# GIO CHARTERED SURVEYORS

### **DAYLIGHT & SUNLIGHT**

IMPACT ON NEIGHBOURING PROPERTIES

Calthorpe Steet, Banbury

**30 May 2023** GIA No: **1839** 



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Client:

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#### 1.0 Executive Summary

We have undertaken a daylight and sunlight assessment for the proposed development on Calthorpe Steet, Banbury.

We have completed a technical analysis using the methodologies set out within the Building Research Establishment Guidelines entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2022)'.

The BRE guidelines in question are precisely that: guidelines which provide a recommendation to inform site layout and design. They are not mandatory, nor do they form planning policy and their interpretation may be treated flexibly depending on the specifics of each site.

Notwithstanding, the results indicate a high level of compliance for the surrounding properties that have been assessed. The results for each property are summarised in the table below:

Name/Address of Building	Percentage of Windows That Meet the VSC Daylight Targets	Percentage of Rooms That Meet the NSL Daylight Targets	Percentage of Rooms That Meet the APSH Sunlight Targets
9-23 Dashwood Road	70/70 (100%)	29/29 (100%)	6/6 (100%)
Calthorpe Manor	23/23 (100%)	12/12 (100%)	2/3 (67%)
Calthorpe House	26/33 (79%)	10/14 (71%)	3/4 (75%)
The Counting House	48/48 (100%)	17/18 (94%)	8/8 (100%)
1-11 Marlborough Place	43/50 (86%)	39/42 (93%)	1/2 (50%)
18 Marlborough Road	10/10 (100%)	6/6 (100%)	-

Overall, considering the limited impacts and the flexibility with which the BRE guide is intended to be used, the impact of the scheme on the surrounding residential properties is considered wholly acceptable.

Additionally, an assessment of sunlight amenity to surrounding and proposed amenity areas been undertaken, which shows that all surrounding amenity areas fully comply with the BRE target criteria.

All of the rooftop and public amenity spaces within the scheme will achieve the targets for sunlight. Whilst not all of the courtyard amenity areas achieve the target, their wider benefits in providing desirable outdoor amenity space for future residents means these deviations are acceptable.

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#### 2.0 Instructions

GIA have been instructed by Tri7 to undertake a detailed technical assessment to understand the potential daylight and sunlight changes that the proposed development on Calthorpe Street, Banbury, will have upon the surrounding sensitive receptors.

The daylight and sunlight review within this report considers existing and consented residential properties only, as they are recognised by the Building Research Establishment (BRE 2022) as having the highest expectation for natural light when compared to other uses – such as commercial. The criteria suggested within the BRE have been used to understand and compare the existing levels of light, and the light achieved subsequent to the development of the proposed scheme.

#### 3.0 Introduction

The technical analysis that forms the basis of this report has been predicated against the methodologies set out within the Building Research Establishment Guidelines entitled *'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2022)'*. The guidelines in question are precisely that: guidelines which provide a recommendation to inform site layout and design. They are not mandatory, nor do they form planning policy and their interpretation may be treated flexibly depending on the specifics of each site.

#### Daylight and Sunlight

We have undertaken technical analysis using the methodologies set out within the Building Research Establishment Guidelines entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2011)', (the "BRE Guide").

The guidelines in question are precisely that: guidelines which provide a recommendation to inform site layout and design. They are not mandatory, nor do they form planning policy and their interpretation may be treated flexibly depending on the specifics of each site.

The BRE Guide provides two methodologies for daylight assessment to surrounding properties, namely:

- The Vertical Sky Component (VSC); and
- The No Sky Line (NSL).

There is one methodology for sunlight assessment, denoted as Annual Probable Sunlight Hours (APSH).

The methodology for overshadowing assessment is Sun Hours on Ground (SHOG).

The following table provides a summary of the criteria set out within the BRE Guidelines for daylight and sunlight.

Method	BRE Criteria
vsc	A window may be adversely affected if its VSC measured at the centre of the window is less than 27% and less than 0.8 times is former value.
NSL	A room may be adversely affected if the daylight distribution (NSL) is reduced beyond 0.8 times its existing area.
APSH	A window may be adversely affected if a point at the centre of the window receives for the whole year, less than 25% of the APSH including at least 5% of the APSH during the winter months (21 September to 21 March) and less than 0.8 times its former sunlight hours during either period, and for existing neighbouring buildings, if there is a reduction in total APSH which is greater than 4%.

SHOG	An amenity area may be adversely affected if less than 50% of its area receives less than 2
	hours of direct sunlight on 21st March and less than 0.8 times its former value.

For daylight and sunlight, the BRE Guidelines outline the approach within the accompanying Appendix I, in terms of assigning criteria to assess the effects:

"Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required...The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied."

"Where the loss of skylight or sunlight fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows or limited area of open space lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows or open space are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight and sunlight in the affected building or open space."

"Where the loss of skylight or sunlight does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:

- · Only a small number of windows are affected;
- The loss of light is only marginally outside the guidelines;
- An affected room has other sources of skylight or sunlight; and
- The affected building only has a low level of requirement for skylight or sunlight."

The classification of major adverse is documented within Paragraph 7 of the BRE Guidelines:

"Factors tending towards a major adverse impact include:

- a large number of windows are affected;
- the loss of light is substantially outside the guidelines;
- · all the windows in a particular property are affected; and
- the affected indoor spaces have a particular strong requirement for skylight or sunlight, e.g. a living room in a dwelling".

Beneficial impacts occur when there is a significant increase in the amount of skylight and sunlight reaching an existing building. Beneficial impacts should be worked out on the same principals as adverse impacts."

The BRE Guidelines do not provide any Guidance on what constitutes a moderate adverse impact.

The initial numerical criteria for determining the magnitude of effect is based on percentage alterations, as follows:

Magnitude of Effect	Percentage Alteration
Negligible	0-20%
Minor	20-29.9%
Moderate	30-39.9%
Major	40%+

When considering the significance of daylight and sunlight effects, professional judgement has been used. Consideration has been given to the proportion of rooms/windows affected, as well as the percentage alterations, absolute changes, retained daylight and sunlight levels and sensitivity of the receptor. This is in addition to any other relevant factors, such as there may be mitigating factors including location and nature of the development, balconies, overhangs or design features which may also affect the determination of assigning the criteria.

#### 4.0 Sources of Information

In compiling this report, we have used the following information:

#### GIA

Site photographs

## VU.CITY

Baseline Model

#### **Corstorphine and Wright Architects**

IR08-20230427-Proposed Model

#### **Cherwell Planning Portal**

Marlborough Place drawings Dashwood Road drawings Calthorpe House drawings Calthorpe Manor drawings The Counting House drawings

#### 5.0 Assumptions

- a) All residential buildings have been identified by reference to the Valuation Office Agency (VOA) search and/or external observation.
- b) We have not sought access to the adjoining properties, thus if plans were not publicly available, we have made reasonable assumptions as to the internal layouts of the rooms behind the fenestration based upon the building form and architecture. This is normal practice where access to adjoining properties is not available. Unless the building form dictates otherwise, we assume a standard 4.2m deep room (14ft) for residential properties.
- c) Floor levels have been assumed for the adjoining properties. This dictates the level of the working plane which is relevant for the No Skyline assessment.

#### 6.0 The Site

The site is bound by High Street to the north, Marlborough Road to the east, Dashwood Road to the South and Calthorpe Street to the west.

The drawing extract below shows the existing site:

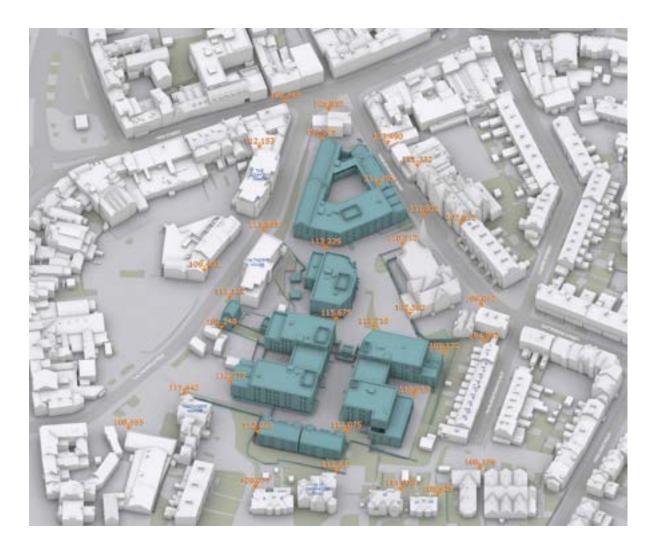


Our understanding of this existing building and the surrounding context is depicted on GIA drawings 1839-REL01-IS01-01, 1839-REL01-IS01-02 and 1839-REL01-IS01-03 within Appendix 02.

#### 7.0 The Proposal

GIA's understanding of the proposed scheme is illustrated in drawings 1839-REL01-IS01-04, 1839-REL01-IS01-05 and 1839-REL01-IS01-06 shown within Appendix 03.

Our analysis of this option is based on the proposed scheme drawings produced by Corstorphine and Wright Architects received on 27 April 2023.



#### 8.0 Surrounding Properties

We have created a three-dimensional computer model of the site and the surrounding properties to allow for a detailed daylight and sunlight assessment.

The benchmark condition of the site allows us to calculate the daylight and sunlight conditions within the neighbouring buildings. From this, we can then compare them with the conditions within these properties assuming the current proposed development is in place.

Those properties surrounding the site that are thought to have the potential to be impacted by the proposed development are listed in the table below:

Name/Address of Building	Assumed Use	Position (in relation to the Development)
9-23 Dashwood Road	Residential	South
Calthorpe Manor	Residential	South west
Calthorpe House	Residential	West
The Counting House	Residential	West
1-11 Marlborough Place	Residential	East
18 Marlborough Road	Residential	North east

A short commentary of the impacts of the current proposal to each property is set out below, and full results and contour plots are contained at Appendix 04.

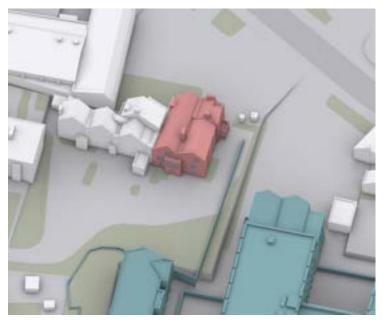
#### 9-23 Dashwood Road



Name/Address of Building	Percentage of	Percentage of	Percentage of
	Windows That Meet	Rooms That Meet	Rooms That Meet
	the VSC Daylight	the NSL Daylight	the APSH Sunlight
	Targets	Targets	Targets
9-23 Dashwood Road	70/70 (100%)	29/29 (100%)	6/6 (100%)

With the proposed development in place, these properties will fully accord with the BRE target criteria for VSC daylight, NSL daylight and APSH sunlight.

#### Calthorpe Manor



Name/Address of Building	Percentage of	Percentage of	Percentage of
	Windows That Meet	Rooms That Meet	Rooms That Meet
	the VSC Daylight	the NSL Daylight	the APSH Sunlight
	Targets	Targets	Targets
Calthorpe Manor	23/23 (100%)	12/12 (100%)	2/3 (67%)

With the proposed development in place, this property will fully accord with the BRE target criteria for VSC daylight, NSL daylight.

Two of the three rooms assessed for APSH sunlight will fully comply with the BRE target criteria. The room that does not meet the criteria is reduced by between 20-30%, which is considered minor adverse reduction in BRE terms, and acceptable within the context of the proposed development.

The property will continue to fully comply with the BRE criteria for daylight, and there is only one isolated minor adverse impact to sunlight. As such, the daylight and sunlight impacts to this property are considered wholly acceptable.

#### Calthorpe House



Name/Address of Building	Percentage of	Percentage of	Percentage of
	Windows That Meet	Rooms That Meet	Rooms That Meet
	the VSC Daylight	the NSL Daylight	the APSH Sunlight
	Targets	Targets	Targets
Calthorpe House	26/33 (79%)	10/14 (71%)	3/4 (75%)

With the proposed development in place, 26 of the 33 windows assessed for VSC daylight will fully comply with the BRE criteria. Of the seven which do not, five suffer a minor adverse reduction of between 20-30%, one suffers a moderate reduction of between 30-40% and one window is reduced by 40% or more. Six of the seven rooms that fall short of the BRE target criteria are bedrooms, which the BRE states have a lesser requirement for daylight, and most impacts are considered minor adverse in BRE terms.

Similarly, of the four rooms that fall short of the BRE criteria for NSL daylight, three rooms suffer minor adverse reductions in the region of 20-30%, and one room suffers a moderate reduction of between 30-40%. All four of the rooms that fall short of the NSL daylight criteria are bedrooms, which the BRE states have a lesser requirement for daylight.

One room falls short of the BRE criteria for APSH sunlight. The room in question falls marginally short of the BRE target for Winter PSH however, will continue to receive levels of Annual PSH in excess of the BRE target.

Much of the proposed development site is currently an undeveloped surface car park, situated in a town centre of higher density. Any development of a similar density to the surrounding streets will have some impact on the daylight and sunlight levels. Where impacts are present, they are typically minor adverse, isolated, and to lower sensitivity bedrooms. As such, the overall impact on daylight and sunlight is considered acceptable.

#### The Counting House



Name/Address of Building	Percentage of	Percentage of	Percentage of
	Windows That Meet	Rooms That Meet	Rooms That Meet
	the VSC Daylight	the NSL Daylight	the APSH Sunlight
	Targets	Targets	Targets
The Counting House	48/48 (100%)	17/18 (94%)	8/8 (100%)

With the proposed development in place, this property will fully accord with the BRE target criteria for VSC daylight and APSH sunlight.

Of the 18 rooms assessed for NSL daylight, one room will fall marginally short of the BRE target, suffering a minor adverse reduction of between 20-30%. Overall, given the context of the site, and the isolated minor reduction, the impact on daylight and sunlight to this property is considered wholly acceptable.

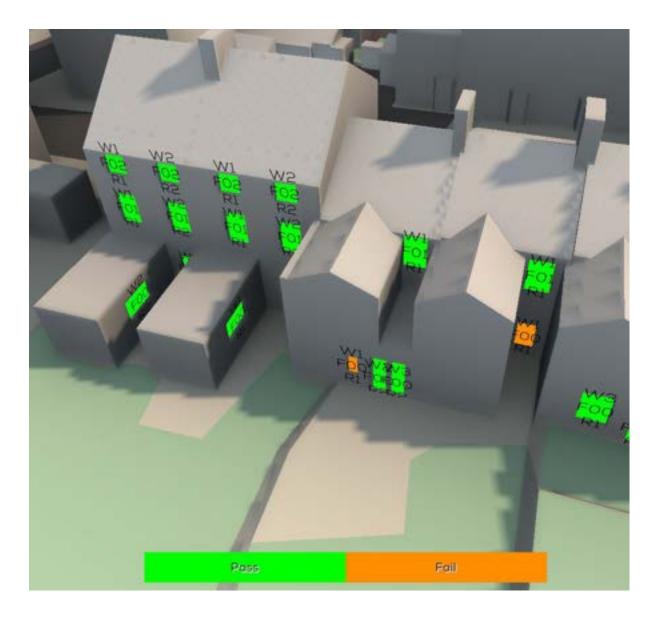
#### 1-11 Marlborough Place



Name/Address of Building	Percentage of	Percentage of	Percentage of
	Windows That Meet	Rooms That Meet	Rooms That Meet
	the VSC Daylight	the NSL Daylight	the APSH Sunlight
	Targets	Targets	Targets
1-11 Marlborough Place	43/50 (86%)	39/42 (93%)	1/2 (50%)

With the proposed development in place, 43 of the 50 windows assessed for VSC daylight will fully comply with the BRE target criteria. Of the seven which do not, six suffer a minor adverse reduction of between 20-30%, and one suffers a moderate reduction of between 30-40%.

Of the 42 rooms assessed for NSL daylight, 39 will fully comply with the BRE criteria. Of the three which do not, one room suffers a minor adverse reduction of 20-30% and two rooms are reduced by 40% or more. The design factors of surrounding properties themselves are a material factor when considering potential daylight and sunlight impacts of the proposed development. The below image illustrates the two rooms along Marlborough Place where NSL daylight levels are reduced by more than 40%. These rooms are highlighted in orange, and rooms that fully comply with the criteria are highlighted in green.



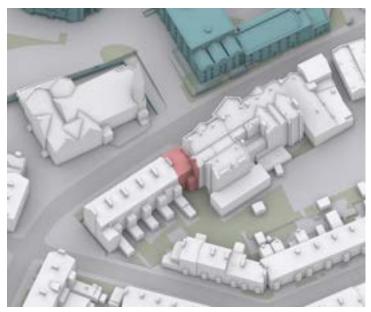
One of the rooms that is reduced by 40% or more is a kitchen served by a very small single aspect window, making it difficult for daylight to penetrate the room. The other room that is reduced by more than 40% is a dining room, served by a glazed, single door that is recessed between two large extensions.

As such, whilst there are two isolated examples of larger reductions to NSL daylight, they are largely down to the limiting factors of the properties themselves and not the design of the proposed development.

One room falls marginally short of the BRE target for APSH. The room in question does not experience a change in Winter PSH, and only suffers a minor adverse reduction to APSH of between 20-30%.

Overall, impacts to the daylight and sunlight levels of Marlborough Place are typically minor and isolated and the properties will continue to receive high levels of daylight with the proposed development in place. Where more significant impacts are identified, these are attributed to the design of the buildings themselves. As such the impact on daylight and sunlight to these properties is considered acceptable.

#### 18 Marlborough Road



Name/Address of Building	Percentage of	Percentage of	Percentage of
	Windows That Meet	Rooms That Meet	Rooms That Meet
	the VSC Daylight	the NSL Daylight	the APSH Sunlight
	Targets	Targets	Targets
18 Marlborough Road	10/10 (100%)	6/6 (100%)	-

With the proposed development in place, this property will fully accord with the BRE target criteria for VSC daylight and NSL daylight. There are no rooms overlooking the proposed development that face within 90 degrees of due south, so no sunlight assessment is required.

#### 9.0 Surrounding Overshadowing Assessment

We have undertaken an overshadowing assessment of the levels of direct sunlight amenity received to the surrounding gardens.

The gardens which are subject to assessment, and their position relative to the proposed development, are set out in the table below:

Name/Address of Building	Position in Relation to the Development
1 Marlborough Place	East
2 Marlborough Place	East
3 Marlborough Place	East
4 Marlborough Place	East
5 Marlborough Place	East
6 Marlborough Place	East
7 Marlborough Place	East
8 Marlborough Place	East
9 Marlborough Place	East
10 Marlborough Place	East
11 Marlborough Place	East
11C Marlborough Place	East
11 Dashwood Road	South
13-17 Dashwood Road	South

The method for assessing overshadowing is the 'sun-on-ground indicator' (SHOG). The assessment applies to both new and existing gardens/amenity areas which are affected by new developments.

The BRE Guidelines suggest that the Spring Equinox (21 March) is a suitable date for the assessment as this is the Spring Equinox and the midpoint of the sun's position throughout the year. Using specialist software, the path of the sun is tracked to determine where the sun would reach the ground and where it would not.

The BRE Guidelines recommend that at least half (50%) of a garden or amenity area should receive at least two hours of sunlight on 21 March or the area which receives two hours of direct sunlight should not be reduced to less than 0.8 times its former value (i.e., there should be no more than a 20% reduction).

The below table shows the sunlight levels to the surrounding gardens and amenity areas in the existing and proposed scenarios:

Name/Address of Building	Existing Percentage Area Receiving 2 Hours Sunlight on 21 March	Proposed Percentage Area Receiving 2 Hours Sunlight on 21 March
1 Marlborough Place	58.59%	57.17%
2 Marlborough Place	62.57%	60.60%
3 Marlborough Place	72.99%	72.67%
4 Marlborough Place	75.49%	75.47%
5 Marlborough Place	71.27%	70.84%
6 Marlborough Place	69.67%	69.64%
7 Marlborough Place	63.80%	63.35%
8 Marlborough Place	70.15%	70.15%
9 Marlborough Place	71.27%	71.29%
10 Marlborough Place	58.39%	58.61%
11 Marlborough Place	50.32%	51.41%
11C Marlborough Place	34.49%	35.78%
11 Dashwood Road	73.31%	72.28%
13-17 Dashwood Road	65.08%	65.08%

Our overshadowing analysis indicates that none of the surrounding gardens will be reduced to less than 0.8 (20%) their former value with the proposed development in place and will therefore fully comply with the BRE target criteria.

#### Internal Sunlight Amenity

We have also undertaken an assessment of the levels of direct sunlight amenity received to the courtyard amenity spaces provided within the proposed scheme. The below table shows the levels of sunlight amenity received to the three courtyard areas and full results are contained within Appendix 04:

Amenity area reference	Proposed Percentage Area Receiving 2 Hours Sunlight on 21 March
A1	82.47%
A2	0.00%
АЗ	21.55%
Α4	79.12%

A5	81.63%
A6	95.39%

Our assessment indicates that all of the rooftop and public amenity spaces within the proposed development will fully accord with the BRE target for sunlight.

One of the three courtyard amenity areas will fully comply with the BRE criteria for sunlight. Given the location of the site and its existing constraints, it is difficult to provide well sunlit amenity areas to these parts of the site, and lower levels are therefore to be expected. Whilst the courtyard arrangement makes it more difficult for sunlight to reach these amenity areas, future residents are being provided with desirable outdoor amenity space which will ultimately improve the end user's overall enjoyment of the building. Whilst removing them would lead to better compliance against the BRE criteria, this would be counterintuitive and ultimately to the detriment of the scheme.

Notwithstanding, all rooftop and public amenity spaces within the proposed development achieve the BRE targets for sunlight, meaning residents will have access to well-sunlight amenity areas. Whilst not all courtyard amenity areas meet the target sunlight hours, they are still considered a valuable amenity to future residents, and on balance, lower levels of sunlight within the courtyards are therefore considered acceptable.

#### 10.0 Conclusions

We have undertaken a daylight and sunlight assessment for the proposed development on Calthorpe Steet, Banbury.

We have completed a technical analysis using the methodologies set out within the Building Research Establishment Guidelines entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2022)'.

The surrounding residential properties will continue to exhibit good levels of daylight and sunlight with the proposed development in place, and the overall impact of the scheme is considered wholly acceptable. Furthermore, all of the rooftop and public amenity spaces within the scheme will achieve the targets for sunlight, and whilst not all of the courtyard amenity areas achieve the targets, their wider benefits in providing desirable outdoor amenity space for future residents means these deviations are acceptable.

## Appendix 01 Principles of Daylight and Sunlight

## PRINCIPLES OF DAYLIGHT, SUNLIGHT & OVERSHADOWING

The Building Research Establishment (BRE) have set out in their handbook 'Site Layout Planning for Daylight & Sunlight: A Guide to Good Practice 3rd edition (2022)', guidelines and methodology for the measurement and assessment of daylight, sunlight and overshadowing.

#### 1 BACKGROUND & CONTEXT

The quality of daylight and sunlight amenity as well as the overshadowing of open spaces is often stipulated within planning policy for protection or enhancement and a concern for adjoining owners and other interested parties.

The BRE Guidelines provide advice on site layout planning to determine the quality of daylight and sunlight both within buildings and reaching open spaces.

The BRE Guidelines note that the document is intended to be used in conjunction with the interior daylight recommendations found within the British Standard Daylight in buildings, BS EN 17037 and the CIBSE Publication LG 10 Daylighting – a guide for designers.

Whilst the BRE Guidelines are typically referred to for daylight sunlight and overshadowing matters within the planning process, they were not intended to be used as an instrument of planning policy, nor were the figures intended to be fixedly applied to all locations.

In the introduction of 'Site Layout Planning for daylight and sunlight (2022)', section 1.6 (page 7), states that:

"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 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 (see Section 5). 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".

Paragraph 2.2.3 (page 14) of the document states:

"Note that numerical values given here are purely advisory. Different criteria may be used based on the requirements for daylighting in an area viewed against other site layout constraints".

The numerical criteria suggested by the BRE are therefore designed to provide industry advice/ guidance to plan/design with daylight in mind. Alternative values may be appropriate in certain circumstances such as highly dense urban areas. The BRE approach to creating alternative criteria is detailed within Appendix F of the Document.

Paragraph 2.2.2 (page 14) of the document states:

The BRE Guidelines state that they are:

"intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens, and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed."

Although primarily designed to be used for residential properties, the BRE Guidelines continue to state that they may be applied to any existing non-residential buildings where there may be a reasonable expectation of daylight including; schools, hospitals, hotels and hostels, small workshops, and some offices.

Many Local Planning Authorities consider daylight and sunlight an important factor for determining planning applications. Policies refer to both the protection of daylight and sunlight amenity within existing properties and areas of amenity as well as the creation of proposed dwellings and spaces with high levels of daylight and sunlight amenity.

Although Local Authorities will look to the BRE Guide to understand impacts it is their Planning Policies that will determine whether the changes in light should be a reason for refusal at planning.

It is an inevitable consequence of the built-up urban environment that daylight and sunlight will be more limited in dense urban areas. It is well acknowledged that in such situations there may be many other conflicting and potentially more important planning and urban design matters to consider other than just the provision of ideal levels of daylight and sunlight. The following sections extract relevant sections from the Guide.

#### 2 EFFECTS TO DAYLIGHT

The BRE Guidelines provide two methodologies for daylight impact assessment, namely;

- 1 The Vertical Sky Component (VSC); and
- 2 The No Sky Line (NSL).

#### Vertical Sky Component (VSC)

The Vertical Sky Component (VSC) method is described in the Glossary of BRE Guidelines as the:

"Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE standard overcast sky, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings"

Put simply, the VSC provides an assessment of the amount of skylight falling on a vertical plane (generally a window) directly from the sky, in the circumstance of an overcast sky (CIE standard).

The national numerical value target "ideal" for VSC is 27%. The BRE Guidelines advise that upon implementation of a development, a window should retain a VSC value of 27% or at least 0.8 of its former value (i.e. no more than a 20% change) as per paragraph 2.2.23 of the Guide.

This form of assessment does not take account of window size, room use, room size, window number or dual aspect rooms. The assessment also assumes that all obstructions to the sky are 100% non-reflective thereby omitting the consideration of reflection and considering only the light coming directly from the sky.

The VSC calculation is undertaken in both the existing and proposed scenarios so as to make a comparison.

The image in Figure 01 depicts a Waldram Diagram which can be used to calculate the VSC. The existing buildings are solidly pictured with the proposed scheme semi-transparent in the foreground.



Fig. 01: Waldram diagram



#### No Sky Line (NSL)

In addition to the VSC, the BRE recommends the NSL method of assessment where internal layouts are known. Whilst the VSC provides information on the quantum of light reaching a window, the NSL seeks to provide information on how well this light is distributed within the room. The NSL is sometimes also referred to as 'Daylight Distribution' for this reason.

The NSL in the Glossary of the Guide as "the outline on the working plane of the area from which no sky can be seen." and so the NSL is effectively an assessment of sky visibility within a room. As stated already, the calculation is undertaken across the working plane which in accordance with paragraph 2.2.10 "in houses [...] is assumed to be horizontal and 0.85m high".

Again, both the existing and proposed positions are calculated and presented alongside any change in position of the NSL. The results can then be presented in table format or else illustrated on a contour plot if required, an example of which can be found in Figure 02 below. The BRE Guidelines state at paragraph 2.211 that:

"If, following construction of a new development, the no sky line moves so that the area of the existing room, which does receive direct skylight, is reduced to less than 0.8 times its former value this will be noticeable to the occupants, and more of the room will appear poorly lit. This is also true if the no sky line encroaches on key areas like kitchen sinks and worktops."

In accordance with the strict application of the national numerical values, therefore the change in daylight would be noticeable to the occupants should the NSL experience a loss of NSL greater than 20%.

It is relevant to note that this assessment takes the number and size of windows serving a room into account as well as the shape of the room but, being concerned only with sky visibility and the distribution of light, does not consider the quantum of light reaching the room.



Fig. 02: Example NSL diagram

#### Decision Chart (Figure 20 of the BRE Guide)

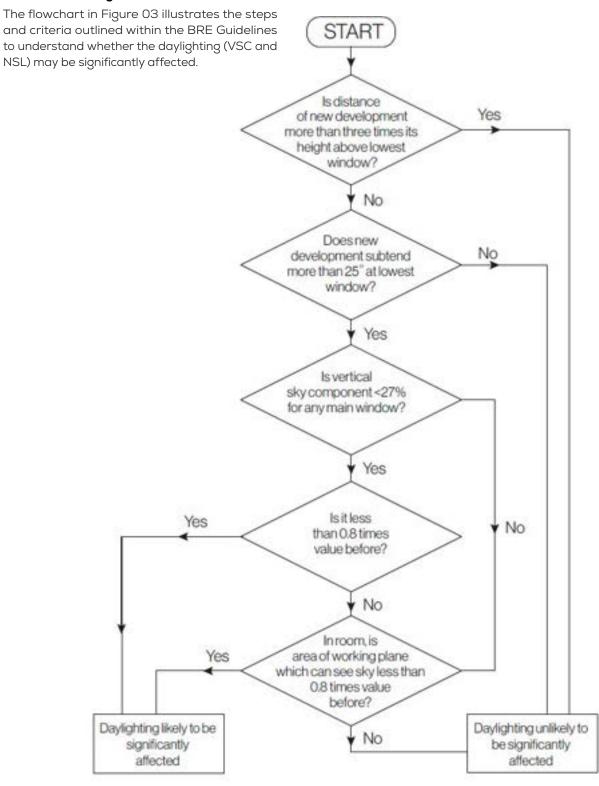


Fig. 03: BRE Decision Chart (Figure 20): diffuse daylight in existing buildings. This does not include an assessment of rights to light issues, which a developer may need to consider separately



#### **3 EFFECTS TO SUNLIGHT**

#### Annual Probable Sunlight Hours (APSH)

The BRE Guidance suggests that to understand sunlight impacts to a property, an assessment of Annual Probable Sunlight Hours (APSH) is undertaken. The APSH is defined in the Glossary as:

"the long-term average of the total number of hours during a year in which direct sunlight reaches the unobstructed ground (when clouds are taken into account)"

Expanding on the above, long-term averages were used to position 100 spots in the sky, representative of sunlight over the whole year. Correlating to the probability of the sun to shine, the majority of these (70) are at times to the six-months containing summer (from spring equinox to autumn equinox) which 30 are the 'winter' months from autumn equinox to spring. The APSH is calculated though calculating how many of these 'spots' can be seen from a location (normally a window) both overall and how many of these are during the winter months.

To understand the potential sunlight impacts therefore, all windows facing within 90 degrees of due south and overlooking the development are generally assessed for APSH.

The BRE Guidelines set out the overall methodology and criteria for the assessment of Sunlight in Chapter 3. The BRE Guidelines state in paragraph 3.2.3 and 3.2.5:

"To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90 degrees of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun."

"A point at the centre of the window on the outside face of the window wall may be taken."

In interpreting the results, the BRE Guidance states in summary 3.2.13 that:

"If a living room 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 affected. This will be the case if the centre of the window:

- receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21
   September and 21 March, and
- receives less than 0.8 times its former sunlight hours during either period; and
- has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours."

The image in Figure 04 depicts the APSH sun spots overlaid on a Waldram Diagram. The existing buildings are solidly pictured with the proposed scheme semi-transparent in the foreground. The yellow spots indicate summer sun and the blue spots indicate winter sun.



Fig. 04: Waldram diagram



#### 4 EFFECTS TO OVERSHADOWING

The BRE guidance in respect of overshadowing of amenity spaces is set out in section 3.3.1 of the handbook. Here it states as follows:

"Sunlight in the spaces between and around buildings has an important impact on the overall appearance and ambiance of a development. It is valuable for a number of reasons, to:

- provide attractive sunlit views (all year)
- make outdoor activities like sitting out and children's play more pleasant (mainly warmer months)
- encourage plant growth (mainly spring and summer)
- dry out the ground, reducing moss and slime (mainly in colder months)
- melt frost, ice and snow (in winter)
- dry clothes (all year)."

It must be acknowledged that in urban areas the availability of sunlight on the ground is a factor which is significantly controlled by the existing urban fabric around the site in question and so may have very little to do with the form of the development itself. Likewise, there may be many other urban design, planning and site constraints which determine and run contrary to the best form, siting and location of a proposed development in terms of availability of sun on the ground.

#### Sun Hours on Ground & Transient Overshadowing

The Sun Hours on Ground method of overshadowing assessment uses specialist software to determine the sunlight exposure across an area of amenity.

The BRE Guidelines suggest that the Spring Equinox (21 March), being the year's midpoint, is a suitable date for the assessment. Paragraph 3.3.17 states:

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

The Transient Overshadowing study is recommended where large buildings are proposed which may affect a number of gardens or open spaces or where an area is particularly sensitive at certain times of day or year. For the purpose of this assessment, the additional shadow cast is mapped and highlighted at hourly intervals from sunrise to sunset on the following dates:

- 21 March (Spring equinox)
- 21 June (Summer solstice)
- 21 December (Winter solstice)

The BRE guidelines do not provide any suggested criteria for Transient Overshadowing, rather it is a qualitative assessment to aid understanding.

#### 5 BRE GUIDELINES: ADDITIONAL DAYLIGHT AND SUNLIGHT TESTS

#### Daylight - VSC and APSH to Rooms

As outlined within the BRE Guidelines (paragraph 2.2.6), the VSC value is calculated for each window; however:

"If a room has two or more windows of equal size, the mean of their VSCs may be taken".

Where a room is served by two or more windows of the same or different sizes, the VSC value to the room can be calculated by applying an average weighting calculation to understand the VSC value to the room. The formula used is as follows;

#### Σ(Vn\*An) / ΣAn

#### Where:

V = window VSC

A = window area

n = the number of windows

The BRE provide a methodology to calculate APSH in relation to the room and window, paragraph 3.1.12 states:

"If a room has multiple windows, the amount of sunlight received by each can be added together provided they occur at different times and sunlight hours are not double counted."

The above extract of the BRE is in relation to proposed units rather than existing buildings. It does, however, make sense to apply this methodology to existing rooms as well, when room layouts are known as a room served by multiple windows could receive the benefit of sunlight from all windows and not just one.

GIA calculate the APSH room assessment in the following way:

The sunlight hours (both winter and annual) are calculated for each window. Instead of simply returning the overall per cent pass rate, i.e. one figure for winter, and one for the whole year, the yes/no result of each of the 100 sun spots is tracked. For this accounting to work, each sun dot needs to be assigned a unique identifier, e.g. from 1 to 100;

- <sup>2</sup> The sets of 100 sun spots are combined for each room using Boolean logic, i.e. conjunctions of yes/ no values. The outcome of this step is a set of 100 yes/no values corresponding to the 100 sun spots, but on a per-room basis. Each per-room dot is counted if it is unobstructed for at least one of its windows; and
- <sup>3</sup> The unobstructed sun dots for the room are summed up and expressed as a percentage of the total number of annual and winter spots.

#### Balconies/Overhangs

The BRE recognises that existing architectural features on neighbouring buildings such as balconies and overhangs inherently restrict the quantum of skylight to a window. The BRE Guidelines note on page 11, paragraph 2.1.17 and page 16, paragraph 2.2.13:

"This is a particular problem if there are large obstructions opposite; with the combined effect of the overhang and the obstruction, it may be impossible to see the sky from inside the room, and hence to receive any direct skylight or sunlight at all."

"Existing windows with balconies above them typically receive less daylight. Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC, and on the area receiving direct skylight. One way to demonstrate this would be to carry out an additional calculation of the VSC and the area receiving direct skylight, for both the existing and proposed situations, without the balcony in place."

As noted by the BRE Guidelines, where there are existing overhanging features, larger reductions in skylight and sunlight may be unavoidable and alternative criteria can be used. The guidance suggests that in such situations a calculation is carried out that excludes the balcony or the obstruction.



#### 6 DAYLIGHT - MIRROR MASSING & ADJOINING DEVELOPMENT LAND

## Alternative target Values for Skylight and Sunlight Access "Mirror Massing"

The BRE Guidelines provide a calculation for the VSC and APSH analysis to quantify an appropriate alternative value based on the context of an environment. This approach is known as the 'mirror image' analysis (see Figure 05).

The BRE notes in paragraph F5:

"where an existing building has windows that are unusually close to the site boundary and taking more than their fair share of light. Figure F3 shows an example where side windows of an existing building are close to the boundary. To ensure that new development matches the height and proportions of existing buildings, the VSC and APSH targets for these windows could be set to those for a 'mirror-image' building of the same height and size, an equal distance away on the other side of the boundary."

This analysis is used to understand the levels of Daylight (VSC) and Sunlight (APSH) that would be experienced by an extant neighbouring property if there were a building of the same height and extent opposite.

The mirror image assessment is fairly simplistic and is not, therefore, easily applied to large and complex site footprints which are not all built at equal distances from the site boundary or of the same footprint.

#### Adjoining Development Land

The "Adjoining Development Land" analysis provided within the BRE Guidelines is a simple test to ensure that a proposal is a reasonable distance from the boundary so as to "enable future nearby developments to enjoy a similar access to daylight." (2.3.1)

The BRE comments in paragraphs 2.3.3, 2.3.6 and 2.3.7 that:

"The diffuse daylight coming over the boundary may be quantified in the following way. As a first check, draw a section in a plane perpendicular to the boundary (Figure 21). If a road separates the two sites then the centre line of the road

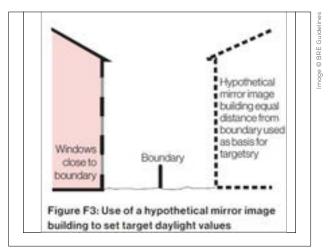


Fig. 05: Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 87 Figure F3

should be taken. Measure the angle to the horizontal subtended at a point 1.6 metres above the boundary by the proposed new buildings. If this angle is less than 43 ° then there will normally still be the potential for good daylighting on the adjoining development site (but see Sections 2.3.6 and 2.3.7)."

"The guidelines above should not be applied too rigidly. A particularly important exception occurs when the two sites are very unequal in size and the proposed new building is larger in scale than the likely future development nearby. This is because the numerical values above are derived by assuming the future development will be exactly the same size as the proposed new building (Figure 22). If the adjoining sites for development are a lot smaller, a better approach is to make a rough prediction of where the nearest window wall of the future development may be; then to carry out the 'new building' analysis in Section 2.1 for this window wall."

"The 43° angle should not be used as a form generator, to produce a building which slopes or steps down towards the boundary. Compare Figure 23 with Figure 22 to see how this can result in a higher than anticipated obstruction to daylight. In Figure 23 the proposed building subtends 34° at its mirror image, rather than the maximum of 25° suggested here. In cases of doubt, the best approach is again to carry out a new building analysis for the most likely location of a window wall of a future development."

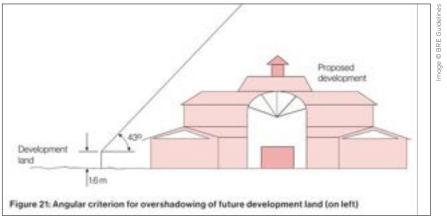
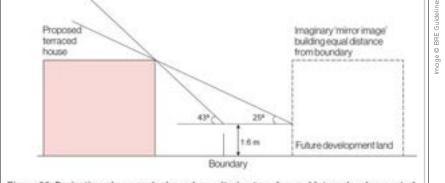
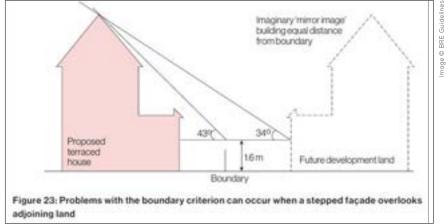


Fig. 06: Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 19 Figure 21



#### Figure 22: Derivation of an angular boundary criterion to safeguard future development of adjoining land

Fig. 07: Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 20 Figure 22



L Fig. 08: Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 20 Figure 23

As outlined above, the Adjoining Development Land analysis is predicated on ensuring that a proposal next to future development land is not negatively impacting the ability to develop in consideration of light matters.



#### 7 PHOTOVOLTAICS

Paragraph 4.5.2 states that "where a proposed development may result in loss of radiation to existing solar panels (either photovoltaic or solar thermal), an assessment should be carried out."

Paragraph 4.5.8 states that "Where the annual probable sunlight hours received by a solar panel with the new development in place is less than 0.90 times the value before, a more detailed calculation of the loss of solar radiation should be undertaken. This is a specialist type of assessment and expert advice should be sought. The assessment should include both direct solar and diffuse sky radiation; over a whole year, around 60% of the radiation received on a horizontal roof comes from the sky. However, reflected radiation from the ground and obstructions need not be included. The modelling should take account of the effects of cloud in reducing direct solar radiation at different times of year, and include a realistic simulation of the way that incoming solar radiation varies from different parts of the sky."

Paragraph 4.5.9 states that "if over the whole year the ratio of total solar radiation received with the new development, to the existing value is less than the values given in Table 2, then the loss of radiation is significant."

#### OTHER AMENITY CONSIDERATIONS

Daylight and sunlight is one factor among many under the heading of residential amenity considerations for any given development design or planning application; others include:

- View;
- Privacy;
- Security;
- Access;
- Enclosure;
- Microclimate;
- Solar Dazzle; and
- Solar Convergence.

#### Table 2. Recommended minimum ratios of solar radiation received.

Slope of solar panel in degrees to horizontal	Recommended minimum ratio of radiation received after/before	buidelines
0-30	0.90	BRE
30.01-59.99	0.85	oe ©
60-90	0.80	

Fig. 09: Table 2 from BRE Guidance Section 4, page 36

Finally, paragraph 4.5.10 notes that "numerical values given are purely advisory. Different criteria may be used based on the requirements for solar energy in an area viewed against other site layout constraints. Another important issue is whether the existing solar panels are reasonably sited, at a sensible height and distance from the boundary. A greater loss of solar radiation may be inevitable if panels are mounted close to the ground and near to the site boundary."





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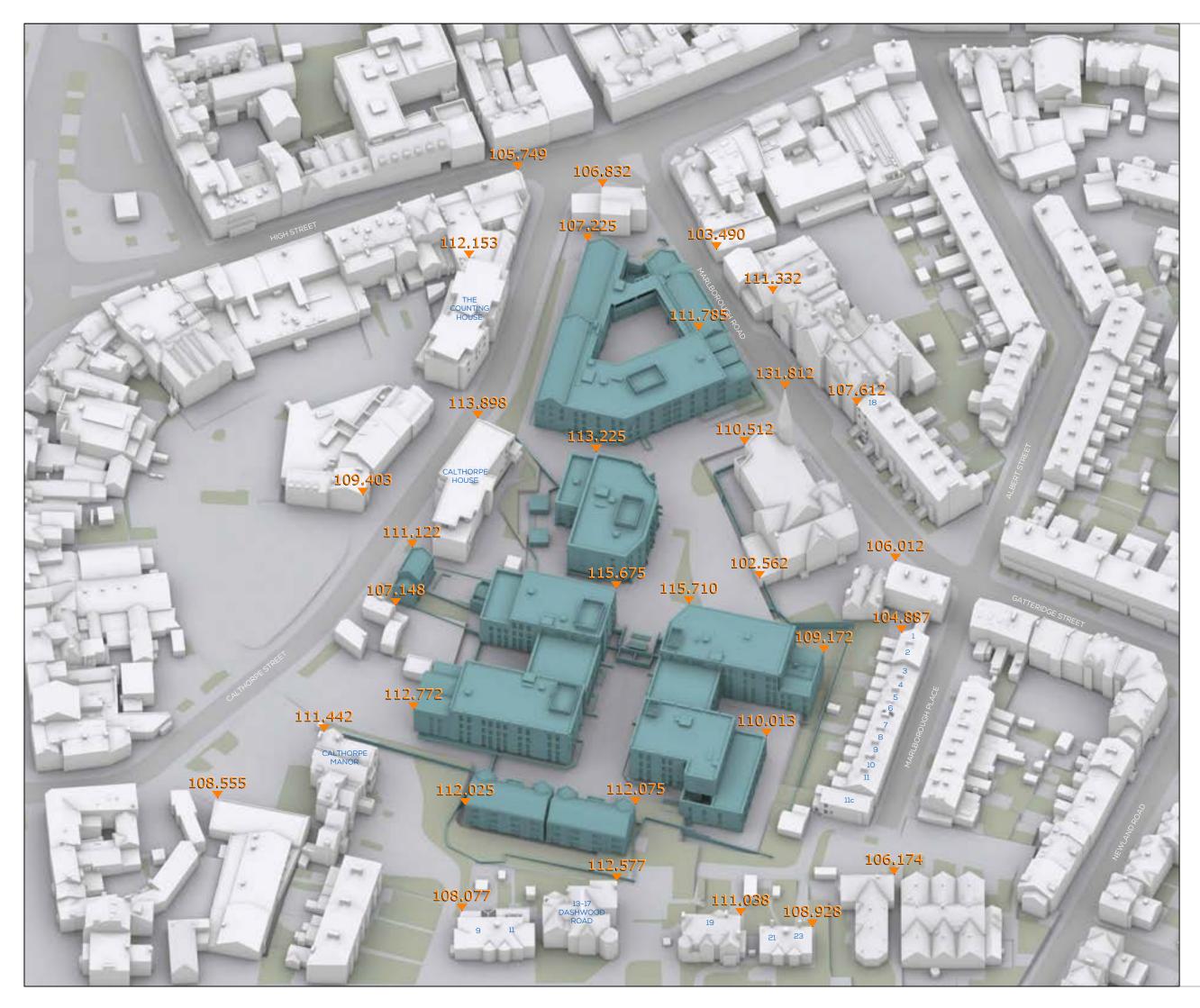


SOURCES OF INFORMATION IR03-20221101-Vertex IR04- EP Research IR05-MJB Photos IR08-20230427-C&W
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19 DASHWOOD ROAD																		
F00	R1	RESIDENTIAL	LIVING ROOM	W1/F00	36.8	34.9	1.9	5.2%	YES	99.6	99.6	0.0	0.0%	YES				
			LIVING ROOM	W2/F00	36.8	35	1.8	4.9%	YES									
			LIVING ROOM	W3/F00	37.5	35.7	1.8	4.8%	YES									
			LIVING ROOM	W4/F00	36.9	35.1	1.8	4.9%	YES									
			LIVING ROOM	W9/F00	32.3	31.5	0.8	2.5%	YES									
			LIVING ROOM	W10/F00	32.3	31.6	0.7	2.2%	YES									
	R3	RESIDENTIAL	KITCHEN	W6/F00	37.1	35.6	1.5	4.0%	YES	97.1	97.1	0.0	0.0%	YES				
			KITCHEN	W7/F00	37.1	35.6	1.5	4.0%	YES									
F01	R1 (3)	RESIDENTIAL	BEDROOM	W1/F01	35.2	34.6	0.6	1.7%	YES	98.4	98.4	0.0	0.0%	YES				
			BEDROOM	W2/F01	35.2	34.6	0.6	1.7%	YES									
	R2	RESIDENTIAL	BEDROOM	W3/F01	38.6	37.1	1.5	3.9%	YES	95.8	95.8	0.0	0.0%	YES				
F02	R1 (3)	RESIDENTIAL	BEDROOM	W1/F02	39.3	38.2	1.1	2.8%	YES	96.5	96.5	0.0	0.0%	YES				

13-17 DASHWOOD ROAD																					
F00	R1	RESIDENTIAL	BEDROOM	W1/F00	35.1	34.7	0.4	1.1%	YES	97.6	97.5	0.0	0.0%	YES							
			BEDROOM	W2/F00	35.1	34.7	0.4	1.1%	YES												
	R2	RESIDENTIAL	LD	W3/F00	34.6	34.2	0.4	1.2%	YES	99.7	99.7	0.0	0.0%	YES	54	11	54	11	0.0%	0.0%	YES
			LD	W4/F00	35	29.5	5.5	15.7%	YES												
			LD	W5/F00	34.9	29.1	5.8	16.6%	YES												
			LD	W6/F00	20.1	19.2	0.9	4.5%	YES												
	R3	RESIDENTIAL	KITCHEN (1)	W7/F00	28.6	23.6	5	17.5%	YES	96.5	96.5	0.0	0.0%	YES							

(1) KITCHEN SMALLER THAN 13m2

					VSC (WI					NSL					APSH (R	00M)					
FLOOR	ROOM	PROPERTY	ROOM	WINDOW	EX.	PR.	LOSS	LOSS	MEETS	EX.	PR.	LOSS	LOSS	MEETS		EX.		PR.	L	OSS %	MEETS
		TYPE	USE		%	%		%	CRITERIA	%	%	SOM	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA
13-17 DASI	HWOOD ROA	D (CONTINUED)																			
	R4	RESIDENTIAL	BEDROOM	W8/F00	33.7	28.7	5	14.8%	YES	97.5	94.2	0.4	3.4%	YES	N/A						
	R5	RESIDENTIAL	LD	W9/F00	26.8	23.1	3.7	13.8%	YES	97.4	97.4	0.0	0.0%	YES	N/A						
			LD	W10/F00	28.6	24.6	4	14.0%	YES												
			LD	W11/F00	33.1	29.2	3.9	11.8%	YES												
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	37	36.6	0.4	1.1%	YES	97.5	97.5	0.0	0.0%	YES	N/A						
			BEDROOM	W2/F01	37	36.6	0.4	1.1%	YES												
	R2	RESIDENTIAL	LD	W3/F01	36.4	36.1	0.3	0.8%	YES	99.8	99.8	0.0	0.0%	YES	55	12	55	12	0.0%	0.0%	YES
			LD	W4/F01	37.5	32.7	4.8	12.8%	YES	İ.											
			LD	W5/F01	37.5	32.5	5	13.3%	YES												
			LD	W6/F01	22.4	21.5	0.9	4.0%	YES												
	R3	RESIDENTIAL	KITCHEN (1)	W7/F01	30.9	26.6	4.3	13.9%	YES	96.5	96.5	0.0	0.0%	YES	N/A						
	R4	RESIDENTIAL	BEDROOM	W8/F01	36.5	32.1	4.4	12.1%	YES	97.6	97.6	0.0	0.0%	YES	N/A						
	R5	RESIDENTIAL	LD	W9/F01	30.8	27.4	3.4	11.0%	YES	99.2	99.2	0.0	0.0%	YES	N/A						
			LD	W10/F01	36.2	32.7	3.5	9.7%	YES												
F02	R1	RESIDENTIAL	BEDROOM	W1/F02	34.8	34.5	0.3	0.9%	YES	97.4	97.4	0.0	0.0%	YES	N/A						
			BEDROOM	W2/F02	34.8	34.5	0.3	0.9%	YES	ĺ											
	R2	RESIDENTIAL	LD	W3/F02	34.5	34.2	0.3	0.9%	YES	99.8	99.8	0.0	0.0%	YES	60	11	60	11	0.0%	0.0%	YES
			LD	W4/F02	35.1	32.1	з	8.5%	YES	ĺ											
			LD	W5/F02	35	32	з	8.6%	YES												
			LD	W6/F02	26.5	26	0.5	1.9%	YES												
	R3	RESIDENTIAL	KITCHEN (1)	W7/F02	30.1	27.6	2.5	8.3%	YES	95.8	95.8	0.0	0.0%	YES	N/A						
	R4	RESIDENTIAL	BEDROOM	W8/F02	34.7	32	2.7	7.8%	YES	97.5	97.5	0.0	0.0%	YES	N/A						
	R5	RESIDENTIAL	LD	W9/F02	35.5	33.7	1.8	5.1%	YES	100	100	0.0	0.0%	YES	64	11	64	11	0.0%	0.0%	YES
			LD	W10/F02 / INC (2)	77.6	77.5	0.1	0.1%	YES												

11 DASHW	DOD ROAD																				
F00	R1	RESIDENTIAL	KD	W1/F00	32.5	29.6	2.9	8.9%	YES	100	100	0.0	0.0%	YES	58	2	58	2	0.0%	0.0%	YES
			KD	W2/F00	32.7	29.8	2.9	8.9%	YES												
			KD	W3/F00	32.7	29.8	2.9	8.9%	YES												
			KD	W4/F00	32.7	29.7	з	9.2%	YES												
			KD	W5/F00	32.6	29.6	з	9.2%	YES												

(1) KITCHEN SMALLER THAN 13m2

						VSC (WINI	OOW)				NSL					APSH (RO	OM)					
FL	.OOR	ROOM	PROPERTY	ROOM	WINDOW					EX.	PR.	LOSS	LOSS	MEETS	E	Х.	P	R.	LO:	6S %	MEETS	
			TYPE	USE		%	%		%	CRITERIA	%	%	SQM	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA

11 DASHWO	DOD ROAD (C	CONTINUED)																
			KD	W6/F00	32.5	29.4	3.1	9.5%	YES									
			KD	W7/F00 / INC (2)	73.2	73	0.2	0.3%	YES									
			KD	W8/F00 / INC (2)	83.7	82.1	1.6	1.9%	YES									
			KD	W9/F00 / INC (2)	69.7	69.1	0.6	0.9%	YES									
			KD	W10/F00 / INC (2)	47.6	47.6	0	0.0%	YES									
F01	R3	RESIDENTIAL	BEDROOM	W6/F01	35.9	34.1	1.8	5.0%	YES	99.3	99.3	0.0	0.0%	YES				

9 DASHWC																		
F00	R1	RESIDENTIAL	CONSERVATORY	W1/F00 / INC (2)	78.2	78	0.2	0.3%	YES	100	100	0.0	0.0%	YES	N/A			
			CONSERVATORY	W9/F00	18.9	18.9	0	0.0%	YES									
			CONSERVATORY	W10/F00	36.2	33.5	2.7	7.5%	YES									
			CONSERVATORY	W11/F00	36.2	33.5	2.7	7.5%	YES									
			CONSERVATORY	W12/F00 / INC (2)	78.6	78.5	0.1	0.1%	YES									
			CONSERVATORY	W13/F00	36.2	33.4	2.8	7.7%	YES									
			CONSERVATORY	W14/F00 / INC (2)	91.6	90.3	1.3	1.4%	YES									
			CONSERVATORY	W15/F00	36.2	33.4	2.8	7.7%	YES									
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	35.7	34.1	1.6	4.5%	YES	98.4	98.4	0.0	0.0%	YES	N/A			
	R2	RESIDENTIAL	BEDROOM	W2/F01	36.2	34.7	1.5	4.1%	YES	97.7	97.7	0.0	0.0%	YES	N/A			

CALTHORI																					
F00	R1	RESIDENTIAL	LD	W1/F00	22.1	22.1	0	0.0%	YES	99.3	99.3	0.0	0.0%	YES	17	0	12	0	29.4%	0.0%	NO
			LD	W2/F00	36.8	34.7	2.1	5.7%	YES												
			LD	W3/F00	20.2	18.1	2.1	10.4%	YES												
			LD	W4/F00	24.3	22	2.3	9.5%	YES												
	R2	RESIDENTIAL	BEDROOM	W5/F00	35.9	32.9	3	8.4%	YES	87.9	87.9	0.0	0.0%	YES	N/A						
	R3	RESIDENTIAL	BEDROOM	W6/F00	36.2	32.4	3.8	10.5%	YES	98.7	98.7	0.0	0.0%	YES	N/A						
			BEDROOM	W7/F00	32.6	29.8	2.8	8.6%	YES												
	R5	RESIDENTIAL	UNKNOWN	W10/F00	25	24.1	0.9	3.6%	YES	90	85.4	0.6	5.1%	YES	N/A						
F01	R1 (3)	RESIDENTIAL	LD	W1/F01	38.1	36.7	1.4	3.7%	YES	97.1	97.1	0.0	0.0%	YES	N/A						
			LD	W2/F01	38.1	36.5	1.6	4.2%	YES												
	R2	RESIDENTIAL	BEDROOM	W3/F01	37.8	35.5	2.3	6.1%	YES	98.7	98.7	0.0	0.0%	YES	N/A						

(1) KITCHEN SMALLER THAN 13m2

						VSC (WINE	OOW)				NSL					APSH (RO	OM)					
FLOO	DR	ROOM	PROPERTY	ROOM	WINDOW					EX.	PR.	LOSS	LOSS	MEETS	E	EX.	F	'R.	LO:	SS %	MEETS	
			TYPE	USE		%	%		%	CRITERIA	%	%	SQM	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA

CALTHORP	E MANOR (C	ONTINUED)																			
	R3	RESIDENTIAL	BEDROOM	W4/F01	37.8	34.8	3	7.9%	YES	99.1	99.1	0.0	0.0%	YES	N/A						
			BEDROOM	W5/F01	35.6	32.8	2.8	7.9%	YES												
	R4	RESIDENTIAL	LD	W6/F01	20.3	17.5	2.8	13.8%	YES	99.5	98.7	0.3	0.9%	YES	61	19	61	19	0.0%	0.0%	YES
			LD	W7/F01	36.5	34.1	2.4	6.6%	YES												
			LD	W8/F01	20	20	0	0.0%	YES												
			LD	W9/F01	32	30.8	1.2	3.7%	YES												
F02	R1 (3)	RESIDENTIAL	BEDROOM	W1/F02	39	38	1	2.6%	YES	97.5	97.4	0.0	0.0%	YES	N/A						
			BEDROOM	W2/F02	39	37.9	1.1	2.8%	YES												
	R2	RESIDENTIAL	BEDROOM	W3/F02	38.8	37.3	1.5	3.9%	YES	91.7	90.1	0.2	1.7%	YES	N/A						
	R3	RESIDENTIAL	BEDROOM	W4/F02	38.8	36.8	2	5.2%	YES	99.5	99.5	0.0	0.0%	YES	N/A						
			BEDROOM	W5/F02	38.4	36.2	2.2	5.7%	YES												
	R4 (3)	RESIDENTIAL	LD	W6/F02	38.4	36.7	1.7	4.4%	YES	98.4	98.4	0.0	0.0%	YES	60	20	59	20	1.7%	0.0%	YES

CALTHOP																					
F00	R1	RESIDENTIAL	BEDROOM	W1/F00	22.8	17.2	5.6	24.6%	NO	77.4	58.8	2.5	24.0%	NO	N/A						
	R3	RESIDENTIAL	BEDROOM	W3/F00	33.5	25.5	8	23.9%	NO	95.4	70.5	3.3	26.1%	NO	NZA						
	R4	RESIDENTIAL	BEDROOM	W4/F00	33.6	26.1	7.5	22.3%	NO	97	69.7	3.2	28.2%	NO	N/A						
	R6	RESIDENTIAL	BEDROOM	W6/F00	18.8	10.1	8.7	46.3%	NO	97.1	66.5	3.1	31.5%	NO	N/A						
	R7	RESIDENTIAL	LKD	W7/F00	13.9	8.4	5.5	39.6%	NO	100	99.8	0.0	0.2%	YES	39	6	33	4	15.4%	33.3%	NO
			LKD	W8/F00	26.2	26.2	0	0.0%	YES												
			LKD	W9/F00	24.5	24.5	0	0.0%	YES												
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	36.6	29.7	6.9	18.9%	YES	98.8	98.8	0.0	0.0%	YES	N/A						
			BEDROOM	W2/F01	36.6	30	6.6	18.0%	YES												
	R3	RESIDENTIAL	BEDROOM	W4/F01	20.1	14.5	5.6	27.9%	NO	98.1	97.5	0.1	0.7%	YES	N/A						
			BEDROOM	W5/F01	20.6	14.8	5.8	28.2%	NO												
	R4	RESIDENTIAL	LKD	W6/F01	22	18.1	3.9	17.7%	YES	100	99.5	0.1	0.5%	YES	52	8	48	6	7.7%	25.0%	YES
			LKD	W7/F01	33.8	33.8	0	0.0%	YES												
			LKD	W8/F01	34	34	0	0.0%	YES												
F02	R1	RESIDENTIAL	BEDROOM	W1/F02	38.1	33.4	4.7	12.3%	YES	98.8	98.8	0.0	0.0%	YES	N/A						
			BEDROOM	W2/F02	38	33.6	4.4	11.6%	YES												
	R2	RESIDENTIAL	BEDROOM	W3/F02	37.4	33.9	3.5	9.4%	YES	98.5	98.5	0.0	0.0%	YES	N/A						

(1) KITCHEN SMALLER THAN 13m2

						VSC (WINI	DOW)				NSL					APSH (RO	OM)					
FL	LOOR	ROOM	PROPERTY	ROOM	WINDOW	EX. PR. LOSS LOSS MEETS				EX.	PR.	LOSS	LOSS	MEETS	E	х.	F	'R.	LO:	SS %	MEETS	
			TYPE	USE		%	%		%	CRITERIA	%	%	SAM	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA

CALTHORI	PE HOUSE (C	ONTINUED)																			
	R3	RESIDENTIAL	BEDROOM	W4/F02	37.7	34.3	3.4	9.0%	YES	98.1	98.1	0.0	0.0%	YES	N/A						
			BEDROOM	W5/F02	37.8	34.3	3.5	9.3%	YES												
F03	R1	RESIDENTIAL	LKD	W1/F03	23.6	21.9	1.7	7.2%	YES	100	100	0.0	0.0%	YES	99	30	99	30	0.0%	0.0%	YES
			LKD	W2/F03	23.2	21.9	1.3	5.6%	YES												
			LKD	W3/F03	16.5	15.3	1.2	7.3%	YES												
			LKD	W4/F03	27.7	25.9	1.8	6.5%	YES												
			LKD	W11/F03	34.9	34.9	0	0.0%	YES												
			LKD	W12/F03	35.1	35.1	0	0.0%	YES												
			LKD	W13/F03	35	33.6	1.4	4.0%	YES												
			LKD	W14/F03	35	33.6	1.4	4.0%	YES												
	R2	RESIDENTIAL	BEDROOM	W5/F03	34.8	33.4	1.4	4.0%	YES	93.5	93.5	0.0	0.0%	YES	N/A						
	R3	RESIDENTIAL	LKD	W6/F03	35.3	33.9	1.4	4.0%	YES	100	100	0.0	0.0%	YES	82	27	82	27	0.0%	0.0%	YES
			LKD	W7/F03	35.1	34.3	0.8	2.3%	YES												
			LKD	W8/F03	35.5	35.5	0	0.0%	YES												
			LKD	W9/F03	35.1	34.3	0.8	2.3%	YES												
			LKD	W10/F03	35	34.2	0.8	2.3%	YES												

01	R1 (3)	RESIDENTIAL	LKD	W1/F01	37.4	32.3	5.1	13.6%	YES	97	97	0.0	0.0%	YES	55	17	53	15	3.6%	11.8%	YES
			LKD	W2/F01	37.4	32.2	5.2	13.9%	YES												
			LKD	W3/F01	37.5	32.4	5.1	13.6%	YES												
	R2	RESIDENTIAL	BEDROOM	W4/F01	37.4	31.9	5.5	14.7%	YES	66.6	65.5	0.1	1.7%	YES	N/A						
	R3	RESIDENTIAL	BEDROOM	W5/F01	37.3	31.3	6	16.1%	YES	97.5	97.5	0.0	0.0%	YES	N/A						
	R4	RESIDENTIAL	LKD	W6/F01	37.3	30.7	6.6	17.7%	YES	99.1	88	1.9	11.1%	YES	58	18	51	14	12.1%	22.2%	YES
			LKD	W7/F01	37.3	30.6	6.7	18.0%	YES												
			LKD	W8/F01	37.4	30.7	6.7	17.9%	YES												
	R5	RESIDENTIAL	BEDROOM	W9/F01	37	30.6	6.4	17.3%	YES	96.9	96	0.1	0.9%	YES	N/A						
	R6	RESIDENTIAL	LKD	W10/F01	36.8	30.6	6.2	16.8%	YES	94.7	74.6	4.7	21.2%	NO	63	20	54	17	14.3%	15.0%	YES
			LKD	W11/F01	36.5	30.3	6.2	17.0%	YES												
			LKD	W12/F01	36.4	30.4	6	16.5%	YES												
	R7	RESIDENTIAL	BEDROOM	W13/F01	36.1	31	5.1	14.1%	YES	96.5	95.2	0.2	1.3%	YES	N/A						

(1) KITCHEN SMALLER THAN 13m2

					VSC (WI	NDOW)				NSL					APSH (RC	DOM)					
FLOOR	ROOM	PROPERTY	ROOM	WINDOW	EX.	PR.	LOSS	LOSS	MEETS	EX.	PR.	LOSS	LOSS	MEETS		EX.		PR.	LC	SS %	MEETS
		TYPE	USE		%	%		%	CRITERIA	%	%	SQM	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA
THE COUN	ITING HOUSE	(CONTINUED)																			
F02	R1 (3)	RESIDENTIAL	LKD	W1/F02	38.3	35.9	2.4	6.3%	YES	97	97	0.0	0.0%	YES	56	17	55	16	1.8%	5.9%	YES
			LKD	W2/F02	38.3	35.8	2.5	6.5%	YES												
			LKD	W3/F02	38.3	35.9	2.4	6.3%	YES												
	R2	RESIDENTIAL	BEDROOM	W4/F02	38.1	35.4	2.7	7.1%	YES	66.6	66.5	0.0	0.1%	YES	N/A						
	R3	RESIDENTIAL	BEDROOM	W5/F02	38	34.8	3.2	8.4%	YES	97.5	97.5	0.0	0.0%	YES	N/A						
	R4	RESIDENTIAL	LKD	W6/F02	38.1	34.3	3.8	10.0%	YES	99	97.4	0.3	1.7%	YES	58	18	55	15	5.2%	16.7%	YES
			LKD	W7/F02	38.1	34.2	3.9	10.2%	YES												
			LKD	W8/F02	38.3	34.4	3.9	10.2%	YES												
	R5	RESIDENTIAL	BEDROOM	W9/F02	38	34.1	3.9	10.3%	YES	96.9	96.9	0.0	0.0%	YES	N/A						
	R6	RESIDENTIAL	LKD	W10/F02	37.7	34	3.7	9.8%	YES	94.8	94.8	0.0	0.0%	YES	63	21	61	19	3.2%	9.5%	YES
			LKD	W11/F02	37.5	33.7	3.8	10.1%	YES												
			LKD	W12/F02	37.5	33.7	3.8	10.1%	YES												
	R7	RESIDENTIAL	BEDROOM	W13/F02	37.5	34.3	3.2	8.5%	YES	96.5	96.5	0.0	0.0%	YES	N/A						
F03	R1	RESIDENTIAL	LKD	W1/F03	34.8	34	0.8	2.3%	YES	79.2	79.2	0.0	0.0%	YES	46	12	46	12	0.0%	0.0%	YES
			LKD	W2/F03	33.2	32.4	0.8	2.4%	YES												
			LKD	W3/F03	30.8	30.1	0.7	2.3%	YES												
			LKD	W4/F03	23.2	22.9	0.3	1.3%	YES												
			LKD	W5/F03	9	8.6	0.4	4.4%	YES												
			LKD	W6/F03	19.3	18.3	1	5.2%	YES												
			LKD	W7/F03	19.3	18.2	1.1	5.7%	YES												
	R2	RESIDENTIAL	BEDROOM	W8/F03	26.9	25.3	1.6	5.9%	YES	99	99	0.0	0.0%	YES	N/A						
			BEDROOM	W9/F03	30.8	29.2	1.6	5.2%	YES												
			BEDROOM	W10/F03	8	7	1	12.5%	YES												
			BEDROOM	W11/F03	33.8	32.2	1.6	4.7%	YES												
	R3	RESIDENTIAL	BEDROOM	W12/F03	34.2	32.7	1.5	4.4%	YES	99.4	99.4	0.0	0.0%	YES	N/A						
			BEDROOM	W13/F03	32.3	30.8	1.5	4.6%	YES												
			BEDROOM	W14/F03	25.8	24.6	1.2	4.7%	YES												
			BEDROOM	W15/F03	15.3	14.5	0.8	5.2%	YES												
	R4	RESIDENTIAL	LKD	W16/F03	21.3	20.2	1.1	5.2%	YES	79.7	79.7	0.0	0.0%	YES	59	21	59	21	0.0%	0.0%	YES
			LKD	W17/F03	21.2	20.2	1	4.7%	YES												
			LKD	W18/F03	23.3	22.4	0.9	3.9%	YES												

(1) KITCHEN SMALLER THAN 13m2

						VSC (WINI	DOW)				NSL					APSH (RO	OM)					
FLO	OOR	ROOM	PROPERTY	ROOM	WINDOW	EX.	PR.	LOSS	LOSS	MEETS	EX.	PR.	LOSS	LOSS	MEETS	E	EX.	P	R.	LO:	6S %	MEETS
			ТҮРЕ	USE		%	%		%	CRITERIA	%	%	зам	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA

THE COUNTI	NG HOUSE (CONTINUED)							
		LKD	W19/F03	30.8	29.6	1.2	3.9%	YES
		LKD	W20/F03	33.1	31.9	1.2	3.6%	YES
		LKD	W21/F03	9.2	8.6	0.6	6.5%	YES
		LKD	W22/F03	34.6	33.5	1.1	3.2%	YES

11C MARLB	OROUGH PLA	ACE																			
F00	R1	RESIDENTIAL	UNKNOWN	W1/F00	27.4	27.3	0.1	0.4%	YES	99.6	99.6	0.0	0.0%	YES	65	21	64	21	1.5%	0.0%	YES
	R2	RESIDENTIAL	UNKNOWN	W2/F00	31.3	31.3	0	0.0%	YES	99.4	99.4	0.0	0.0%	YES	78	24	77	25	1.3%	-4.2%	YES
			UNKNOWN	W3/F00	31.8	31.7	0.1	0.3%	YES												
			UNKNOWN	W4/F00	31.9	31.8	0.1	0.3%	YES												
			UNKNOWN	W5/F00	33.1	33.1	0	0.0%	YES	l l											
F01	R1	RESIDENTIAL	UNKNOWN	W1/F01	35.3	35.3	0	0.0%	YES	97.4	97.4	0.0	0.0%	YES	82	26	80	27	2.4%	-3.8%	YES
	R2	RESIDENTIAL	UNKNOWN	W2/F01	32.4	29.6	2.8	8.6%	YES	96.2	96.2	0.0	0.0%	YES	N/A						N/A

11 MARLBC	ROUGH PLAC	E																
F00	R1	RESIDENTIAL	KITCHEN (1)	W1/F00	5.3	5.3	0	0.0%	YES	18.5	16.9	0.1	8.3%	YES	N/A			
	R2	RESIDENTIAL	LIVING ROOM	W2/F00	7.3	7.1	0.2	2.7%	YES	29.6	34.1	-0.6	-15.3%	YES	N/A			
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	15.5	15	0.5	3.2%	YES	73.4	71.6	0.1	2.4%	YES	N/A			

8 MARLBO	ROUGH PLAC	E																
F00	R1	RESIDENTIAL	KITCHEN (1)	W1/F00	5.6	5.5	0.1	1.8%	YES	20.4	20.4	0.0	0.0%	YES				
	R2	RESIDENTIAL	LIVING ROOM	W2/F00	7.9	8.3	-0.4	-5.1%	YES	46.2	44.9	0.1	2.7%	YES				
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	30.6	28.2	2.4	7.8%	YES	91.1	91.1	0.0	0.0%	YES				

9 MARLBO																		
F00	R1	RESIDENTIAL	LIVING ROOM	W1/F00	11.6	11.3	0.3	2.6%	YES	65.6	57.9	0.8	11.7%	YES				
	R2	RESIDENTIAL	KITCHEN (1)	W2/F00	9.3	9	0.3	3.2%	YES	28	28	0.0	0.0%	YES				
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	27.9	25.9	2	7.2%	YES	86.1	86.1	0.0	0.0%	YES				

10 MARLB	OROUGH PL4	CE																
FOO	R1	RESIDENTIAL	KITCHEN (1)	W1/F00	16.2	14.6	1.6	9.9%	YES	57.9	57.9	0.0	0.0%	YES				

(1) KITCHEN SMALLER THAN 13m2

					VSC (WINE	DOW)				NSL					APSH (RO	OM)					
F	ROOM	PROPERTY	ROOM	WINDOW	EX.	PR.	LOSS	LOSS	MEETS	EX.	PR.	LOSS	LOSS	MEETS	E	EX.		R.	LOS	5S %	MEETS
		TYPE	USE		%	%		%	CRITERIA	%	%	SOM	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA

10 MARLBO	DROUGH PLAC	CE (CONTINUED)																
	R2	RESIDENTIAL	LIVING ROOM	W2/F00	13.5	13	0.5	3.7%	YES	42.5	40.7	0.3	4.4%	YES				
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	21.8	20.3	1.5	6.9%	YES	90.6	83.1	0.6	8.3%	YES				

7 MARLBO	ROUGH PLAC	E																
FOO	R1	RESIDENTIAL	DINING ROOM	W1/F00	6.8	7	-0.2	-2.9%	YES	50.8	51	0.0	-0.4%	YES				
	R2	RESIDENTIAL	KITCHEN (1)	W2/F00	4.1	4.1	0	0.0%	YES	10	10	0.0	0.0%	YES				
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	28	25.8	2.2	7.9%	YES	95.7	95.7	0.0	0.0%	YES				

6 MARLBO																		
FOO	R2	RESIDENTIAL	KITCHEN (1)	W3/F00	29.5	23	6.5	22.0%	NO	87.1	68.7	1.5	21.1%	NO				
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	29.3	26.4	2.9	9.9%	YES	94.4	94.4	0.0	0.0%	YES				
F02	R1	RESIDENTIAL	BEDROOM	W1/F02 / INC (2)	82.5	82.5	0	0.0%	YES	100	100	0.0	0.0%	YES				
			BEDROOM	W2/F02 / INC (2)	82.2	79.8	2.4	2.9%	YES									

5 MARLBC																		
FOO	R1	RESIDENTIAL	KITCHEN (1)	W1/F00	24.7	18	6.7	27.1%	NO	99.1	94.3	0.5	4.8%	YES				
			KITCHEN (1)	W2/F00	27.9	20.8	7.1	25.4%	NO									
			KITCHEN (1)	W3/F00	30.6	23.5	7.1	23.2%	NO									
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	26.7	23.3	3.4	12.7%	YES	94.4	94.4	0.0	0.0%	YES				

4 MARLBO																		
F00	R1	RESIDENTIAL	DINING ROOM	W1/F00	7.3	4.5	2.8	38.4%	NO	36	17.5	2.0	51.5%	NO				
	R2	RESIDENTIAL	KITCHEN (1)	W2/F00	2.4	2	0.4	16.7%	YES	38.3	34.4	0.3	10.4%	YES				
			KITCHEN (1)	W3/F00	4.3	3.5	0.8	18.6%	YES									
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	19.7	16.6	3.1	15.7%	YES	94	93.6	0.0	0.4%	YES				

3 MARLBO																		
FOO	R1	RESIDENTIAL	KITCHEN (1)	W1/F00	32.1	26.2	5.9	18.4%	YES	63.8	33.9	2.2	46.8%	NO				
	R2	RESIDENTIAL	UNKNOWN	W2/F00	31.7	25.2	6.5	20.5%	NO	100	99.8	0.0	0.2%	YES				
			UNKNOWN	W3/F00	31.6	25	6.6	20.9%	NO									
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	22.5	19.6	2.9	12.9%	YES	95	94.8	0.0	0.2%	YES				

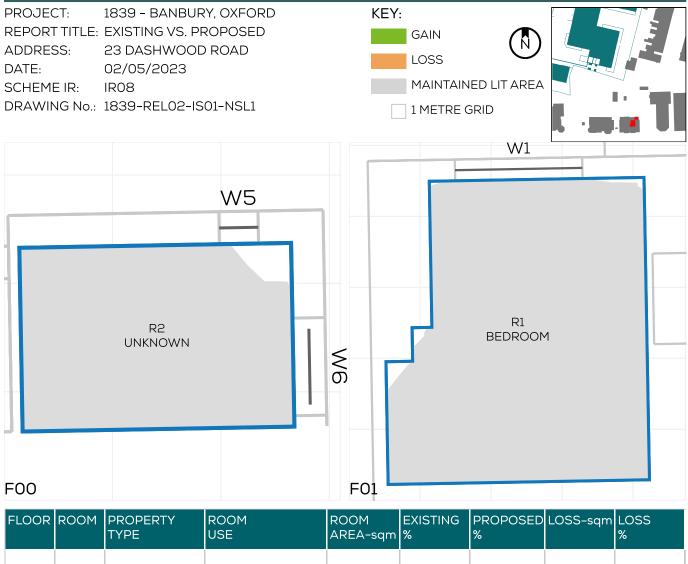
(1) KITCHEN SMALLER THAN 13m2

						VSC (WINI	DOW)				NSL					APSH (RO	OM)					
FLOOP	R	ROOM	PROPERTY	ROOM	WINDOW	EX.	PR.	LOSS	LOSS	MEETS	EX. PR. LOSS LOSS MEETS			E	EX.	F	'R.	LO:	SS %	MEETS		
			түре	USE		%	%		%	CRITERIA	%	%	SOM	%	CRITERIA	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	CRITERIA

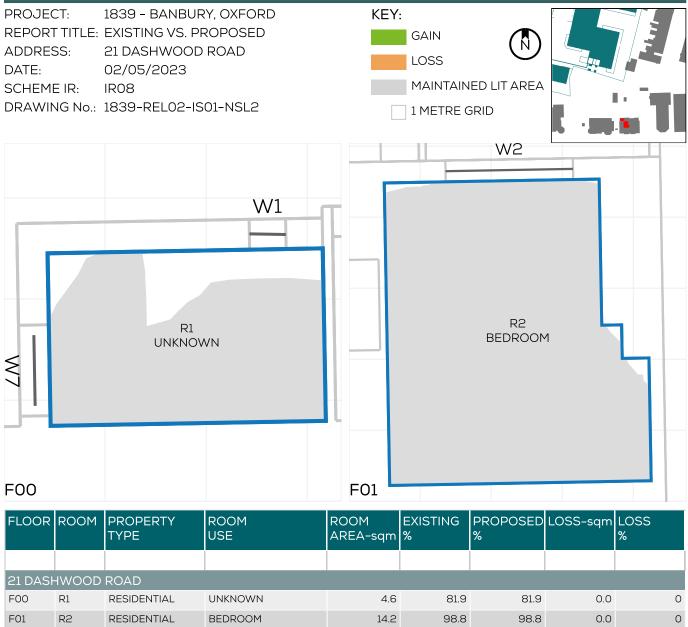
2 MARLBC	ROUGH PLAC	Œ																			
F00	R1	RESIDENTIAL	UNKNOWN	W1/F00	13.9	11.7	2.2	15.8%	YES	70.1	68.4	0.2	2.5%	YES	30	з	23	з	23.3%	0.0%	NO
	R2	RESIDENTIAL	UNKNOWN	W2/F00	18.9	16.7	2.2	11.6%	YES	93	87.6	0.4	5.8%	YES	N/A						
F01	R1	RESIDENTIAL	UNKNOWN	W1/F01	33.6	30.2	3.4	10.1%	YES	97.8	97.8	0.0	0.0%	YES	N/A						
	R2	RESIDENTIAL	UNKNOWN	W2/F01	29.1	26.9	2.2	7.6%	YES	98	96.1	0.1	2.0%	YES	N/A						
F02	R1	RESIDENTIAL	UNKNOWN	W1/F02	35.7	32.5	3.2	9.0%	YES	98.1	90.4	0.6	7.9%	YES	N/A						
	R2	RESIDENTIAL	UNKNOWN	W2/F02	35.7	32.3	3.4	9.5%	YES	98.4	87.3	0.8	11.3%	YES	N/A						

1 MARLBO	ROUGH PLAC	E																			
F00	R1	RESIDENTIAL	UNKNOWN	W1/F00	16.6	16.1	0.5	3.0%	YES	97.9	97.9	0.0	0.0%	YES							
	R2	RESIDENTIAL	UNKNOWN	W2/F00	16.2	14.8	1.4	8.6%	YES	81	81	0.0	0.0%	YES	38	0	33	0	13.2%	0.0%	YES
F01	R1	RESIDENTIAL	UNKNOWN	W1/F01	33.8	30.6	3.2	9.5%	YES	98.4	98.4	0.0	0.0%	YES							
	R2	RESIDENTIAL	UNKNOWN	W2/F01	34	30.6	3.4	10.0%	YES	98.6	98.6	0.0	0.0%	YES							
F02	R1	RESIDENTIAL	UNKNOWN	W1/F02	35.5	32.7	2.8	7.9%	YES	98.8	98.8	0.0	0.0%	YES							
	R2	RESIDENTIAL	UNKNOWN	W2/F02	35.6	32.6	3	8.4%	YES	98.9	96.7	0.2	2.2%	YES							

18 MARLBO	DROUGH ROA	٨D																
B01	R1	RESIDENTIAL	BEDROOM	W1/B01	18	17.9	0.1	0.6%	YES	74	73.3	0.1	0.8%	YES	N/A			
			BEDROOM	W2/B01	25.5	24.3	1.2	4.7%	YES									
			BEDROOM	W3/B01	12.9	12.9	0	0.0%	YES									
F00	R1	RESIDENTIAL	BEDROOM	W1/F00	24.4	24.3	0.1	0.4%	YES	85.4	85.3	0.0	0.1%	YES	NZA			
			BEDROOM	W2/F00	28.4	27.1	1.3	4.6%	YES									
			BEDROOM	W3/F00	27.1	24.9	2.2	8.1%	YES									
F01	R1	RESIDENTIAL	BEDROOM	W1/F01	31.1	30.3	0.8	2.6%	YES	97.9	97.9	0.0	0.0%	YES	N/A			
	R2	RESIDENTIAL	KITCHEN (1)	W2/F01	31.5	30.5	1	3.2%	YES	98.5	98.5	0.0	0.0%	YES	N/A			
F02	R1	RESIDENTIAL	BEDROOM	W1/F02	33.3	32.8	0.5	1.5%	YES	96.5	96.5	0.0	0.0%	YES	N/A			
	R2	RESIDENTIAL	BEDROOM	W2/F02	33.5	32.9	0.6	1.8%	YES	98.5	98.5	0.0	0.0%	YES	N/A			



23 DA	SHWOOD	D ROAD						
F00	R2	RESIDENTIAL	UNKNOWN	4.2	96.5	96.5	0.0	0
F01	R1	RESIDENTIAL	BEDROOM	14.2	98.8	98.8	0.0	0



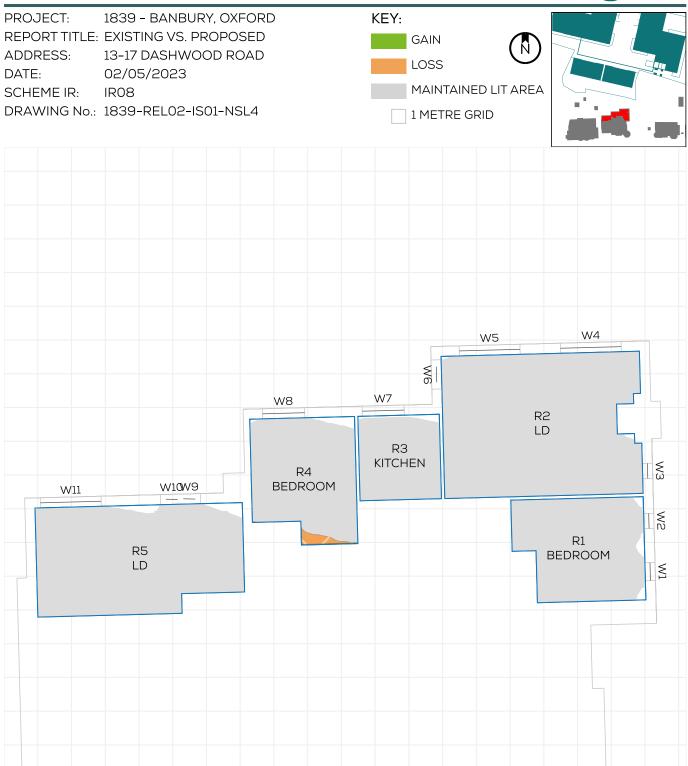
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19 DASI	HWOOD	ROAD						
F00	R1	RESIDENTIAL	LIVING ROOM	22.3	99.6	99.6	0.0	1
F00	R3	RESIDENTIAL	KITCHEN	13.2	97.1	97.1	0.0	1
F01	R1	RESIDENTIAL	BEDROOM	23.8	98.4	98.4	0.0	1
F01	R2	RESIDENTIAL	BEDROOM	15.4	95.8	95.8	0.0	1
F02	R1	RESIDENTIAL	BEDROOM	19.2	96.5	96.5	0.0	1

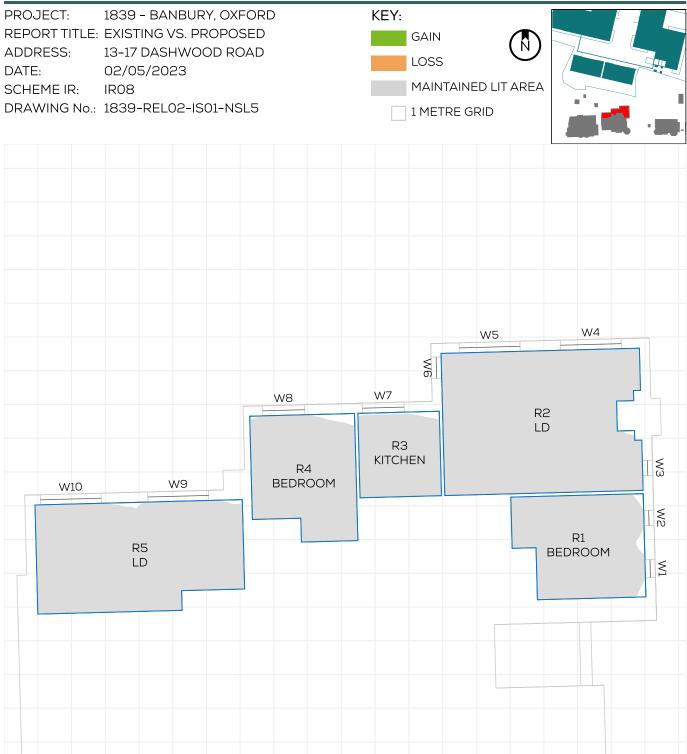
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#### F00

FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM AREA-sqm		PROPOSED %		LOSS %
13-17 D/	ASHWO	OD ROAD						
F00	R1	RESIDENTIAL	BEDROOM	10.9	97.6	97.5	0.0	0
F00	R2	RESIDENTIAL	LD	24.0	99.7	99.7	0.0	0
F00	R3	RESIDENTIAL	KITCHEN	6.0	96.5	96.5	0.0	0
F00	R4	RESIDENTIAL	BEDROOM	10.7	97.5	94.2	0.4	3.4
F00	R5	RESIDENTIAL	LD	18.8	97.4	97.4	0.0	0

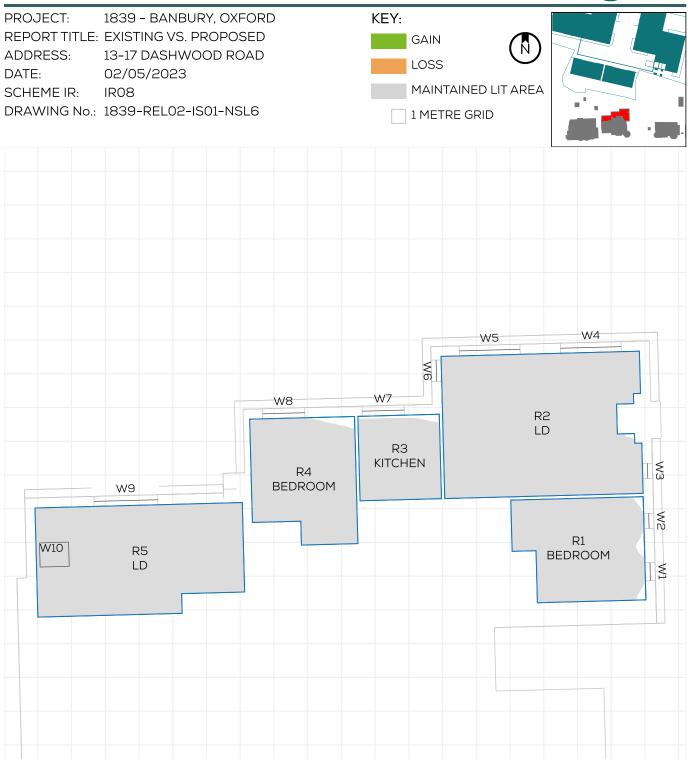
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#### F01

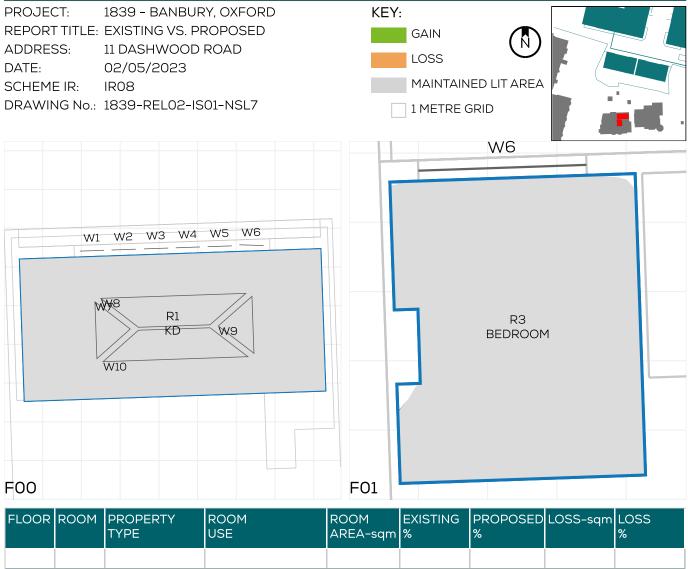
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM AREA-sqm		PROPOSED %		LOSS %
13-17 D/	ASHWO	OD ROAD						
F01	R1	RESIDENTIAL	BEDROOM	10.9	97.5	97.5	0.0	0
F01	R2	RESIDENTIAL	LD	24.0	99.8	99.8	0.0	0
F01	R3	RESIDENTIAL	KITCHEN	6.0	96.5	96.5	0.0	0
F01	R4	RESIDENTIAL	BEDROOM	10.7	97.6	97.6	0.0	0
F01	R5	RESIDENTIAL	LD	18.8	99.2	99.2	0.0	0

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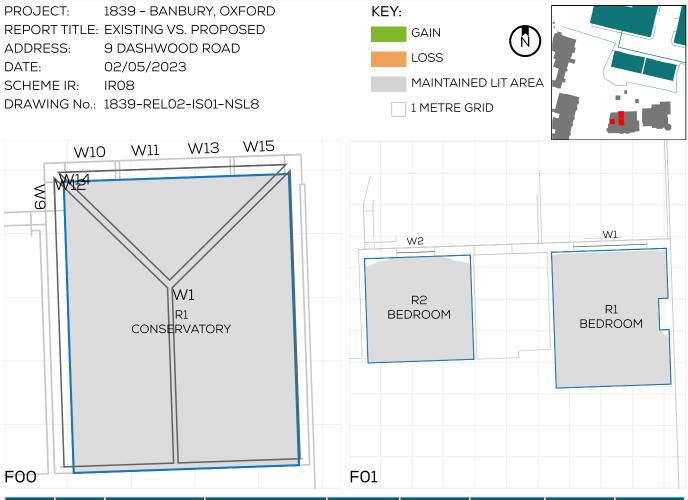


#### F02

FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM AREA-sqm		PROPOSED %		LOSS %
13-17 D/	ASHWO	OD ROAD						
F02	R1	RESIDENTIAL	BEDROOM	10.9	97.4	97.4	0.0	0
F02	R2	RESIDENTIAL	LD	24.0	99.8	99.8	0.0	0
F02	R3	RESIDENTIAL	KITCHEN	6.0	95.8	95.8	0.0	0
F02	R4	RESIDENTIAL	BEDROOM	10.7	97.5	97.5	0.0	0
F02	R5	RESIDENTIAL	LD	18.8	100	100	0.0	0



11 C	11 DASHWOOD ROAD									
F00	) F	71	RESIDENTIAL	KD	28.7	100	100	0.0	0	
F01	F	23	RESIDENTIAL	BEDROOM	15.1	99.3	99.3	0.0	0	



FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM AREA-sqm		PROPOSED %		LOSS %	
9 DASH	9 DASHWOOD ROAD								
F00	R1	RESIDENTIAL	CONSERVATORY	16.2	100	100	0.0	0	
F01	R1	RESIDENTIAL	BEDROOM	15.4	98.4	98.4	0.0	0	
F01	R2	RESIDENTIAL	BEDROOM	11.1	97.7	97.7	0.0	0	

F01

R4

RESIDENTIAL

LD

## gia



39.5

99.5

98.7

0.3

0.9



CALTHORPE MANOR									
F02	R1	RESIDENTIAL	BEDROOM	25.8	97.5	97.4	0.0	0	
F02	R2	RESIDENTIAL	BEDROOM	10.9	91.7	90.1	0.2	1.7	
F02	R3	RESIDENTIAL	BEDROOM	18.5	99.5	99.5	0.0	0	
F02	R4	RESIDENTIAL	LD	42.0	98.4	98.4	0.0	0	

#### zia **NSL CONTOURS** 1839 - BANBURY, OXFORD KEY: REPORT TITLE: EXISTING VS. PROPOSED GAIN $\overline{\mathbb{N}}$ CALTHORPE HOUSE LOSS 02/05/2023 MAINTAINED LIT AREA IR08 DRAWING No.: 1839-REL02-IS01-NSL11 1 METRE GRID

PROJECT:

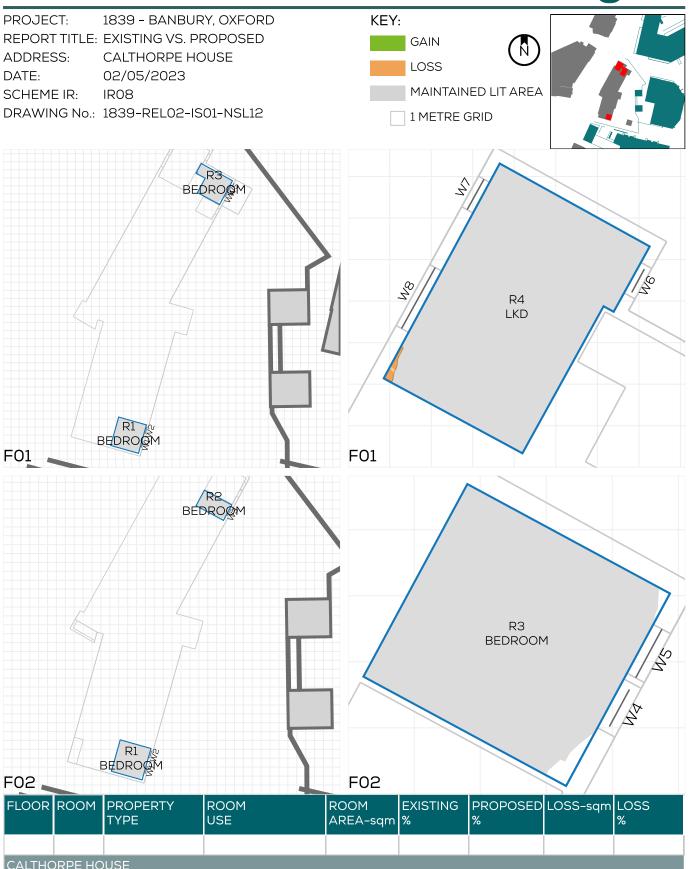
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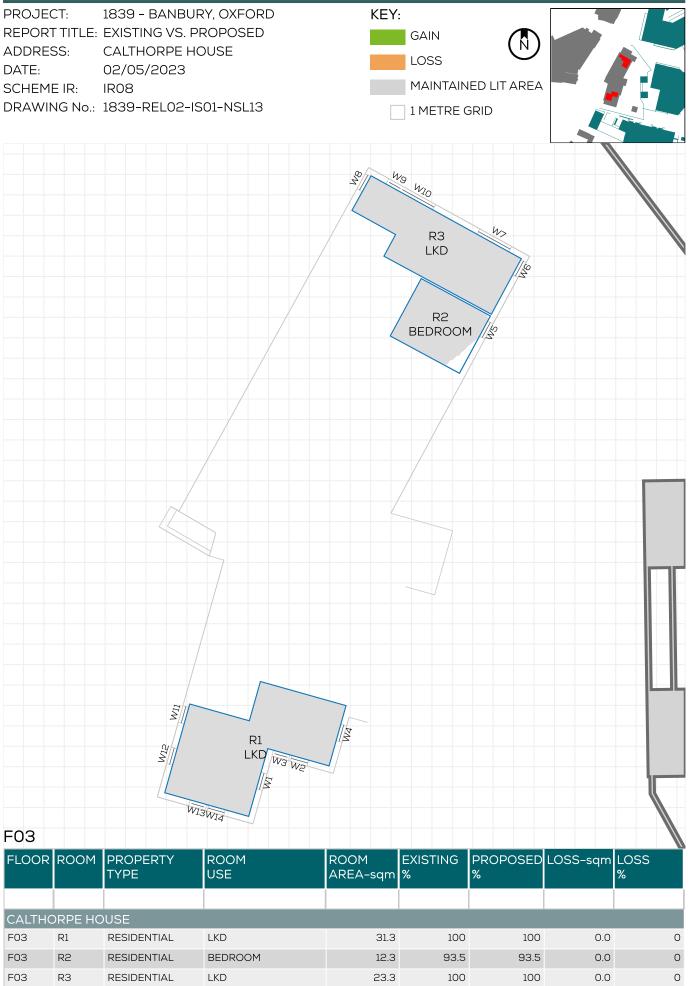
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FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM AREA-sqm		PROPOSED %		LOSS %		
CALTHO	CALTHORPE HOUSE									
F00	R1	RESIDENTIAL	BEDROOM	13.4	77.4	58.8	2.5	24		
F00	R3	RESIDENTIAL	BEDROOM	13.3	95.4	70.5	3.3	26.1		
F00	R4	RESIDENTIAL	BEDROOM	11.8	97	69.7	3.2	28.2		
F00	R6	RESIDENTIAL	BEDROOM	10.3	97.1	66.5	3.1	31.5		
F00	R7	RESIDENTIAL	LKD	19.9	100	99.8	0.0	0.2		



CALIN		,03L						
F01	R1	RESIDENTIAL	BEDROOM	13.1	98.8	98.8	0.0	0
F01	R3	RESIDENTIAL	BEDROOM	12.3	98.1	97.5	0.1	0.7
F01	R4	RESIDENTIAL	LKD	22.9	100	99.5	0.1	0.5
F02	R1	RESIDENTIAL	BEDROOM	13.1	98.8	98.8	0.0	0
F02	R2	RESIDENTIAL	BEDROOM	6.9	98.5	98.5	0.0	0
F02	R3	RESIDENTIAL	BEDROOM	11.5	98.1	98.1	0.0	0





FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM AREA-sqm		PROPOSED %		LOSS %		
THE CO	THE COUNTING HOUSE									
F01	R1	RESIDENTIAL	LKD	21.3	97	97	0.0	0		
F01	R2	RESIDENTIAL	BEDROOM	11.6	66.6	65.5	0.1	1.7		
F01	R3	RESIDENTIAL	BEDROOM	7.2	97.5	97.5	0.0	0		
F01	R4	RESIDENTIAL	LKD	17.3	99.1	88	1.9	11.1		



THE COUNTING HOUSE									
F01	R5	RESIDENTIAL	BEDROOM	11.7	96.9	96	0.1	0.9	
F01	R6	RESIDENTIAL	LKD	23.2	94.7	74.6	4.7	21.2	
F01	R7	RESIDENTIAL	BEDROOM	15.6	96.5	95.2	0.2	1.3	



FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM AREA-sqm		PROPOSED %	LOSS-sqm	LOSS %	
THE CO	THE COUNTING HOUSE								
F02	R1	RESIDENTIAL	LKD	21.3	97	97	0.0	0	
F02	R2	RESIDENTIAL	BEDROOM	11.6	66.6	66.5	0.0	0.1	
F02	R3	RESIDENTIAL	BEDROOM	7.2	97.5	97.5	0.0	0	
F02	R4	RESIDENTIAL	LKD	17.3	99	97.4	0.3	1.7	



THE COUNTING HOUSE								
F02	R5	RESIDENTIAL	BEDROOM	11.7	96.9	96.9	0.0	0
F02	R6	RESIDENTIAL	LKD	23.2	94.8	94.8	0.0	0
F02	R7	RESIDENTIAL	BEDROOM	15.6	96.5	96.5	0.0	0