



Daylight and Sunlight Assessment

Valor Park,
Tottenham

May 2024

Daylight and Sunlight amenity report for the
proposed development at

Valor Park, Tottenham N17 0RE



Prepared for: VIQR Tottenham 1 Limited

Prepared by: Barney Soanes-Cundle BA (Hons)

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Hollis, 120 Aldersgate Street, London, EC1A 4JQ
T +44 20 7622 9555 hollisglobal.com

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Registered office: Battersea Studios, 80-82 Silverthorne Road, London SW8 3HE.
VAT number 863 8914 80. Regulated by RICS.

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1. Executive summary

1.1. Scope

- 1.1.1. A detailed technical assessment has been undertaken to determine the effect, if any, on the light amenity of the existing, surrounding properties resulting from the proposed development at Valor Park, Tottenham, London, N17 0RE.
- 1.1.2. The technical assessment has been conducted in accordance with the recommendations of BRE report entitled: 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' 3rd Edition, 2022 (the "BRE guide").

1.2. Daylight Impact Assessment

- 1.2.1. Values for the Vertical Sky Component (VSC) metric and Daylight Distribution (DD) metric have been calculated for windows and rooms respectively.
- 1.2.2. The results indicate that the proposed development will meet the BRE guidance in respect of daylight amenity to the majority of surrounding buildings, with 100% of windows assessed meeting the VSC target.
- 1.2.3. In terms of DD, one room on the ground floor of 151 Willoughby Lane falls marginally short of the numerical target, retaining 0.75 of its current value which is marginally below the 0.8 target value recommended in the BRE guidelines.
- 1.2.4. The BRE guide acknowledges and accepts that some reductions in light will occur when development takes place, and the assessments allow for a reduction of up to 20% of the existing light levels (or 0.8 times their former value) before any effect is considered an impact. The guide also notes at paragraph 2.2.12 that the numerical guidelines need to be... *"applied sensibly and flexibly. There is little point in designing tiny gaps in the rooflines of new development in order to safeguard no sky lines in existing buildings. If an existing building contains rooms lit from one side only and greater than 5m deep, then a greater movement of the no sky line may be unavoidable."*
- 1.2.5. Considering the result to the single room at 151 Willoughby Lane is the only room that falls short of the targets (and marginally so), the overall the effect of the proposed development is not considered to be material.

1.3. Sunlight Impact Assessment

- 1.3.1. Values for the Probable Sunlight Hours (PSH) metric have been calculated for the 43 rooms which contain their main window within 90 degrees of due south.
- 1.3.2. The results indicate that 42 rooms will meet the BRE's numerical targets for sunlight.
- 1.3.3. One room on the ground floor of 153 Willoughby Lane retains 0.79 times its existing value, against the BRE's guideline target of 0.8 times. The room will retain 22% APSH against a target of 25%, which is marginally below the BRE's numerical target. It is also noted that the adjacent building at 151 Willoughby Lane has a rear projection at ground floor which limits the availability of direct sunlight to the window at 153 WL.

- 1.3.4. Overall, the effect is not considered to be material and the room will retain the majority of the current levels of sunlight.

1.4. **Overshadowing**

- 1.4.1. Values for Permanent Overshadowing (PO) metric have been calculated for the 16 gardens and amenity spaces surrounding the site.
- 1.4.2. The results indicate that all garden areas assessed (100%) will significantly exceed the BRE target criteria for sunlight, because at least 50% of its area receives at least two hours of direct sunlight on 21 March. In this case, the ground area of the garden reached by direct sunlight is virtually unchanged.

1.5. **Updated analysis of the new scheme**

- 1.5.1. We have carried out a re-run of the analysis for the latest drawings that entail small design changes to Unit 1.
- 1.5.2. In terms of VSC and DD, the results showed no difference in the assessment of the surrounding neighbouring properties.
- 1.5.3. Similarly, when assessed for APSH, results again showed no difference in the assessment of the surrounding neighbouring properties sunlight levels.
- 1.5.4. Technical results for the updated analysis are located in Appendix G.

1.6. **Conclusion**

- 1.6.1. The results indicate that the proposed development will have negligible effects on the neighbouring properties in terms of daylight and sunlight amenity. While there are two rooms that fall short, the effects are minimal and do not constitute material changes to the existing levels currently enjoyed by the surrounding properties.
- 1.6.2. It may be concluded that:
- 1) the proposals have been carefully designed to satisfy, among other policy requirements, the need to respect the daylight and sunlight of the existing properties neighbouring the application site, and
 - 2) in response to Haringey Council's policy requirements, the design and layout of the proposed scheme will, on completion, provide appropriate daylight and sunlight to adjacent residential properties and so will assist in demonstrating compliance with the Council's Development Management and Tottenham Area Action Plans.

2. Introduction

2.1. Scope

2.1.1. Hollis have been instructed to determine, by objective technical means, the effects, if any, arising from the proposed development on the daylight and sunlight amenity of buildings, in residential use, currently neighbouring the application site.

2.1.2. The purpose of this report is to:

- 1) provide the applicant, planning authority officers, members of the planning committee, interested groups, other authorities and interested neighbours with technical guidance on the anticipated impact, if any, of the proposed development on the daylight and sunlight amenity of those neighbouring buildings in residential use and,
- 2) enable the local planning authority officers to evaluate the proposed development against the planning authority's relevant planning policy/policies pertaining to daylight and sunlight amenity and so assist the officers in formulating their advice and recommendations to members of the planning committee.

2.2. Local planning policy

2.2.1. We are aware of the emerging New Local Plan currently being developed by Haringey Council. However, as it is yet to be adopted, we refer to Haringey's Local Plan which is currently made up of the Strategic Policies, Development Management Policies, Site Allocations and Tottenham Area Action Plan, alongside the London Plan and the North London Waste Plan.

2.2.2. Development Management DPD – Policy DM1: Delivering High Quality Design which states the following under Design Standards, subheading 'Privacy and Amenity':

"Development proposals must ensure a high standard of privacy and amenity for the development's users and neighbours. The Council will support proposals that:

- a) *Provide appropriate sunlight, daylight and open aspects (including private amenity space where required) to all parts of the development and adjacent buildings and land..."*

2.2.3. Tottenham Area Action Plan adopted in July 2017 states the following under 'Development Guidelines':

"Any development should demonstrate how it has an acceptable relationship with neighbouring land uses by virtue of microclimate and daylight/sunlight."

2.2.4. The London Plan 2021 states the following under Policy D6 – Housing Quality and Standards:

"...The design of development should provide sufficient daylight and sunlight to new and surrounding housing that is appropriate for its context, whilst avoiding overheating, minimising overshadowing and maximising the usability of outside amenity space..."

2.3. Assessment criteria

- 2.3.1. To ensure that this assessment can be appropriately evaluated against Haringey Council's planning policy, daylight and sunlight calculations have been undertaken in accordance with the 'BRE guide'. 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
135 Willoughby Lane	Residential	East
137 Willoughby Lane	Residential	East
139 Willoughby Lane	Residential	East
141 Willoughby Lane	Residential	East
143 Willoughby Lane	Residential	East
145 Willoughby Lane	Residential	East
147 Willoughby Lane	Residential	East
149 Willoughby Lane	Residential	East
151 Willoughby Lane	Residential	East
153 Willoughby Lane	Residential	East
155 Willoughby Lane	Residential	East
157 Willoughby Lane	Residential	East
159 Willoughby Lane	Residential	East
161 Willoughby Lane	Residential	East
163 Willoughby Lane	Residential	East
165 Willoughby Lane	Residential	East



- Proposed Development
- Surrounding Buildings (Analysed)
- Surrounding Buildings (Context)

Shadows in this drawing are for illustrative purposes only and do not represent a set time or date.

2.4. Limitations

- 2.4.1. Our assessment is based on the scheme drawings provided by Chetwoods as listed below. Other third-party information utilised in producing our analysis model, such as 3D mapping and/or topographical survey data is also listed below:

Title	Date Received
<u>Chetwoods</u>	
<i>Unit 1 5554-CA-01-00-DR-A-02100-PROPOSED ELEVATIONS-P2.dwg</i>	10 January 2024
<i>Unit 2 5554-CA-02-00-DR-A-02100-PROPOSED ELEVATIONS-P1.dwg</i>	10 January 2024
<u>Valor Real Estate</u>	
<i>49385_T_E_REV0.dwg</i>	21 December 2023
<i>49385_T_REV0_3D.dwg</i>	21 December 2023
<u>Accucities</u>	
<i>003755_West Rd,Tottenham Hollis_HD_MASTER (1).dwg</i>	29 November 2023

- 2.4.2. A topographical survey has not been undertaken and all levels and elevation details are approximate, having been obtained from the OS data and elevation drawings.

- 2.4.3. The updated drawings are below:

Title	Date received
<u>Chetwoods</u>	
<i>5554-CA-01-00-DR-A-03105-PROPOSED SITE LOCATION-PL3</i>	26 April 2024
<i>5554-CA-01-00-DR-A-03101-PROPOSED OFFICE SECTIONS-PL2</i>	26 April 2024
<i>5554-CA-01-00-DR-A-03100-PROPOSED WAREHOUSE SECTIONS-PL3</i>	26 April 2024
<i>5554-CA-01-00-DR-A-02100-PROPOSED ELEVATIONS-PL3</i>	26 April 2024
<i>5554-CA-01-00-DR-A-01115-PROPOSED ROOF PLAN-PL3</i>	26 April 2024
<i>5554-CA-01-00-DR-A-01110-PEOPOSED GF + FF GA PLANS-PL3</i>	26 April 2024
<i>5554-CA-01-00-DR-A-01100-PROPOSED WAREHOUSE PLAN-PL2</i>	26 April 2024
<i>5554-CA-01-00-DR-A-01002-EXISTING ELEVATIONS-PL1</i>	26 April 2024
<i>5554-CA-01-00-DR-A-01001-EXISTING PLAN-PL3</i>	26 April 2024
<i>5554-CA-01-00-DR-A-00100-PROPOSED SITE PLAN-UNIT 1-PL4</i>	26 April 2024

3. Assessment and results – surrounding properties

3.1. Daylight

3.1.1. In accordance with the BRE guide (see also Appendix A), the following buildings required detailed assessment:

- 135 Willoughby Lane
- 137 Willoughby Lane
- 139 Willoughby Lane
- 141 Willoughby Lane
- 143 Willoughby Lane
- 145 Willoughby Lane
- 147 Willoughby Lane
- 149 Willoughby Lane
- 151 Willoughby Lane
- 153 Willoughby Lane
- 155 Willoughby Lane
- 157 Willoughby Lane
- 159 Willoughby Lane
- 161 Willoughby Lane
- 163 Willoughby Lane
- 165 Willoughby Lane

3.1.2. Windows to other adjacent buildings, such as those to 167–171 Willoughby Lane, Units 2–10 Hotspur Industrial Estate, 5 West Mews, 37–39 West Road, and Units 1–5 Compass West Estate have been excluded from our assessments they are non-residential and therefore, pursuant to the BRE guide, do not require detailed 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	Meet BRE		Total percentage
		Yes	No	
135 Willoughby Lane	5	5	0	100
137 Willoughby Lane	5	5	0	100
139 Willoughby Lane	5	5	0	100
141 Willoughby Lane	5	5	0	100
143 Willoughby Lane	5	5	0	100
145 Willoughby Lane	3	3	0	100
147 Willoughby Lane	4	4	0	100
149 Willoughby Lane	7	7	0	100
151 Willoughby Lane	5	5	0	100
153 Willoughby Lane	5	5	0	100
155 Willoughby Lane	5	5	0	100
157 Willoughby Lane	5	5	0	100
159 Willoughby Lane	5	5	0	100
161 Willoughby Lane	6	6	0	100
163 Willoughby Lane	5	5	0	100
165 Willoughby Lane	10	10	0	100
Totals	85	85	0	100

3.1.4. All 85 windows assessed (100%) will meet and exceed the target values as set out in the BRE guidelines.

3.1.5. The Daylight Distribution (DD) results are shown in full in Appendix D. Below is a summary of our findings:

Building address	No. of rooms analysed	Meet BRE		Total percentage
		Yes	No	
135 Willoughby Lane	2	2	0	100
137 Willoughby Lane	2	2	0	100
139 Willoughby Lane	2	2	0	100
141 Willoughby Lane	3	3	0	100
143 Willoughby Lane	3	3	0	100
145 Willoughby Lane	3	3	0	100
147 Willoughby Lane	3	3	0	100
149 Willoughby Lane	2	2	0	100
151 Willoughby Lane	3	2	1	67
153 Willoughby Lane	3	3	0	100
155 Willoughby Lane	3	3	0	100
157 Willoughby Lane	3	3	0	100
159 Willoughby Lane	3	3	0	100
161 Willoughby Lane	2	2	0	100
163 Willoughby Lane	3	3	0	100
165 Willoughby Lane	3	3	0	100
Totals	43	42	1	98

3.1.6. Of the 43 rooms assessed, all but one (98%) will meet and exceed the target values as set out in the BRE guidelines.

3.1.7. The room in question is located within 151 Willoughby Lane and retains a target value of 0.75 which is marginally below the 0.8 target value recommended in the BRE guidelines. As such, the effect is not considered to be material.

3.2. Sunlight

3.2.1. In accordance with the BRE Guide, the following buildings required Annual Probable Sunlight Hours (APSH) analysis – (see Appendix A):

- 135 Willoughby Lane
- 137 Willoughby Lane
- 139 Willoughby Lane
- 141 Willoughby Lane
- 143 Willoughby Lane
- 145 Willoughby Lane
- 147 Willoughby Lane
- 149 Willoughby Lane
- 151 Willoughby Lane
- 153 Willoughby Lane
- 155 Willoughby Lane
- 157 Willoughby Lane
- 159 Willoughby Lane
- 161 Willoughby Lane
- 163 Willoughby Lane
- 165 Willoughby Lane

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

Building address	No. of rooms analysed	Meet BRE		Total percentage
		Yes	No	
135 Willoughby Lane	2	2	0	100
137 Willoughby Lane	2	2	0	100
139 Willoughby Lane	2	2	0	100
141 Willoughby Lane	3	3	0	100
143 Willoughby Lane	3	3	0	100
145 Willoughby Lane	3	3	0	100
147 Willoughby Lane	3	3	0	100
149 Willoughby Lane	2	2	0	100
151 Willoughby Lane	3	3	0	100
153 Willoughby Lane	3	2	1	67
155 Willoughby Lane	3	3	0	100
157 Willoughby Lane	3	3	0	100
159 Willoughby Lane	3	3	0	100
161 Willoughby Lane	2	2	0	100
163 Willoughby Lane	3	3	0	100
165 Willoughby Lane	3	3	0	100
Totals	43	42	1	98

3.2.3. Of the 43 rooms assessed, all but one (98%) will meet and exceed the target values as set out in the BRE guidelines.

3.2.4. The room in question retains a target value of 0.79 against the BRE's guideline target of 0.8 times its former value. As such, the effect is not considered to be material.

3.3. Overshadowing

3.3.1. In accordance with the BRE guide we have undertaken overshadowing assessments to the following areas:

- 135 Willoughby Lane
- 137 Willoughby Lane
- 139 Willoughby Lane
- 141 Willoughby Lane
- 143 Willoughby Lane
- 145 Willoughby Lane
- 147 Willoughby Lane
- 149 Willoughby Lane
- 151 Willoughby Lane
- 153 Willoughby Lane
- 155 Willoughby Lane
- 157 Willoughby Lane
- 159 Willoughby Lane
- 161 Willoughby Lane
- 163 Willoughby Lane
- 165 Willoughby Lane

3.3.2. A reference plan and the results of the overshadowing analysis are shown in full in Appendix F. The table below summarises the results:

Building address	No. of amenity areas assessed	Meet BRE		Total percentage
		Yes	No	
135 Willoughby Lane	1	1	0	100
137 Willoughby Lane	1	1	0	100
139 Willoughby Lane	1	1	0	100
141 Willoughby Lane	1	1	0	100
143 Willoughby Lane	1	1	0	100
145 Willoughby Lane	1	1	0	100
147 Willoughby Lane	1	1	0	100
149 Willoughby Lane	1	1	0	100
151 Willoughby Lane	1	1	0	100
153 Willoughby Lane	1	1	0	100
155 Willoughby Lane	1	1	0	100
157 Willoughby Lane	1	1	0	100
159 Willoughby Lane	1	1	0	100
161 Willoughby Lane	1	1	0	100
163 Willoughby Lane	1	1	0	100
165 Willoughby Lane	1	1	0	100
Totals	16	16	0	100

3.3.3. Our results demonstrate that all 16 garden areas assessed meet the BRE target criteria for sunlight because at least 50% of their area receives at least two hours of direct sunlight on 21 March, or the reduction in area receiving sun on that date is less than 20%.

Appendix A

Assessments 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 2022, 3rd 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 25° 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 25° rule.

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

Daylight

The criteria for protecting daylight to existing buildings are contained in Section 2.2 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 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 25° test will need to be carried out.

25° 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 25° 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 25° 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 25° 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.

Daylight Factor (D) Test – The D 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 detailed and representative measure of the adequacy of light. The minimum D values recommended in BS EN 17037 are as follows:

Table C3 – Target daylight factors (D_T) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures

Location	D_T for 100 lx (Bedroom)	D_T for 150 lx (Living room)	D_T for 200 lx (Kitchen)
St Peter (Jersey)	0.6%	0.9%	1.2%
London (Gatwick Airport)	0.7%	1.1%	1.4%
Birmingham	0.6%	0.9%	1.2%
Hemsby (Norfolk)	0.6%	0.9%	1.3%
Finningley (Yorkshire)	0.7%	1.0%	1.3%
Aughton (Lancashire)	0.7%	1.1%	1.4%
Belfast	0.7%	1.0%	1.4%
Leuchars (Fife)	0.7%	1.1%	1.4%
Oban	0.8%	1.1%	1.5%
Aberdeen	0.7%	1.1%	1.4%

This is a test used in assessing adequacy of light in rooms within 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.

Illuminance (E_t) Test – The illuminance method uses site climate data to measure the illuminance from daylight at each point on an assessment grid in the room at hourly intervals over a typical year. The UK National Annex of BS EN 17037 provides illuminance recommendations for UK dwellings, as follows:

Bedroom	100 lux
Living rooms	150 lux
Kitchens	200 lux

These are median illuminances and should be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours.

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 meets 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 sunlight hours should be measured and it is recommended that the window should receive at least 1.5 hours of sunlight on 21 March. It should be noted that if a room has two windows or more on opposite/adjacent walls, the sunlight hours due to each can be added together provided that any overlap is excluded.

The availability of sunlight is also an important factor when looking at the impact of a proposed development on the existing surrounding buildings. Annual Probable Sunlight Hours (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.

Section 3.3 of the BRE guidelines describes a methodology for calculating sunlight availability for amenity spaces.

Appendix B

Context drawings





b

Qb m m - A u -

QA V A bV

b b A u -

QA V A bV

b b A u - 6

b b b V

b b V

A s - s s V - A b

b P

P A

P Q

V A x

t b b x t A b b O a x n y a v x 5 x x o n A 5 V x P a A 5 P a

A b b V y a 5 x 5 A a x y a a 5 b

x b a

a

P b a 5

x b

a P

b 5 a

V A 5 O P t a P @ v

O P

P A b a V A a A

A A

HOLLIS

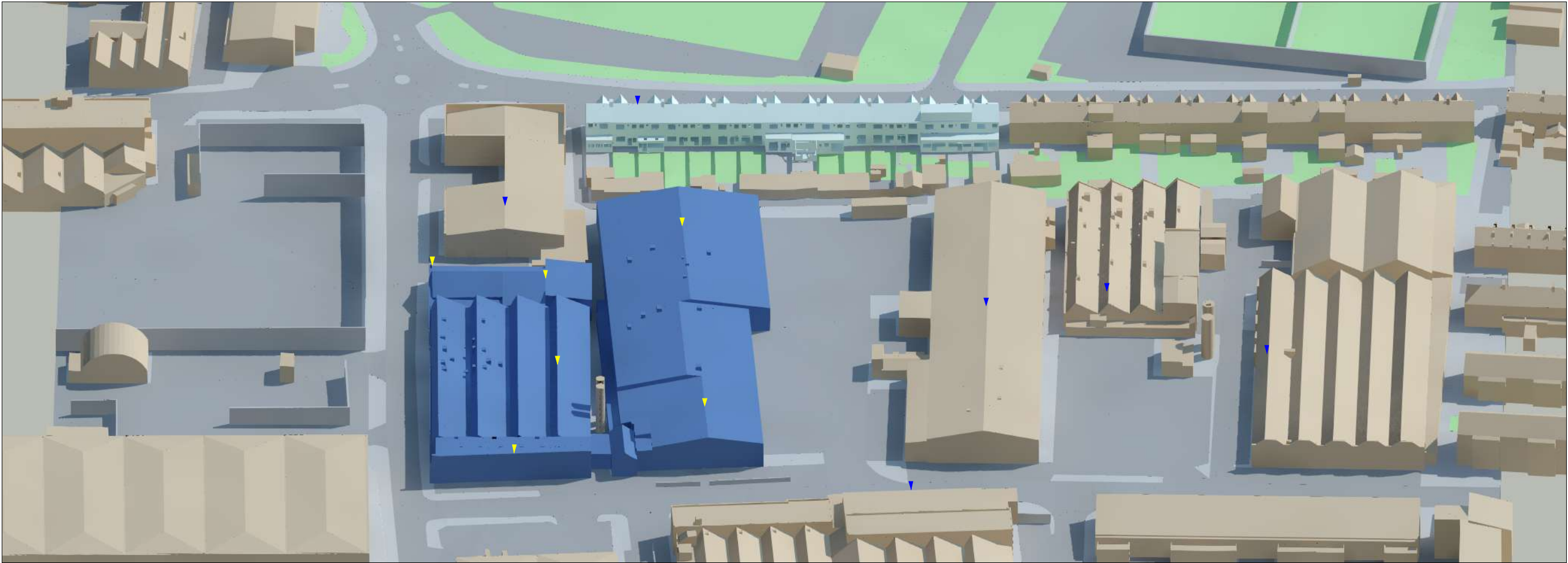
A

b Q A 6

n

V A x o 5 P

a b a A a 5



V Q

b

Qb m_u - A u _
Q
QA V A bV
b.b A u _
QA V A bV
b.b A u _
6
b
b b V
b V
A
s s sV - A b
_

Abbt ax t x5 y a a A V

b P
P A
P Q



V Q

b

V A x
t b b t Abb Oa x n y a V x x x o n A5 V x P a A5 P a
Abb V y a5 x 5 A a x y a 5 b

x ba
V
a

Pba5
x b

aP

b 5 a

V A 5 O Pt aP@bV
O P

PAba VA a
A A

HOLLIS

A
bQA 6

n
V A x o 5 P abaA a5



Qb m_m - A u _
Q
QA V A bV
b.b A u _
QA V A bV
b.b A u _ 6
b
b b V
b b V
A
s s sV - A b
-

V
P A
P Q

	V	A	x
--	---	---	---

t bbx t Abb Oa x6 n y aV x6 x x6o nA5 Vx P a A5Pao
AbbVy a5 x 5 A a x6 y a a 5b

x ba

Pba5
x b

oP

b 5 a

V A 5 O	Pt aP@bV O P
---------	-----------------

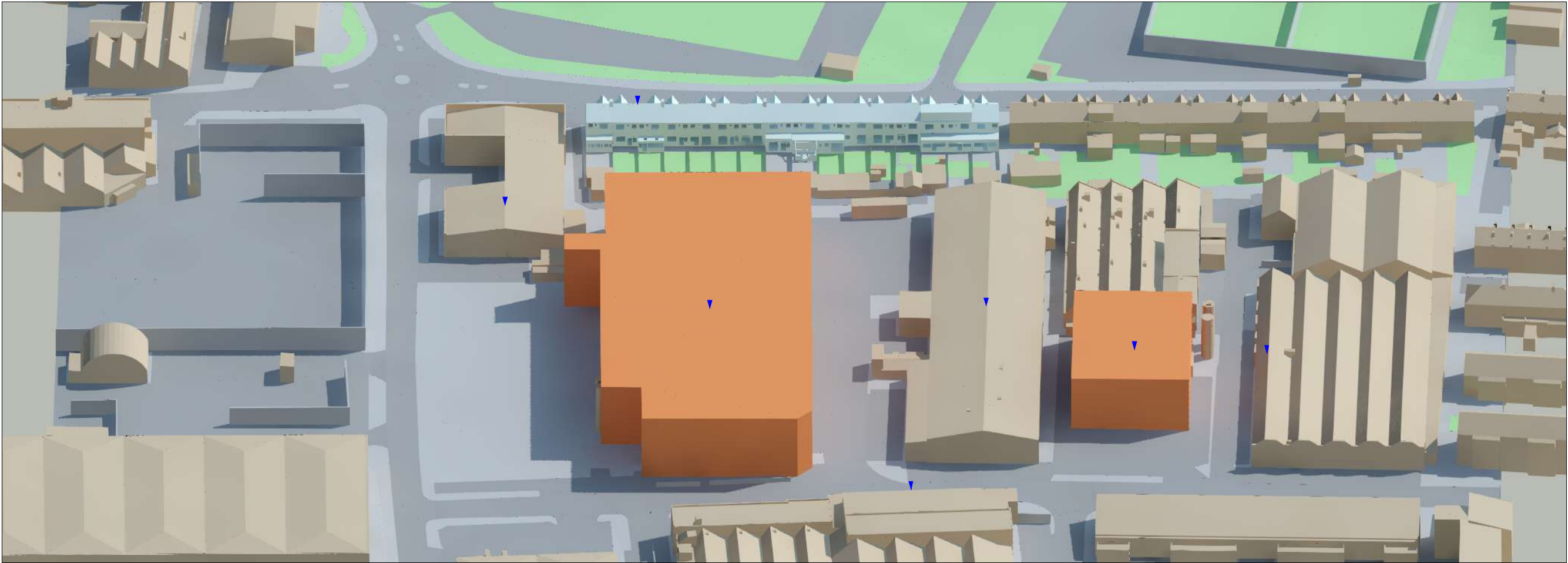
PAba A	VA a A
-----------	-----------

HOLLIS

A
bQA 6

n

V A x6o 5 P	abaA a5
----------------	---------



V Q

Qb m_m - A u _
Q
QA V A bV
b.b A u _
QA V A bV
b.b A u _ 6
b
b b V
b V
A
s s sV - A b
_

Abbt ax t x5 y a a A V

V
P A
P Q



V Q

	V	A	x
--	---	---	---

t btx t Abb Oa x n y a V x6 x x6o nA5 Vx P a A5 Pao
Abb V y a5 x 5 A a x y a 5b

x ba
V

Pba5
x b

oP
b 5 a

V A 5 O Pt aP@aV
O P

PAba VA a
A A

HOLLIS

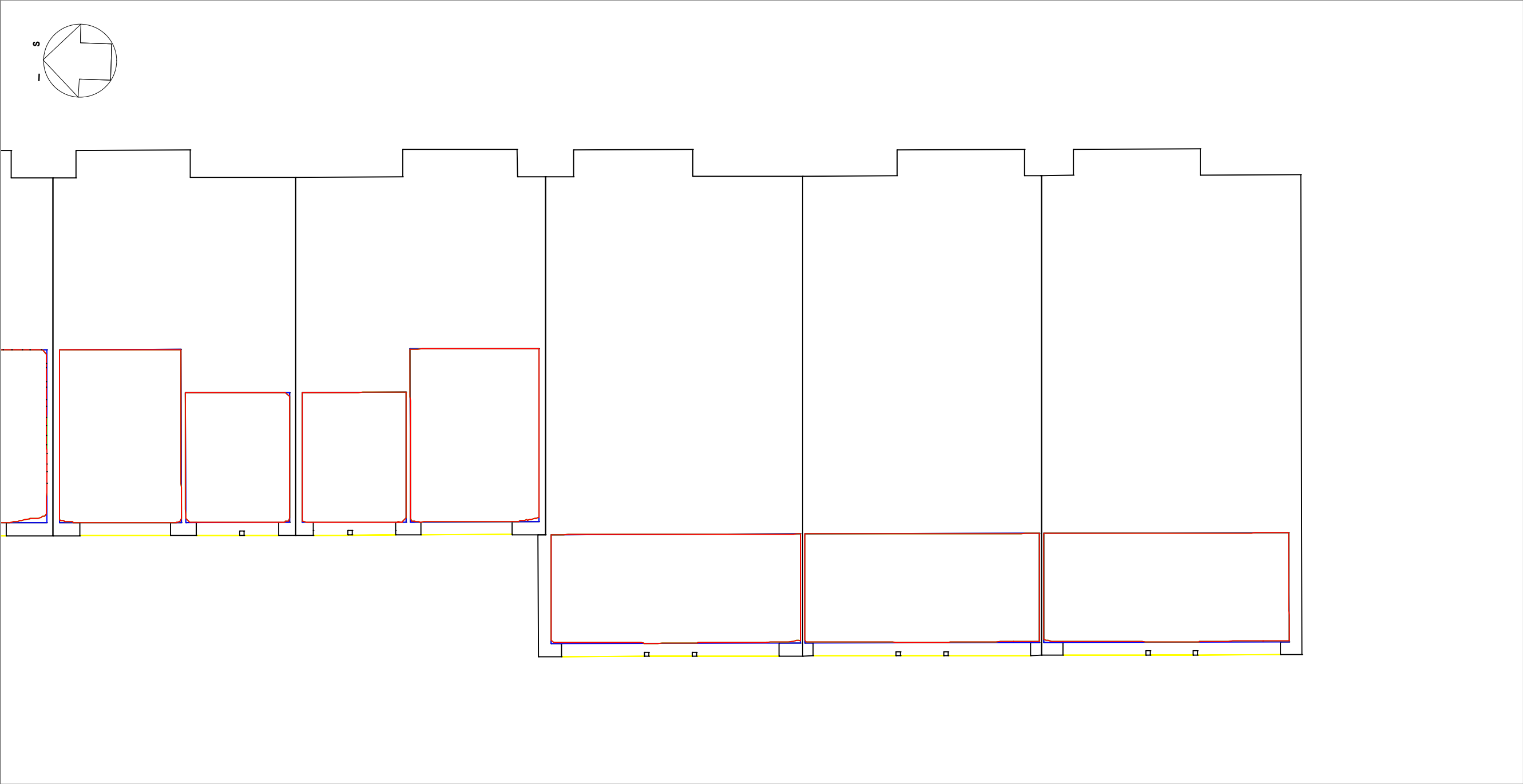
A
bQA 6

n

V A x6o 5 P	abaA a5
----------------	---------

Appendix C

Window/room reference drawings

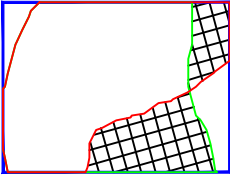


. n m

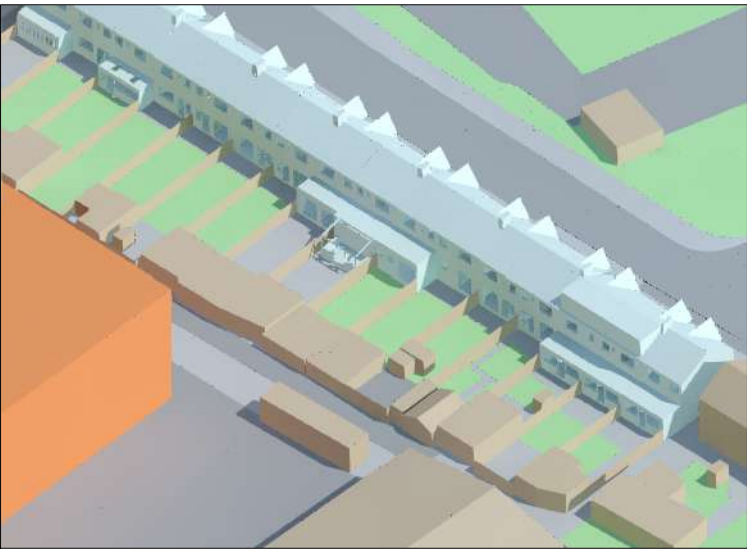


V Q -

@



-  a
-  A
- 



V Q

Qb m_u_m - A u _

Q

QA V A bV

b. b A u _

QA V A bV

b. b A u _ 6

b

b b V

b V

A

s

- s s V - A b

	V	A	x
t b b x t A b b O a x n y a V x 6 x x 6 o n A 5 V x P a A 5 P a a			
A b b V y a 5 x 5 A a x 6 y a a 5 b			

x b a

V	V
P	
	b

P b a 5

x	b
---	---

a P

b	5	a
---	---	---

V A 5 O	P t a P @ a V
	O P
P A b a	V A a
A	A

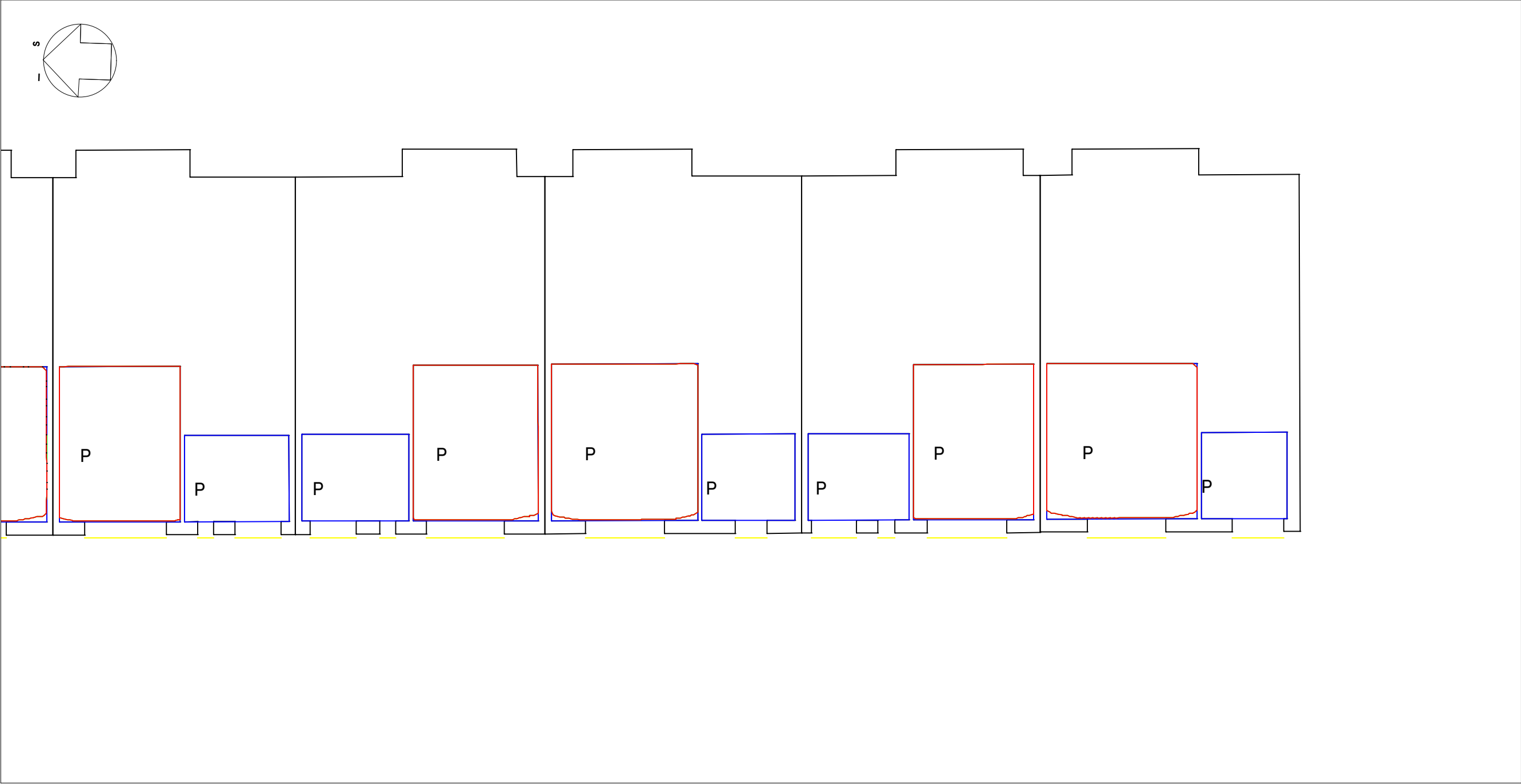
HOLLIS

A

b Q A 6

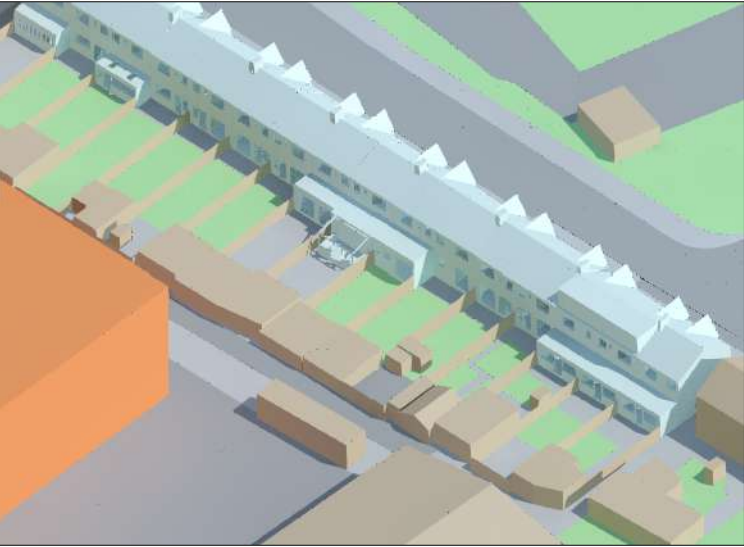
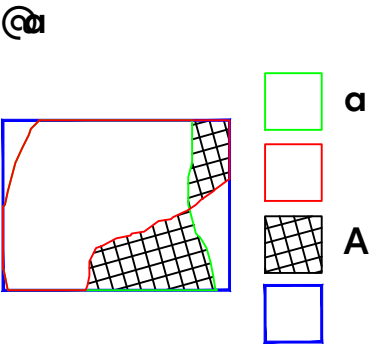
n

V A x 6 o 5	a b a A a 5
V V	



Qb m_m - A u _
Q
QA V A bV
b. b A u _
QA V A bV
b. b A u _ 6
b
b b V
b b V
A
s s V - A b
_

	V	A	x
t b b x t A b b O a x 6 n y a V x 6 x x 6 o n A 5 V x P a A 5 P a a			
A b b V y a 5 x 5 A a x 6 y a a 5 b			
x b a			
V		V	
P			b
P b a 5			
x		b	



©

b 5 a

V A 5 O Pt a P @ a V
O P

P A b a VA a A

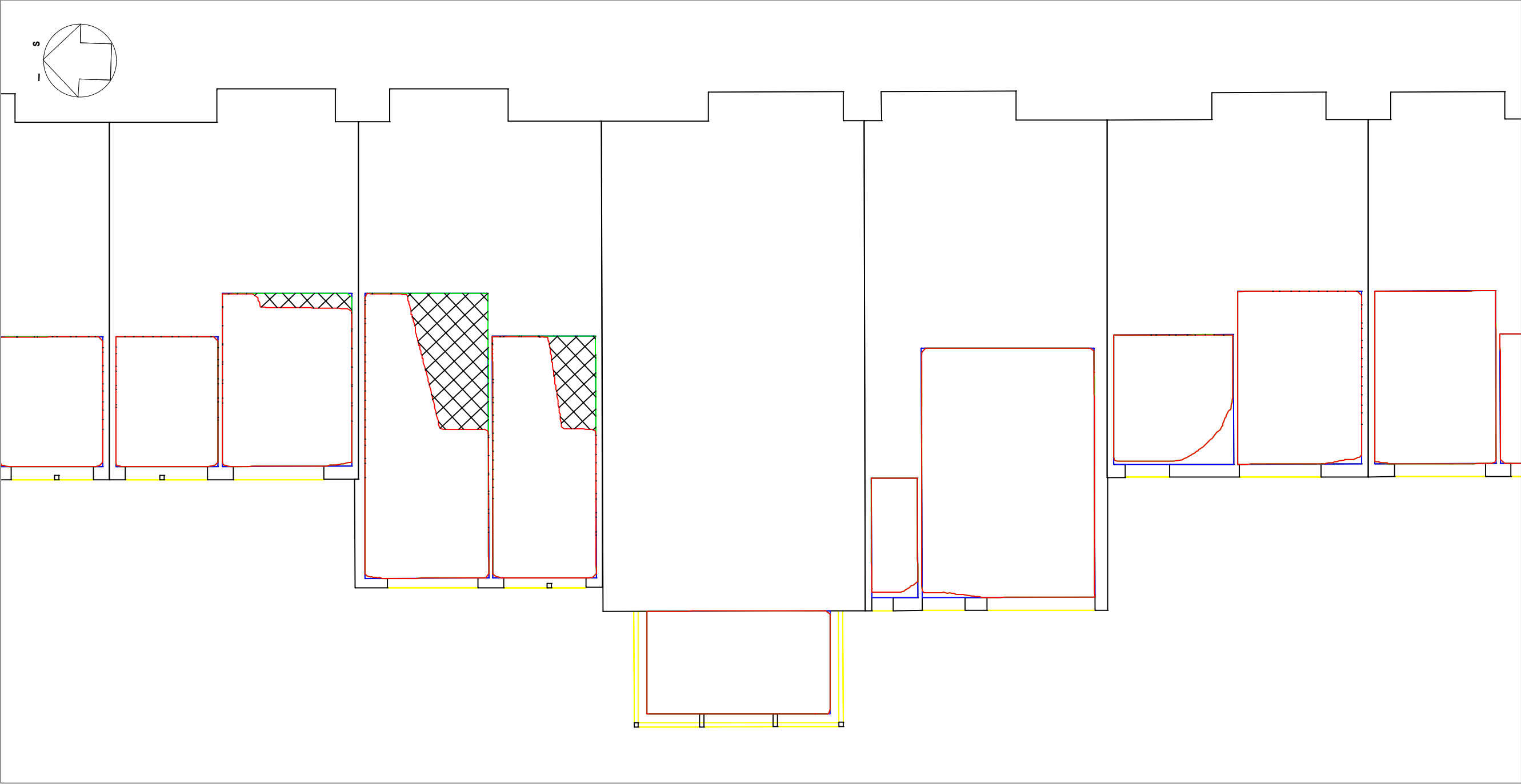
HOLLIS

A
b Q A 6

n

V A x 6 o 5 o b a A a 5

V V

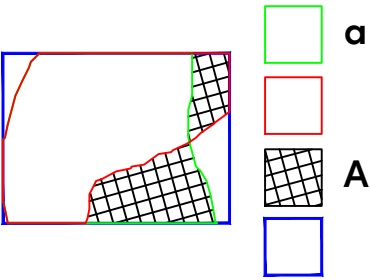


. n m



V Q -

@



V Q

Qb m_u_m - A u _

Q

QA V A bV

b.b A u _

QA V A bV

b.b A u _ 6

b

b b V

b b V

A

s

s s V - A b

	V	A	x
t b b x t A b b O a x n y a V x 6 x x 6 o n A 5 V x P a A 5 P a			
A b b V y a 5 x 5 A a x y a a 5 b			

x b a

V	V
P	
	b

P b a 5

x	b
---	---

a P

b	5	a
---	---	---

V A 5 O	P t a P @ a V
	O P
P A b a	V A a
A	A

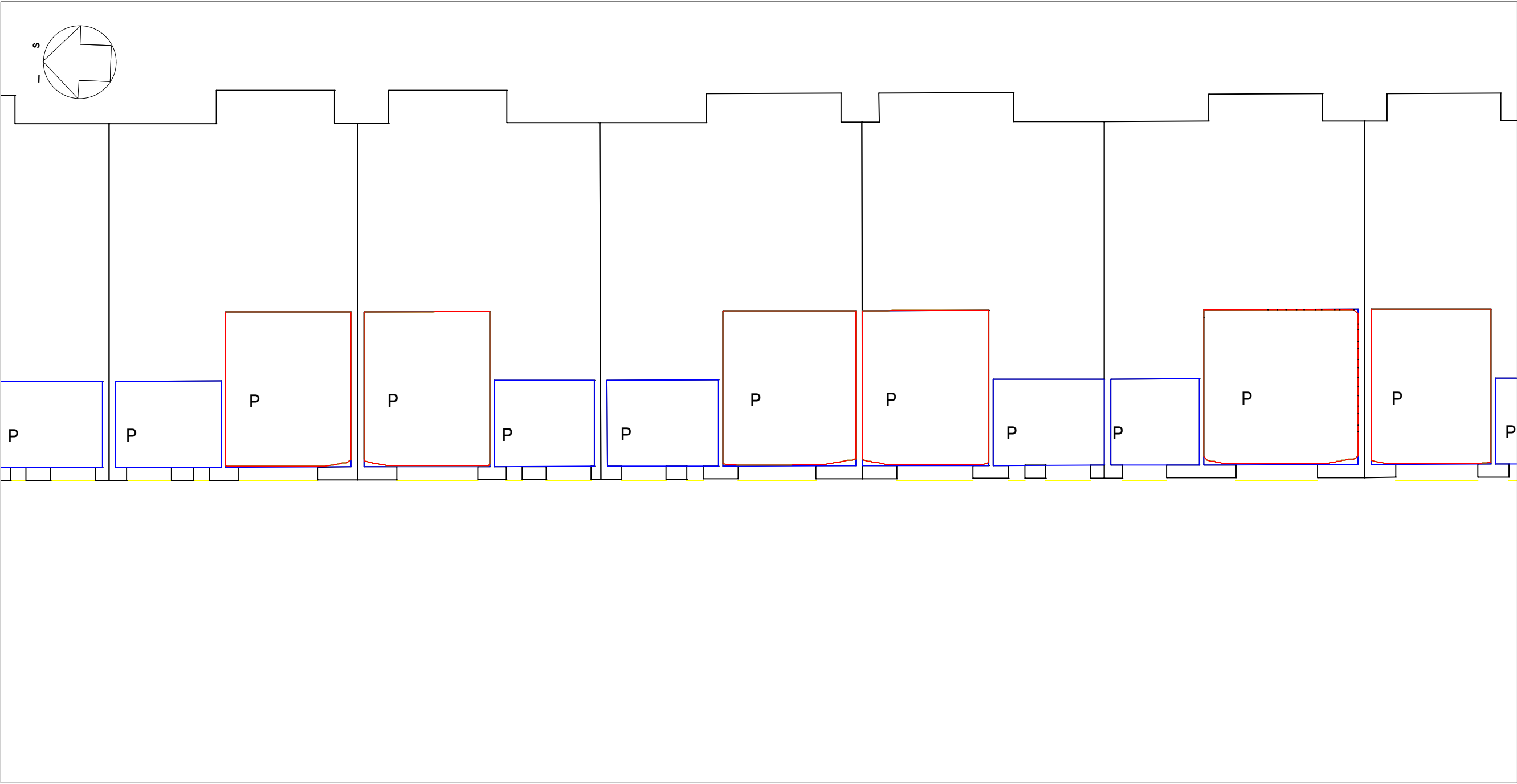
HOLLIS

A

b Q A 6

n

V A x o 5	a b a A a 5
V V	



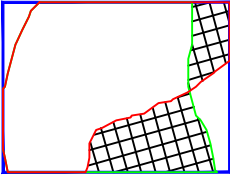
. m m



V Q

—

@



- a
- A
-



V Q

Qb m_m - A u _

QA V A bV

b.b A u _

QA V A bV

b.b A u _ 6

b b b V

A

s s s V - A b

	V	A	x
t b b x t A b b O a x n y a V x 6 x x 6 o n A 5 V x P a A 5 P a	A b b V y a 5 x 5 A a x y a a 5 b		

x b a

V P

V

b

P b a 5

x b

o a P

b 5 a

V A 5 O

Pt a P @ a V

O P

P A b a

A V A a A

HOLLIS

A

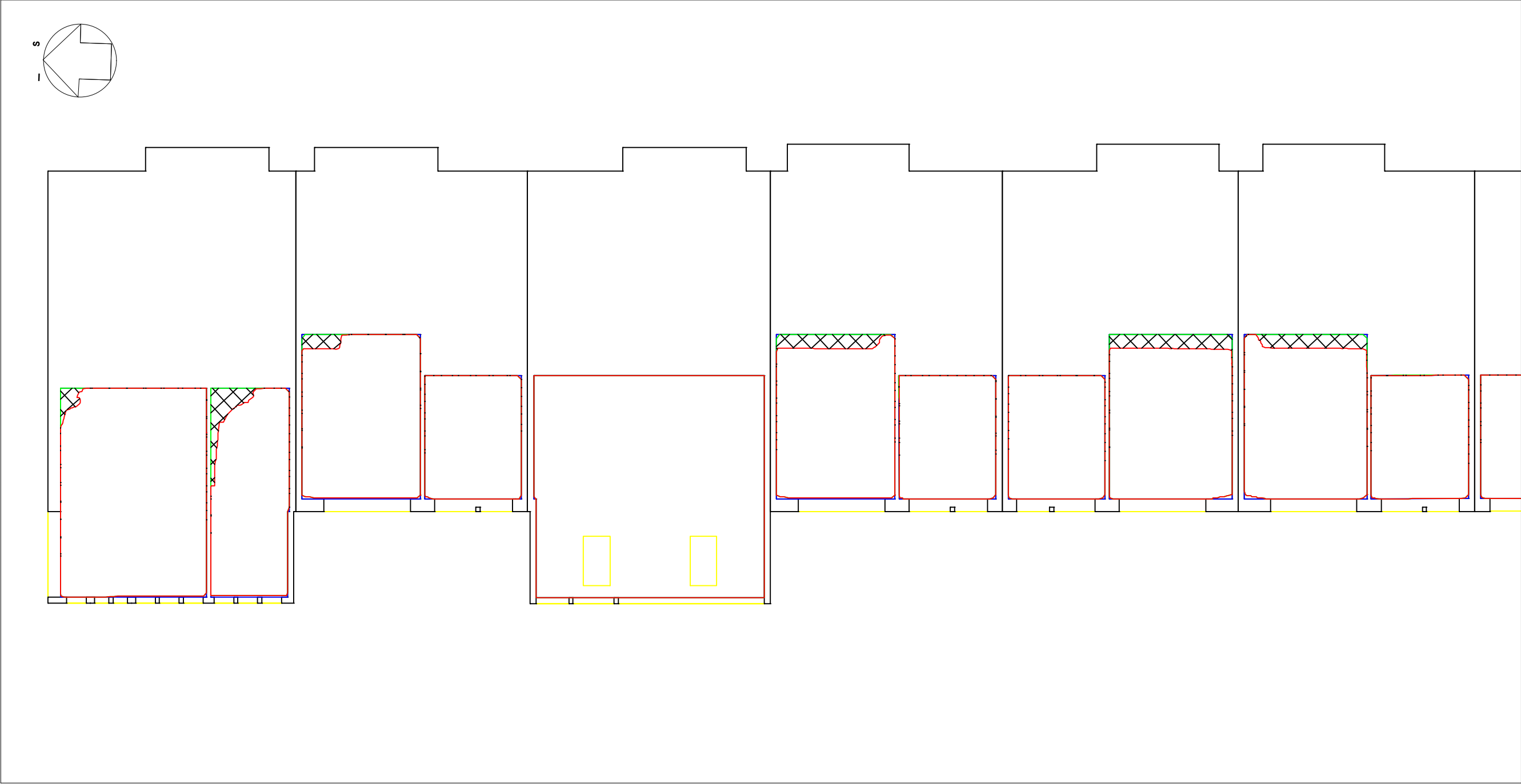
b Q A 6

n

V A x o 5

V V

a b a A a 5

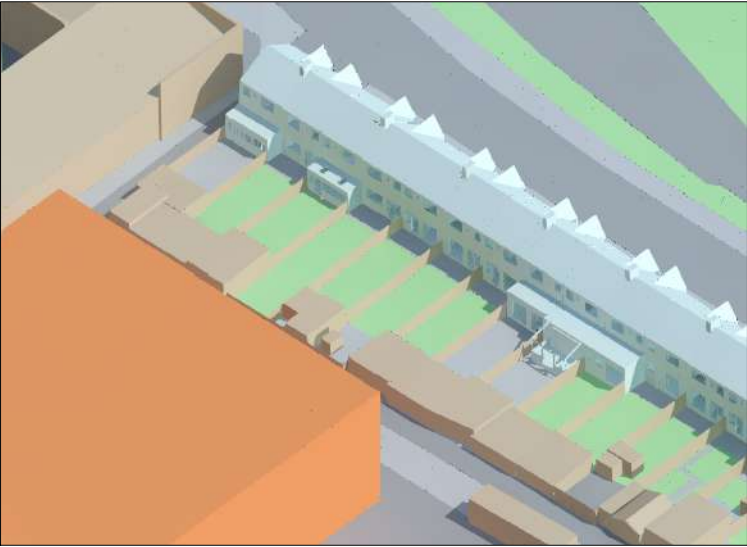
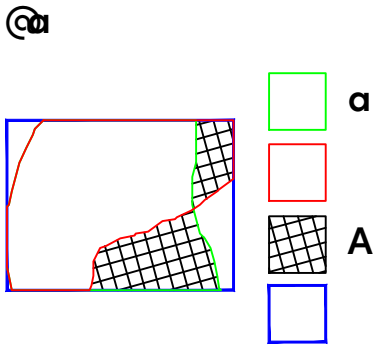


Qb m_u_m - A u _
Q
QA V A bV
b.b A u _
QA V A bV
b.b A u _ 6
b
b b V
b V
A
s s V - A b
_

	V	A										x	
t b b x t A b b O a x n y a V x 6 x x 6 o n A 5 V x P a A 5 P a a	A b b V y a 5 x 5 A a x y a a 5 b												
x b a													
V		V											
P		b											
P b a 5													
x		b											



V Q -



V Q

b 5 a

V A 5 O	Pt aP@bV
	O P
P A b a	V A a
A	A

HOLLIS

A
bQ A 6
n

V A x o 5	a b a A a 5
V V	

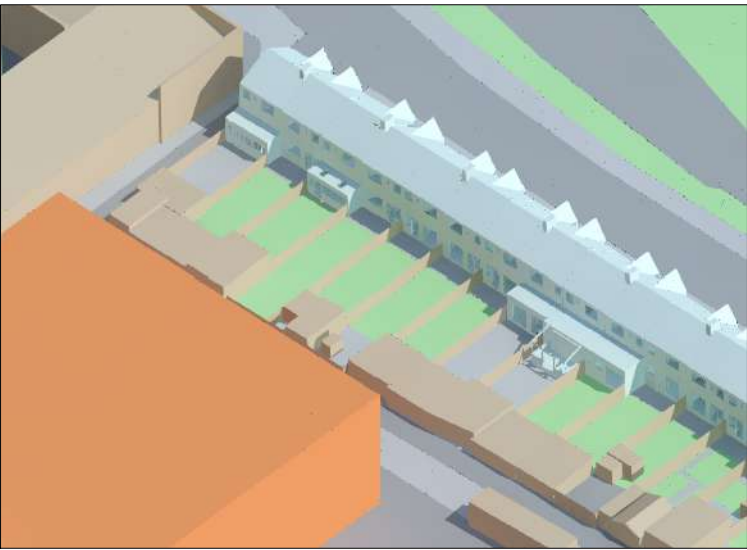
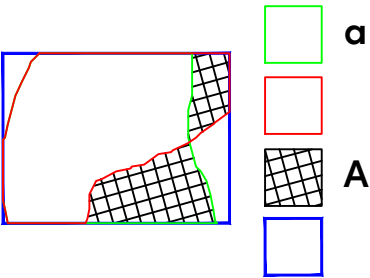


. m m



V Q —

@



V Q

Qb m_u_m - A u _

Q

QA V A bV

b.b A u _

QA V A bV

b.b A u _ 6

b

b b V

b V

A

s

s sV - A b

	V	A	x
t bbx t Abb Oa x6 n y aV x6 x x6 o nA5 Vx P a A5 Pao			
AbbV y a5 x 5 A a x6 y a a 5b			

x ba

V V

P b

Pba5

x b

oP

b 5 a

V A 5 O	Pt aP@aV
PAba	VA a A

HOLLIS

A

bQA 6

n

V A x6 o 5	abaA a5
VV	

Appendix D

Daylight study



Floor Ref.	Window Ref.	Existing VSC	Proposed VSC	Times Former Value	BRE Compliant
135 Willoughby Lane					
Ground	W1	34.84	33.54	0.96	Yes
Ground	W2	33.47	32.61	0.97	Yes
Ground	W3	35.30	34.14	0.97	Yes
Ground	W4	34.68	33.60	0.97	Yes
First	W1	37.74	36.48	0.97	Yes
137 Willoughby Lane					
Ground	W1	35.14	33.61	0.96	Yes
Ground	W2	33.51	32.58	0.97	Yes
Ground	W3	35.67	34.11	0.96	Yes
Ground	W4	34.96	33.54	0.96	Yes
First	W3	37.81	36.47	0.96	Yes
139 Willoughby Lane					
Ground	W1	35.64	33.74	0.95	Yes
Ground	W2	33.55	32.50	0.97	Yes
Ground	W3	36.18	34.36	0.95	Yes
Ground	W4	35.39	33.71	0.95	Yes
First	W1	38.01	36.45	0.96	Yes
141 Willoughby Lane					
Ground	W1	35.99	33.82	0.94	Yes
Ground	W2	33.74	32.43	0.96	Yes
Ground	W3	36.91	34.83	0.94	Yes
Ground	W4	31.36	29.38	0.94	Yes
First	W3	38.16	36.44	0.95	Yes
143 Willoughby Lane					
Ground	W1	35.61	33.43	0.94	Yes
Ground	W2	35.21	32.85	0.93	Yes
Ground	W3	36.27	33.99	0.94	Yes
Ground	W4	37.06	34.82	0.94	Yes
First	W1	38.23	36.07	0.94	Yes
145 Willoughby Lane					
Ground	W1	28.31	27.49	0.97	Yes
Ground	W2	34.99	32.32	0.92	Yes
First	W2	38.29	35.92	0.94	Yes
147 Willoughby Lane					
Ground	W1	29.91	27.94	0.93	Yes
Ground	W2	35.40	32.05	0.91	Yes
Ground	W3	34.98	31.43	0.90	Yes
First	W1	38.23	35.33	0.92	Yes
149 Willoughby Lane					
Ground	W1	30.04	28.43	0.95	Yes
Ground	W2	36.22	31.22	0.86	Yes
Ground	W3	35.49	30.90	0.87	Yes
Ground	W4	36.44	31.99	0.88	Yes
Ground	W5	30.40	30.37	1.00	Yes
Ground	W6	94.18	91.93	0.98	Yes
First	W3	38.27	35.15	0.92	Yes

Floor Ref.	Window Ref.	Existing VSC	Proposed VSC	Times Former Value	BRE Compliant
151 Willoughby Lane					
Ground	W1	34.50	29.60	0.86	Yes
Ground	W2	31.77	27.16	0.85	Yes
Ground	W3	29.91	25.35	0.85	Yes
Ground	W4	35.12	30.52	0.87	Yes
First	W1	38.20	34.18	0.89	Yes
153 Willoughby Lane					
Ground	W1	35.19	30.46	0.87	Yes
Ground	W2	33.32	28.75	0.86	Yes
Ground	W4	36.04	31.38	0.87	Yes
Ground	W3	30.33	25.79	0.85	Yes
First	W3	38.14	33.87	0.89	Yes
155 Willoughby Lane					
Ground	W1	34.73	30.03	0.86	Yes
Ground	W2	33.71	29.23	0.87	Yes
Ground	W3	35.38	30.68	0.87	Yes
Ground	W4	36.12	31.44	0.87	Yes
First	W1	37.87	33.40	0.88	Yes
157 Willoughby Lane					
Ground	W1	34.94	30.57	0.87	Yes
Ground	W2	33.54	29.15	0.87	Yes
Ground	W4	35.65	31.26	0.88	Yes
Ground	W3	34.18	29.84	0.87	Yes
First	W3	37.82	33.38	0.88	Yes
159 Willoughby Lane					
Ground	W1	32.83	28.77	0.88	Yes
Ground	W2	32.57	28.71	0.88	Yes
Ground	W3	34.56	30.39	0.88	Yes
Ground	W4	35.55	31.29	0.88	Yes
First	W1	37.66	33.56	0.89	Yes
161 Willoughby Lane					
Ground	W1	33.99	30.07	0.88	Yes
Ground	W2	32.67	28.73	0.88	Yes
Ground	W3	34.16	30.05	0.88	Yes
Ground	W4	67.92	66.81	0.98	Yes
Ground	W5	68.17	67.00	0.98	Yes
First	W3	37.69	33.84	0.90	Yes
163 Willoughby Lane					
Ground	W1	31.72	28.32	0.89	Yes
Ground	W2	29.40	26.46	0.90	Yes
Ground	W3	26.25	24.12	0.92	Yes
Ground	W4	33.89	30.71	0.91	Yes
First	W1	37.51	34.10	0.91	Yes

Floor Ref.	Window Ref.	Existing VSC	Proposed VSC	Times Former Value	BRE Compliant
165 Willoughby Lane					
Ground	W2	29.86	26.64	0.89	Yes
Ground	W3	30.42	27.16	0.89	Yes
Ground	W4	30.84	27.56	0.89	Yes
Ground	W5	31.47	28.15	0.89	Yes
Ground	W6	31.88	28.53	0.89	Yes
Ground	W7	32.22	28.84	0.90	Yes
Ground	W8	32.59	29.17	0.90	Yes
Ground	W9	32.84	29.38	0.89	Yes
Ground	W10	33.04	29.54	0.89	Yes
First	W3	37.18	34.03	0.92	Yes

Floor Ref.	Room Ref.	Room Use	Existing SQ M	Proposed SQ M	Times Former Value	% Loss	BRE Compliant
135 Willoughby Lane							
Ground	R1	Unknown	14.2	14.2	1	0	YES
First	R1	Bedroom	12.3	12.3	1	0	YES
137 Willoughby Lane							
Ground	R1	Unknown	13.6	13.6	1	0	YES
First	R2	Bedroom	9.9	9.9	1	0	YES
139 Willoughby Lane							
Ground	R1	Unknown	14.4	14.4	1	0	YES
First	R1	Bedroom	12.1	12.1	1	0	YES
141 Willoughby Lane							
Ground	R1	Unknown	7.2	7.2	1	0	YES
Ground	R2	Unknown	11.9	11.9	1	0	YES
First	R2	Bedroom	10.3	10.3	1	0	YES
143 Willoughby Lane							
Ground	R1	Unknown	11.2	11.2	1	0	YES
Ground	R2	Unknown	7.2	7.2	1	0	YES
First	R1	Bedroom	10.0	10.0	1	0	YES
145 Willoughby Lane							
Ground	R1	Unknown	7.5	7.5	1	0	YES
Ground	R2	Unknown	11.4	11.4	1	0	YES
First	R2	Bedroom	12.7	12.7	1	0	YES
147 Willoughby Lane							
Ground	R1	Unknown	2.8	2.8	1	0	YES
Ground	R2	Unknown	23.0	23.0	1	0	YES
First	R1	Bedroom	10.4	10.4	1	0	YES
149 Willoughby Lane							
Ground	R1	Unknown	10.1	10.1	1	0	YES
First	R2	Bedroom	11.0	11.0	1	0	YES
151 Willoughby Lane							
Ground	R1	Unknown	18.9	14.1	0.75	25	NO
Ground	R2	Unknown	13.3	11.3	0.85	15	YES
First	R1	Bedroom	10.4	10.4	1	0	YES
153 Willoughby Lane							
Ground	R1	Unknown	7.1	7.1	1	0	YES
Ground	R2	Unknown	11.9	11.2	0.94	6	YES
First	R2	Bedroom	10.4	10.4	1	0	YES
155 Willoughby Lane							
Ground	R1	Unknown	11.9	11.0	0.93	7	YES
Ground	R2	Unknown	7.1	7.1	1	0	YES
First	R1	Bedroom	10.4	10.4	1	0	YES
157 Willoughby Lane							
Ground	R1	Unknown	7.0	7.0	1	0	YES
Ground	R2	Unknown	11.9	10.9	0.91	9	YES
First	R2	Bedroom	10.3	10.3	1	0	YES
159 Willoughby Lane							
Ground	R1	Unknown	11.4	10.6	0.93	7	YES
Ground	R2	Unknown	7.1	7.1	1	0	YES
First	R1	Bedroom	9.9	9.9	1	0	YES
161 Willoughby Lane							
Ground	R1	Unknown	30.1	30.1	1	0	YES
First	R2	Bedroom	10.8	10.8	1	0	YES

Floor Ref.	Room Ref.	Room Use	Existing SQ M	Proposed SQ M	Times Former Value	% Loss	BRE Compliant
163 Willoughby Lane							
Ground	R1	Unknown	11.4	11.1	0.97	3	YES
Ground	R2	Unknown	7.1	7.0	1	0	YES
First	R1	Bedroom	9.8	9.8	1	0	YES
165 Willoughby Lane							
Ground	R1	Unknown	18.0	17.7	0.98	2	YES
Ground	R2	Unknown	9.6	8.7	0.91	9	YES
First	R2	Bedroom	10.8	10.8	1	0	YES

Appendix E

Sunlight study



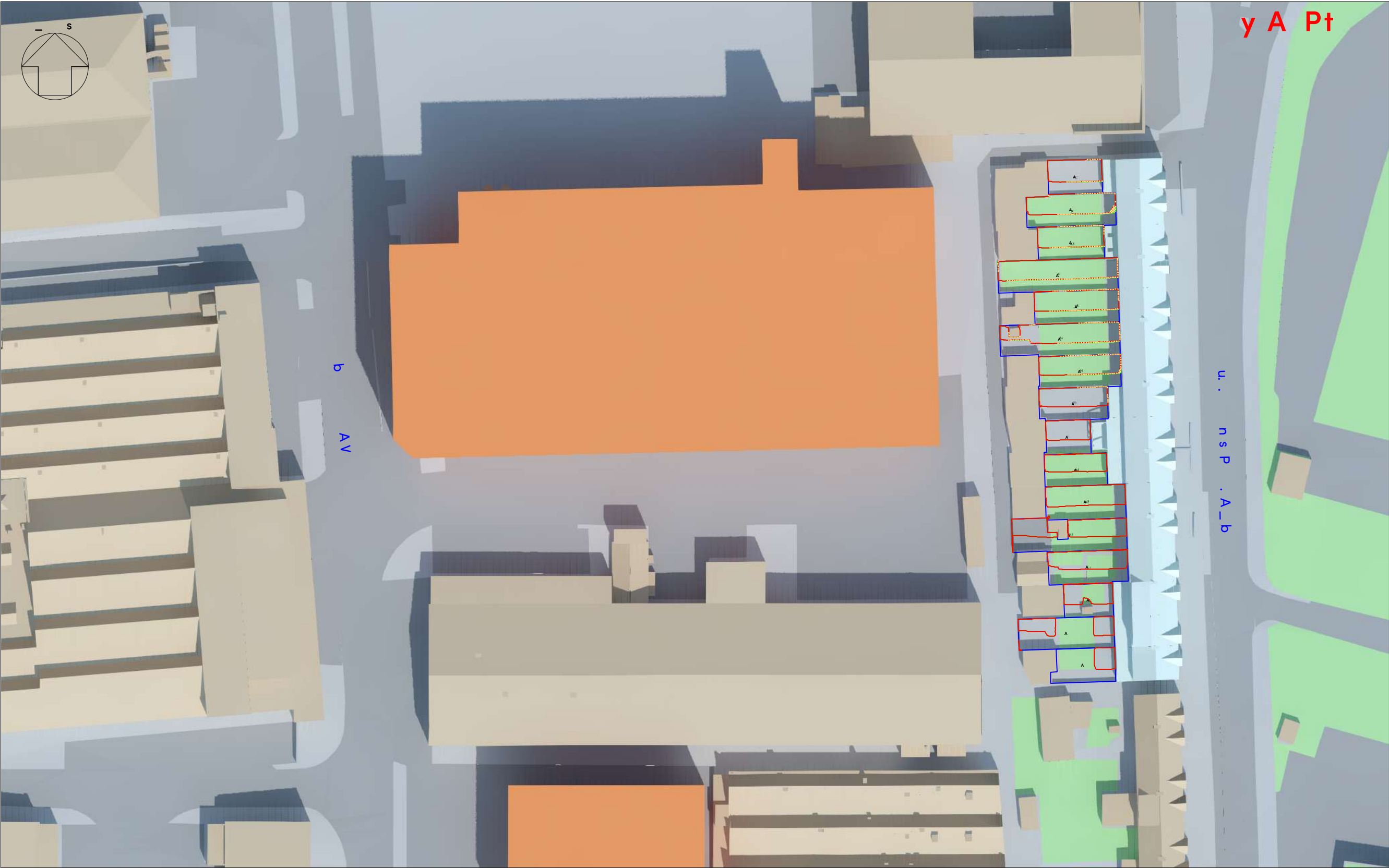
Floor Ref.	Room Ref.	Room Use	Existing Room		Proposed Room		Winter Times Former Value	Annual Times Former Value	BRE Compliant
			Winter %	Annual %	Winter %	Annual %			
135 Willoughby Lane									
Ground	R1	Unknown	13	47	13	47	1.00	1.00	YES
First	R1	Bedroom	15	50	14	49	0.93	0.98	YES
137 Willoughby Lane									
Ground	R1	Unknown	12	46	12	45	1.00	0.98	YES
First	R2	Bedroom	14	49	14	49	1.00	1.00	YES
139 Willoughby Lane									
Ground	R1	Unknown	13	48	13	47	1.00	0.98	YES
First	R1	Bedroom	15	50	15	49	1.00	0.98	YES
141 Willoughby Lane									
Ground	R1	Unknown	13	48	13	47	1.00	0.98	YES
Ground	R2	Unknown	1	33	1	32	1.00	0.97	YES
First	R2	Bedroom	15	50	15	49	1.00	0.98	YES
143 Willoughby Lane									
Ground	R1	Unknown	13	48	13	46	1.00	0.96	YES
Ground	R2	Unknown	13	48	13	47	1.00	0.98	YES
First	R1	Bedroom	15	50	15	49	1.00	0.98	YES
145 Willoughby Lane									
Ground	R1	Unknown	14	47	14	47	1.00	1.00	YES
Ground	R2	Unknown	14	49	14	47	1.00	0.96	YES
First	R2	Bedroom	15	50	15	48	1.00	0.96	YES
147 Willoughby Lane									
Ground	R1	Unknown	14	47	14	43	1.00	0.91	YES
Ground	R2	Unknown	14	49	14	43	1.00	0.88	YES
First	R1	Bedroom	15	50	15	46	1.00	0.92	YES
149 Willoughby Lane									
Ground	R1	Unknown	24	79	23	72	0.96	0.91	YES
First	R2	Bedroom	15	50	15	46	1.00	0.92	YES
151 Willoughby Lane									
Ground	R1	Unknown	12	46	11	40	0.92	0.87	YES
Ground	R2	Unknown	7	41	7	36	1.00	0.88	YES
First	R1	Bedroom	15	50	15	46	1.00	0.92	YES
153 Willoughby Lane									
Ground	R1	Unknown	15	49	13	41	0.87	0.84	YES
Ground	R2	Unknown	2	28	1	22	0.50	0.79	NO
First	R2	Bedroom	15	50	14	45	0.93	0.90	YES
155 Willoughby Lane									
Ground	R1	Unknown	15	48	13	41	0.87	0.85	YES
Ground	R2	Unknown	15	48	13	41	0.87	0.85	YES
First	R1	Bedroom	15	50	13	44	0.87	0.88	YES
157 Willoughby Lane									
Ground	R1	Unknown	14	48	13	41	0.93	0.85	YES
Ground	R2	Unknown	13	45	12	40	0.92	0.89	YES
First	R2	Bedroom	15	50	13	44	0.87	0.88	YES
159 Willoughby Lane									
Ground	R1	Unknown	14	48	12	41	0.86	0.85	YES
Ground	R2	Unknown	14	48	12	40	0.86	0.83	YES
First	R1	Bedroom	15	50	12	44	0.80	0.88	YES
161 Willoughby Lane									
Ground	R1	Unknown	17	57	15	51	0.88	0.89	YES
First	R2	Bedroom	14	49	12	44	0.86	0.90	YES

Floor Ref.	Room Ref.	Room Use	Existing Room		Proposed Room		Winter Times Former Value	Annual Times Former Value	BRE Compliant
			Winter %	Annual %	Winter %	Annual %			
163 Willoughby Lane									
Ground	R1	Unknown	13	48	12	45	0.92	0.94	YES
Ground	R2	Unknown	11	46	10	41	0.91	0.89	YES
First	R1	Bedroom	14	49	12	46	0.86	0.94	YES
165 Willoughby Lane									
Ground	R1	Unknown	13	52	10	47	0.77	0.90	YES
Ground	R2	Unknown	13	47	10	41	0.77	0.87	YES
First	R2	Bedroom	15	50	11	45	0.73	0.90	YES

Appendix F

Overshadowing study

Building Ref	Floor Ref	Amenity Ref	Amenity Area	Existing Lit Area	Proposed Lit Area	Existing %	Proposed %	Pr/Ex	Meets BRE Criteria
135 Willoughby Lane	Ground	A1	64.8	13.9	13.9	22%	22%	1	YES
137 Willoughby Lane	Ground	A1	93.7	28.0	28.0	30%	30%	1	YES
139 Willoughby Lane	Ground	A1	51.5	30.4	30.4	59%	59%	1	YES
141 Willoughby Lane	Ground	A1	81.4	44.1	44.1	54%	54%	1	YES
143 Willoughby Lane	Ground	A1	105.5	53.3	53.3	51%	51%	1	YES
145 Willoughby Lane	Ground	A1	85.0	50.1	50.1	59%	59%	1	YES
147 Willoughby Lane	Ground	A1	62.2	34.1	34.1	55%	55%	1	YES
149 Willoughby Lane	Ground	A1	48.6	27.7	27.7	57%	57%	1	YES
151 Willoughby Lane	Ground	A1	69.5	40.2	40.2	58%	58%	1	YES
153 Willoughby Lane	Ground	A1	82.5	49.1	48.3	60%	58%	0.98	YES
155 Willoughby Lane	Ground	A1	119.3	65.0	64.1	54%	54%	0.99	YES
157 Willoughby Lane	Ground	A1	85.6	52.4	51.9	61%	61%	0.99	YES
159 Willoughby Lane	Ground	A1	119.7	74.9	74.1	63%	62%	0.99	YES
161 Willoughby Lane	Ground	A1	68.6	43.5	43.2	63%	63%	0.99	YES
163 Willoughby Lane	Ground	A1	89.4	54.9	53.8	61%	60%	0.98	YES
165 Willoughby Lane	Ground	A1	57.6	37.2	36.9	65%	64%	0.99	YES

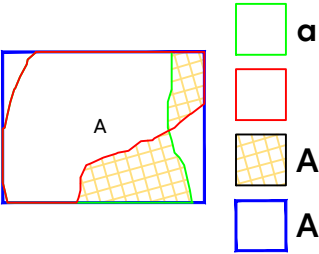


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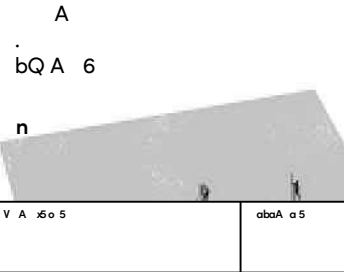
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Appendix G

Update study

Floor Ref.	Window Ref.	Existing VSC	Proposed VSC	Times Former Value	BRE Compliant
135 Willoughby Lane					
Ground	W1	34.84	33.64	0.97	Yes
Ground	W2	33.47	32.70	0.98	Yes
Ground	W3	35.30	34.24	0.97	Yes
Ground	W4	34.68	33.68	0.97	Yes
First	W1	37.74	36.59	0.97	Yes
137 Willoughby Lane					
Ground	W1	35.14	33.73	0.96	Yes
Ground	W2	33.51	32.67	0.97	Yes
Ground	W3	35.67	34.22	0.96	Yes
Ground	W4	34.96	33.64	0.96	Yes
First	W3	37.81	36.59	0.97	Yes
139 Willoughby Lane					
Ground	W1	35.64	33.85	0.95	Yes
Ground	W2	33.55	32.60	0.97	Yes
Ground	W3	36.18	34.48	0.95	Yes
Ground	W4	35.39	33.83	0.96	Yes
First	W1	38.01	36.59	0.96	Yes
141 Willoughby Lane					
Ground	W1	35.99	33.95	0.94	Yes
Ground	W2	33.74	32.53	0.96	Yes
Ground	W3	36.91	34.97	0.95	Yes
Ground	W4	31.36	29.50	0.94	Yes
First	W3	38.16	36.59	0.96	Yes
143 Willoughby Lane					
Ground	W1	35.61	33.56	0.94	Yes
Ground	W2	35.21	32.98	0.94	Yes
Ground	W3	36.27	34.13	0.94	Yes
Ground	W4	37.06	34.95	0.94	Yes
First	W1	38.23	36.24	0.95	Yes
145 Willoughby Lane					
Ground	W1	28.31	27.42	0.97	Yes
Ground	W2	34.99	32.44	0.93	Yes
First	W2	38.29	36.11	0.94	Yes
147 Willoughby Lane					
Ground	W1	29.91	27.94	0.93	Yes
Ground	W2	35.40	32.19	0.91	Yes
Ground	W3	34.98	31.57	0.90	Yes
First	W1	38.23	35.56	0.93	Yes
149 Willoughby Lane					
Ground	W1	30.04	28.63	0.95	Yes
Ground	W2	36.22	31.39	0.87	Yes
Ground	W3	35.49	31.05	0.87	Yes
Ground	W4	36.44	32.15	0.88	Yes
Ground	W5	30.40	30.37	1.00	Yes
Ground	W6	94.18	92.10	0.98	Yes
First	W3	38.27	35.37	0.92	Yes

Floor Ref.	Window Ref.	Existing VSC	Proposed VSC	Times Former Value	BRE Compliant
151 Willoughby Lane					
Ground	W1	34.50	29.90	0.87	Yes
Ground	W2	31.77	27.43	0.86	Yes
Ground	W3	29.91	25.58	0.86	Yes
Ground	W4	35.12	30.80	0.88	Yes
First	W1	38.20	34.54	0.90	Yes
153 Willoughby Lane					
Ground	W1	35.19	30.83	0.88	Yes
Ground	W2	33.32	29.12	0.87	Yes
Ground	W4	36.04	31.78	0.88	Yes
Ground	W3	30.33	26.14	0.86	Yes
First	W3	38.14	34.28	0.90	Yes
155 Willoughby Lane					
Ground	W1	34.73	30.47	0.88	Yes
Ground	W2	33.71	29.69	0.88	Yes
Ground	W3	35.38	31.08	0.88	Yes
Ground	W4	36.12	31.87	0.88	Yes
First	W1	37.87	33.90	0.90	Yes
157 Willoughby Lane					
Ground	W1	34.94	31.06	0.89	Yes
Ground	W2	33.54	29.63	0.88	Yes
Ground	W4	35.65	31.76	0.89	Yes
Ground	W3	34.18	30.34	0.89	Yes
First	W3	37.82	33.92	0.90	Yes
159 Willoughby Lane					
Ground	W1	32.83	29.27	0.89	Yes
Ground	W2	32.57	29.23	0.90	Yes
Ground	W3	34.56	30.88	0.89	Yes
Ground	W4	35.55	31.81	0.89	Yes
First	W1	37.66	34.10	0.91	Yes
161 Willoughby Lane					
Ground	W1	33.99	30.73	0.90	Yes
Ground	W2	32.67	29.31	0.90	Yes
Ground	W3	34.16	30.59	0.90	Yes
Ground	W4	67.92	67.01	0.99	Yes
Ground	W5	68.17	67.20	0.99	Yes
First	W3	37.69	34.38	0.91	Yes
163 Willoughby Lane					
Ground	W1	31.72	29.07	0.92	Yes
Ground	W2	29.40	27.09	0.92	Yes
Ground	W3	26.25	24.63	0.94	Yes
Ground	W4	33.89	31.43	0.93	Yes
First	W1	37.51	34.83	0.93	Yes
165 Willoughby Lane					
Ground	W2	29.86	27.40	0.92	Yes
Ground	W3	30.42	27.90	0.92	Yes
Ground	W4	30.84	28.30	0.92	Yes
Ground	W5	31.47	28.91	0.92	Yes
Ground	W6	31.88	29.30	0.92	Yes



VERTICAL SKY
COMPONENT ANALYSIS

Unit 1, West Road, Tottenham,
London N17 0RE

Floor Ref.	Window Ref.	Existing VSC	Proposed VSC	Times Former Value	BRE Compliant
Ground	W7	32.22	29.61	0.92	Yes
Ground	W8	32.59	29.97	0.92	Yes
Ground	W9	32.84	30.19	0.92	Yes
Ground	W10	33.04	30.36	0.92	Yes
First	W3	37.18	34.77	0.94	Yes

Floor Ref.	Room Ref.	Room Use	Existing SQ M	Proposed SQ M	Times Former Value	% Loss	BRE Compliant
135 Willoughby Lane							
Ground	R1	Unknown	14.2	14.2	1	0	YES
First	R1	Bedroom	12.3	12.3	1	0	YES
137 Willoughby Lane							
Ground	R1	Unknown	13.6	13.6	1	0	YES
First	R2	Bedroom	9.9	9.9	1	0	YES
139 Willoughby Lane							
Ground	R1	Unknown	14.4	14.4	1	0	YES
First	R1	Bedroom	12.1	12.1	1	0	YES
141 Willoughby Lane							
Ground	R1	Unknown	7.2	7.2	1	0	YES
Ground	R2	Unknown	11.9	11.9	1	0	YES
First	R2	Bedroom	10.3	10.3	1	0	YES
143 Willoughby Lane							
Ground	R1	Unknown	11.2	11.2	1	0	YES
Ground	R2	Unknown	7.2	7.2	1	0	YES
First	R1	Bedroom	10.0	10.0	1	0	YES
145 Willoughby Lane							
Ground	R1	Unknown	7.5	7.5	1	0	YES
Ground	R2	Unknown	11.4	11.4	1	0	YES
First	R2	Bedroom	12.7	12.7	1	0	YES
147 Willoughby Lane							
Ground	R1	Unknown	2.8	2.8	1	0	YES
Ground	R2	Unknown	23.0	23.0	1	0	YES
First	R1	Bedroom	10.4	10.4	1	0	YES
149 Willoughby Lane							
Ground	R1	Unknown	10.1	10.1	1	0	YES
First	R2	Bedroom	11.0	11.0	1	0	YES
151 Willoughby Lane							
Ground	R1	Unknown	18.9	13.9	0.74	26	NO
Ground	R2	Unknown	13.3	11.2	0.84	16	YES
First	R1	Bedroom	10.4	10.4	1	0	YES
153 Willoughby Lane							
Ground	R1	Unknown	7.1	7.1	1	0	YES
Ground	R2	Unknown	11.9	11.8	0.99	1	YES
First	R2	Bedroom	10.4	10.4	1	0	YES
155 Willoughby Lane							
Ground	R1	Unknown	11.9	11.8	0.99	1	YES
Ground	R2	Unknown	7.1	7.1	1	0	YES
First	R1	Bedroom	10.4	10.4	1	0	YES
157 Willoughby Lane							
Ground	R1	Unknown	7.0	7.0	1	0	YES
Ground	R2	Unknown	11.9	11.7	0.99	1	YES
First	R2	Bedroom	10.3	10.3	1	0	YES
159 Willoughby Lane							
Ground	R1	Unknown	11.4	11.3	0.99	1	YES
Ground	R2	Unknown	7.1	7.1	1	0	YES
First	R1	Bedroom	9.9	9.9	1	0	YES
161 Willoughby Lane							
Ground	R1	Unknown	30.1	30.1	1	0	YES
First	R2	Bedroom	10.8	10.8	1	0	YES



DAYLIGHT DISTRIBUTION
ANALYSIS

Unit 1, West Road, Tottenham,
London N17 0RE

Floor Ref.	Room Ref.	Room Use	Existing SQ M	Proposed SQ M	Times Former Value	% Loss	BRE Compliant
163 Willoughby Lane							
Ground	R1	Unknown	11.4	11.4	1	0	YES
Ground	R2	Unknown	7.1	7.0	1	0	YES
First	R1	Bedroom	9.8	9.8	1	0	YES
165 Willoughby Lane							
Ground	R1	Unknown	18.0	18.0	1	0	YES
Ground	R2	Unknown	9.6	9.1	0.95	5	YES
First	R2	Bedroom	10.8	10.8	1	0	YES

Floor Ref.	Room Ref.	Room Use	Existing Room Winter % Annual %		Proposed Room Winter % Annual %		Winter Times Former Value	Annual Times Former Value	BRE Compliant
135 Willoughby Lane									
Ground	R1	Unknown	13	47	13	47	1.00	1.00	YES
First	R1	Bedroom	15	50	14	49	0.93	0.98	YES
137 Willoughby Lane									
Ground	R1	Unknown	12	46	12	45	1.00	0.98	YES
First	R2	Bedroom	14	49	14	49	1.00	1.00	YES
139 Willoughby Lane									
Ground	R1	Unknown	13	48	13	47	1.00	0.98	YES
First	R1	Bedroom	15	50	15	49	1.00	0.98	YES
141 Willoughby Lane									
Ground	R1	Unknown	13	48	13	47	1.00	0.98	YES
Ground	R2	Unknown	1	33	1	32	1.00	0.97	YES
First	R2	Bedroom	15	50	15	49	1.00	0.98	YES
143 Willoughby Lane									
Ground	R1	Unknown	13	48	13	46	1.00	0.96	YES
Ground	R2	Unknown	13	48	13	47	1.00	0.98	YES
First	R1	Bedroom	15	50	15	49	1.00	0.98	YES
145 Willoughby Lane									
Ground	R1	Unknown	14	47	14	47	1.00	1.00	YES
Ground	R2	Unknown	14	49	14	47	1.00	0.96	YES
First	R2	Bedroom	15	50	15	48	1.00	0.96	YES
147 Willoughby Lane									
Ground	R1	Unknown	14	47	14	43	1.00	0.91	YES
Ground	R2	Unknown	14	49	14	43	1.00	0.88	YES
First	R1	Bedroom	15	50	15	46	1.00	0.92	YES
149 Willoughby Lane									
Ground	R1	Unknown	24	79	23	72	0.96	0.91	YES
First	R2	Bedroom	15	50	15	46	1.00	0.92	YES
151 Willoughby Lane									
Ground	R1	Unknown	12	46	11	40	0.92	0.87	YES
Ground	R2	Unknown	7	41	7	36	1.00	0.88	YES
First	R1	Bedroom	15	50	15	46	1.00	0.92	YES
153 Willoughby Lane									
Ground	R1	Unknown	15	49	13	42	0.87	0.86	YES
Ground	R2	Unknown	2	28	0	21	0.00	0.75	NO
First	R2	Bedroom	15	50	13	44	0.87	0.88	YES
155 Willoughby Lane									
Ground	R1	Unknown	15	48	13	41	0.87	0.85	YES
Ground	R2	Unknown	15	48	13	42	0.87	0.88	YES
First	R1	Bedroom	15	50	13	44	0.87	0.88	YES
157 Willoughby Lane									
Ground	R1	Unknown	14	48	12	41	0.86	0.85	YES
Ground	R2	Unknown	13	45	12	40	0.92	0.89	YES
First	R2	Bedroom	15	50	13	44	0.87	0.88	YES
159 Willoughby Lane									
Ground	R1	Unknown	14	48	12	42	0.86	0.88	YES
Ground	R2	Unknown	14	48	12	42	0.86	0.88	YES
First	R1	Bedroom	15	50	12	44	0.80	0.88	YES
161 Willoughby Lane									
Ground	R1	Unknown	17	57	15	52	0.88	0.91	YES
First	R2	Bedroom	14	49	12	44	0.86	0.90	YES



Floor Ref.	Room Ref.	Room Use	Existing Room		Proposed Room		Winter Times Former Value	Annual Times Former Value	BRE Compliant
			Winter %	Annual %	Winter %	Annual %			
163 Willoughby Lane									
Ground	R1	Unknown	13	48	12	45	0.92	0.94	YES
Ground	R2	Unknown	11	46	10	41	0.91	0.89	YES
First	R1	Bedroom	14	49	12	46	0.86	0.94	YES
165 Willoughby Lane									
Ground	R1	Unknown	13	52	11	49	0.85	0.94	YES
Ground	R2	Unknown	13	47	11	44	0.85	0.94	YES
First	R2	Bedroom	15	50	12	47	0.80	0.94	YES