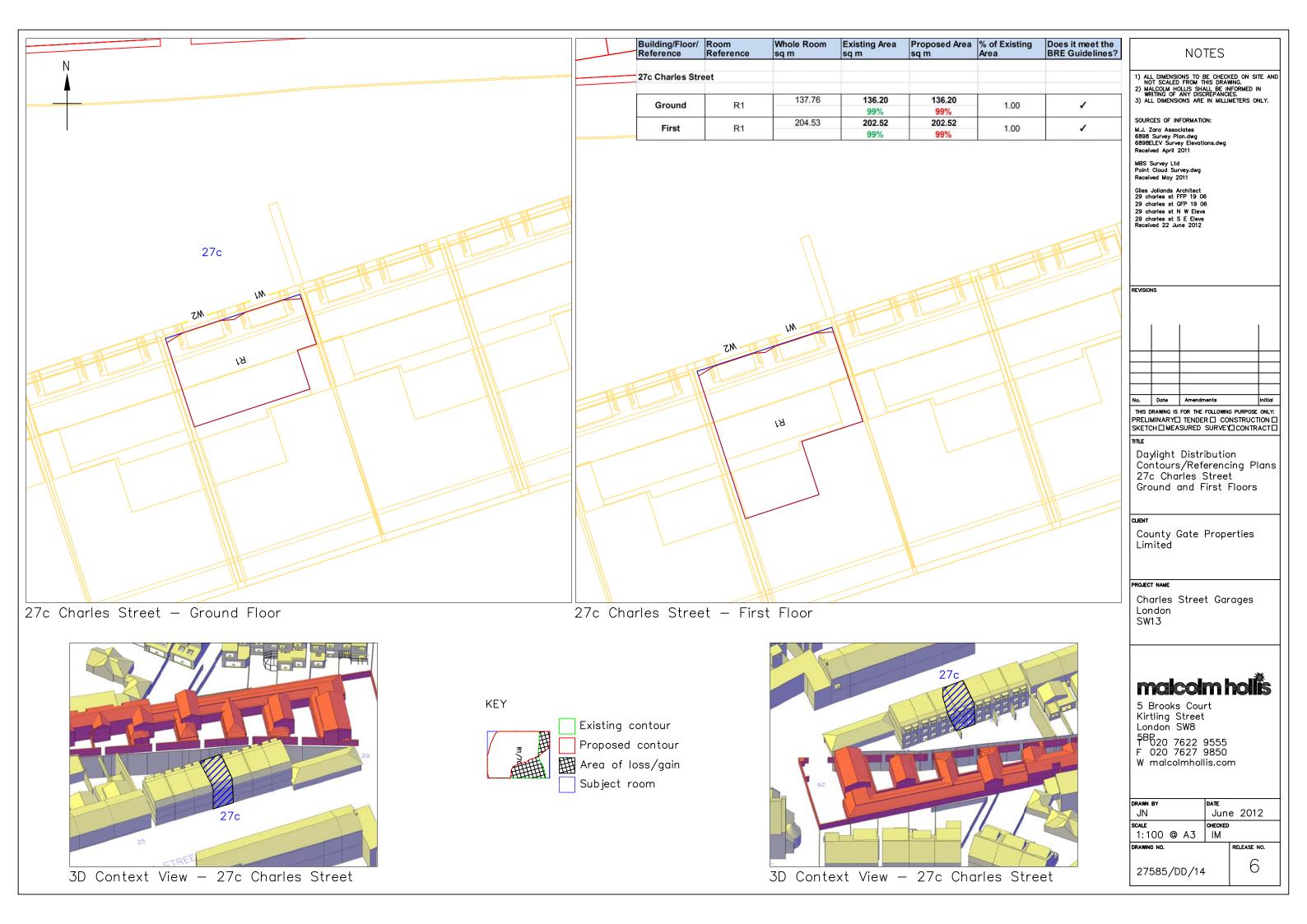
5 Brooks Court Kirtling Street London SW8 5BP 7 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

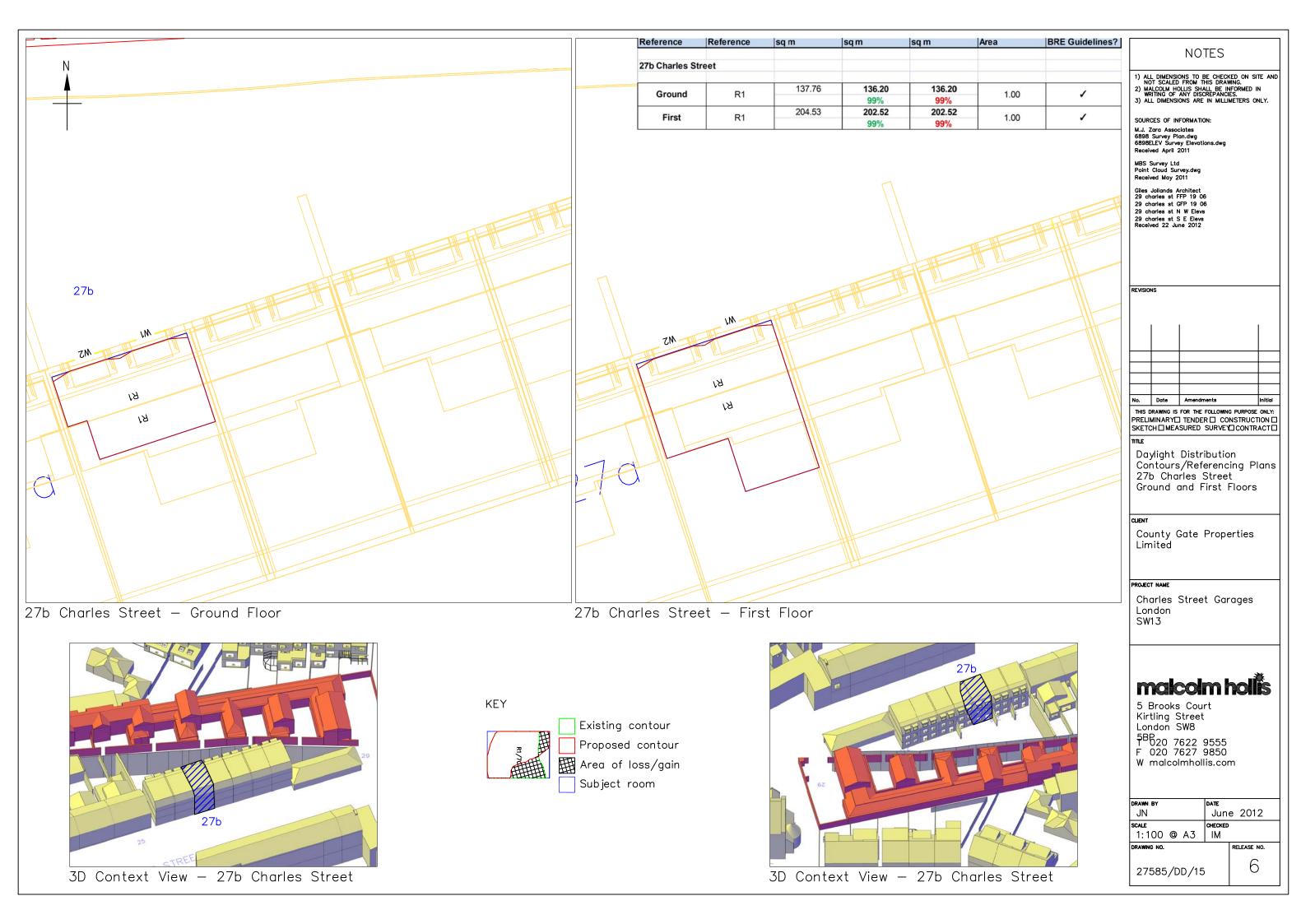
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JN	June 2012
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DRAWING NO.	RELEASE NO.
27585/DD/10	, 6

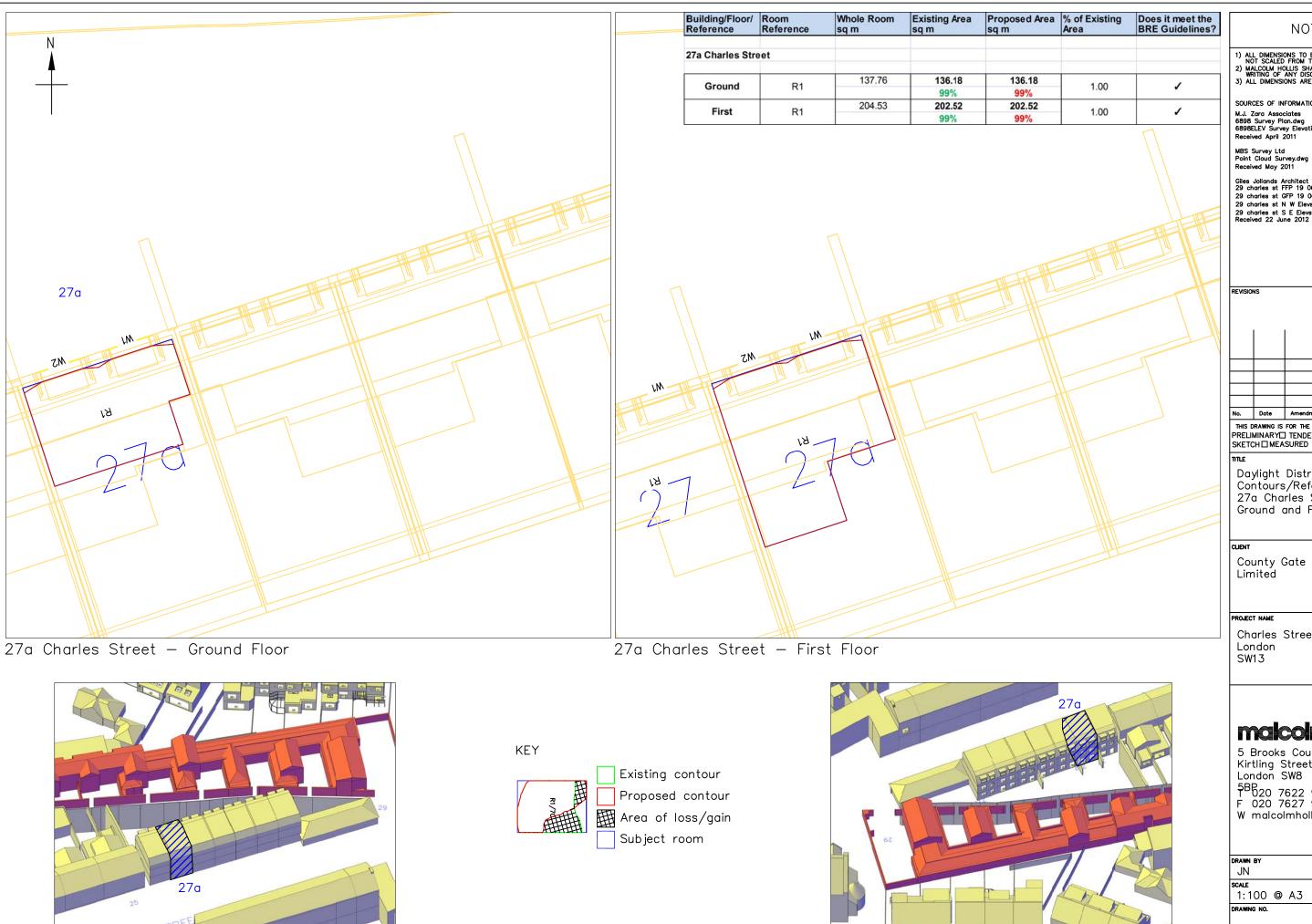












3D Context View - 27a Charles Street

NOTES

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SOURCES OF INFORMATION: M.J. Zara Associates 6898 Survey Plan.dwg 6898ELEV Survey Elevations.dwg Received April 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012

No.	Date	Amendments	Initial

THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Distribution Contours/Referencing Plans 27a Charles Street Ground and First Floors

County Gate Properties

Charles Street Garages

malcolm holis

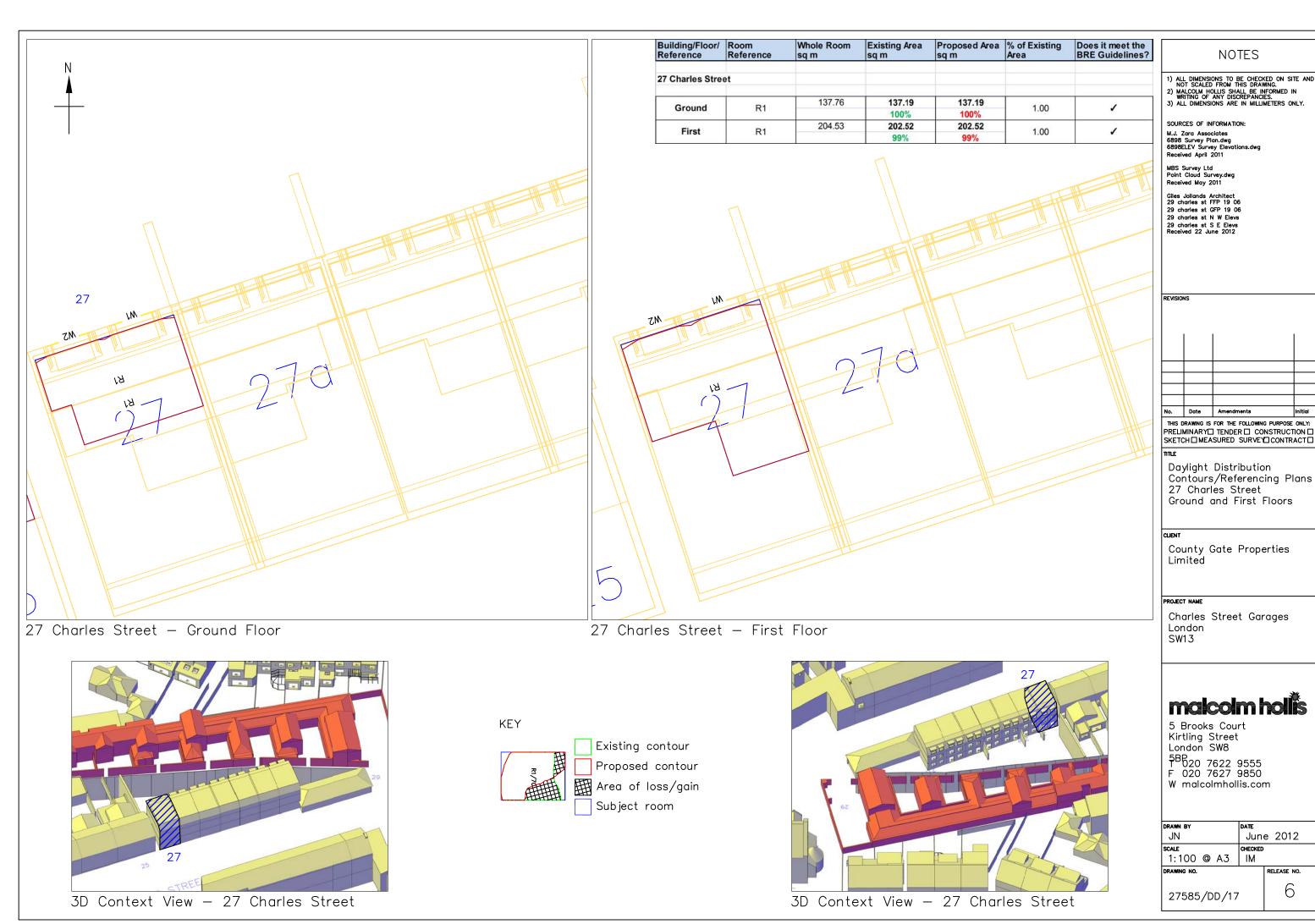
5 Brooks Court Kirtling Street London SW8 5BD F 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

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JN	June 2012
SCALE	CHECKED
1:100 @ A3	IM
DRAWING NO	DELEASE NO

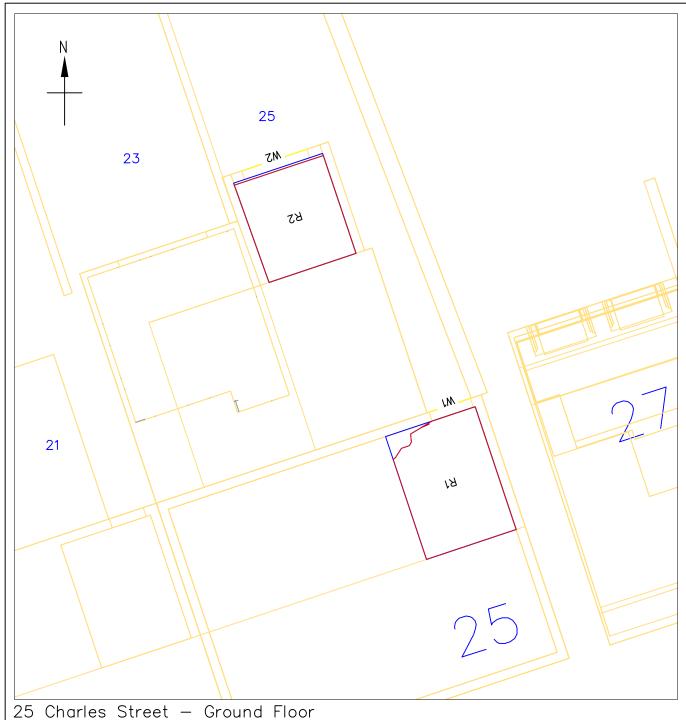
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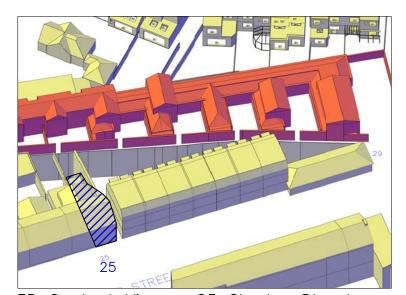
27585/DD/16

3D Context View - 27a Charles Street



RELEASE NO. 6





3D Context View — 25 Charles Street

KEY	
2	Existing contour Proposed contour Area of loss/gain Subject room

Building/Floor/ Reference	Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
25 Charles Stre	et					
Ground	R1	92.12	88.37	88.37	1.00	
Ground	Ki		96%	96%	1.00	
Ground	R2 73	73.67	72.13	72.13	1.00	1
			98%	98%	1.00	

25
6Z
3D Context View - 25 Charles Street

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SOURCES OF INFORMATION: M.J. Zara Associates 6898 Survey Plan.dwg 6898ELEV Survey Elevations.dwg Received April 2011

MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012

THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Distribution Contours/Referencing Plans 25 Charles Street Ground Floor

County Gate Properties Limited

PROJECT NAME

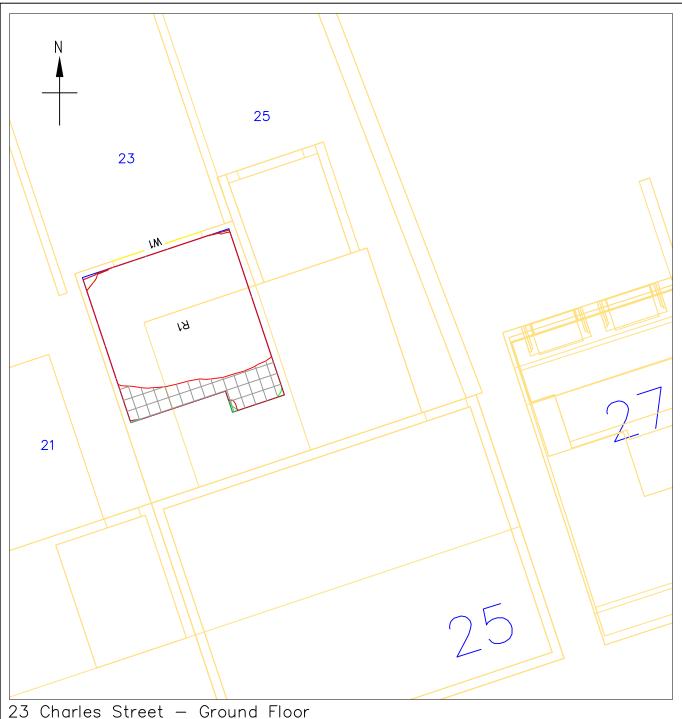
DRAWN BY

Charles Street Garages London SW13

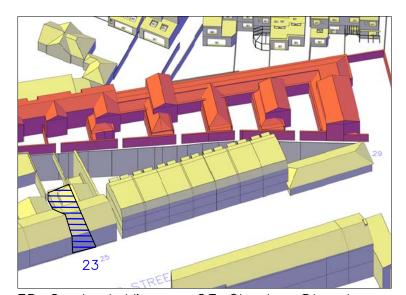
malcolm holis

5 Brooks Court Kirtling Street London SW8 5BP 7 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

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SCALE	CHECKED		
1:100 @ A3	IM		
DRAWING NO.	RELEASE NO.		
27585/DD/18	, 6		



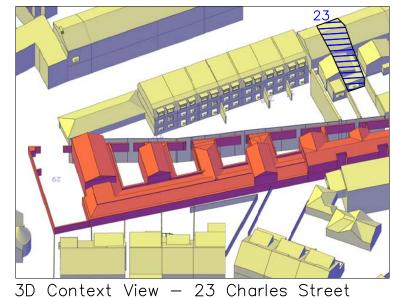
23 Charles Street — Ground	l Floor
----------------------------	---------



3D Context View — 23 Charles Street

KEY	
27	Existing contour Proposed contour Area of loss/gain Subject room

Reference	Reference	sq m	sq m	sq m	Area	BRE Guidelines?
23 Charles St	reet					
Ground	R1	187.05	186.69	186.13	1.00	
Ground	KI		100%	100%	1.00	



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SOURCES OF INFORMATION: M.J. Zara Associates 6898 Survey Plan.dwg 6898ELEV Survey Elevations.dwg Received April 2011

MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012

THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVEY CONTRACT

Daylight Distribution Contours/Referencing Plans 23 Charles Street Ground Floor

County Gate Properties Limited

PROJECT NAME

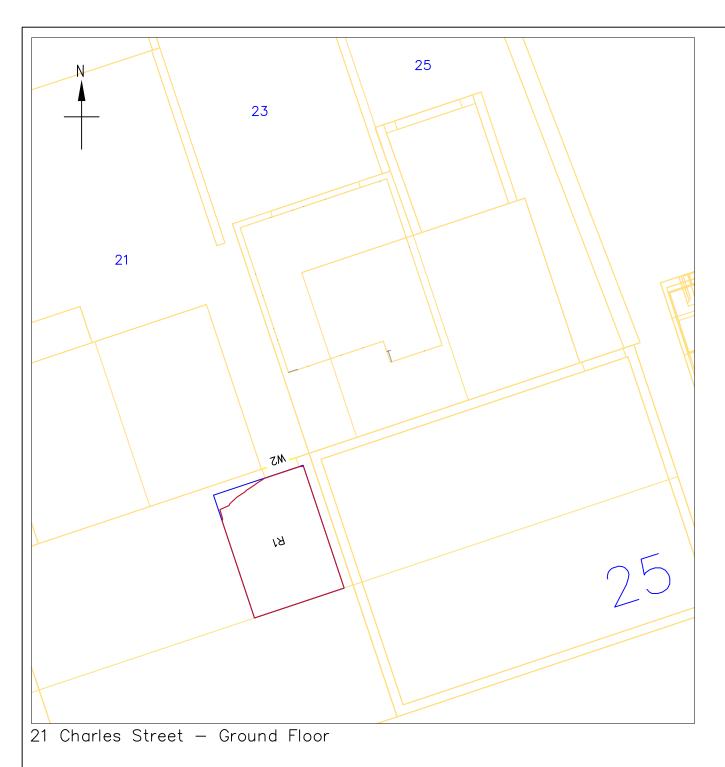
Charles Street Garages London SW13

malcolm holis

5 Brooks Court Kirtling Street London SW8 5BP 7 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

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DRAWING NO.	RELEASE NO.

6 27585/DD/19



Building/Floor/ Reference	Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
21 Charles Stre	et					
Ground	R1	92.12	88.61	88.61	1.00	
Ground	KI		96%	96%	1.00	'

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SOURCES OF INFORMATION: M.J. Zara Associates 6898 Survey Plan.dwg 6898ELEV Survey Elevations.dwg Received April 2011

MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Giles Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs 29 charles st S E Elevs Received 22 June 2012

No.	Date	Amendments	Initial
	ı	ı	1

THIS DRAWING IS FOR THE FOLLOWING PURPOSE ONLY:
PRELIMINARY TENDER CONSTRUCTION SKETCH MEASURED SURVE' CONTRACT

TITLE

Daylight Distribution Contours/Referencing Plans 21 Charles Street Ground Floor

CLIENT

County Gate Properties Limited

PROJECT NAME

Charles Street Garages London SW13

malcolm holis

5 Brooks Court Kirtling Street London SW8 5BP 020 7622 9555 F 020 7627 9850 W malcolmhollis.com

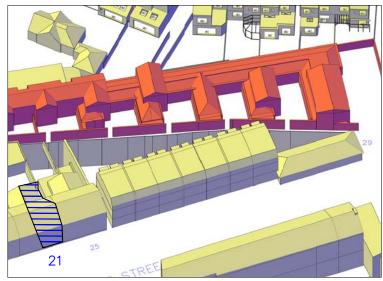
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JN	June 2012
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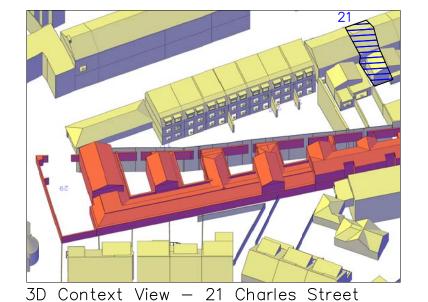
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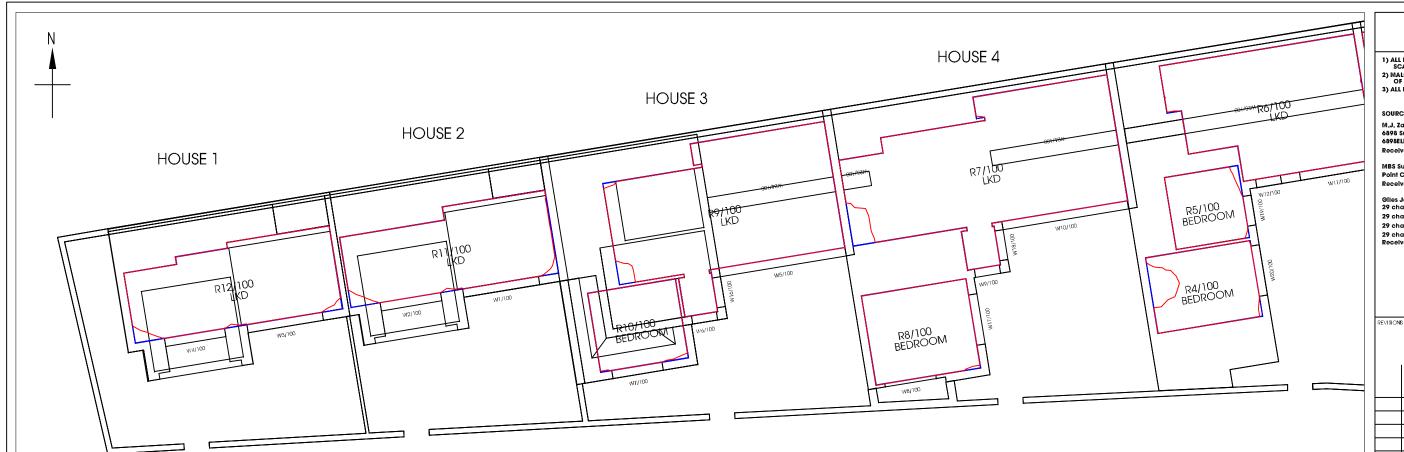
KEY	,	
		Existing contour
	RI H	Proposed contour
		Area of loss/gain

Subject room

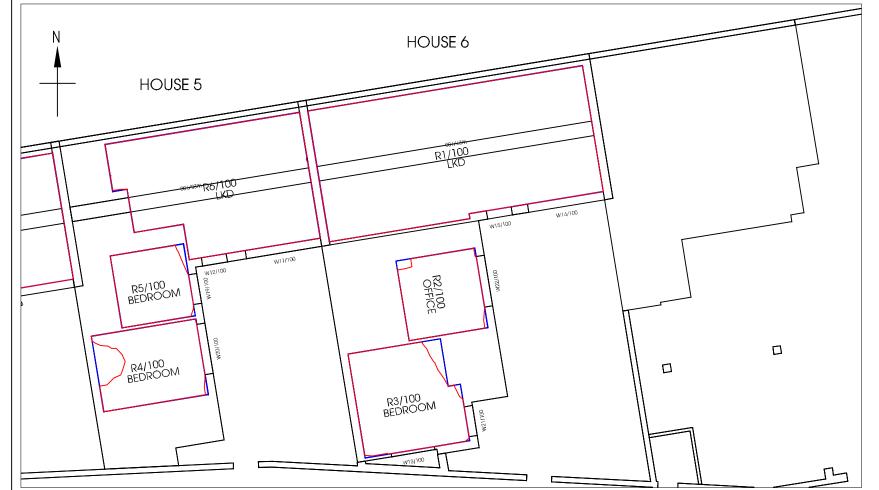


3D Context View - 21 Charles Street

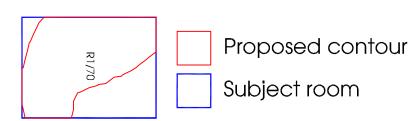




Houses 1, 2, 3 and 4 - Ground Floor



KEY



NOTES

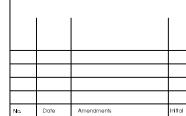
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SOURCES OF INFORMATION:

M.J. Zara Associates 6898 Survey Pian.dwg 6898ELEV Survey Elevat Received April 2011

MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

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SKETCH | MEASURED SURVEY | CONTRACT |

Daylight Distribution Contours/Referencing Plans Houses 1 to 6 **Ground Floor**

County Gate Properties Limited

Charles Street Garages London SW13

malcolm holis

Kirtling Street London SW8 5BP

T 020 7622 9555 F 020 7627 9850

W malcolmhollis.com

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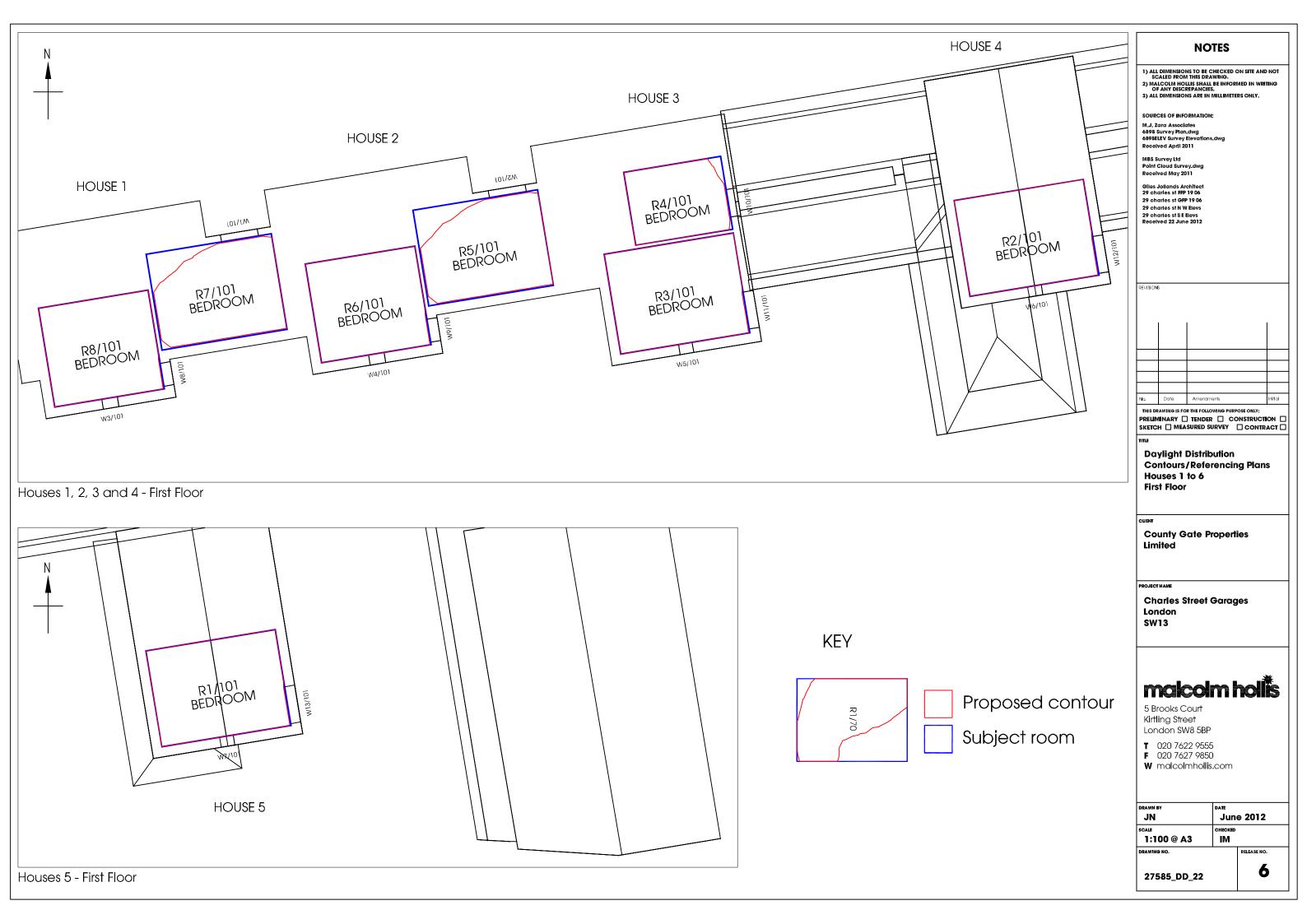
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RELEASE NO.

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27585_DD_21

Houses 5 and 6 - Ground Floor





Appendix D

Daylight Results



Buildina/Floor/ Reference	Window Reference	Existing v. Proposed	VSC Values %	% of Existina	Does it meet the BRE Guidelines?
Reference	Reference	Proposeu	70		BRE Guidelines?
85 Elm Bank Ga	rdens				
Ground	W1	Existing	28.74	0.99	1
		Proposed	28.37		V
Ground	W2	Existing	21.79	0.98	/
		Proposed	21.43		
83 Elm Bank Ga	rdens				
Ground	W1	Existing	32.90	0.96	
		Proposed	31.72		/
Ground	W2	Existing	32.65	0.96	,
		Proposed	31.38		✓
81 Elm Bank Ga		Truintin :	04.40	0.00	
Ground	W1	Existing	34.40	0.92	✓
0	14/0	Proposed	31.59	0.00	
Ground	W2	Existing	37.11	0.96	✓
Craund	W3	Proposed	35.69	0.00	
Ground	VV 3	Existing Proposed	37.08 35.50	0.96	✓
	_	Поросси	00.00		
79 Elm Bank Ga	rdens				
Ground	W1	Existing	34.23	0.91	/
		Proposed	31.03		•
First	W1	Existing	37.32	0.97	
		Proposed	36.26		,
First	W2	Existing	27.73	0.99	/
		Proposed	27.40		"
77 Elm Bank Ga	ırdens				
Ground	W1	Existing	27.32	0.96	1
		Proposed	26.33		<u> </u>
First	W1	Existing	33.33	0.98	,
		Proposed	32.70		<u> </u>
First	W2	Existing	37.37	0.98	,
		Proposed	36.74		<u> </u>
	14/0	T= - :			

First

W3

Existing

Proposed

37.34

36.69

0.98

Building/Floor/	Window	Existing v.	VSC Values	% of Existina	Does it meet the
Reference	Reference	Proposed	%		BRE Guidelines?

75 Elm Bank Gardens

W1	Existing	31.83	0.87	,
	Proposed	27.74		,
W2	Existing	30.90	0.87	,
	Proposed	26.76		,
W1	Existing	37.43	0.98	,
	Proposed	36.85		•
W2	Existing	37.54	0.99	,
	Proposed	37.02		'
W3	Existing	34.11	0.99	,
	Proposed	33.64		,
	W2 W1 W2	Proposed W2 Existing Proposed W1 Existing Proposed W2 Existing Proposed W2 Existing Proposed W3 Existing	Proposed 27.74 W2 Existing 30.90 Proposed 26.76 W1 Existing 37.43 Proposed 36.85 W2 Existing 37.54 Proposed 37.02 W3 Existing 34.11	Proposed 27.74 W2 Existing 30.90 0.87 Proposed 26.76 0.98 W1 Existing 37.43 0.98 Proposed 36.85 0.99 Proposed 37.54 0.99 Proposed 37.02 0.99 W3 Existing 34.11 0.99

73 Elm Bank Gardens

Ground	W1	Existing	34.38	0.86	,
		Proposed	29.73		'
Ground	W2	Existing	17.94	0.97	1
		Proposed	17.33		'
Ground	W4	Existing	25.05	0.92	1
		Proposed	22.96		V
First	W1	Existing	37.40	0.98	1
		Proposed	36.70		•
First	W2	Existing	37.47	0.98	1
		Proposed	36.87		•
First	W3	Existing	33.78	0.99	1
		Proposed	33.30		

71 Elm Bank Gardens

Ground	W1	Existing	22.16	0.92	,
		Proposed	20.36		'
Ground	W2	Existing	25.58	0.94	,
		Proposed	23.96		•
First	W1	Existing	34.72	0.99	,
		Proposed	34.24		•
First	W2	Existing	36.46	0.99	,
		Proposed	36.07		•
First	W3	Existing	35.94	0.99	,
		Proposed	35.53		

Buildina/Floor/	Window	Existing v.	VSC Values	% of Existina	Does it meet the
Reference	Reference	Proposed	%		BRE Guidelines?

St Michael and All Angel's Church

Ground	W1	Existing	32.10	0.97	,
		Proposed	31.02		,
Ground	W2	Existing	27.86	0.96	,
		Proposed	26.61		,
Ground	W3	Existing	32.04	0.96	,
		Proposed	30.64		"

27f Charles Street

Ground	W1	Existing	34.80	0.82	,
		Proposed	28.44		•
Ground	W2	Existing	35.00	0.87	/
		Proposed	30.39		*
First	W1	Existing	36.93	0.95	,
		Proposed	35.11		V
First	W2	Existing	37.07	0.96	,
		Proposed	35.65		,

27e Charles Street

Ground	W1	Existing	34.29	0.88	/
		Proposed	30.06		•
Ground	W2	Existing	35.01	0.91	/
		Proposed	31.72		V
First	W1	Existing	37.24	0.97	/
		Proposed	35.98		V
First	W2	Existing	37.37	0.97	/
		Proposed	36.15		V

27d Charles Street

Ground	W1	Existing	34.13	0.92	,
		Proposed	31.24		*
Ground	W2	Existing	26.79	0.91	,
		Proposed	24.46		•
First	W1	Existing	37.54	0.97	,
		Proposed	36.37		V
First	W2	Existing	37.66	0.97	,
		Proposed	36.54		V

Buildina/Floor/ Reference	Window Reference	Existing v. Proposed	VSC Values %	% of Existing	Does it meet the BRE Guidelines?	
27c Charles Stre	eet					
Ground	W1	Existing	27.76	0.89		
		Proposed	24.78		/	
Ground	W2	Existing	34.75	0.92	,	
		Proposed	31.84		•	
First	W1	Existing	37.81	0.97	,	
		Proposed	36.72		•	
First	W2	Existing	37.90	0.97	,	
		Proposed	36.77		,	

27b Charles Street

Ground	W1	Existing	34.74	0.92	,
		Proposed	31.90		•
Ground	W2	Existing	27.88	0.92	,
		Proposed	25.51		,
First	W1	Existing	38.00	0.97	,
		Proposed	36.80		,
First	W2	Existing	38.08	0.97	,
		Proposed	36.77		,

27a Charles Street

Ground	W1	Existing	26.79	0.91	,
		Proposed	24.31		V
Ground	W2	Existing	28.03	0.92	,
		Proposed	25.77		•
First	W1	Existing	38.18	0.96	,
		Proposed	36.81		•
First	W2	Existing	38.24	0.96	,
		Proposed	36.82		•

27 Charles Street

Ground	W1	Existing	28.47	0.91	,
		Proposed	25.92		V
Ground	W2	Existing	31.32	0.92	,
		Proposed	28.74		V
First	W1	Existing	38.29	0.96	/
		Proposed	36.84		•
First	W2	Existing	38.25	0.96	,
		Proposed	36.82		•

Building/Floor/	Window	Existing v.	VSC Values	% of Existing	Does it meet the
Reference	Reference	Proposed	%	70 OI LAISUIIU	BRE Guidelines?
25 Charles Stre		•			
Ground	W1	Existing	10.65	0.96	
		Proposed	10.21		✓
Ground	W2	Existing	30.40	0.89	
		Proposed	26.93		✓
Ground	W1	Existing	26.66	0.92	/
Ground	W1	Existing	26.66	0.92	
		Proposed	24.61		<u> </u>
21 Charles Stre	et				
Ground	W2	Existing	14.91	0.96	/
		Proposed	14.36		V
40 Charles Stre	et				
Ground	W1	Existing	32.50	0.99	,
1		Proposed	32.21		"

Room	Room Use	Window	VSC(%)	ADF(%)	TOTAL ADF(%)	PASS/ FAIL
HOUSE 1						
Ground Floor						
R12/100	LKD	W3/100	27.86	3.33		
R12/100	LKD	W4/100	14.37	1.37	4.70	PASS
First Floor						
R7/101	BEDROOM	W1/101	32.28	1.19	1.19	PASS
R8/101	BEDROOM	W3/101	37.50	0.37	4.07	D.4.00
R8/101	BEDROOM	W8/101	28.52	0.69	1.07	PASS
HOUSE 2						
Ground Floor						
R11/100	LKD	W1/100	26.27	3.28		
R11/100	LKD	W2/100	13.70	1.34	4.62	PASS
First Floor						
R5/101	BEDROOM	W2/101	31.58	1.17	1.17	PASS
R6/101	BEDROOM	W4/101	36.97	0.37		
R6/101	BEDROOM	W9/101	28.15	0.69	1.06	PASS
HOUSE 3						
Ground Floor						
R9/100	LKD	W5/100	26.71	3.55		
R9/100	LKD	W6/100	21.01	0.58		
R9/100 R9/100	LKD LKD	W16/100 W24/100	18.19 92.42	0.66 1.95	6.74	PASS
K9/100	LND	VV 24/ TOO	92.42	1.95	0.74	PASS
R10/100	BEDROOM	W7/100	25.41	4.35	4.35	PASS
First Floor						
R3/101	BEDROOM	W5/101	36.48	0.25		
R3/101	BEDROOM	W11/101	35.20	1.20	1.45	PASS
R4/101	BEDROOM	W10/101	34.89	1.30	1.30	PASS
	DEDITOON	VV 10/ 10 1	04.00	1.00	1.00	17.00
HOUSE 4						
Ground Floor		14161155	40.55	0.15		
R7/100	LKD	W9/100	19.69	0.49		
R7/100 R7/100	LKD LKD	W10/100 W18/100	25.95 19.12	3.02 0.60		
R7/100	LKD	W23/100	74.71	0.32		
R7/100	LKD	W26/100	96.27	1.77	6.20	PASS
R8/100	BEDROOM	W8/100	10.39	2.41		
R8/100	BEDROOM	W17/100	26.30	3.52	5.93	PASS
First Floor	DEDDOOM	VAIO /4 O 4	05.00	0.05		
R2/101 R2/101	BEDROOM BEDROOM	W6/101 W12/101	35.82 35.92	0.25 1.26	1.51	PASS
1\ <i>E_I</i> 1 V I	DEDITOON	VV 12/ 101	JJ.JZ	1.20	1.01	1 7.00

Room	Room Use	Window	VSC(%)	ADF(%)	TOTAL ADF(%)	PASS/ FAIL	
HOUSE 5							
Ground Floor							
R4/100	BEDROOM	W20/100	24.43	3.79	3.79	PASS	
R5/100	BEDROOM	W19/100	17.79	2.43	2.43	PASS	
10,100	BEBROOM	VV 10/ 100	17.70	2.40	2.40	17100	
R6/100	LKD	W11/100	23.40	2.46			
R6/100	LKD	W12/100	21.05	0.76			
R6/100	LKD	W25/100	98.34	4.95	8.17	PASS	
HOUSE 6							
Ground Floor							
R1/100	LKD	W14/100	20.60	1.57			
R1/100	LKD	W15/100	17.60	0.46			
R1/100	LKD	W27/100	94.87	3.88	5.91	PASS	
R2/100	OFFICE	W22/100	21.87	4.14	4.14	PASS	
R3/100	BEDROOM	W13/100	6.69	1.77			
R3/100	BEDROOM	W21/100	18.79	1.50	3.27	PASS	
First Floor							
R1/101	BEDROOM	W7/101	35.24	0.25			
R1/101	BEDROOM	W13/101	33.67	1.18	1.43	PASS	

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DAYLIGHT DISTRIBUTION (DD) ASSESSMENT Proposed Scheme

Building/Floor/	Room	Whole Room	Existing Area	Proposed Area	% of Existing	Does it meet the
Reference	Reference	sq m	sq m	sq m	Area	BRE Guidelines?
85 Elm Bank Ga	rdens		· ·	· •		
Ground	R1	251.24	248.17 99%	248.17 100%	1.00	1
83 Elm Bank Ga	rdens					
Ground	R1	447.80	447.80 100%	447.80 100%	1.00	/
81 Elm Bank Ga	rdens	•				
Ground	R1	463.16	463.15 100%	463.15 100%	1.00	/
79 Elm Bank Ga	rdens	•				
Ground	R1	446.76	407.77 91%	379.76 85%	0.91	✓
First	R1	207.27	206.75 100%	206.75 100%	1.00	1
First	R2	117.98	117.39 99%	117.39 99%	1.00	1
77 Elm Bank Ga	rdens					
Ground	R1	123.25	120.67 98%	120.67 98%	1.00	✓
First	R1	123.25	122.32 99%	122.32 99%	1.00	✓
First	R2	112.84	109.42 97%	109.42 <mark>97%</mark>	1.00	✓
75 Elm Bank Ga	rdens					
Ground	R1	120.28	120.20 100%	120.19 100%	1.00	✓
Ground	R2	211.85	205.35 97%	182.17 86%	0.89	1
First	R1	115.28	111.85 97%	111.85 97%	1.00	/
First	R2	123.42	122.65 99%	122.65 99%	1.00	✓
73 Elm Bank Ga	rdens					
Ground	R1	176.81	176.72 100%	167.29 95%	1.00	✓
Ground	R2	147.18	145.98 99%	145.98 99%	1.00	/
First	R1	46.49	45.82 99%	45.82 99%	1.00	1
First	R2	33.60	29.08 87%	29.08 87%	1.00	1
First	R3	144.48	143.43 99%	143.39 99%	1.00	✓

Building/Floor/ Reference	Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
71 Elm Bank Gar	dens		_			
Ground	R1	127.05	125.25 99%	125.25 99%	1.00	✓
Ground	R2	119.33	113.84 95%	113.84 95%	1.00	/
First	R1	144.48	143.41 99%	143.40 99%	1.00	1
First	R2	33.60	28.99 86%	28.99 86%	1.00	1
First	R3	45.65	44.90 98%	44.90 98%	1.00	✓
St Michael and A	all Angel's Churc	ch				
Ground	R1	107.74	97.70 91%	97.70 91%	1.00	✓
Ground	R2	161.60	157.58 98%	157.58 98%	1.00	1
27f Charles Stree	et					
Ground	R1	137.76	132.55 96%	132.55 96%	1.00	✓
First	R1	204.53	202.52 99%	202.52 99%	1.00	1
27e Charles Stre	et					
Ground	R1	137.76	136.20 99%	136.20 99%	1.00	✓
First	R1	204.53	202.52 99%	202.52 99%	1.00	✓
27d Charles Stre	et					
Ground	R1	137.76	136.20 99%	136.20 99%	1.00	1
First	R1	204.53	202.52 99%	202.52 99%	1.00	1
27c Charles Stre	et					
Ground	R1	137.76	136.20 99%	136.20 99%	1.00	1
First	R1	204.53	202.52 99%	202.52 99%	1.00	1
27b Charles Stre	et					
Ground	R1	137.76	136.20 99%	136.20 99%	1.00	✓
First	R1	204.53	202.52 99%	202.52 99%	1.00	1
27a Charles Stre	et					
Ground	R1	137.76	136.18 99%	136.18 99%	1.00	✓
First	R1	204.53	202.52 99%	202.52 99%	1.00	1

DAYLIGHT DISTRIBUTION (DD) ASSESSMENT Proposed Scheme

Building/Floor/ Reference	Room Reference	Whole Room sq m	Existing Area sq m	Proposed Area sq m	% of Existing Area	Does it meet the BRE Guidelines?
Reference	Iverence	sq III	jay iii	jay iii	Alea	DIVE Guidelines:
			<u></u>			
27 Charles Stree	t					
	T	107.70	107.40	1 40= 40	1	1
Ground	R1	137.76	137.19 100%	137.19 100%	1.00	✓
		204.53	202.52	202.52		
First	R1	204.55	99%	99%	1.00	✓
	•	•		•		
25 Charles Stree	t					
	Т	1 00.40			<u> </u>	1
Ground	R1	92.12	88.37	88.37	1.00	✓
		73.67	96% 72.13	96% 72.13	+	
Ground	R2	75.07	98%	98%	1.00	✓
	I	l				_l
23 Charles Stree	t					
	T	107.05	1 (00.00	100.40	<u>, </u>	
Ground	R1	187.05	186.69	186.13	1.00	✓
			100%	100%		
21 Charles Stree	t					
Ground	R1	92.12	88.61	88.61	1.00	1
Ground	IXI		96%	96%	1.00	•
40.011 01						
40 Charles Stree	τ					
		109.99	109.27	109.27		
Ground	R1		99%	99%	1.00	✓
		•	•	•	•	-

Room/Floor Room Use Room Area No-Sky Line % Lit sq ft	
30.0	
HOUSE 1	
Ground Floor	
R12/100 LKD 275.3 269.1 97.7	
First Floor	
R7/101 BEDROOM 133.3 116.9 87.7	
R8/101 BEDROOM 120.4 120.0 99.7	
HOUSE 2	
Ground Floor	
R11/100 LKD 268.8 261.7 97.4	
First Floor R5/101 BEDROOM 132.8 116.2 87.5	
R6/101 BEDROOM 120.4 120.0 99.7	
HOUSE 3	
Ground Floor	
R9/100 LKD 465.0 458.8 98.7	
R10/100 BEDROOM 117.4 116.3 99.1	
First Floor	
R3/101 BEDROOM 143.2 142.6 99.6 P4/101 BEDROOM 78.7 75.7 96.2	
R4/101 BEDROOM 78.7 75.7 96.2	
HOUSE 4	
Ground Floor	
R7/100 LKD 538.0 524.8 97.5	
R8/100 BEDROOM 158.1 157.5 99.6	
First Floor	
R2/101 BEDROOM 137.6 137.0 99.6	
HOUSE 5	
Ground Floor	
R4/100 BEDROOM 133.9 118.0 88.1 R5/100 BEDROOM 89.4 86.7 97.0	
R6/100 BEDROOM 89.4 86.7 97.0 R6/100 LKD 366.3 366.1 99.9	
HOUSE 6	
Ground Floor R1/100 LKD 598.3 598.3 100.0	
R2/100 OFFICE 106.3 103.2 97.1	
R3/100 BEDROOM 174.4 165.4 94.8	
First Floor	
R1/101 BEDROOM 137.6 137.0 99.6	



Appendix E

Sunlight Results





Building/Floor/	Window		ANN	IUAL		Does it meet the		Does it meet the			
Room Reference	Reference	Existing	Proposed	Reduction	Reduction %	BRE Guidelines?	Existing	Proposed	Reduction Reduction		BRE Guidelines?
85 Elm Bank Ga	rdens										
Ground	W1	51	51	0	0.00%	1	18	18	0	0.00%	J
Ground	W2	38	38	0	0.00%	✓	10	10	0	0.00%	√
83 Elm Bank Gard	lens										
Ground	W1	36	36	0	0.00%	✓	14	14	0	0.00%	1
Ground	W2	69	66	3	4.35%	√	23	20	3	13.04%	✓
81 Elm Bank Gard	lens										
Ground	W1	71	67	4	5.63%	✓	25	21	4	16.00%	√
79 Elm Bank Gard	lens										
79 EIIII Balik Gard											
Ground	W1	78	72	6	7.69%	✓	27	21	6	22.22%	√
		78 77	72	6	7.69%	✓ <u> </u>	27	21	6	22.22%	√ √

ANNUAL PROBABLE SUNLIGHT HOURS (APSH) ASSESSMENT Proposed Scheme

Building/Floor/	Window	indow ANNUAL Does it meet the WINTER							Does it meet the		
Room Reference	Reference	Existing	Proposed	Reduction	Reduction %	BRE Guidelines?	Existing	Proposed	Reduction	Reduction %	BRE Guidelines?
77 Elm Bank Gard	ens										
Ground	W1	49	47	2	4.08%	✓	19	17	2	10.53%	✓
First	W1	60	59	1	1.67%	✓	23	22	1	4.35%	✓
First	W2	37	37	0	0.00%	✓	20	20	0	0.00%	✓
First	W3	69	69	0	0.00%	✓	28	28	0	0.00%	✓
75 Elm Bank Gard	ens										
Ground	W1	70	61	9	12.86%	1	24	15	9	37.50%	✓
Ground	W2	63	57	6	9.52%	✓	23	17	6	26.09%	✓
First	W1	69	69	0	0.00%	✓	28	28	0	0.00%	√
First	W2	39	39	0	0.00%	✓	21	21	0	0.00%	✓
First	W3	64	64	0	0.00%	1	26	26	0	0.00%	✓
73 Elm Bank Gard	ens										
Ground	W1	74	67	7	9.46%	✓	26	19	7	26.92%	✓
Ground	W2	22	22	0	0.00%	✓	5	5	0	0.00%	✓
Ground	W4	51	49	2	3.92%	✓	19	17	2	10.53%	√
First	W1	71	71	0	0.00%	✓	28	28	0	0.00%	✓
First	W2	38	38	0	0.00%	✓	21	21	0	0.00%	✓
First	W3	63	63	0	0.00%	✓	25	25	0	0.00%	✓

Building/Floor/	Window	ANNUAL				Does it meet the			Does it meet the		
Room Reference	Reference	Existing	Proposed	Reduction	Reduction %	BRE Guidelines?	Existing	Proposed	Reduction	Reduction %	BRE Guidelines?
71 Elm Bank Gard	ens										
Ground	W1	42	39	3	7.14%	./	13	10	3	23.08%	
Oround	VVI	42	39	<u> </u>	7.1470	<u> </u>	13	10] 3	23.0070	•
Ground	W2	57	53	4	7.02%	1	21	17	4	19.05%	✓
					_						
First	W1	62	62	0	0.00%	✓	25	25	0	0.00%	✓
First	W2	38	38	0	0.00%		21	21	0	0.00%	
1 11 31	VVZ	J0	36	0	0.00 /6	*	۷۱	۷1		0.00 /6	▼
First	W3	69	69	0	0.00%	/	27	27	0	0.00%	1

Room	Window	Room Use	Orientation	Winter APSH	Window Annual APSH	Pass/ Fail	Winter APSH	Room Annual APSH	Pass/ Fail
HOUSE 1									
Ground F R12/100 R12/100	Floor W3/100 W4/100	LKD LKD	170.6 170.6	20 19	52 19	PASS FAIL	20	52	PASS
First Floo R7/101	or W1/101	BEDROOM	350.6	0	0	FAIL	0	0	FAIL
R8/101 R8/101	W3/101 W8/101	BEDROOM BEDROOM	170.6 80.6	17 2	25 21	PASS FAIL	19	46	PASS
HOUSE 2									
Ground F R11/100 R11/100	Floor W1/100 W2/100	LKD LKD	170.6 170.6	19 19	48 19	PASS FAIL	20	49	PASS
First Floo R5/101	or W2/101	BEDROOM	350.6	0	0	FAIL	0	0	FAIL
R6/101 R6/101	W4/101 W9/101	BEDROOM BEDROOM	170.6 80.6	17 2	25 22	PASS FAIL	19	47	PASS
HOUSE 3									
Ground F R9/100 R9/100 R9/100 R9/100	Floor W5/100 W6/100 W16/100 W24/100	LKD LKD LKD LKD	170.6 170.6 80.6 270.0	16 8 3 0	51 34 24 36	PASS PASS FAIL FAIL	17	67	PASS
R10/100	W7/100	BEDROOM	170.6	15	61	PASS	15	61	PASS
First Floo R3/101 R3/101	or W5/101 W11/101	BEDROOM BEDROOM	170.6 80.6	17 4	25 27	PASS FAIL	20	50	PASS
R4/101	W10/101	BEDROOM	80.6	3	25	FAIL	3	25	FAIL
HOUSE 4									
Ground F R7/100 R7/100 R7/100 R7/100 R7/100	W9/100 W10/100 W18/100 W23/100 W26/100	LKD LKD LKD LKD LKD	170.6 170.6 80.6 270.0 270.0	8 15 3 0	34 56 27 25 45	PASS PASS FAIL FAIL	16	75	PASS
R8/100 R8/100	W8/100 W17/100	BEDROOM BEDROOM	170.6 80.6	0 2	39 28	FAIL FAIL	2	52	FAIL

			Window			Room			
D	VA/:I	Room	Onlandation	Winter	Annual	Pass/	Winter	Annual	Pass/
Room	Window	Use	Orientation	APSH	APSH	Fail	APSH	APSH	Fail
First Floo									
R2/101	W6/101	BEDROOM	170.6	17	25	PASS	00	E4	DAGG
R2/101	W12/101	BEDROOM	80.5	4	28	FAIL	20	51	PASS
HOUSE 5									
Ground F	loor								
R4/100	W20/100	BEDROOM	80.6	3	23	FAIL	3	23	FAIL
R5/100	W19/100	BEDROOM	80.6	2	20	FAIL	2	20	FAIL
110/100	1113/100	DEDITOON!	00.0	_	20	TAIL		20	TAIL
R6/100	W11/100	LKD	170.6	14	50	PASS			
R6/100	W12/100	LKD	170.6	10	40 49	PASS FAIL	17	78	DACC
R6/100	W25/100	LKD	270.0	0	49	FAIL	17	78	PASS
HOUSE 6									
Ground F	loor								
R1/100	W14/100	LKD	170.6	13	39	PASS			
R1/100	W15/100	LKD	170.6	9	29 47	PASS	1.1	70	DACC
R1/100	W27/100	LKD	270.0	0	47	FAIL	14	70	PASS
R2/100	W22/100	OFFICE	80.6	4	21	FAIL	4	21	FAIL
R3/100	W13/100	BEDROOM	170.6	0	28	FAIL			
R3/100	W21/100	BEDROOM	80.6	3	21	FAIL	3	41	FAIL
First Floo	or								
R1/101	W7/101	BEDROOM	170.6	15	23	FAIL			
R1/101	W13/101	BEDROOM	80.6	4	26	FAIL	18	47	PASS



Appendix F

Overshadowing Results





- ALL DIMENSIONS TO BE CHECKED ON SITE AND NOT SCALED FROM THIS DRAWING.
 MALCOLM HOLLIS SHALL BE INFORMED IN WRITING OF ANY DISCREPANCIES.
 ALL DIMENSIONS ARE IN MILLIMETERS ONLY.

SOURCES OF INFORMATION:

M.J. Zara Associates 6898 Survey Pian.dwg 6898ELEV Survey Elevat Received April 2011

MBS Survey Ltd Point Cloud Survey.dwg Received May 2011

Glies Jollands Architect 29 charles st FFP 19 06 29 charles st GFP 19 06 29 charles st N W Elevs

Permanent Overshadowing Referencing Plans March 21

County Gate Properties

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June 2012 НЕСКЕЕ ІМ

RELEASE NO.

27585/PO/23

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		PROPOSED										
Room/ Area	Open Space Area sq m	Area of Shade sq m	Area of Sun (2hr)	Proportion in Shade	Proportion in Sun	Room/ Area	Open Space Area sq m	Area of Shade sq m	Area of Sun (2hr)	Proportion in Shade	Proportion in Sun	REDUCTION
START TIME	START TIME: March 21 - 6:00am, END TIME: March 21 - 18:00pm, 5 min samples											
Existing Amenity Areas												
R1/1000	58.32	11.64	46.68	19.96%	80.04%	R1/1000	58.32	11.64	46.68	19.96%	80.04%	0.00%
R1/1001	52.56	24.02	28.54	45.70%	54.30%	R1/1001	52.56	24.02	28.54	45.70%	54.30%	0.00%
R1/1002	57.68	18.46	39.22	32.00%	68.00%	R1/1002	57.68	18.46	39.22	32.00%	68.00%	0.00%
R1/1003	128.55	35.48	93.07	27.60%	72.40%	R1/1003	128.55	56.39	72.16	43.87%	56.13%	16.27%
R1/1004	90.60	25.78	64.82	28.45%	71.55%	R1/1004	90.60	32.59	58.01	35.97%	64.03%	7.52%
R1/1005	60.93	20.50	40.43	33.65%	66.35%	R1/1005	60.93	26.18	34.75	42.97%	57.03%	9.32%
R1/1006	45.33	20.62	24.71	45.49%	54.51%	R1/1006	45.33	26.39	18.94	58.22%	41.78%	12.73%
R1/1007	40.97	18.44	22.53	45.01%	54.99%	R1/1007	40.97	23.33	17.64	56.94%	43.06%	11.94%
R1/1008	42.20	20.45	21.75	48.46%	51.54%	R1/1008	42.20	21.61	20.59	51.21%	48.79%	2.75%
Proposed A	menity Areas											
						R1/2000	43.37	21.35	22.02	49.23%	50.77%	
						R1/2001	37.19	11.84	25.35	31.84%	68.16%	
						R1/2002	40.18	16.15	24.03	40.19%	59.81%	
						R1/2003	41.82	17.27	24.55	41.30%	58.70%	
						R1/2004	41.18	15.19	25.99	36.89%	63.11%	
						R1/2005	57.61	17.53	40.08	30.43%	69.57%	

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