

Daylight and Sunlight Report for the Proposed Development at Well Mount Cottage, Hampstead, London, NW3 1LJ

Prepared for **Bradfords**
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Date **12 January 2017**
Reference **55715/IM/DTO**

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1. Executive Summary

1.1 Scope

- 1.1.1 We have been instructed by Bradfords to determine the impact upon the daylight and sunlight amenity of the existing surrounding buildings which may arise from the proposed development at Well Mount Cottage, Hampstead, London, NW3 1LJ.

1.2 Assessment Criteria

- 1.2.1 To ensure that this assessment can be appropriately evaluated against Camden Council's 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' 2nd Edition, 2011 (the "BRE guide") and also British Standard 8206 – 2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting', to which the BRE guide refers. The standards and tests applied within this assessment are briefly described in Appendix A.

1.3 Summary of Effect of Proposed Development on Existing Surrounding Buildings

Daylight

- 1.3.1 The window tested for Vertical Sky Component (VSC), will continue to meet the target values as set out in the BRE guidelines. The results show that the Daylight received at 55 Christchurch Hill will not be materially affected by the proposals, the proposed development is therefore considered to be compliant with the BRE guide.

Sunlight

- 1.3.2 The window tested for Annual Probable Sunlight Hours (APSH), will continue to meet the target values set out in the BRE guidelines. Achieving values above the BRE recommendation, with no reduction in sunlight amenity between the existing and proposed scenario.

Overshadowing

- 1.3.3 No gardens or other external amenity spaces, as defined in the BRE guide, are located close enough to the proposed development to be adversely affected by overshadowing.

1.4 Overall

- 1.4.1 Based upon our analysis, daylight amenity levels, sunlight amenity levels and overshadowing of the amenity spaces to 55 Christchurch Hill will exceed the aspirations of the BRE guidelines. Therefore, given the positive levels of light anticipated, the results are considered to be in accordance with the BRE guide.

2. Introduction

2.1 Scope

2.1.1 We have been instructed by Bradfords to determine the impact upon the daylight and sunlight amenity that might arise from the proposed development of Well Mount Cottage, Hampstead, London, NW3 1LJ in respect of the existing surrounding buildings.

2.2 Planning Policy

2.2.1 Camden Council's Local Development Framework, Development Policy, refers to the following documents as those being used to review adequacy of daylight and sunlight. This Report is therefore based on the following publications which contain the accepted standards for assessing daylight and sunlight:

- Building Research Establishment (BRE) Report "Site Layout Planning for Daylight and Sunlight – a guide to good practice, 2nd Edition, 2011" ("the BRE guide")

2.2.2 Camden Council's Local Development Framework, Development Policy contains the following policy guidance under DP26: Managing the impact of development on occupiers and neighbours:

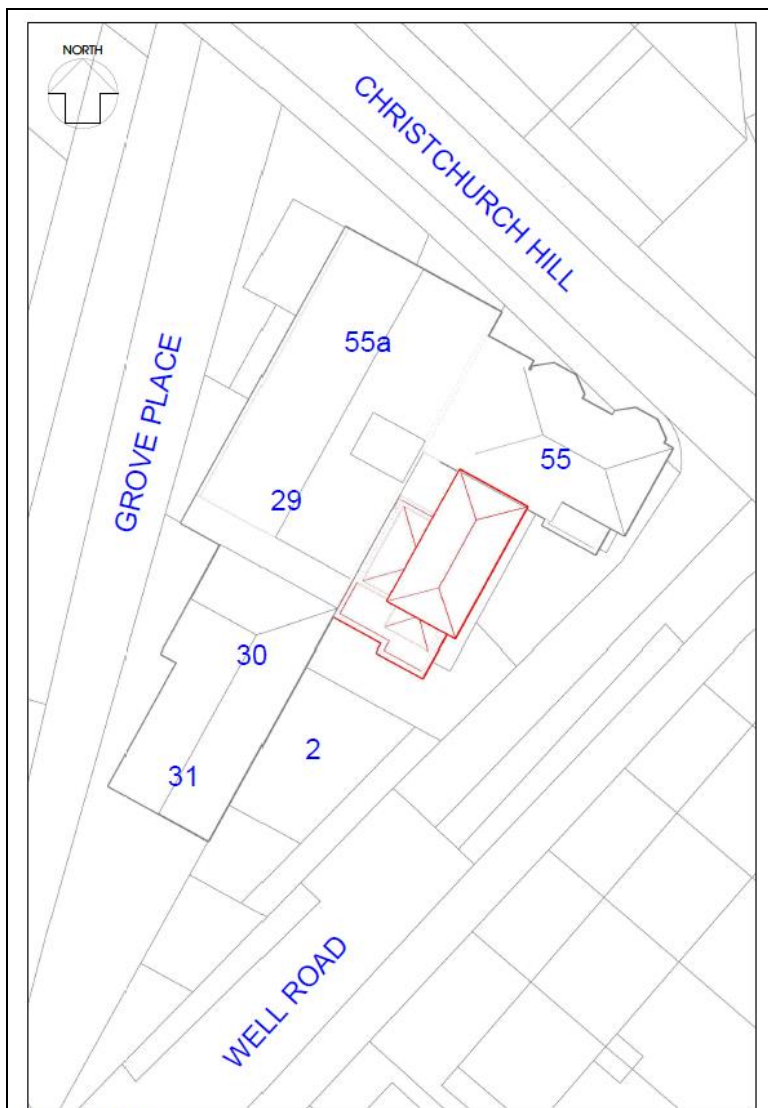
Visual privacy, overlooking, overshadowing, outlook, sunlight and daylight

26.3 *A development's impact on visual privacy, overlooking, overshadowing, outlook, access to daylight and sunlight and disturbance from artificial light can be influenced by its design and layout, the distance between properties, the vertical levels of onlookers or occupiers and the angle of views. These issues will also affect the amenity of the new occupiers. We will expect that these elements are considered at the design stage of a scheme to prevent potential negative impacts of the development on occupiers and neighbours. To assess whether acceptable levels of daylight and sunlight are available to habitable spaces, the Council will take into account the standards recommended in the British Research Establishment's Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (1991).*

2.3 Assessment Criteria

- 2.3.1 To ensure that this assessment can be appropriately evaluated against Camden Council’s planning policy, daylight and sunlight calculations have been undertaken in accordance with the ‘BRE guide’ and also BS8206-2: 2008 to which the BRE guide refers. The standards and tests applied are briefly described in Appendix A.
- 2.3.2 The existing buildings adjacent to the proposed development site are shown on the Site Plan (see below) and comprise:

Name /Address of Building	Assumed Use	Position in Relation to the Development
55 Christchurch Hill	Residential	East



2.4 Limitations

2.4.1 We refer you to our daylighting and sunlighting limitations, as provided with our fee proposal.

2.4.2 Our assessment is based on the scheme drawings provided by Bradfords as listed below:

Title	Date
Well Mount Cottage - Planning REVA	4 January 2017
55 Christchurch Hill - Existing plans	-

2.4.3 A topographical survey has not been undertaken and all levels and elevation details are approximate, having been obtained from the site inspection, OS data and elevation drawings. However, it is noted that there were no significant changes in ground level between the proposed development and the existing surrounding buildings.

3. Assessment & Results - Impact of New Development on Existing, Surrounding Buildings

3.1 Daylight

3.1.1 In accordance with the BRE guide (see also Appendix A) and our site inspection, the following buildings required assessment:

- 55 Christchurch Hill

3.1.2 Windows to other adjacent buildings, such as those to 2 Well Road, and 29 to 31 Grove Place are at such a distance from the proposed development as to pass the 'Three times height' and '25 degree' tests (see Appendix A) and therefore, pursuant to the BRE guide, do not require testing for daylight or sunlight availability.

3.1.3 The results of our VSC analysis are shown in full in Appendix D. The following table is a summary of our findings:

Building Address	No. of Windows Analysed	BRE Compliant		Total Percentage BRE Compliant
		Yes	No	
55 Christchurch Hill	1	1	0	100
Totals	1	1	0	100

3.1.4 The window tested for Vertical Sky Component (VSC), will continue to meet the target values as set out in the BRE guidelines. The results show that the Daylight received at 55 Christchurch Hill will not be materially affected by the proposals, the proposed development is therefore considered to be compliant with the BRE guide.

3.2 Sunlight

3.2.1 In accordance with the BRE Guide, our analysis of the plans provided and our observations on site, a number of the surrounding buildings require Annual Probable Sunlight Hours (APSH) testing - (see Appendix A):

- 55 Christchurch Hill

3.2.2 The table below shows a summary of the results of the APSH testing. Full test results are contained in Appendix E.

Building Address	No. of Windows Analysed	BRE Compliant		Total Percentage BRE Compliant
		Yes	No	
55 Christchurch Hill	1	1	0	100
Totals	1	1	0	100

3.2.3 The window tested for APSH will continue to meet the target values set out in the BRE guidelines. Achieving values above the BRE recommendation, with no reduction in sunlight amenity between the existing and proposed scenario.

3.3 Overshadowing

3.3.1 No gardens or amenity spaces, as defined in the BRE guide, are located close enough to the proposed development to be adversely affected by overshadowing.

Appendix A

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 2011, 2nd Edition” (“the BRE guide”) 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 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 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 the guide should not be 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 since 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, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.....’

In many cases in low-rise housing, meeting the criteria for daylight and sunlight may mean that the BRE criteria for other amenity considerations such as *privacy* and *sense of enclosure* are also satisfied.

The BRE guide states that recommended minimum privacy distances (in cases where windows of habitable rooms face each other in low-rise residential property), as defined by each individual Local Authority’s policies, vary widely, from 18-35m¹. For two-storey properties a spacing within this range would almost certainly also satisfy the BRE guide’s daylighting requirements as it complies with the 25⁰ rule and will almost certainly satisfy the ‘Three times height’ test too (as discussed more fully below). However, the specific context of each development will be taken into account and Local Authorities may relax the stated minimum, for instance, in built-up areas where this would lead to an inefficient use of land. Conversely, greater distances may be required between higher buildings, in order to satisfy daylighting and sunlighting requirements. It is important to recognize also that privacy can also be achieved by other means: design, orientation and screening can all play a key role and may also contribute towards reducing the theoretical ‘minimum’ distance.

A sense of enclosure is also important as the perceived quality of an outdoor space may be reduced if it is too large in the context of the surrounding buildings. In urban settings the BRE guide suggests a spacing-to-height ratio of 2.5:1 would provide a comfortable environment, whilst not obstructing too much natural light: this ratio also approximates the 25⁰ rule.

Daylight

The criteria for protecting daylight to existing buildings are contained in Section 2.2 and Appendix C of the BRE guide. 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 a lower requirement required for bedrooms. The BRE guide states that circulation spaces and bathrooms need not be tested as

¹ The commonest minimum privacy distance is 21m (Householder Development Consents Review: Implementation of Recommendations – Department for Communities and Local Government – May 2007)

they are not considered to require good levels of daylight. In addition, for rooms with more than one window, secondary windows do not require assessment if it is established that the room is already sufficiently lit through the principal window.

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 has developed a series of tests to determine whether daylighting levels within new developments and rooms within existing buildings surrounding new developments will satisfy or continue to satisfy a range of daylighting criteria

Note: Not every single window is assessed separately, only a representative sample, from which conclusions may be drawn regarding other nearby dwellings .

Daylighting Tests

'Three times height' test - If the distance of each part of the new development from the existing windows is three or more times its height above the centre of the existing window then loss of light to the existing windows need not be analysed. If the proposed development is taller or closer than this then the 25⁰ test will need to be carried out.

25⁰ test – a very simple test that should only be used where the proposed development is of a reasonably uniform profile and is directly opposite the existing building. 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. In brief, where the new development subtends to an angle of less than 25⁰ to the centre of the lowest window of an existing neighbouring building, it is unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building. Equally, the new development itself is also likely to have the potential for good daylighting. If the angle is more than 25⁰ then more detailed tests are required, as outlined below.

VSC Test - the 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 hemisphere of sky. To put this unit of measurement into perspective, the maximum percentage value for a 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%. A VSC of 27% is a relatively good level of daylight and the level we would expect to find for habitable rooms with windows on principal elevations. However, this level is often difficult to achieve on secondary elevations and in built-up urban environments. For comparison, 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° (i.e. the same results as would be found utilising the 25⁰ Test). Where tests show that the new development itself meets the 27% VSC target this is a good indication that the development will enjoy good daylighting and further tests can then be carried out to corroborate this (see under).

Through research the BRE have determined that in existing buildings 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. For existing buildings

once this has been established it is then necessary to determine whether the distribution of daylight inside each room meets the required standards (see under).

Daylight Distribution (DD) Test – This test looks at the position of the “No-Sky Line” (NSL) – that is, the line that divides the points on the working plane (0.7m from floor level in offices and 0.85m in dwellings and industrial spaces) which can and cannot see the sky. The BRE guide suggests that areas beyond the NSL 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 (normally no more than 20%) lies beyond it.

In new developments no more than 20% of a room’s area should be beyond the NSL. For existing buildings the BRE guide states that if, following the construction of a new development, the NSL moves so that the area beyond the NSL increases by more than 20%, then daylighting is likely to be seriously affected.

The guide suggests that in houses, living rooms, dining rooms and kitchens should be tested; bedrooms are deemed less important, although should nevertheless be analysed. In other buildings each main room where daylight is expected should be investigated.

ADF Test –The ADF (Average Daylight Factor) test takes account of the interior dimensions and surface reflectance within the room being tested as well as the amount of sky visible from the window. For this reason it is considered a more detailed and representative measure of the adequacy of light. The minimum ADF values recommended in BS8206 Part 2 are: 2% for family kitchens (and rooms containing kitchens); 1.5% for living rooms; and 1% for bedrooms. This is a test used in assessing new developments, although, in certain circumstances, it may be used as a supplementary test in the assessment of daylighting in existing buildings, particularly where more than one window serves a room.

Room depth ratio test - This is a test for new developments looking at the relative dimensions of each room (principally its depth) and its window(s) to ensure that the rear half of a room will receive sufficient daylight so as not to appear gloomy.

Sunlight

Sunlight is an important ‘amenity’ in both domestic and 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 virtually all of our sunlight from the south. The availability of sunlight is therefore dependent on the orientation of the window or area of ground being assessed relative to the position of due south.

In new developments the BRE guide suggests that dwellings should aim to have at least one main living room which faces the southern or western parts of the sky so as to ensure that it receives a reasonable amount of sunlight. Where groups of dwellings are planned the Guide states that site layout design should aim to maximise the number of dwellings with a main living room that meet sunlight criteria. Where a window wall faces within 90° of due south and no obstruction subtends to angle of more than 25° to the horizontal or where the window wall faces within 20° of due south and the reference point has a VSC of at least 27% then sunlighting will meet the required standards: failing that the Annual Probable Sunlight Hours (APSH) need to be analysed. APSH means the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloud for the location in question. If the APSH tests reveal that the new development will receive at least one quarter of the available APSH, including at least 5% of APSH during the winter months (from 21 September to

21 March), then the requirements are satisfied. It should be noted that if a room has two windows on opposite walls, the APSH due to each can be added together.

The availability of sunlight is also an important factor when looking at the impact of a proposed development on the existing surrounding buildings. APSH tests will be required where one or more of the following are true:

- The 'Three times height' test is failed (see 'Daylight' above);
- The proposed development is situated within 90° of due south of an existing building's main window wall and the new building subtends to angle of more than 25° to the horizontal;
- The window wall faces within 20° of due south and a point at the centre of the window on the outside face of the window wall (the reference point) has a VSC of less than 27%.

Where APSH testing is required it is similar to the test for the proposed development. That is to say that compliance will be demonstrated where a room receives:

- At least 25% of the APSH (including at least 5% in the winter months), or
- At least 0.8 times its former sunlight hours during either period, or
- A reduction of no more than 4% APSH over the year .

The Guide stresses that the target values it gives are purely advisory, especially in circumstances such as: the presence of balconies (which can overhang windows, obstructing light); when an existing building stands unusually close to the common boundary with the new development and; where the new development needs to match the height and proportion of existing nearby buildings. In circumstances like these a larger reduction in sunlight may be necessary.

The sunlight criteria in the BRE guide 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. Having said that, the guide goes on to say that care should be taken not to block too much sun from kitchens and bedrooms. Non-domestic buildings which are deemed to have a requirement for sunlight should also be checked.

Sunlight - Gardens and Open Spaces

As well as ensuring buildings receive a good level of sunlight to their interior spaces, it is also important to ensure that the open spaces between buildings are suitably lit. The recommendations as set out in the BRE guide are meant to ensure that spaces between buildings are not permanently in shade for a large part of the year. Trees and fences over 1.5m tall are also factored into the calculations.

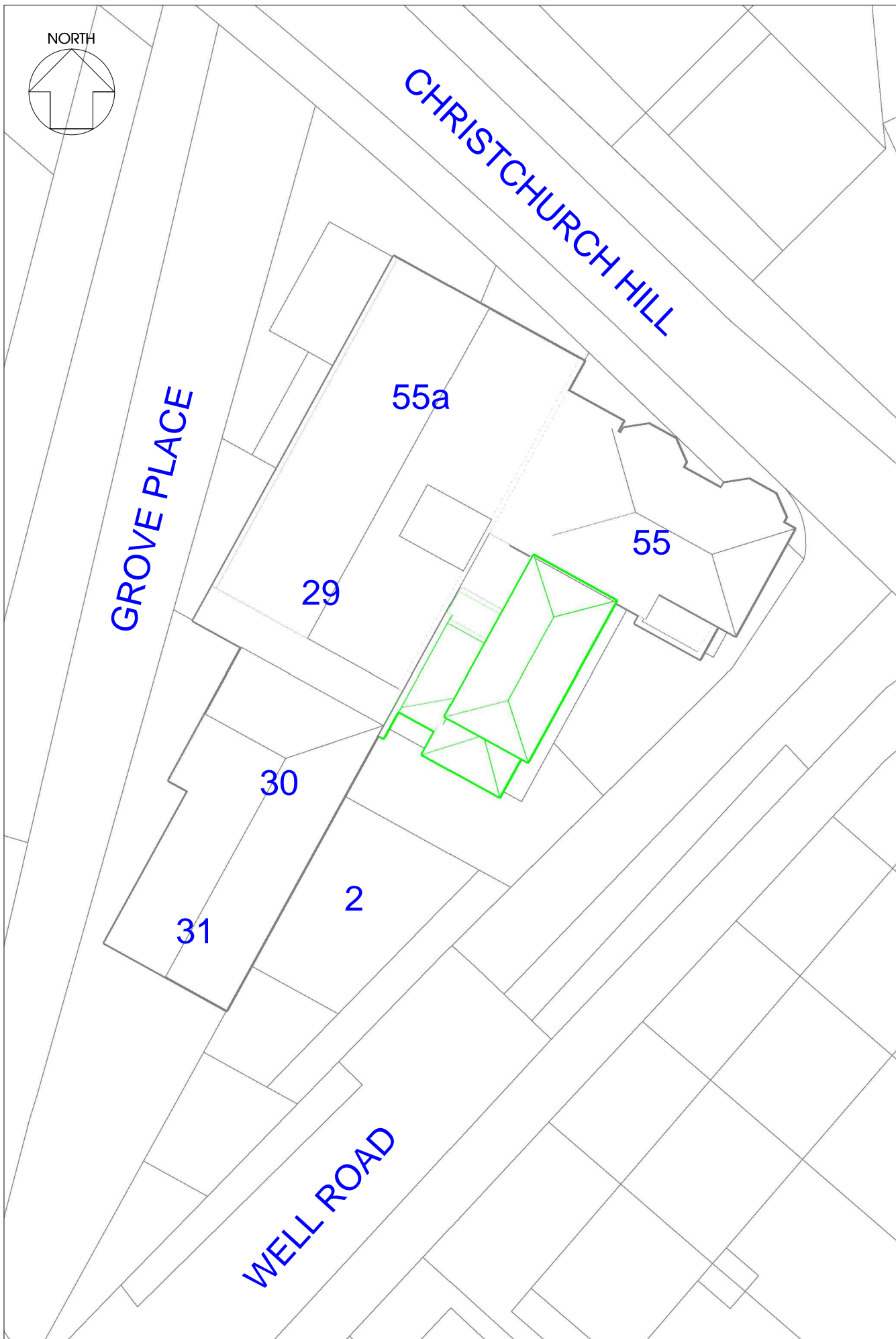
The BRE guidelines state that:

- For a garden or amenity area to appear adequately sunlit throughout the year, at least 50% of the area should receive at least two hours of sunlight on 21 March;
- In addition, if, as result of new development, an existing garden or amenity area does not reach the area target above and the area which can receive two hours of direct sunlight on 21 March is reduced by more than 20% this loss is likely to be noticeable.

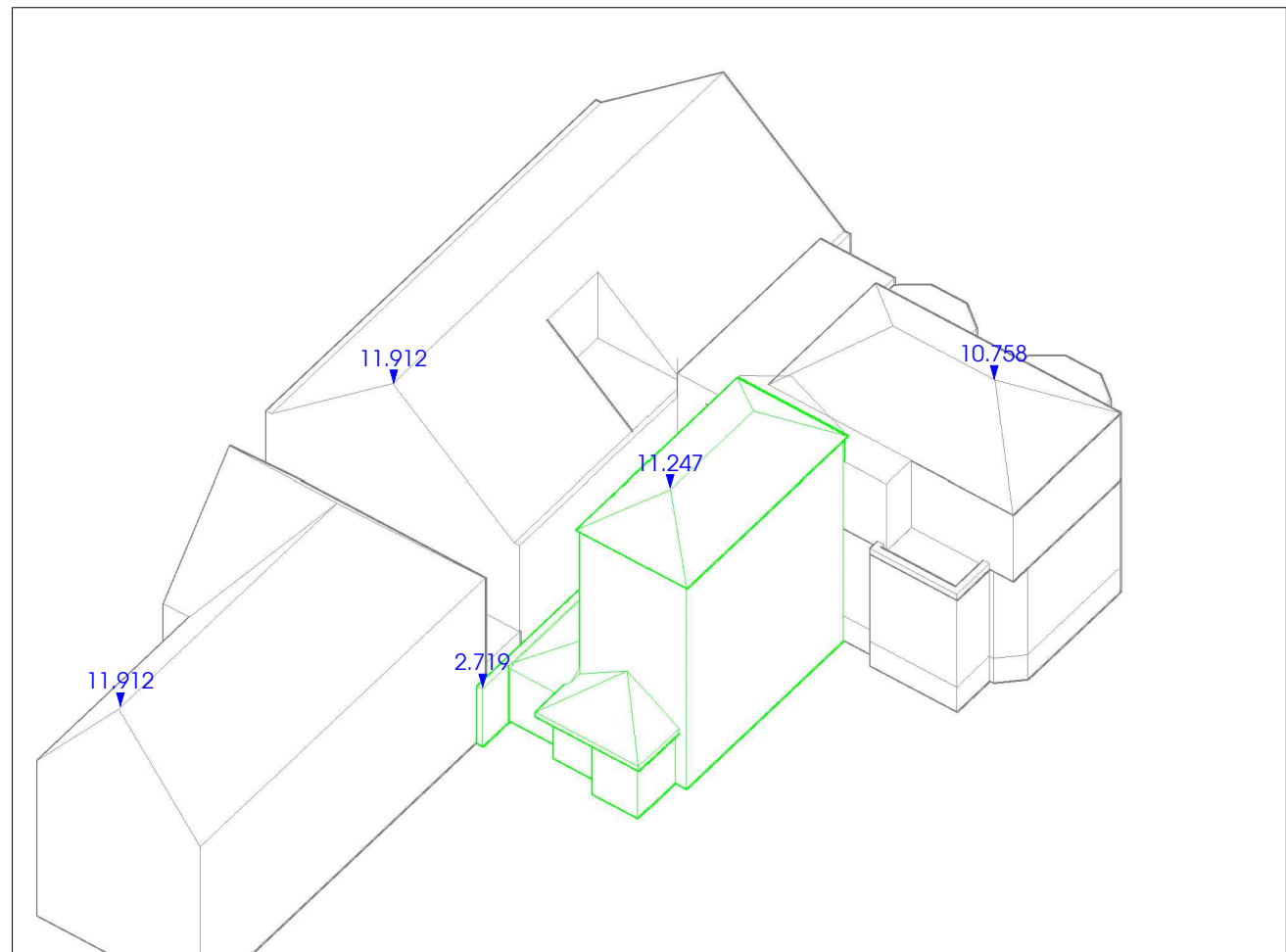
Appendix G of the BRE guidelines describes a methodology for calculating sunlight availability for amenity spaces.

Appendix B
Context Drawings

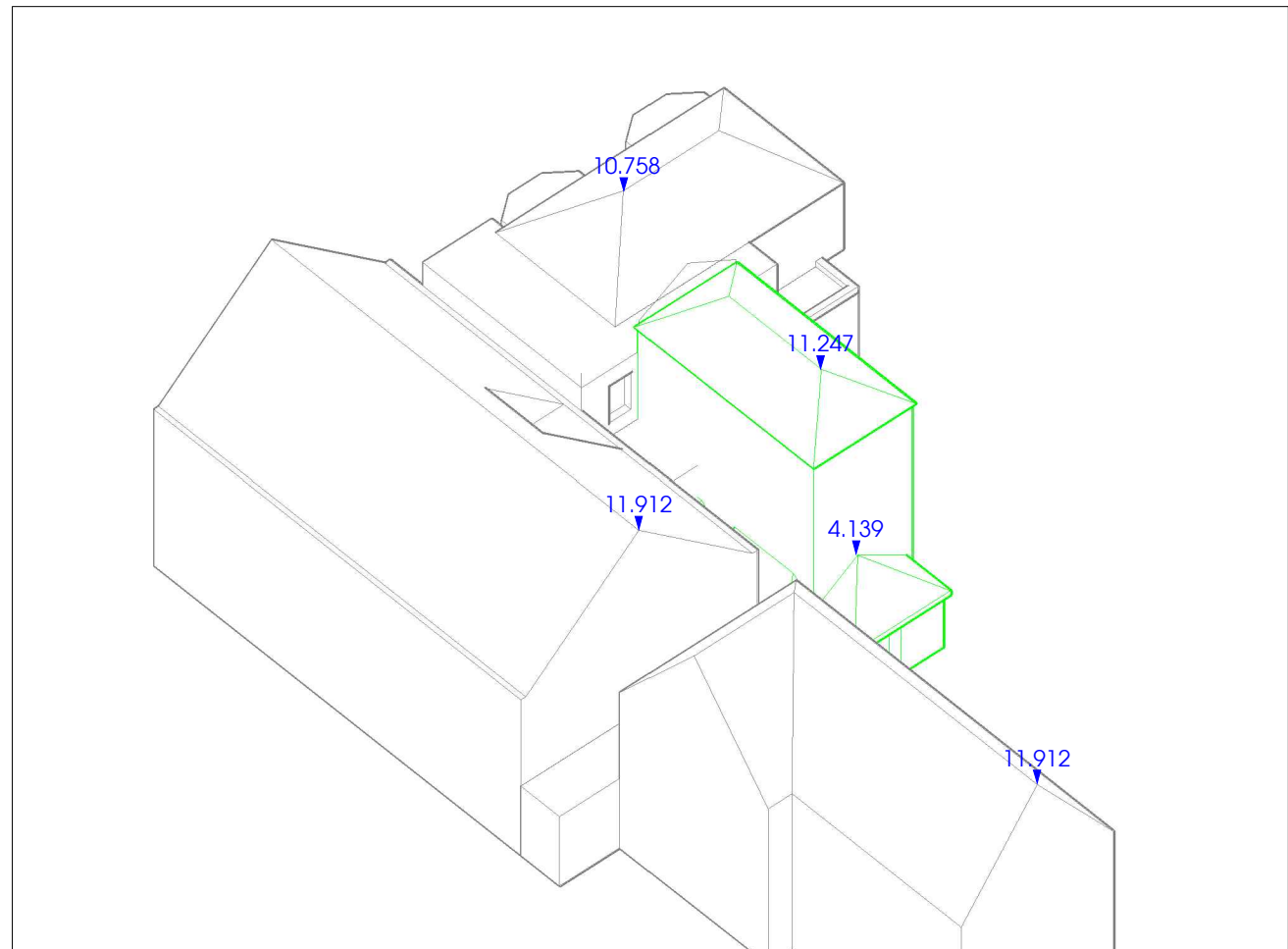




Existing Site Plan



3D Context View - South (Existing)



3D Context View - South West (Existing)

SOURCES OF INFORMATION:
 CLARION CHARTERED SURVEYORS
 WELL MOUNT COTTAGE PLANNING REVA.DWG
 RECEIVED 04 JANUARY 2017

ALL HEIGHTS IN METERS AOD

Rev.	Date	Amendments	Initial
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 ALL DIMENSIONS ARE IN MILLIMETERS ONLY

TITLE
Existing Site Plan

CLIENT
Bradford's

PROJECT
**Well Mount Cottage,
 Hampstead,
 NW3 1LJ**

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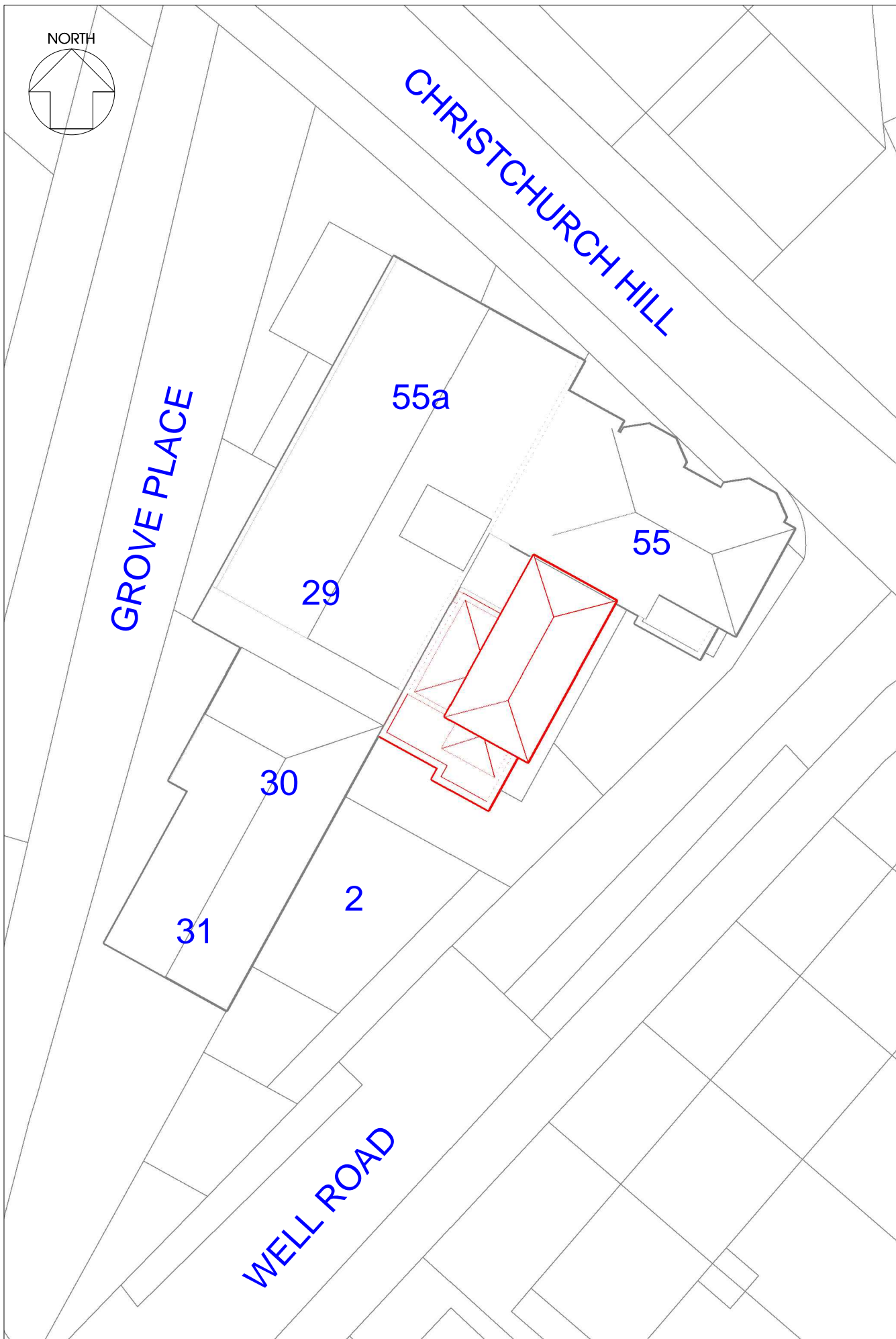
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January 2017

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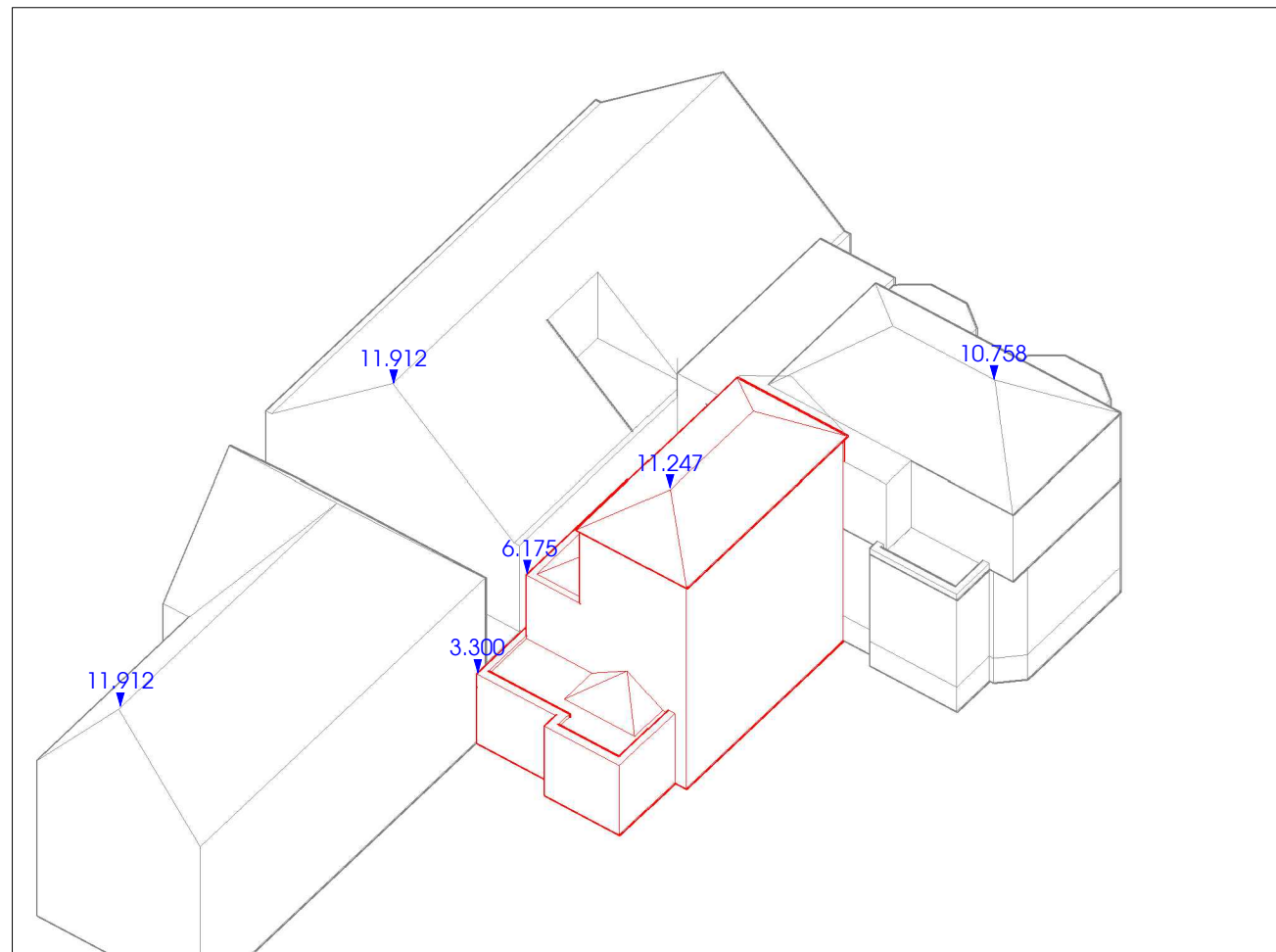
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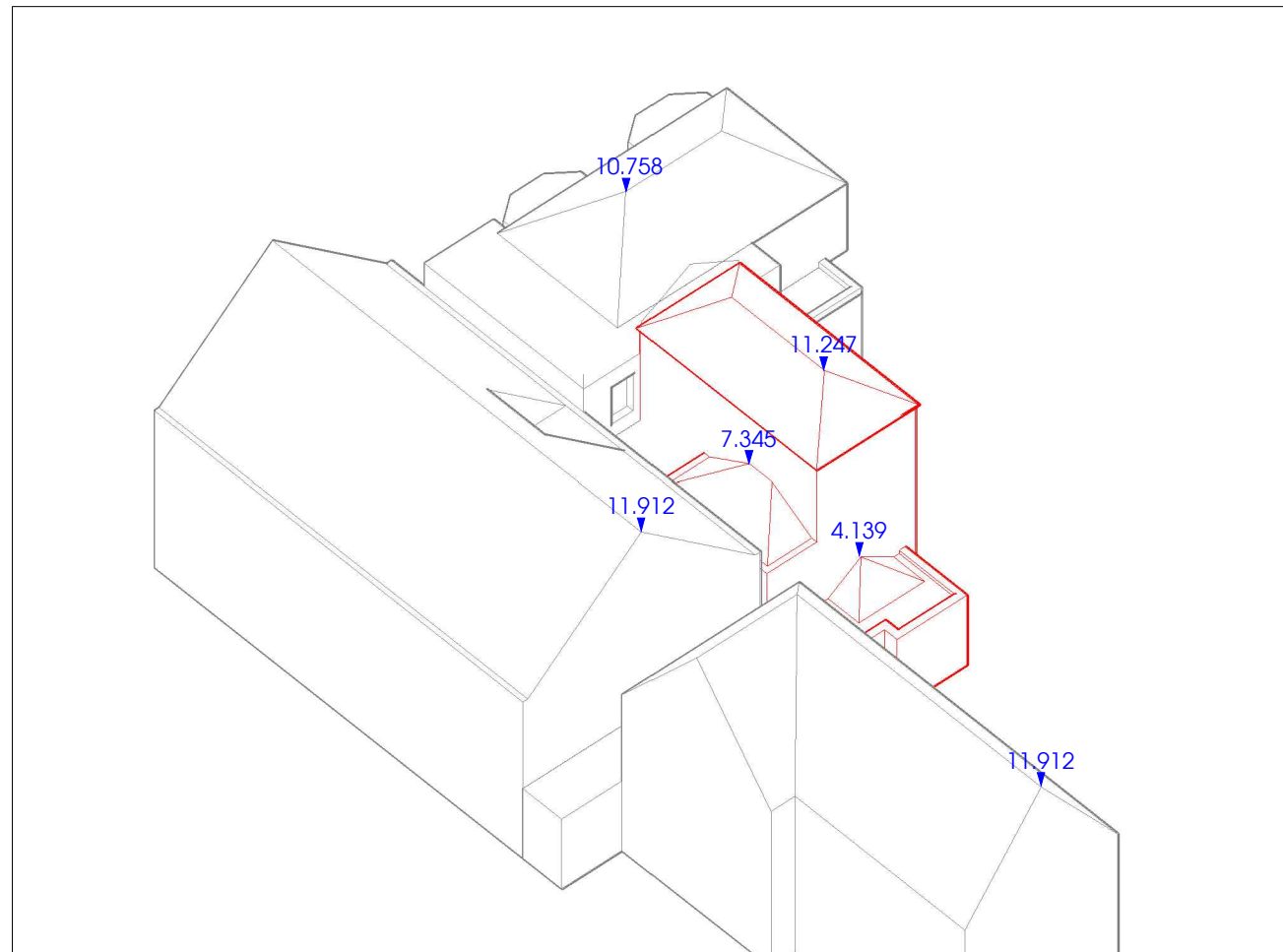
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Proposed Site Plan



3D Context View - South (Proposed)



3D Context View - South West (Proposed)

SOURCES OF INFORMATION:
 CLARION CHARTERED SURVEYORS
 WELL MOUNT COTTAGE PLANNING REVA.DWG
 RECEIVED 04 JANUARY 2017

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Rev.	Date	Amendments	Initial
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TITLE
Proposed Site Plan

CLIENT
Bradford's

PROJECT
**Well Mount Cottage,
 Hampstead,
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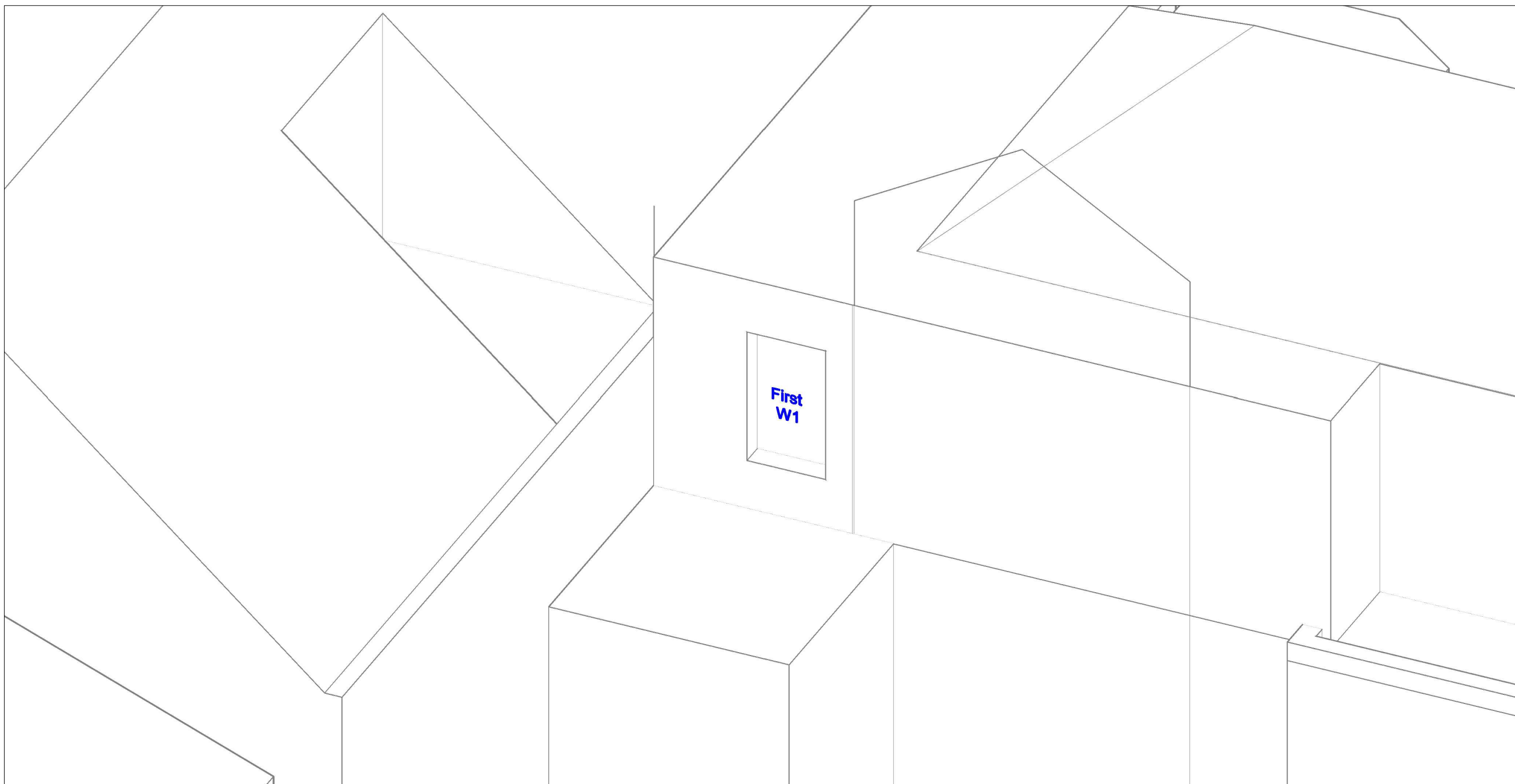
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Appendix C

Window/Room Reference Drawings



SOURCES OF INFORMATION:
 CLARION CHARTERED SURVEYORS
 WELL MOUNT COTTAGE PLANNING REVA.DWG
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55 Christchurch Hill - First Floor

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TITLE
Window Referencing Diagrams
55 Christchurch Hill

CLIENT
Bradfords

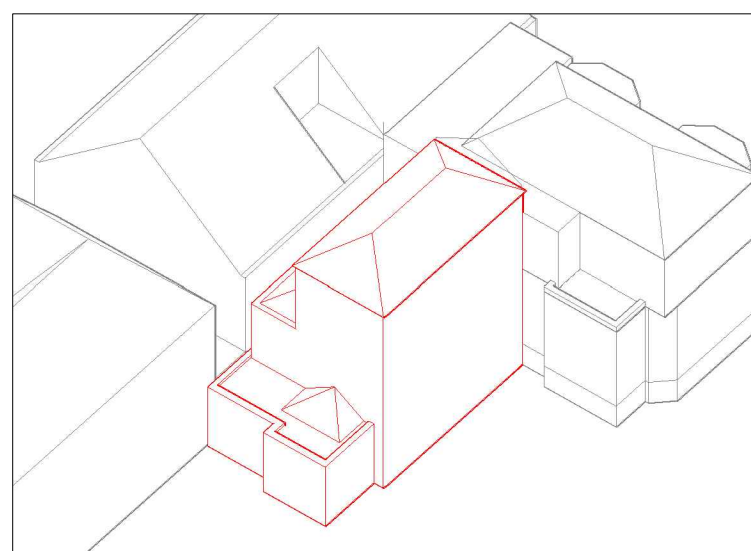
PROJECT
Well Mount Cottage,
Hampstead,
NW3 1LJ

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SCALE	DATE
NTS@A3	January 2017

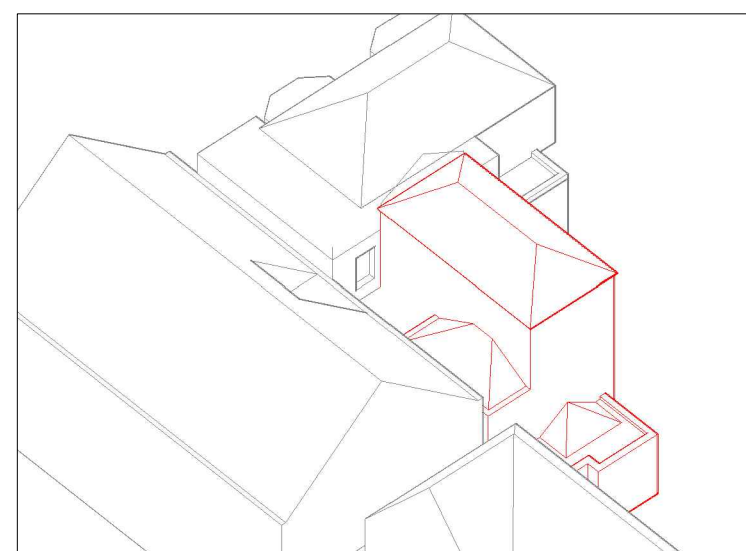
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3D Context View - South



3D Context View - South West

DRAWING NO.	RELEASE NO.
55715_WR_01	1

Appendix D
Daylight Study



Floor Ref.	Window Ref.	Existing VSC	Proposed VSC	Times Former Value	BRE Compliant
55 Christchurch Hill					
First	W1	17.98	17.95	1	Yes

Appendix E
Sunlight Study



Floor Ref.	Window Ref.	Existing		Proposed		Annual Times Former Value	Winter Times Former Value	BRE Compliant
		Winter %	Annual %	Winter %	Annual %			
55 Christchurch Hill								
First	W1	6	28	6	28	1	1	YES