gia

Daylight and Sunlight

Bishopsgate Goodsyard

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Reference: 2971

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1.0 Introduction

GIA have been instructed to provide further detailed analysis and consideration to the daylight and sunlight impacts resulting from the Proposed Development in response to the letter report prepared by Delva Patman Redler (DPR) dated 21 September 2015 and as supplementary information for the GLA. The specific properties raised by DPR have also been identified by both the London Borough of Hackney and London Borough of Tower Hamlets in their respective committee reports. This report provides further explanation for all such properties identified by DPR as a concern in relation to daylight and sunlight as well as providing further contextual analysis for the site and the surrounding area. DPR were appointed by both authorities to review the ES chapter and daylight/sunlight impacts as a result of the Proposed Development.

The information supplied within this report is supplementary and should therefore be read in conjunction with the June 2015 ES chapter for planning applications (PA/15/02011 & 2014/2425). Both local authorities, tower Hamlets and Hackney, have recommended to refuse planning permission for the development proposals which have now been called in by the Mayor of London.

This report also provides further information in relation to the levels of overshadowing on the Boundary Estate to address the concerns raised by the More Light More Power Campaign and other objectors.

This report is accompanied by a number of appendices which include:

Appendix 1: Drawings
Appendix 2: Data Comparison against the IPG Massing (including overlay diagram)
Appendix 3: VSC Contextual Analysis
Appendix 4: Research Study – case studies for daylight
Appendix 5: VSC Cutbacks to 23-24 Wheler Street, 154 Commercial Road and Telford Homes
Appendix 6: Maps indicating properties identified by DPR
Appendix 7: Daylight and sunlight results for those properties identified by DPR (including summaries)
Appendix 8: Window Maps
Appendix 9: 1-48 Wheler Street without balconies assessment
Appendix 10: Telford Homes Block A without balconies assessment
Appendix 11: Boundary Estate Overshadowing Assessments
Appendix 12: Holy Trinity Primary School Appeal

2.0 Site Context

Figure 01 – Site Location (2015 Aerial Imagery)

As discussed in the body of the ES Chapter and subsequent addendum, the site is currently cleared (except for the ECC box) which is unusual and uncharacteristic of an inner urban environment and the character of the surrounding area. As a result of this, the technical analysis demonstrates high existing baseline levels of daylight (VSC) to the surrounding properties due to the relatively unobstructed view across the site. DPR accept this position and that the context of the site and its baseline condition should be taken into account when reviewing the data.

The site has also been identified as a key strategic site for redevelopment at regional and local planning policy levels and therefore the current baseline conditions, including existing high levels of daylight, cannot be expected to be maintained. It should be noted that such high levels of daylight in the baseline condition will be altered given the aspiration for taller elements and greater density within the site as acknowledged in the Interim Planning Guidance (IPG) 2010. It is considered unreasonable to assume that such levels of daylight would be retained. DPR acknowledge that minor adverse effects are going to be inevitable given the site context and surrounding built environment.

3.0 Defining Retained VSC

The Vertical Sky Component (VSC) is a measure of the amount of sky visible from a single point at the centre of a window on the outside face. The assessment is calculated using an overcast sky and a Waldram Diagram. The Waldram Diagram is effectively a snapshot taken from that point of the sky in front of the window, together with all relevant obstructions.

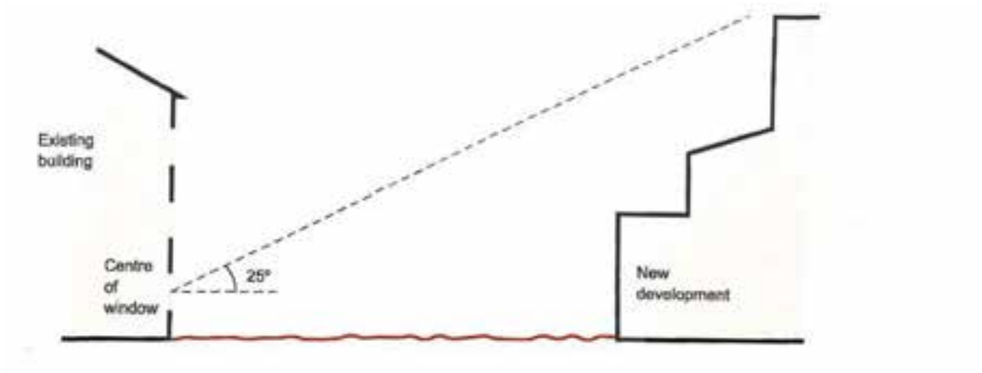


Figure 02 – VSC criteria (BRE Fig 14: Section in plane perpendicular to the affected window wall)

The maximum VSC value is almost 40% for a completely unobstructed vertical wall or window. In terms of assessment criteria, the BRE Guidelines state that:

"if the VSC, with the development in place, is both less than 27% and less than 0.8 times its former value, occupants of the existing building will notice the reduction in the amount of skylight. The area lit by the window may appear more gloomy and electric lighting will be needed more of the time".

The 27% VSC is based on a 'suburban type' environment extruding a 25 degree angle from the centre point of a ground floor window. The strict application of the BRE Guidelines would suggest that any development should not be built beyond this or, if the development does go beyond this line, there should be less than a 20% reduction in VSC. Should this not be achieved, then the daylight alterations may be noticeable.

In an attempt to provide an appreciation of the massing which may be possible on site a VSC compliant cutback has been undertaken for all of the surrounding receptors. The cutback is demonstrated on Figure 03 and can be compared against the scheme on Figure 04.

The VSC compliant cutback to respect all of the surrounding properties indicates that a fully BRE compliant scheme would result in a significantly compromised level of development which would be contrary to planning policy and the regeneration policy for the site. The resultant massing from the VSC compliant cutback would not be viable and therefore illustrates a massing which could never be realised.

Figure 03 – Global VSC Cutback (BRE Compliant)

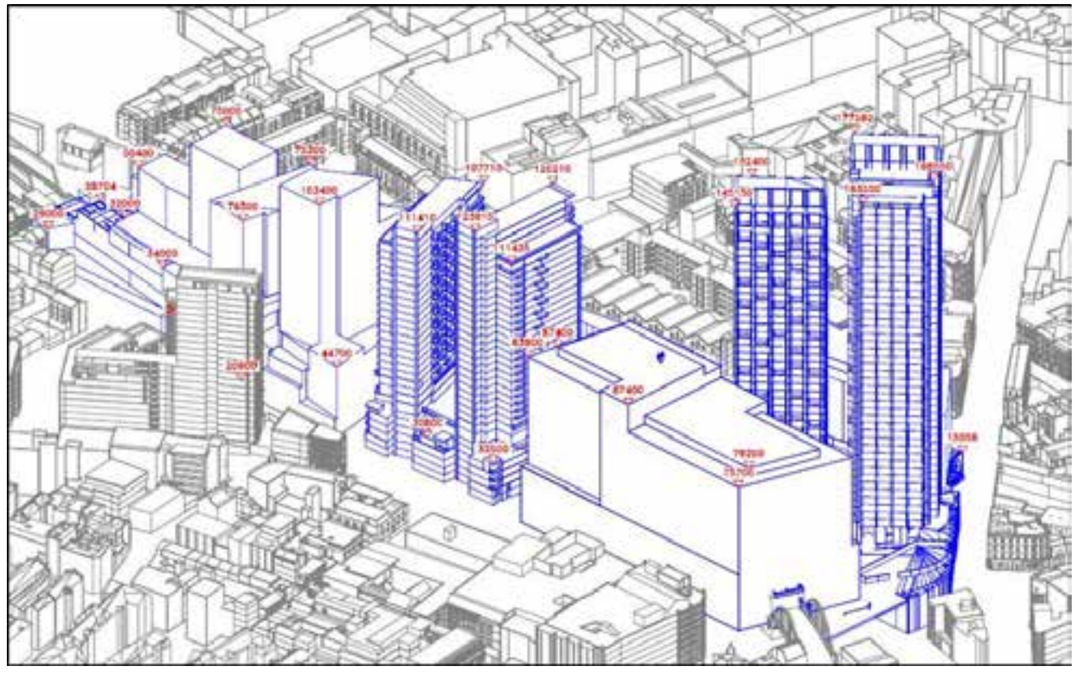


Figure 04 – Proposed Scheme

4.0 Alternative Target Criteria

The BRE Guidelines are designed to be applicable across the country and the numerical criteria suggested within the BRE is based on a suburban type environment and is not designed to be applied strictly within a dense urban environment such as London today. As demonstrated within Section 3.0, a BRE compliant scheme for VSC (27% VSC or less than 20% reduction) would not provide a viable development solution and thus not fulfilling the policy of housing density allocated on the site. Based on the strategic nature of the site and its uncharacteristic cleared nature, the numerical criteria suggested in the BRE Guidelines does not apply for such a site and its context. Therefore, alternative criteria need to be considered. The introduction in the BRE 2011 Guidelines makes reference to setting alternative target values. This is described in Appendix F of the 2011 Guidelines (paragraph 1.6) as follows:

> *"Sections 2.1, 2.2 and 2.3 (of the Guide) give numerical target values in assessing how much light from the Sky is blocked by obstructing buildings. These values are purely advisory and different targets may be used based on the special requirements of the proposed development or its locations." (Para F1)*

The BRE provides that the numerical values within the report are purely advisory (Appendix F) and states that:

> *'Such alternative targets may be generated from the layout dimensions of the existing development, or they may be derived from considering the internal layout and daylighting needs of the proposed development.'*

Table F1, which is found within Appendix F of the 2011 BRE Guidelines, provides an explanation on the use of alternative VSC values and illustrates the condition where varying values may be relevant. The table shows that, in a dense urban environment where obstruction angles could easily be 40-45 degrees or more, the VSC values to the lower floor level window may be between 16% and 18%. Figure 05, which is also found within Appendix F, suggests a narrow mews with an obstruction angle of 40 degrees, generating a typical VSC value of 18%. Although on a city fringe location such as BGY, combined with the strategic planning designation for higher density, the expectation of amenity should be lower.

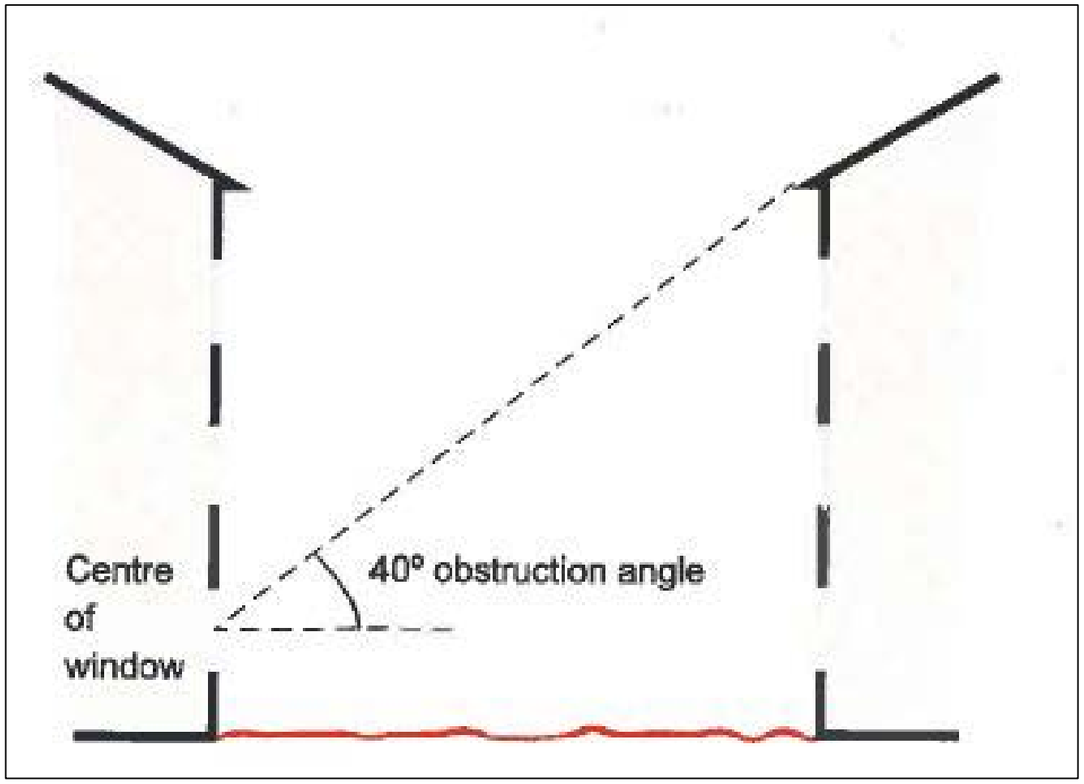


Figure 05 – (Figure F1: Hypothetical example of a narrow mews with a higher obstruction angle).

Given the unusually cleared baseline condition of the site we believe that alternative target values are an appropriate basis on which to measure the daylight and sunlight position. This approach has been accepted by DPR. There are however several necessary considerations for the Site which consider the urban context and existing levels of daylight as well as the planning policy context of the site; both of these are discussed in more detail below.

5.0 Planning Policy - Interim Planning Guidance 2010 – Bishopsgate Goods Yard (BGY)

The Interim Planning Guidance (IPG) 2010 is the site specific planning guidance for the site and was formally adopted by both local authorities (London Borough of Hackney and London Borough of Tower Hamlets (LBTH)) in 2010 and endorsed by the GLA stating that *'the planning guidance will form part of the local development frameworks for both Hackney and Tower Hamlets and will be a material planning consideration in determining future applications'.* It, therefore, represents an accepted concept and design principles for the site and any future development coming forward including desired volume, unit numbers, potential heights, as well as massing distribution. Whilst this has now been incorporated as an evidence base for the LBTH Managing Development Document within Tower Hamlets, for example, it is the key specific planning guidance for this strategic site for both Boroughs. Furthermore, many of the principles set out in this IPG have been taken forward into the new planning documentation such as the Managing Development Document (MDD) which refers to the IPG as key to the evidence base and the site allocation states that *'development should recognise the latest supplementary guidance for The Bishopsgate Goodsyard'* in the London Borough Hackney Site Allocations Local Plan. The IPG, therefore, is considered to remain a material consideration in regards to the development application for the BGY Site.

The site allocation policy within the MDD sets out similar design principles to those identified in the IPG, with the concept as follows:

- Physical constraints exist above and below ground in the form of rail networks, heritage assets and limitations on the locations of foundations which result in the majority of the development having to be situated on the northern and western parts of the site (which happen to be closer towards neighbouring properties).

- Site described as a strategic housing development with up to 2000 homes and a volume of 350,000 sq m (the proposed development equates to 286,500 sq m).

- Location of taller buildings on the western portion of the site. The GLA interim planning guidance on tall buildings considers buildings over 75m in the City of London to be considered as tall. The inclusion of taller elements on a current cleared site will result in large numerical alterations in regards to daylight and sunlight. Adverse impacts in terms of daylight amenity would be inevitable in realising such a design brief.

- Location of a park above the viaduct to the south of the site to maximise levels of sunlight, which again restricts the positioning of massing on the site. The location of this park restricts the use of the southern portion of the site and sets a further limitation on the siting of the majority of the massing on the north of the site close to neighbouring residential properties.

Using these design principles, parameters including volume and the concepts set out within the IPG, a 3D massing model has been created (see Figure 06 below). Notwithstanding the many variations in potential massing options to reflect the IPG concepts, the interpretation depicted is considered to follow the design principles and concepts within the IPG and MDD. It is consistent with the desired levels of volume at circa 341,000 sq m, location of the park and has taller elements on the western side which step down across the site towards the east. For these reasons this massing interpretation of the IPG policy concepts is considered a reasonable interpretation of the planning policy principles (referred herein as the IPG Massing).

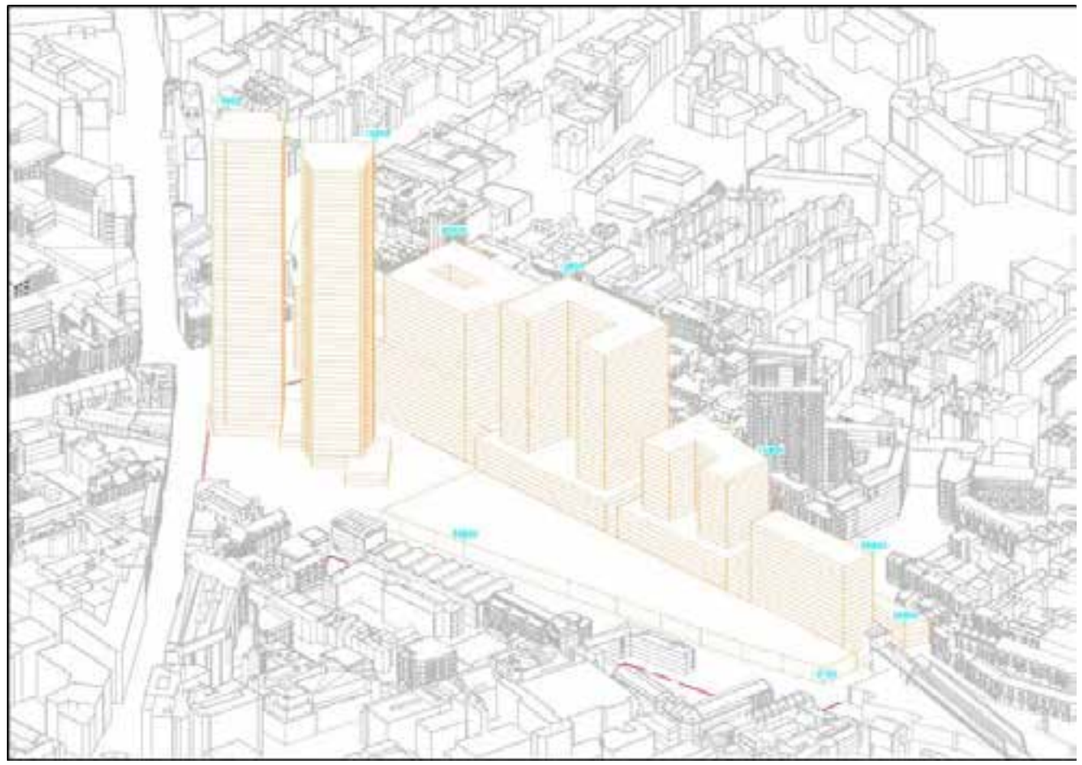


Figure 06 – IPG Massing (interpretation based on policy documents)

In Figure 7, this IPG massing interpretation (in gold) has been overlaid with the Proposed Development (in blue as. As can be seen from this figure the two massing models are very similar and this is also reflected in the retained absolute levels of VSC for both massing models. The results can be found in Appendix 2 of this report and indicate that the retained levels of VSC for the Proposed Development are in line with those for the IPG Massing (Figure 6).

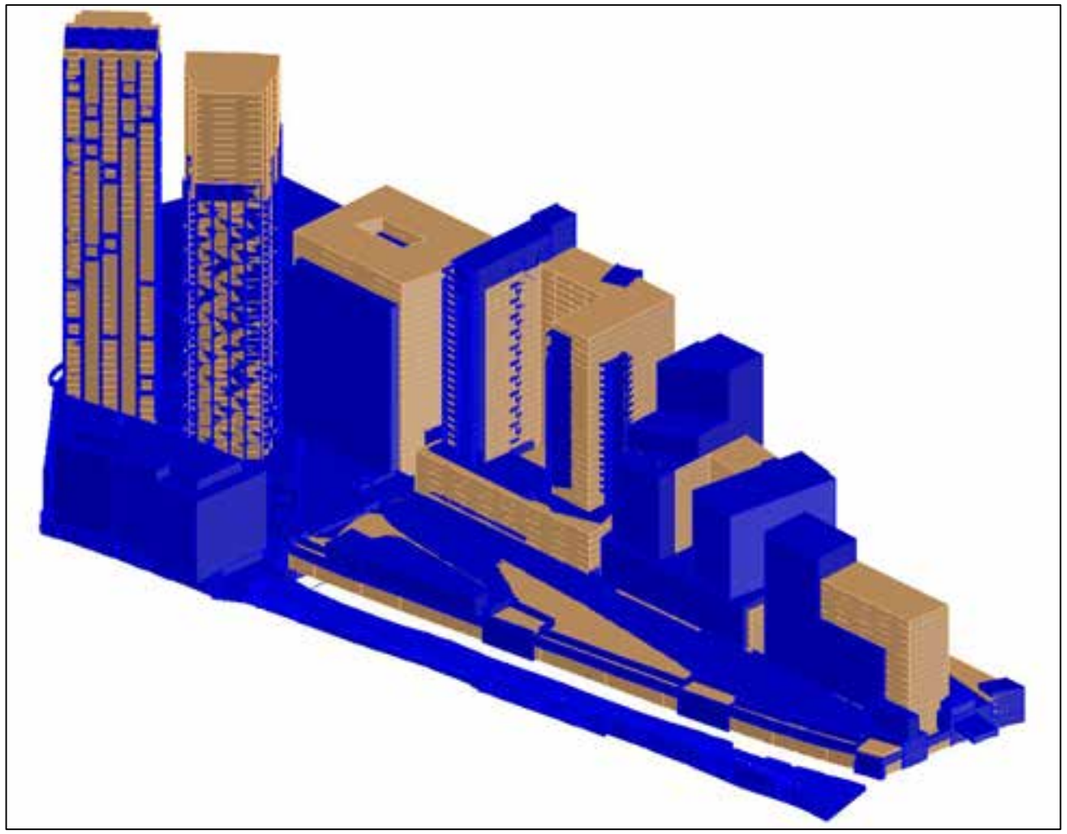


Figure 07 – Interpretation of IPG massing form overlaid with the Proposed Development

The following graph (Figure 8) indicates the comparison of the VSC results for the IPG Massing plotted against those for the Proposed Development. As demonstrated by the trend line, there is a linear correlation between the results for each massing assessed; the results for the Proposed Development are similar to those of the IPG Massing.

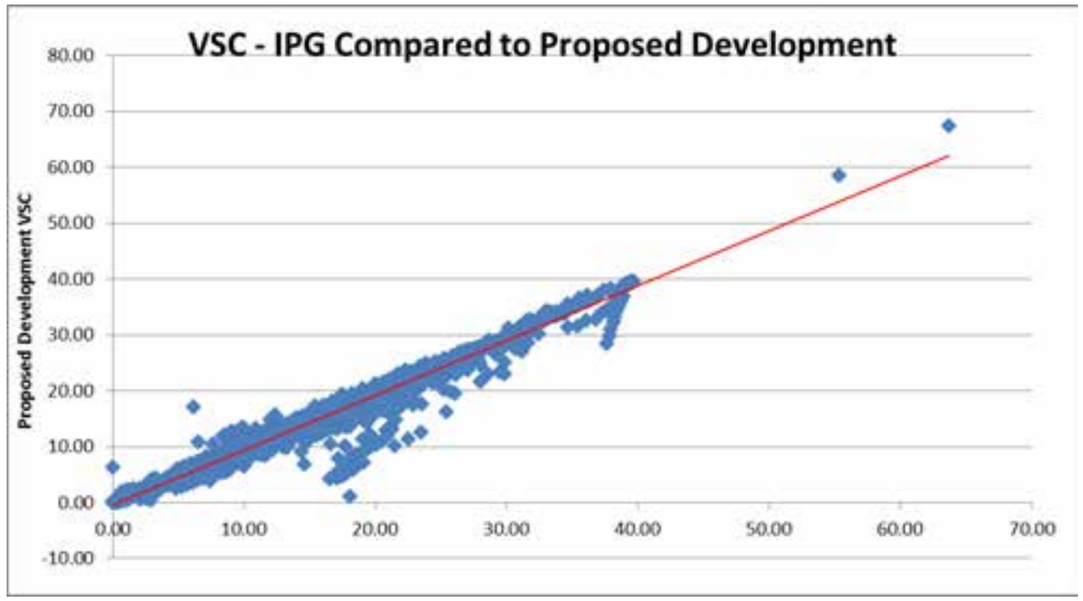


Figure 08 – Comparison of the IPG and Proposed Development Absolute VSC Levels

In the DPR report, there were a number of properties which were considered *'unacceptable'* and *'potentially unacceptable'* (specific properties are investigated further within Section 8.0). Of these properties 75% of the windows will retain an absolute VSC which is within 1% VSC of that for the IPG Massing, whereas 87% windows will retain a VSC which is within 2% VSC of the IPG Massing. Such levels of VSC (1-2% in absolute terms) are unlikely to be noticeable to an occupant and therefore it can be concluded that the levels of VSC are in line with those for the IPG Massing (as interpreted on Figure 6). In comparison to the IPG Massing, 25% of windows retain an absolute VSC which is greater than that of the IPG Massing.

6.0 Urban Context - Commensurate Daylight Conditions

A second means of establishing alternative criteria is to consider the current levels of daylight in the surrounding area prior to site redevelopment. This section of the report specifically addresses the 'Boundary Estate' to the north of the site, as well as historically established and accepted daylighting levels in other urban locations.

Boundary Estate and Surrounding Area

A further study has been carried out to understand the levels of daylight by reference to the VSC in the surrounding area to provide a contextual analysis. An area to the north of the site, incorporating the Boundary Estate, was chosen as the urban form and typology have been established for over 100 years.

Using the three-dimensional model of the Boundary Estate area (Figure 9) the levels of VSC on the façades were assessed for the existing site and surrounds as per the baseline scenario within the ES chapter. This provides a representation of the levels of daylight in the surrounding area prior to the implementation of the Proposed Development.

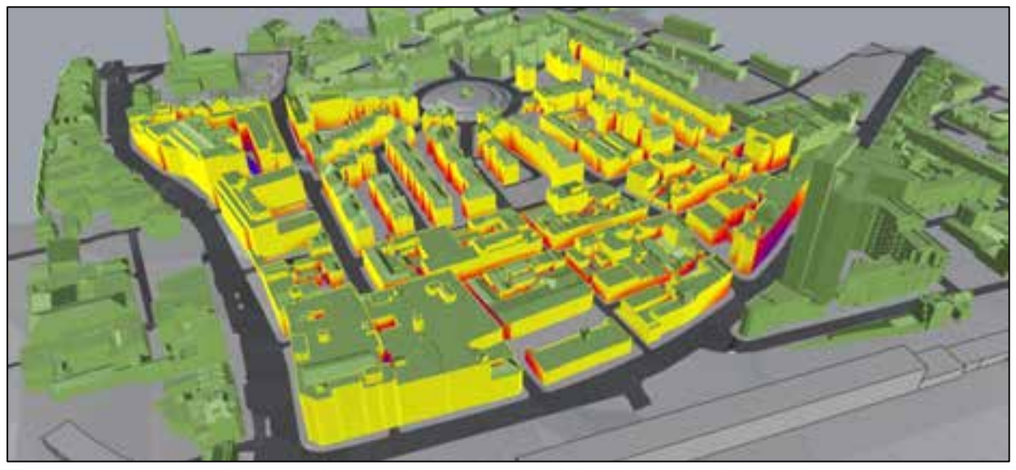


Figure 09 – Boundary Estate and surrounding context VSC Façade Study (Existing Baseline)

The results of the assessment indicate the following average levels of VSC:

- Ground Floor: 17%
- First Floor: 21%
- Second Floor: 25%

It is not until the third floor that the levels are in line with the BRE recommended 27% VSC.

These results therefore support the fact the BRE target criteria are not appropriate in this location or any dense urban area and alternative target criteria should be considered as per Appendix F of the BRE guidelines.

Case Studies for Daylight Context (page 6)

GIA have been undertaking research into the levels of existing VSC in historic streets as well as some more recently developed areas around Westminster, Kensington and Chelsea and Hammersmith and Fulham. The studies, which are still ongoing for other areas around London, involve the creation of 3D models of the site and surrounding context and using specialist software calculate the levels of VSC on the facades of each property.

On using this research, GIA have also been involved in a recently approved planning application in WCC for the 90 Long Acre site which includes:

"demolition of existing office building (forming whole street block with frontages to long acre, Endell Street, Shelton street and Arne Street) and redevelopment to provide two new building comprising two basements, ground and part seven and part 12 upper floors to provide a mix of uses comprising office (class B1), 119 residential units (class C3), retail (Class A1/A3), rehearsal space (Sue generis), car parking for 30 cars accessed from Shelton Street together with new kiosk publicly accessible courtyard,. Landscaping works, public realm improvements, plant, car parking and other ancillary works." (WCC Committee Report dated 08/12/2015)

The proposal (see appendix 4) is located directly opposite Shelton Street which contains residential use form the first floor upwards. Figure 10 (below) illustrated an average VSC retained value of less than 11% VSC (following the implementation of 90 Long Acre).

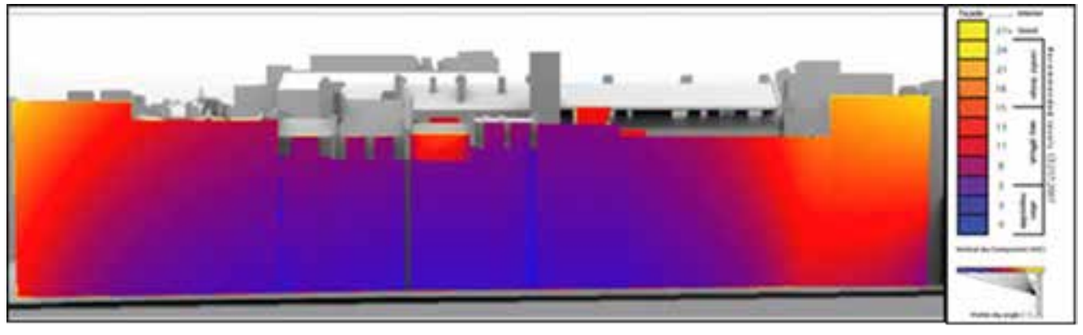


Figure 10 – Shelton Street

As well as Shelton Street several other locations around the 90 Long acre Site containing residential uses were also assessed for VSC façade studies, the results of which are included in Appendix 4 and show similar levels of retained VSC as indicated with Shelton Street on Figure 10.

From the various context studies, case studies and considering the IPG policy context a VSC value of 15-18% may be considered more respective of a dense urban environment such as that of the Site on the city fringe.

7.0 Understanding Cutbacks

A key question which may be asked is whether any small scheme changes can be made to reduce or remove the adverse daylight impacts. There are two properties from which DPR suggest small alterations may be made to the scheme to reduce the impacts or improve the retained levels of daylight. In an attempt to understand what may be needed to remove the impact to 23-24 Wheler Street and to 154 Commercial Street, VSC compliant cutbacks have been undertaken.

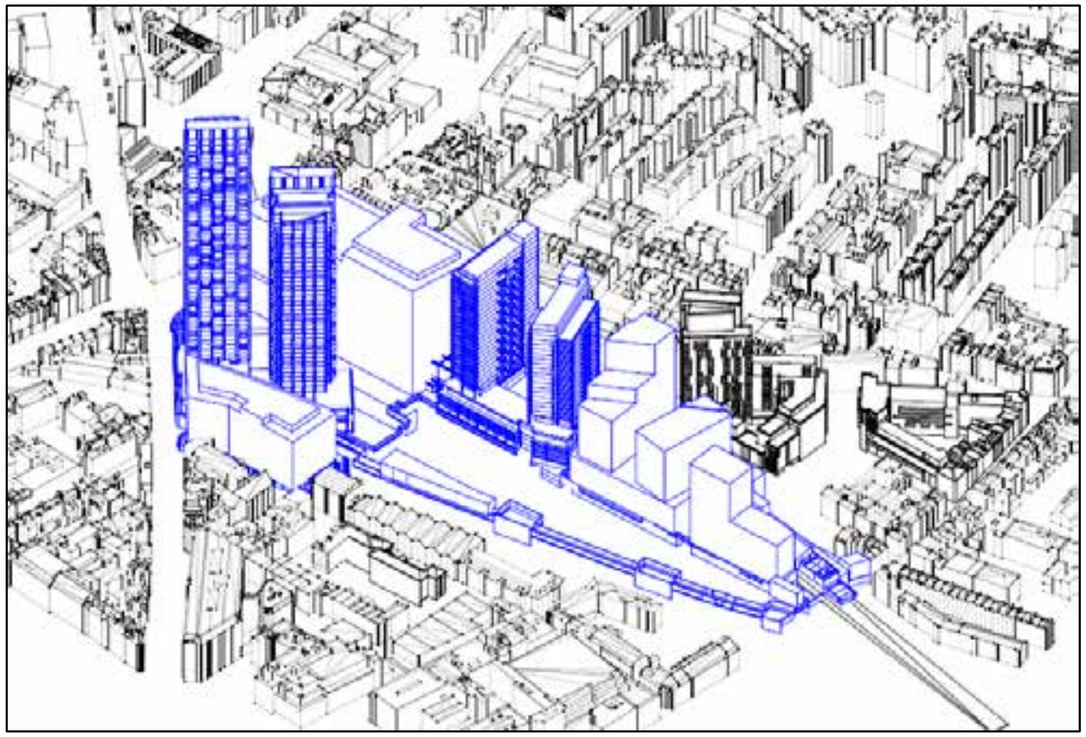


Figure 11 – Proposed Development

23-24 Wheler Street

Figure 12 depicts the massing that would need to be removed in order to limit the impact to 23-24 Wheler Street in terms of VSC. In terms of area, approximately 384,000 sq ft GEA would need to be removed affecting Blocks A, B, G and K, which is not a small design alteration.

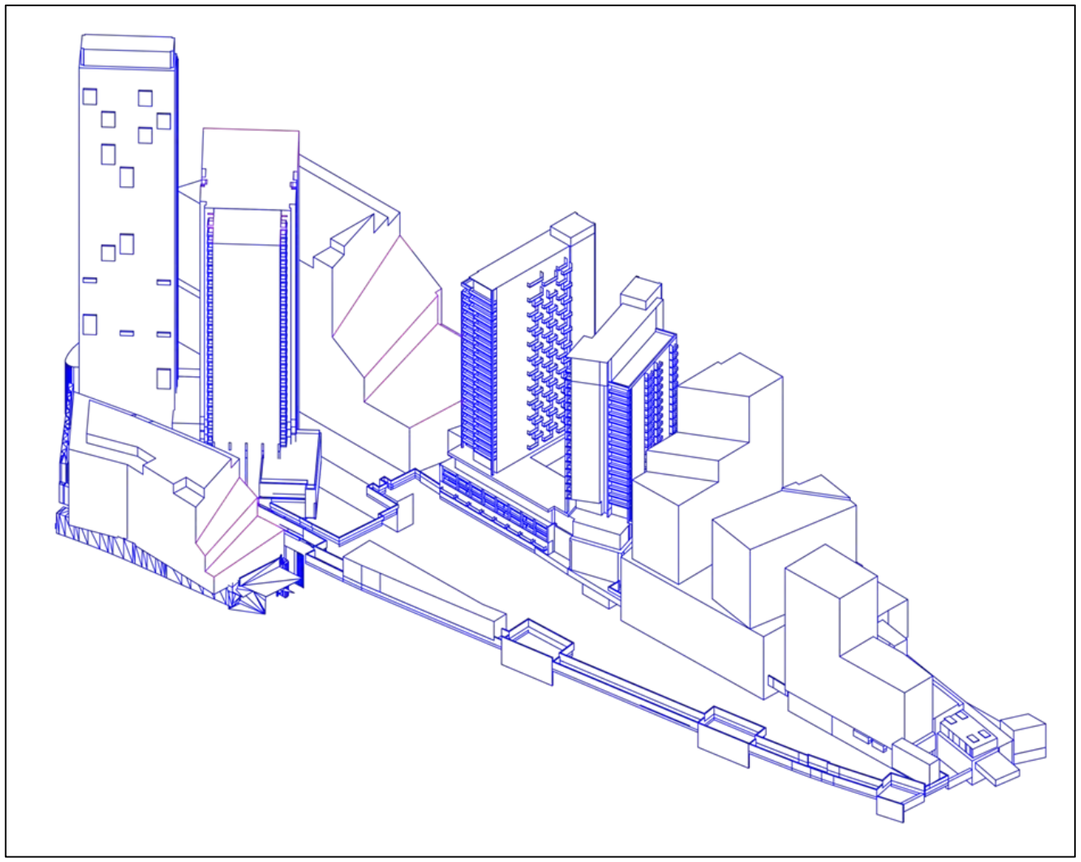


Figure 12 – 23-24 Wheler Street Cutback

154 Commercial Street

A cutback assessment to a VSC complaint position has also been undertaken for 154 Commercial Street as shown in the Figure 13 below. In order to create a VSC compliant position against this property, the technical analysis illustrates that circa 1.45m sq ft GEA would need to be removed from the scheme. This significant design alteration would remove substantial portions of massing to Blocks A, B, F, G and K.

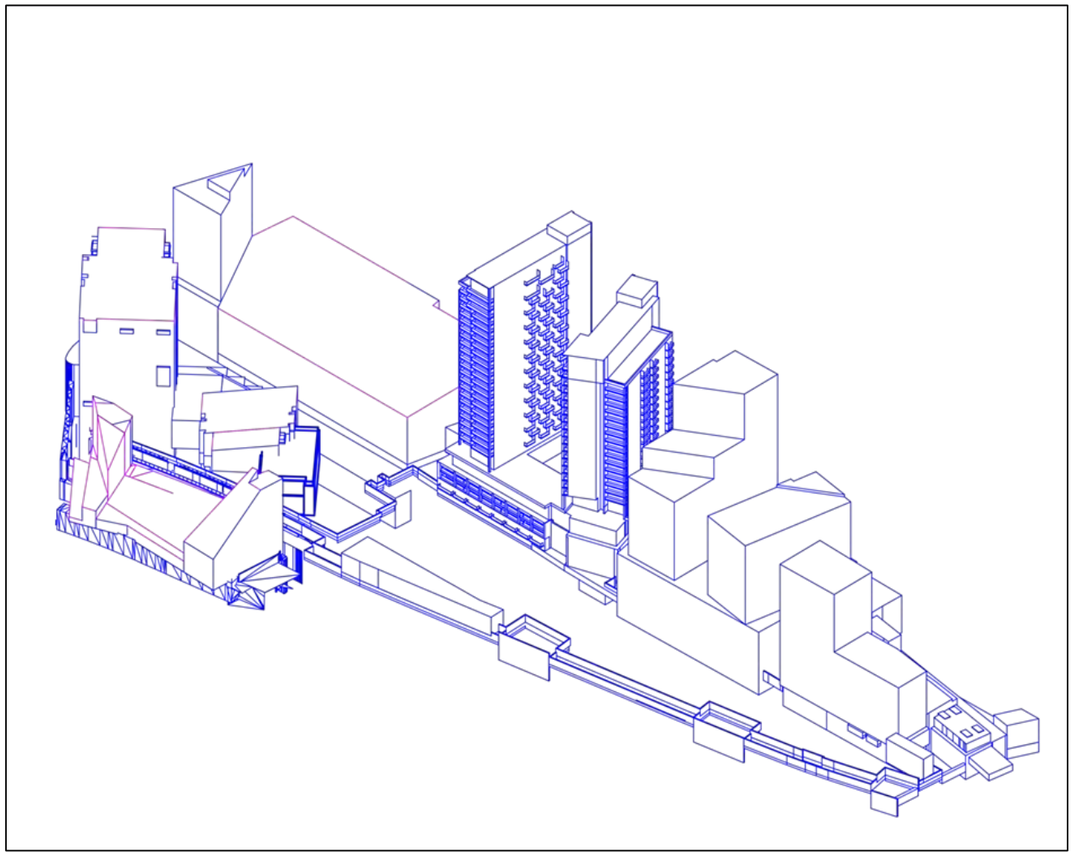


Figure 13 – 154 Commercial Street VSC Compliant

In addition to the above, a further cutback exercise was undertaken for this property to retained levels of VSC which are in line with the alternative target criteria discussed above but where the percentage alterations for many still remain over 40% VSC.

As can be seen within Figure 14, amending the scheme to a position which is in line with alternative target value would still result in a significant alteration to the massing deriving areas losses 237,000 sq ft GEA. This is directly a result of the unusually cleared/open nature of the site in the existing scenario.

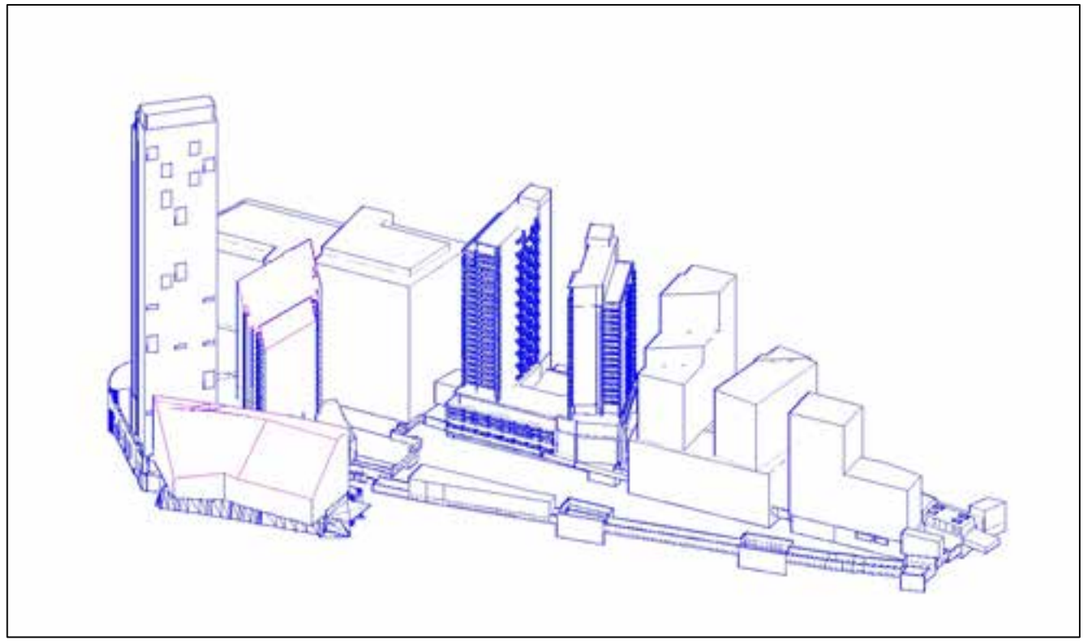


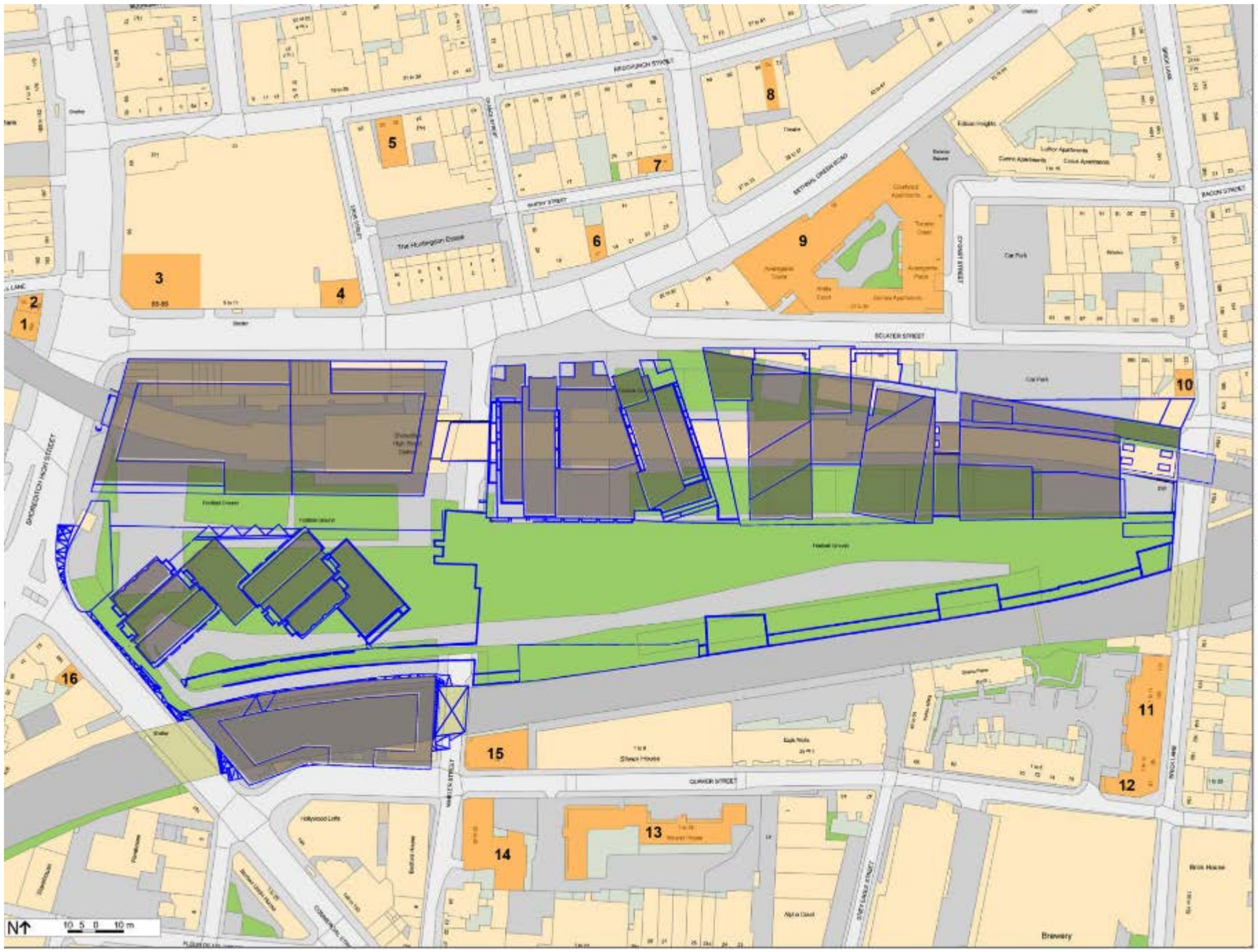
Figure 14 – Halfway position for 154 Commercial Street

8.0 Daylight Impacts

The DPR report provides two classifications of the daylight impacts: those which are deemed *'unacceptable'* and those which are '*potentially unacceptable'*. GIA have therefore undertaken further due diligence and technical work in order to supplement the analysis within the ES chapter for these properties. The daylight impacts discussion is therefore split into these two respective classifications.

Properties Where Impacts are Considered 'Unacceptable' (DPR)

This section provides further explanation for those properties identified in DPR's letter as unacceptable and identified in orange within Figure 15 below. The following commentary provides supplementary information in regards to each of the respective properties from desktop research and considers the alterations against the existing baseline as well as how the retained levels compare to the IPG and/or surrounding context (VSC façade studies) where relevant. Specific window maps indicating the levels of VSC in the Existing, Proposed and IPG Massing Scenarios are contained within the following text and also within Appendix 8 for each of the relevant properties. There are only two properties (23-24 Wheler Street and 119 Brick Lane) which are missing some apertures being coloured within the IPG Massing.



1.) 196 Shoreditch High St
2.) 194-195 Shoreditch High St
3.) 65-66 Bethnal Green Rd
4.) 13 Bethnal Green Rd
5.) 30-32 Redchurch St
6.) 17 Bethnal Green Rd
7.) 3 Club Row
8.) 70 Redchurch St
9.) Telford Homes Block A
10.) 119 Brick Lane
11.) 97-105 Brick Lane
12.) 78 Quaker Street
13.) 1-48 Wheler House
14.) 25 Wheler Street
15.) 10 Quaker Street
16.) 167 Commercial St

Figure 15 – Plan Indicating Location of Properties Classified as 'unacceptable' in DPR Letter

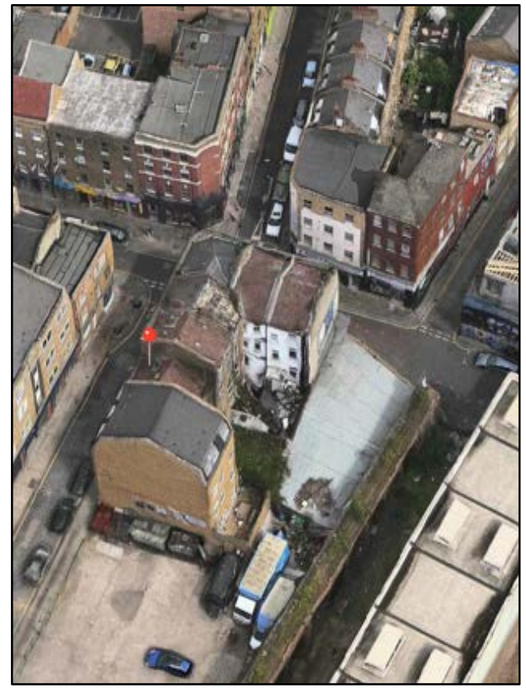
119 Brick Lane

Distance from the site:	***Directly adjacent***
Use:	***Ground floor commercial, residential above***
Significance (ES):	***Moderate Adverse***

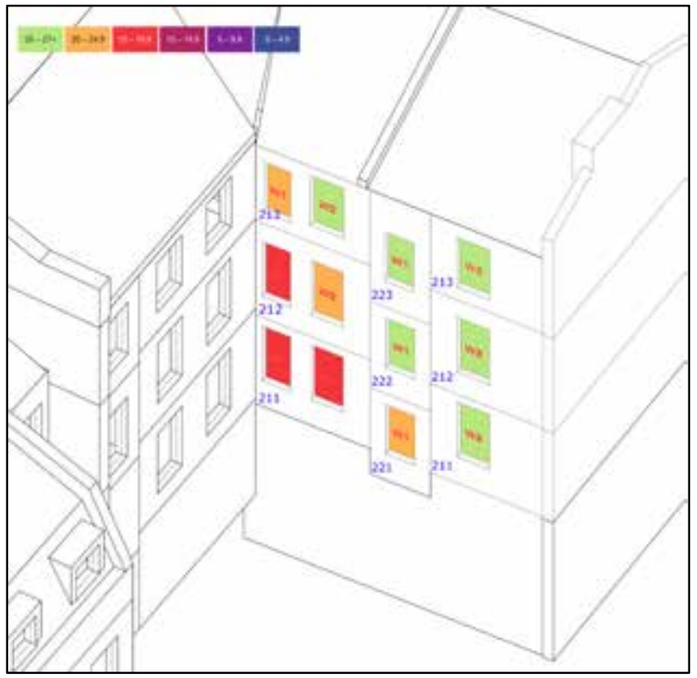
There are 12 windows within this property serving nine rooms which are relevant for assessment. In regards to VSC all of the window within this property will not meet the strict BRE criteria with seven experiencing losses between 30-40%, whereas the remaining five experience losses beyond 40%. All of the windows within this property currently experience high levels of VSC in the existing scenario due to the cleared baseline conditions, whereby any development in line with the IPG policy would result in percentage changes beyond the BRE criteria. Eight out of the 12 windows will retain a VSC of at least 15% VSC, which is considered commensurate of a dense urban location such as the city fringe based on the contextual analysis and case studies. In addition, the retained levels of VSC are in line with those assessed for our interpretation of the IPG Massing.

In regards to the NSL three out of the nine rooms will meet the BRE criteria. In regards to the six remaining rooms, four rooms experience alterations between 20-40% whereas two experience alterations beyond 40%. These percentage changes are a result of the existing cleared site whereby any development in line with the IPG policy would result in alterations beyond the BRE guidelines. All of the six rooms retain a view of the sky dome to at least 50% of their total room area and in some cases a high as 70%; whilst these are below the levels recommended by the BS 8206 p2, they are reflective of a dense urban environment.

This property is located directly adjacent to the site and is flanked by 100 to 106 Sclater Street which acts to obstruct its view towards to north. Therefore this property relies on the unobstructed view across the clear site for the majority of its daylight amenity. Given the proximity to the site and the open nature of the site in its existing condition any development reflective of the IPG would result in adverse daylight impacts beyond the BRE criteria.



Existing VSC Levels



IPG Massing VSC Levels
(not all windows assessed in this scenario)

Proposed Development VSC Levels

97-105 Brick Lane

Distance from the site: ***23 m (67m from main building line)***

Use: ***Ground floor commercial, residential above***

Significance (ES): ***Moderate Adverse***

There are 51 windows within this property serving 39 rooms within this property which is commercial on ground floor with residential apartments above. Of the 51 windows, 31 would achieve BRE compliance in relation to the VSC method of assessment and therefore unlikely to experience a noticeable change in daylight amenity. Out of the 20 affected windows 13 experience losses of between 20-30%. And a further two windows will experience changes of between 30-40%. The remaining five windows would experience losses of 40% or more.

The majority of windows currently enjoy high levels of VSC due to the open nature of the site. Combined with the proximity to the site any development in line with the IPG policy would result in adverse daylight impacts.

Several windows within this property are located below balconies which act to restrict the view of the sky dome and thus the ability to receive BRE compliant levels of VSC. These windows have existing VSC levels of 12% or less, whereby any alteration could result in a disproportionate percentage change triggering a transgression of the BRE.

Throughout the whole building, 40 out of the 51 windows assessed will retain a VSC of at least 18% and a further three windows will retain at least 15% which is considered commensurate based on the contextual analysis and case studies.

In regards to NSL, 36 out of the 39 windows would achieve BRE compliance as a result of the Proposed Development. In regards to the three remaining rooms, all experience alterations between 20-30% and retain a view of the sky dome to at least 60% of the total room area, which is considered commensurate.

The highlighted window maps overleaf clearly demonstrate that it is the existing architectural design rather than the Proposed Development which is the main contributor to daylight enjoyment.

This building currently has a relatively unobstructed view overlooking the cleared site. Any development on the site has the potential to create disproportionate percentage alterations. In relation to the tallest element of the site this building is located 87m away from the main building line.

Existing VSC Levels

IPG Massing VSC Levels
(not all windows assessed in this scenario)

Proposed Development VSC Levels

78 Quaker Street

Distance from the site: ***73 m***

Use: ***Commercial – Housing Association offices***

Significance (ES): ***Minor to Moderate Adverse***

From further desktop investigations it is understood that this property is in use as offices for the Spitalfields Housing Association.

The BRE guidelines state that residential properties and habitable rooms such as living rooms, bedrooms and kitchens are the most sensitive in regards to daylight. Some commercial dwellings may be considered to have a requirement for daylight such as schools or hospitals; however, this building does not fall into any of these categories.

Therefore, as commercial in use, this property is not considered sensitive in regards to daylight and no further consideration is considered necessary.

3 Club Row

Distance from the site:	***65 m***
Use:	***Council tax suggests commercial since 2007, however being marketed as residential on Zoopla***
Significance (ES):	***Moderate Adverse***

This property is located over 65mto the north of the site, on the second line of buildings from the site. There are 12 windows serving 10 rooms within this property which have been assessed for daylight. Out of the 12 windows, seven would comply with the BRE criteria for VSC. Three windows experience alterations between 20-30%, which given the cleared nature and development aspirations for the site, such alterations are inevitable. The two remaining windows, one located on the first floor, the other on the third floor, experience percentage alterations between 30-40% in VSC.

The windows currently experience obstruction from the surrounding context in particularly the Sclater Street tower (part of the Telford Homes scheme). All of the five affected windows have existing levels of VSC below 13% in absolute terms whereby any alteration could result in a disproportionate percentage change. Furthermore, the levels of retained VSC are in line with the IPG Massing assessment.

In addition, it is the flank wall of windows which are potentially adversely affected, which from external observation and the presence of guttering, several may serve kitchens or bathrooms which are less sensitive in daylight terms.

In regards to the NSL, 50% of the rooms meet the BRE criteria and two rooms will experience alterations of 31% and 32.5% respectively, which is likely a result of the existing cleared condition of the site.

The remaining three rooms experience losses of 40%+. However, the actual sq ft loss of light to two of the rooms equates to less than six sq ft, which in absolute terms is relatively small and the large overall percentage changes can be attributed to the low existing NSL levels and are disproportionate to the overall loss.

Located in excess of 65m from the site boundary and behind properties along Bethnal Green Road, it is questionable that the daylight amenity to this property would be compromised. Whilst it is acknowledged that there will be a change in daylight enjoyment, the retained VSC values against each aperture demonstrate a small actual change (as can be seen in the window maps overleaf).

Existing VSC Levels

IPG Massing VSC Levels
(not all windows assessed in this scenario)

Proposed Development VSC Levels

Distance from the site: ***50 m (Approximately 100m from main building line)***

Use: ***Residential confirmed by council tax search and external observation***

Significance (ES): ***Moderate to Major Adverse***

1-48 Wheler House is located almost 50m from the site boundary and in excess of 100m from the main building line (Block C) as shown above)

Within the ES Chapter this building has been divided into two – 1-48 Wheler House and 1-48 Wheler House (West Part) as identified on Figure 16.

Figure 16 –Wheler House and Wheler House West (as assessed within the ES Chapter)

1-48 Wheler House

There are 190 windows serving 63 rooms within this property. With regards to VSC, 22 of the 190 windows assessed would achieve full BRE compliance in relation to the VSC method of assessment. Out of the 168 windows that experience BRE transgressions 11 windows experience losses of between 20-30%. A further 35 windows would experience a change of between 30-40%. However, 22 windows retain a VSC of at least 17% which could be considered commensurate with a dense urban environment. 122 windows would experience a change of 40%+. However, 53 windows have low existing VSC levels (less than 10%) whereby any alteration could result in a disproportionate percentage change.

With regards to the NSL, 55 of the 63 rooms assessed would achieve BRE compliance in relation to the NSL method of assessment. A further five rooms would experience a loss of between 20-30% which by reference to the numerical criteria would be considered minor adverse.

One room would experience a loss between 30-40%. The room use is unknown and should it be identified as ancillary space this room would not require consideration. In addition, this room retains a view of the sky dome to 48% of the total room area.

Two rooms would experience an NSL alteration of 40%+. However, the room use is unknown and should they be identified as ancillary spaces these rooms would not require consideration. Both have relatively low NSL levels in the baseline.

1 to 48 Wheler House (West Part)

There are 51 windows serving 51 rooms within this property. Of the 51 windows assessed, eight would achieve BRE compliance in relation to the VSC method of assessment and therefore will not experience a noticeable alteration in daylight. There are seven windows that would experience losses of between 20-30% which given the current cleared condition of the site and the aspirations for high density development in the planning policy, are likely unavoidable.

Seven windows would experience changes between 30-40%. However, of these seven windows, four would experience absolute reductions between 1-3%. The low existing levels of VSC are causing disproportionate overall percentage reductions. Of the remaining three windows, two windows retain values greater than 17% in absolute terms which could be considered commensurate with an urban environment.

There are 29 windows that would experience over 40%+ reductions. However, eight of these windows that experience absolute reductions of 1-2% which are unlikely to be noticeable. The low existing levels of VSC are causing disproportionate overall percentage reductions. In addition, 17 windows serve bedrooms which may be considered less sensitive in daylight terms.

Of the 51 rooms analysed, 48 would achieve BRE compliance in relation to the NSL method of assessment and thus the effect of the Proposed Development to these rooms is considered to be of negligible significance.

Two rooms will experience alterations between 20-30%, one of which is understood to be a bedroom. The remaining one room would experience a 40%+ alteration however is understood to serve a bedroom which is considered less sensitive in daylight terms compared to living rooms.

Comparing both parts of this Property

The architectural design of this property reduces the ability of the existing apertures to receive daylight and sunlight due to the presence of the external walkways/ overhanging protrusions. Particularly at the lower levels, such obstruction will significantly reduce the quantum of daylight that the apertures are able to receive and therefore any increase in massing within the existing site will likely cause transgressions from such guidance.

The majority of the windows within this property experience alterations in VSC beyond 40%. However, this is due to the low existing levels of VSC, whereby any alteration can result in a disproportionate percentage change. Furthermore, a large proportion of the windows demonstrate relatively small absolute alterations.

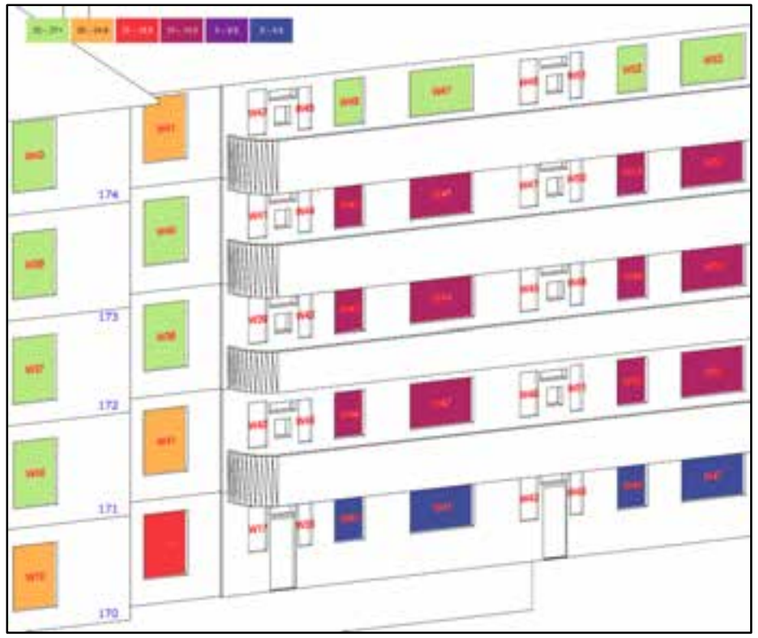
This property, has overhanging balconies which restrict the view of the sky dome and thus produce low existing values. The BRE Guidelines recognises the effect balconies and overhangs can have on the levels of daylight and note that in such circumstances:

"even a modest obstruction opposite may result in a large relative impact on the VSC" (para 2.2.11)…. "an additional calculation of the VSC and area receiving direct skylight, for both existing and proposed situations without the balcony in place".

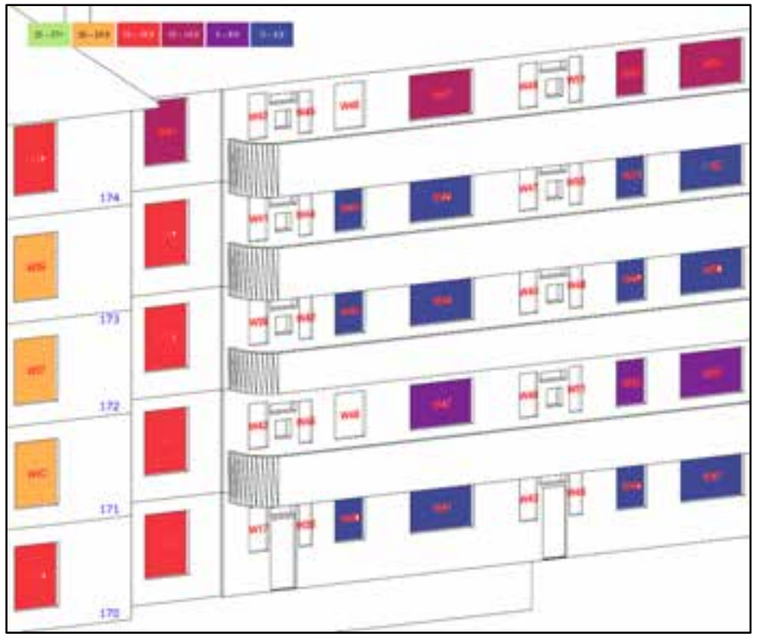
By reference to Appendix F of the BRE guidelines, assuming a reasonable level of development on the site, an appropriate alternative target VSC might be approximately 10%. Of the 190 windows assessed 60 will retain a VSC equal or greater than 10% VSC in absolute terms. For the remaining windows many have low existing levels such that small alterations in VSC result in disproportionate percentage changes triggering a transgression of the BRE guidelines.

A supplementary assessment has been undertaken without the balconies in place (results within Appendix 9) for the lowest floor to determine whether it is the development itself or the balconies which is the main factor in the relative loss of daylight. The results indicate that without the balconies obstructing the view of the sky dome, retained levels of daylight would be between 15% and 22%, which is reflective of a dense urban environment when compared to the 10% VSC or less with the balconies in place. In addition, the percentage alterations would be mostly under 35% compared to the 40% + alterations with the balconies in place. This establishes that it is this building's design which does not promote high levels of daylight rather than the proposed development alone. In addition, the results of the NSL assessment indicate high levels of daylight compliance.

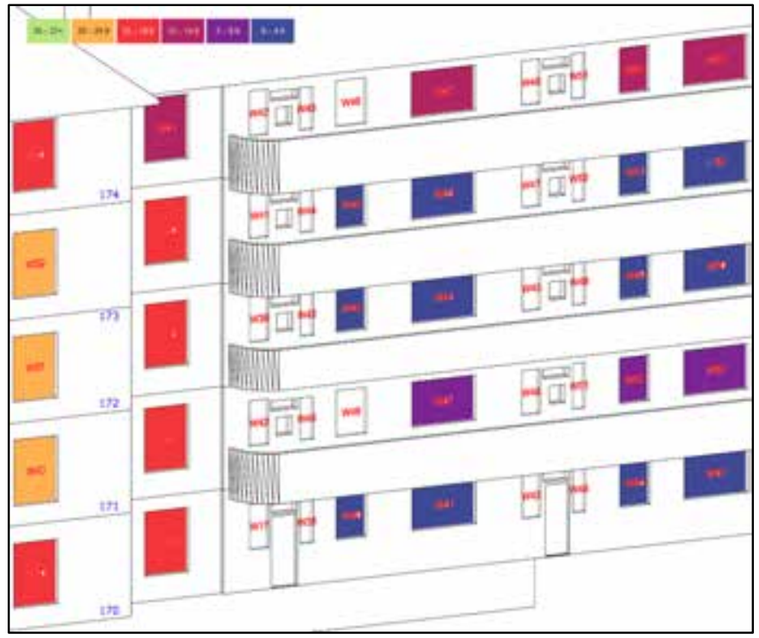
Existing VSC Levels



IPG Massing VSC Levels
(not all windows assessed in this scenario)



Proposed Development VSC Levels



25 Wheler Street

Distance from the site: ***40 m (Circa 100m from main building line)***

Use: ***Residential confirmed by council tax search and external observation***

Significance (ES): ***Moderate to Major Adverse***

25 Wheler Street is located more than 40m from the site boundary and about 100m from Block C (the main building line of the proposal and taller element of the scheme) to the south of the development site. There are 87 windows within this property serving 63 rooms. 36 out of the 87 windows will achieve BRE compliance for VSC and therefore will not experience a noticeable alteration in daylight. 19 windows will experience percentage changes of 20-30%, which given the current cleared condition of the site and the aspirations for high density development in the planning policy, are likely unavoidable.

Of the remaining windows, 18 windows would experience a percentage change of between 30-40%. However, 14 of the windows would retain VSC levels above 17% which is considered commensurate with a dense urban environment based on the contextual studies discussed earlier within this report.

The remaining 14 windows would experience losses beyond 40%. However, the absolute reductions to four of the 14 windows are between 0-4%. A number of windows within this property have existing levels of VSC below the BRE recommended 27% and in some places as low as 1-6% whereby any alteration would result in a disproportionate percentage change.

Due to the current open nature of the site, this property currently receives a very high level of daylight in the baseline condition, as shown by the green shading on the following window map. Therefore, any increase in massing on site will result in a greater percentage alterations to this property. In the majority of cases the retained daylight levels to the serving this property will still remain relatively high given the context (circa 14-20% VSC).

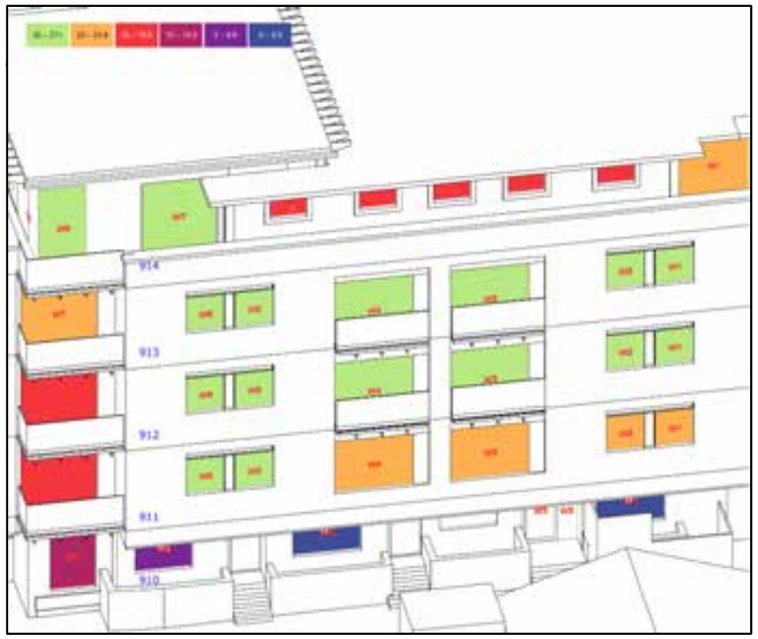
Those windows that do experience larger transgressions are typically situated under overhangs and balconies (particularly at the ground and first floor level), and to the rear of the property where there is a flank wall restricting the level of daylight received to these windows. As discussed under 1-48 Wheler House, these overhangs or obstructions act to blinker the view of the sky dome which can result in larger alterations, particularly when combined with a relatively open aspect. If an assessment was undertaken without the balconies as demonstrated above for 1-48 Wheler Street, the results would likely indicate improved levels of retained daylight and less significant alterations.

In regards to NSL, 43 out of the 63 rooms assessed would meet the BRE for NSL. Six rooms will experience percentage changes between 20-30%, which given the current cleared condition of the site is inevitable should any development reflective of the IPG policy be achieved. Four rooms will experience alterations between 30-40%, two of which are bedrooms which are considered less sensitive in regards to daylight.

The remaining 10 rooms will experience percentage alterations beyond 40%. However, six of these are bedrooms which are less sensitive in regards to daylight. A further two retain a distribution level at least 50% of the total room area, which may be considered commensurate with a dense urban environment. One Living/Dining room has a low existing NSL of 12% of the total room area, whereby any alteration could result in a disproportionate percentage change.

Located in excess of 40m from the site boundary, it is questionable that the daylight amenity to this property would be compromised. Whilst it is acknowledged that there will be a change in daylight enjoyment compared to the existing conditions, this is due to the unusually cleared site condition combined with overhanging features on the façade such as balconies that restrict the potential for good daylight. In addition, this building currently has a relatively unobstructed view overlooking the cleared site. Any development on the site has the potential to create disproportionate percentage alterations. In relation to the tallest element of the site this building is located 100m away from the main building line.

Existing VSC Levels



IPG Massing VSC Levels
(not all windows assessed in this scenario)

Proposed Development VSC Levels

10 Quaker Street

Distance from the site: ***Adjacent to site (75m from main building line)***

Use: ***Residential from 1st floor***

Significance (ES): ***Moderate to Major Adverse***

10 Quaker Street is located directly to the south of the site. There are 29 windows serving 21 rooms within this property which have been assessed for daylight. Out of the 29 windows, two would achieve BRE compliance for VSC and thus experience no noticeable alteration in daylight.

Three windows will experience percentage alterations in VSC between 20-30% which are inevitable given the cleared existing condition of the site and the aspirations for high density development. One window will experience an alteration of 31.5%, however this window is on the ground floor which is understood to be commercial in use.

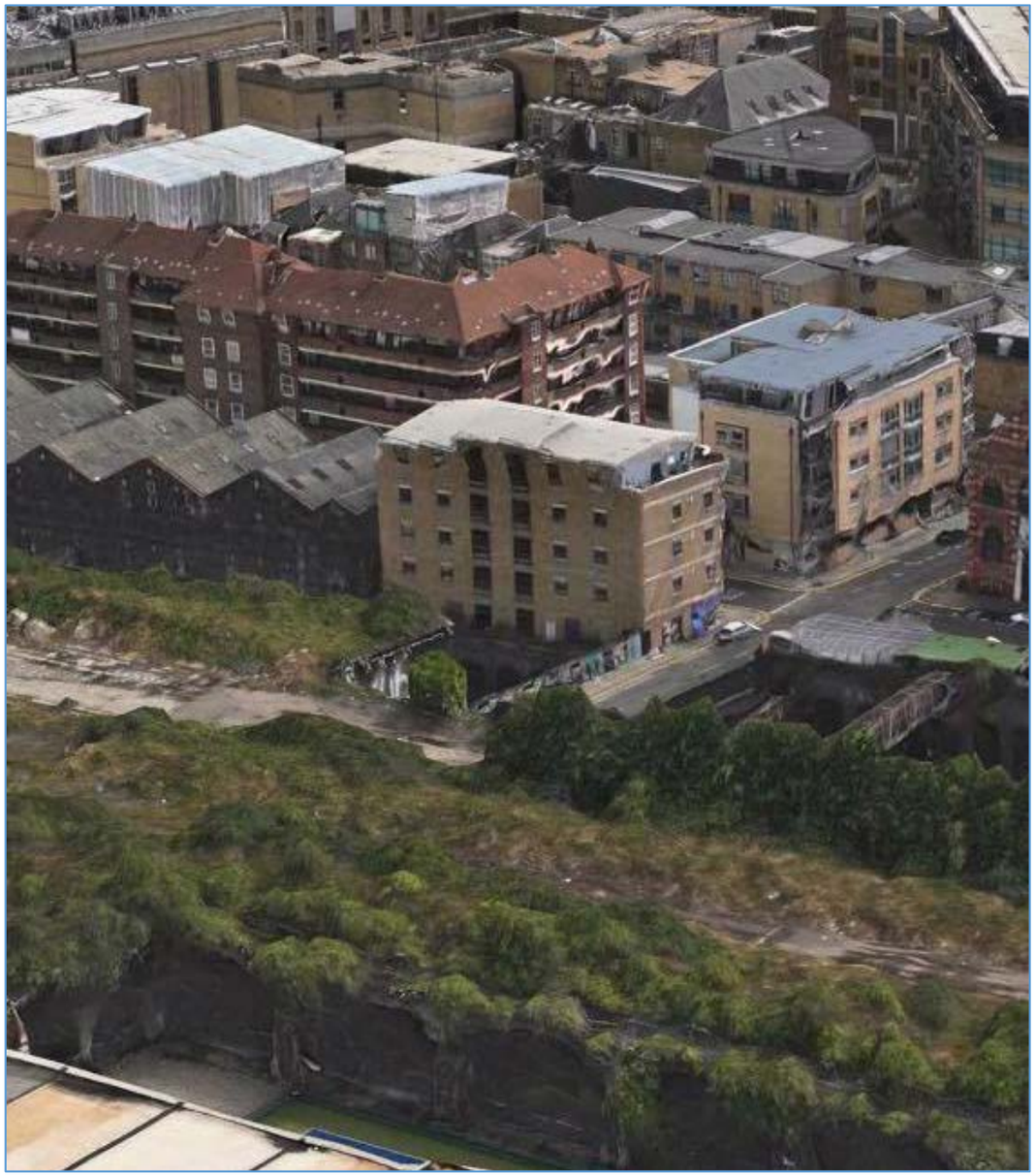
The remaining 23 windows will experience alterations beyond 40% of which 16 are understood to serve bedrooms which are less sensitive in daylight terms compared to other room uses. Such large percentage changes are due to the existing cleared condition of the site with the windows in this property acting at almost full capacity with regards the VSC criteria. As this property is located almost adjacent to the site, separated only by a railway line, greater percentage changes are inevitable if any significant development (reflective of the IPG concept and policy) is to be realised on site.

Furthermore many of the windows within this property retain a VSC of approximately 15% -18% in absolute terms, which is considered commensurate with a dense urban environment. In comparison to a considered IPG Massing, the retained levels of VSC for the majority of the habitable windows are in line with those for the IPG.

In regards to NSL, out of the 21 rooms assessed, five would achieve BRE compliance. A further six rooms will experience losses between 20-30% which are likely inevitable with the existing cleared nature of the site. Of the remaining 10 rooms, two would experience losses between 30-40%. However, these two rooms retain a view of the sky dome to at least 60% of the working plane.

The remaining eight rooms experience an NSL alteration of 40%+. However, six of these rooms are understood to be bedrooms which are considered less sensitive in daylight terms. Five of these eight rooms retain a view of the sky dome to at least 50% of the total room area, which is considered commensurate with a dense urban environment.

The image below visually shows the extent of the cleared nature of the site. Any development on the site has the potential to create disproportionate percentage alterations. In relation to the main building line and taller elements of the Proposed Development this building is located 75m away.



Existing VSC Levels

IPG Massing VSC Levels
(not all windows assessed in this scenario)

Proposed Development VSC Levels

167 Commercial Street

Distance from the site:	***16 m***
Use:	***Ground floor commercial with residential above***
Significance (ES):	***Moderate to Major Adverse***

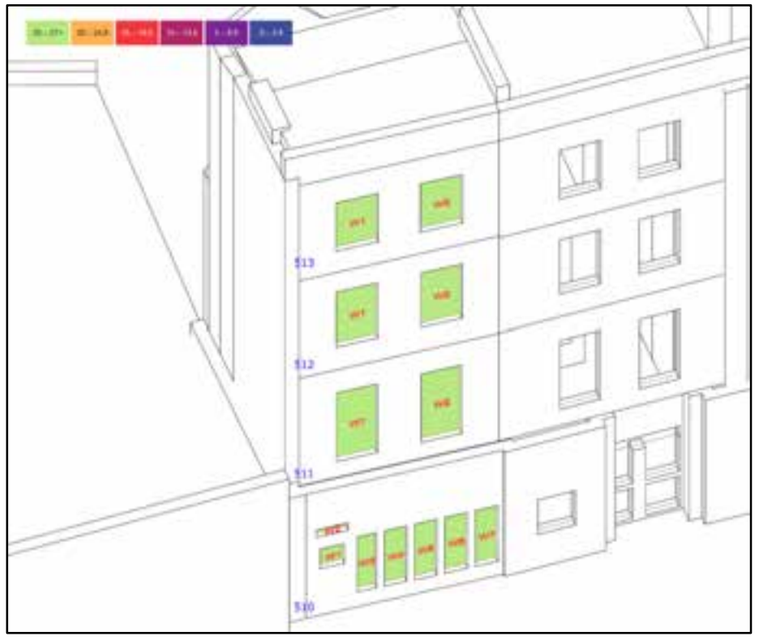
This property is located along Commercial Street (directly opposite the site to the west) in an area where planning policy suggests the location of taller buildings. There are 13 windows serving eight rooms within this property. All eight rooms will experience alterations beyond 40% for NSL.

All of the 13 windows within this property will experience a percentage alteration beyond 40% for VSC. However, in regards to the retained levels of VSC, our interpretation of an IPG Massing results in levels between 14-16% VSC whereas following the implementation of the Proposed Development the retained VSC levels are just below this at circa 10-13% VSC.

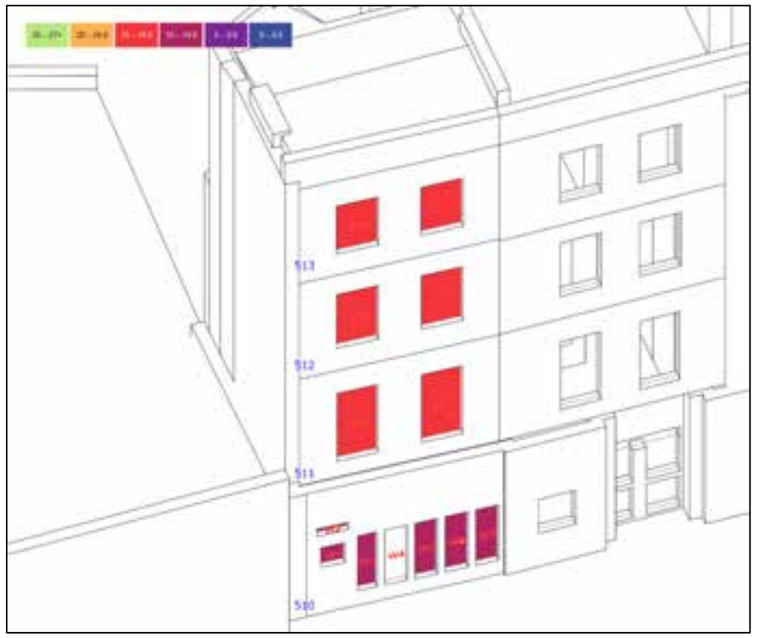
Given the open nature of the site and aspiration for taller elements in this location adverse daylight impacts would be inevitable if a development is to be in line with the planning policy context due to the proximity. Furthermore this property is located on a very busy traffic junction where the level of amenity or expectation of amenity is likely to be considered low given the current open aspect

Given the likely lower expectations of amenity in such a location and the design concepts within the IPG for taller elements in this locality combined with other site wide design constraints, such levels of daylight and impacts are not unexpected.

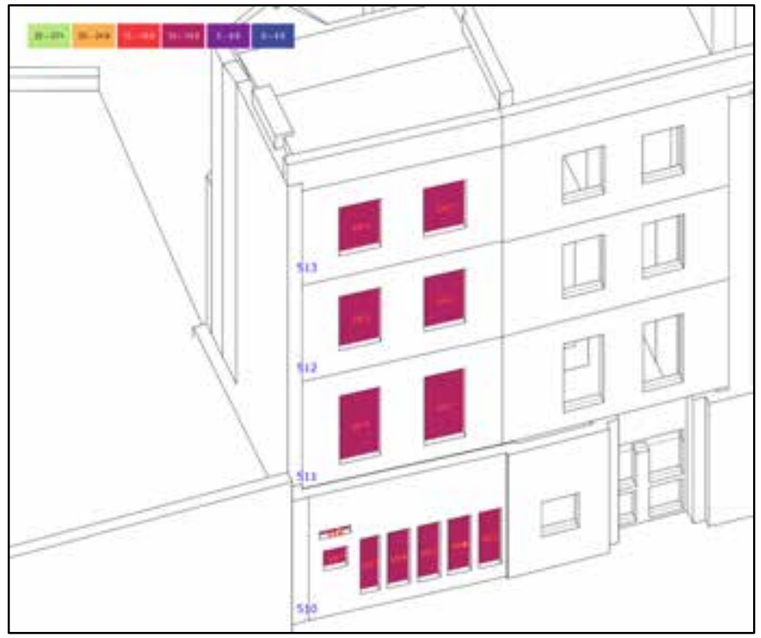
Existing VSC Levels



IPG Massing VSC Levels
(not all windows assessed in this scenario)



Proposed Development VSC Levels



194-196 Shoreditch High Street

Distance from the site: ***26-32 m***
Use: ***Commercial ground floor with residential units above***
Significance (ES): ***Moderate to Major Adverse***

These properties are situated on a busy traffic intersection where the levels of amenity and the expectation of amenity are typically lower.

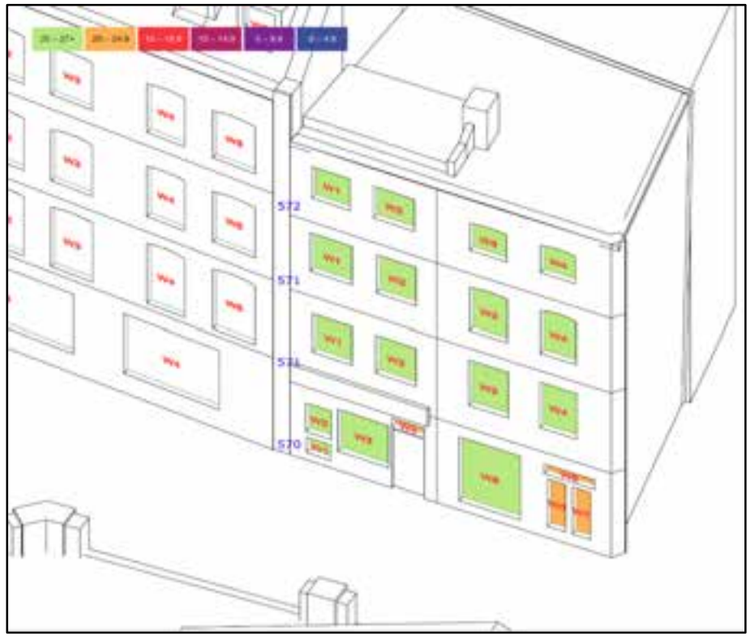
In regards to 196 Shoreditch, there are 20 windows serving 11 rooms. Only one window would achieve BRE compliance for VSC whereas the remaining windows will experience percentage changes beyond 40% however, 14 of these would retain a VSC of at least 16-21% which is considered commensurate with a dense urban location. 10 out of the 11 rooms assessed will meet the BRE criteria for NSL. The remaining room will experience an alteration between 20-30% which is inevitable given the current cleared condition of the site and retains a distribution of daylight to 75% of the room area (compared to the 80% recommended by the BS 8026 part 2).

All of the 10 windows within 195 Shoreditch High Street will experience percentage changes beyond 40%, however four of these retain a VSC of at least 16% which is considered commensurate with a dense urban environment and all retain values of at least 12% VSC. Furthermore, all of the four rooms assessed within 195 Shoreditch high Street will meet the BRE guidelines for NSL.

In regards to 194 Shoreditch High Street, all 10 windows assessed will experience alterations beyond 40% however four retain a VSC of at least 16% which is considered commensurate with an urban environment. For NSL, two rooms experience alterations between 20-30% which are inevitable given the current cleared condition of the site. One room would experience a loss between 30-40%. However, this room would retain a view of the sky dome to 54% of the working plane which is considered commensurate with a dense urban environment and the remaining room experiences an alteration beyond 40%.

The windows within these properties have an unobscured view across this site, looking down Bethnal Green Road and therefore currently enjoy existing high levels of VSC (35-38% compared to the maximum of circa 40% VSC as per the BRE guidelines). Such high levels are considered unusual and uncharacteristic of a dense urban location such as that of the site on the city fringe. Given the open nature of the site and current existing levels of VSC, any development reflective of the text within IPG, would result in significant alterations to the existing levels of daylight. In comparison to the VSC results for our interpretation of the IPG Massing, the Proposed Development will result in similar levels of VSC (within 1-2% in absolute terms of those for the IPG Massing as interpreted on Figure 6).

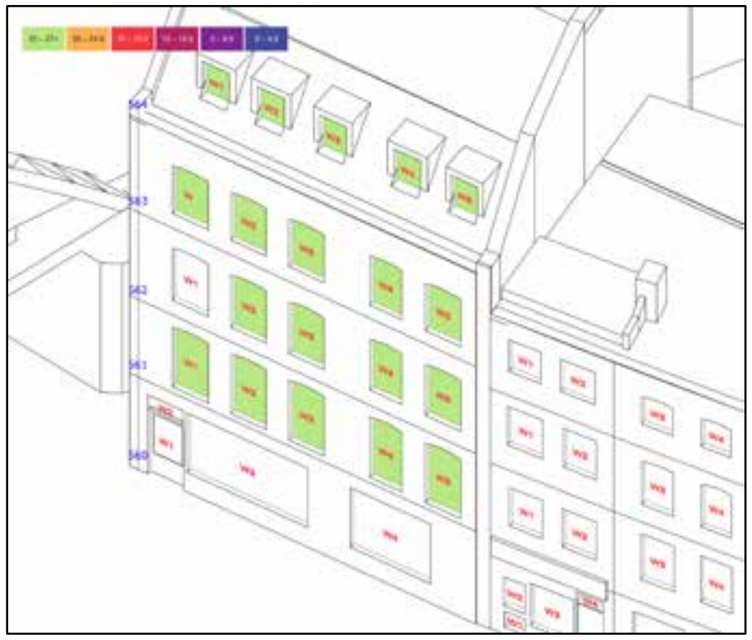
Existing VSC Levels (194 – 195 Shoreditch High Street)



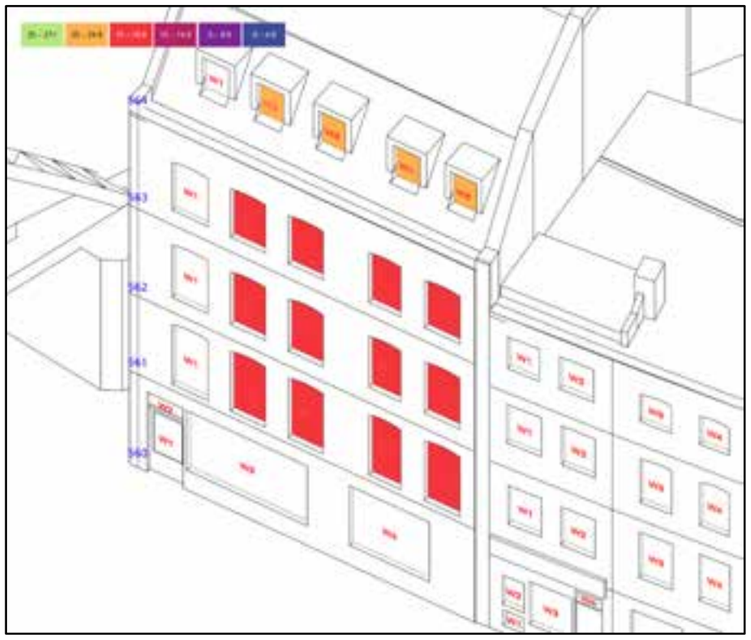
IPG Massing VSC Levels (194 – 195 Shoreditch High Street)

Proposed Development VSC Levels (194 – 195 Shoreditch High Street)

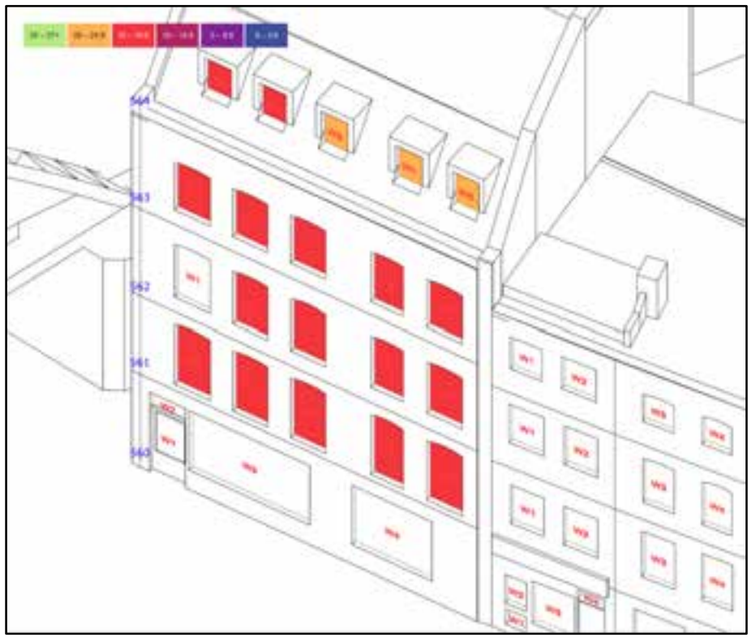
Existing VSC Levels (196 Shoreditch High Street)



IPG Massing VSC Levels (196 Shoreditch High Street)

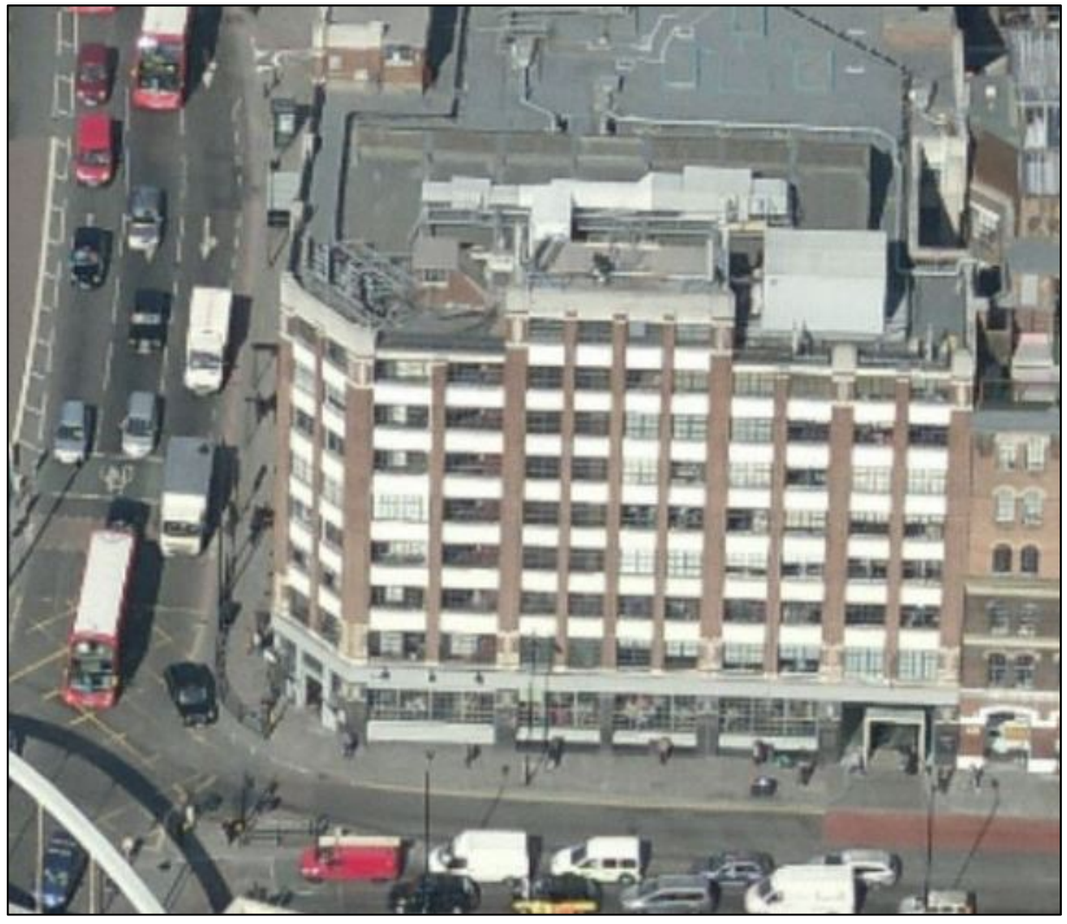


Proposed Development VSC Levels (196 Shoreditch High Street)



Tea Building (incorrectly labelled as 65-66 Bethnal Green Road in ES Chapter)

Distance from the site:	***15 m***
Use:	***Commercial property***
Significance (ES):	***Moderate Adverse***



The Tea building is located directly to the north west of the site at the junction between Shoreditch High Street and Bethnal Green Road. Whilst this property was included within the ES chapter, further investigations have confirmed that the entire building is commercial in use.

The BRE guidelines state that residential properties and habitable rooms such as living rooms, bedrooms and kitchens are the most sensitive in regards to daylight. Some commercial dwellings may be considered to have a requirement for daylight, such as schools or hospitals; however, this building does not fall into any of these categories.

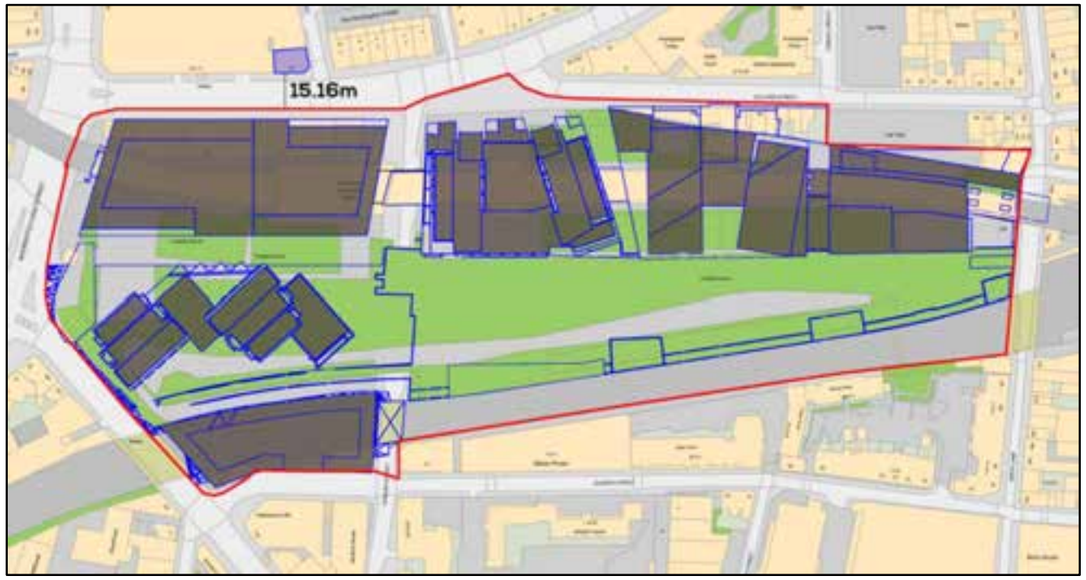
Therefore as commercial in use, no further consideration is necessary in regards to daylight in regards to this property.

13 Bethnal Green Road

Distance from the site: ***15 m***

Use: ***VOA entry deleted, Cowshed Spa with hotel above***

Significance (ES): ***Moderate Adverse***



From further desktop investigations, it is understood that this property forms part of the Cowshed Spa with the upper floors (red in image overleaf) as hotel and therefore this property is commercial in use. The rooms on the lower floors ground to second) are likely to be treatment rooms whereby the blinds are typically closed for privacy reasons.

The BRE guidelines state that residential properties and habitable rooms such as living rooms, bedrooms and kitchens are the most sensitive in regards to daylight. Some commercial dwellings may be considered to have a requirement for daylight such as schools or hospitals, however this building does not fall into any of these categories.

Therefore, as commercial in use and particularly given the need to maintain privacy within treatment rooms and thus blinds continually closed, this property is not considered sensitive with regard to daylight.

30 Redchurch Street

Distance from the site: ***65 m***

Use: ***Top floor residential from VOA and external observation***

Significance (ES): ***Moderate to Major Adverse***

There are four windows within this property serving four rooms. One out of the four windows will meet the BRE target criteria.

Further investigation identifies only the top floor as residential in use and therefore the impacts to the first floor are not significant. Both of the windows on this floor will experience alterations beyond the BRE criteria for VSC (one between 30-40% and the other beyond 40%). However both retain a VSC of at least 15-16% which is considered commensurate with a dense urban environment on the city fringe. In addition, the retained levels of VSC are in line with those for our interpretation of the IPG Massing.

Furthermore, the affected windows look into a small courtyard between buildings which obscures the levels of daylight to these rooms and this property is located 65 m away from the site (second/third line of buildings) where the perception of the alteration of this development on this property is likely to be reduced

In regards to the NSL, the two rooms on the top floor will experience alterations beyond 30%. However, one of which will retain a distribution to at least 63% of the total room areas which is considered commensurate with an urban environment.

Located in excess of 65m and two blocks of buildings from the site boundary, it is questionable that the daylight amenity to this property would be compromised. Whilst it is acknowledged that there will be a change in daylight enjoyment compared to the existing conditions, this is due to the unusually cleared site condition combined with the aspect of these windows into a small lightwell/courtyard area between buildings.

32 Redchurch Street

Distance from the site:	***65 m***
Use:	***VOA indicate not paying council tax currently/not occupied***
Significance (ES):	***Moderate Adverse***

32 Redchurch Street is also located almost 65m from the site boundary. There are four windows within this property serving four rooms. Valuation Office Agency searches indicate that this property does not pay council tax and is therefore not considered to be of residential use. In its current state, the premises are not being occupied with boarded ground floor windows and curtains permanently hung over the upper floor windows at all times when site visits have been conducted since 2008. Upon one site visit, glass in a first floor window was missing, and no significant attempts to conceal the damage had been made, which would likely suggest that the premises are derelict or not a primary residence. Therefore if this property is not occupied or in use as residential, it may not be considered sensitive in terms of daylight and therefore no further consideration is required.

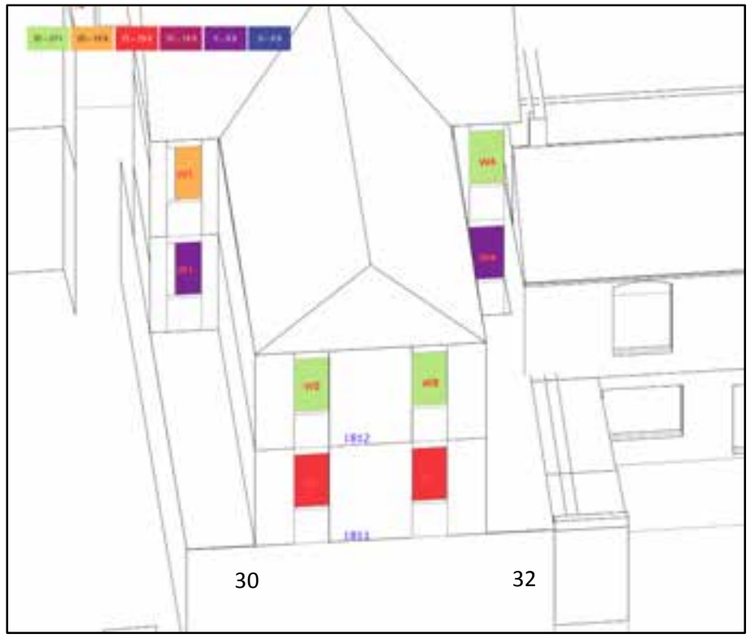
In the event this property is in residential occupation, one out of the four windows will meet the BRE criteria for VSC. A further window would experience a percentage alteration between 20-30% which is inevitable given the existing cleared condition of the site and aspirations for high density development. The remaining two windows would experience a change of 40%+, both of which will retain a VSC of 17% which is considered commensurate with an inner urban area. In addition, the retained levels of VSC as a result of the Proposed Development are in line with our interpretation of the IPG Massing (as interpreted in Figure 6).

Furthermore this property is located at some distance away from the site (65 m) and therefore perception of the impact of this development on this property is likely to be relatively small. The affected windows are to the rear of the property and look into a small courtyard between buildings. It is, therefore, a combination of the development and surrounding context which results in the impacts to this property and not the development alone.

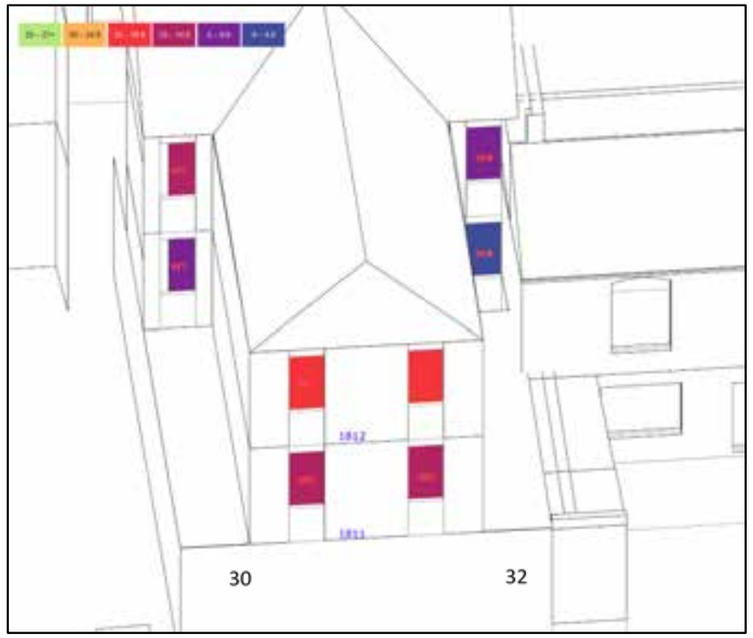
In regards to NSL, half of the rooms assessed will meet the BRE criteria. One room will experience a percentage alteration between 20-30% which is inevitable considering the existing cleared condition of the site combined with the development aspirations for the site. The remaining room experiences an alteration beyond 40%, however will retain view of the sky dome to over 60% of the working plane, which is considered commensurate with a dense urban environment. In addition, its location on the top floor suggests this room is likely a bedroom which is considered less sensitive in regards to daylight compared to other uses.

Located in excess of 65m and two blocks of buildings from the site boundary, it is questionable that the daylight amenity to this property would be compromised. Whilst it is acknowledged that there will be a change in daylight enjoyment compared to the existing conditions, this is due to the unusually cleared site condition combined with the aspect of these windows into a small lightwell/courtyard area between buildings.

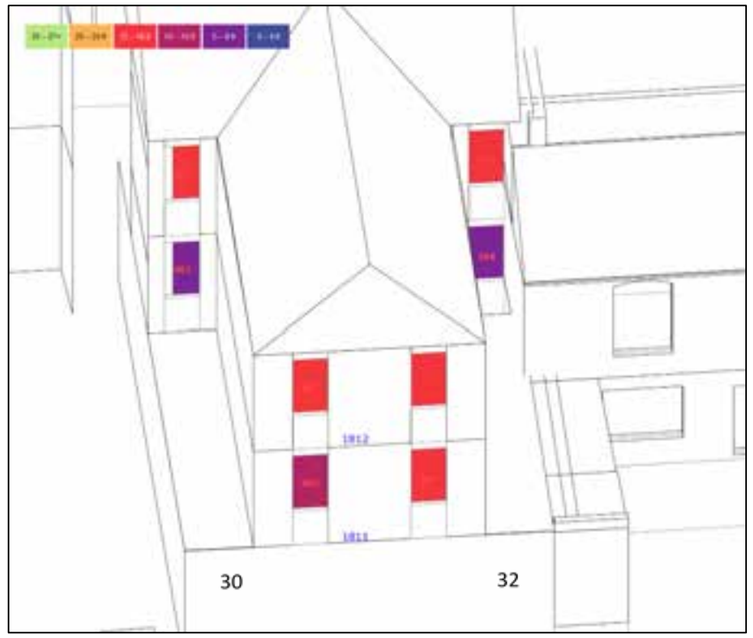
Existing VSC Levels (30 – 32 Redchurch Street)



IPG Massing VSC Levels (30 – 32 Redchurch Street)



Proposed Development VSC Levels (30 – 32 Redchurch Street)



17 Bethnal Green Road

Distance from the site: ***21 m***

Use: ***Ground floor commercial, upper floors residential from external observation***

Significance (ES): ***Major Adverse***

This property directly overlooks the northern portion of the site and currently enjoys a relatively unobscured view across the open site with existing VSC levels of 31-35% VSC compared to the maximum circa 40% set out within the BRE. The existing levels of VSC are therefore unusual and uncharacteristic of a dense urban environment and as such, given the aspirations for the site, it would be unreasonable to expect such high levels to be maintained.

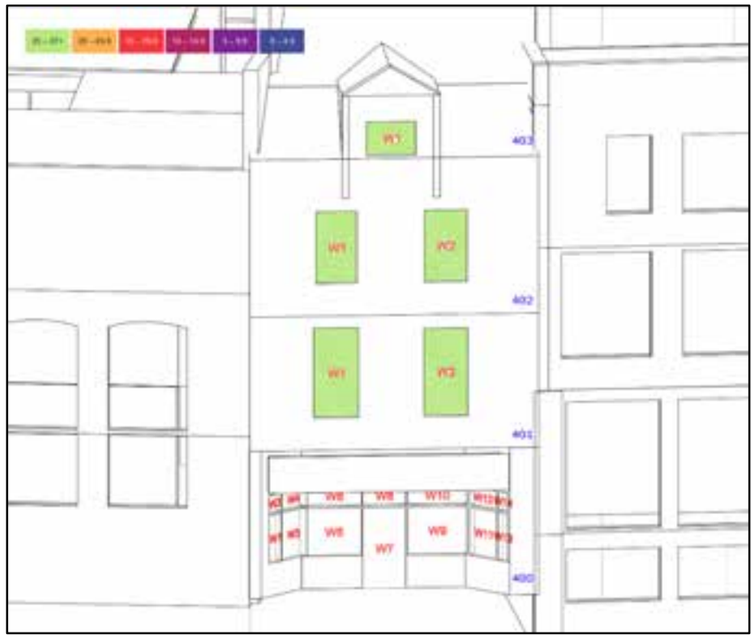
There are five windows within this property serving five rooms. All five will experience percentage changes in VSC beyond 40%. However, two of these windows are understood to serve bedrooms which are less sensitive in regards to daylight compared to living rooms. All of the affected windows retain a VSC of 11-14% which is greater than the absolute levels for our interpretation of the IPG Massing (as interpreted in Figure 6).

As per the IPG policy, there is a limitation on the areas where piling and foundations can be laid due to the existing infrastructure and listed heritage structures. This is therefore limited to the northern portion of the site adjacent to Bethnal Green Road. The majority of the massing to achieve the required employment and housing provision would therefore need to be situated on this part of the site and thus in close proximity to the properties to the north such as 17 Bethnal Green Road. Given the current relatively unobscured view, significant percentage alterations in daylight are inevitable if the IPG policy and aspirations for the site's redevelopment are to be realised.

In regards to NSL, two of the five rooms assessed would achieve BRE compliance. Two rooms would experience alterations between 20-30% which are inevitable given the cleared nature of the site and aspirations for high density development. Both will retain a daylight distribution to at least 68% of their room area which is considered commensurate with a dense urban environment. The remaining room experiences an NSL alteration of 40%+ and retains a view of the sky dome to 48% of the room area.

This property currently has an unobstructed view across the cleared site and therefore any development on the site has the potential to create disproportionate percentage alterations. Whilst it is acknowledged that there will be a change in daylight enjoyment compared to the existing conditions, there are constraints on the design including the location of the park to the south and the limitations on the location of piling that result in the taller massing elements being located in close proximity to this property.

Existing VSC Levels

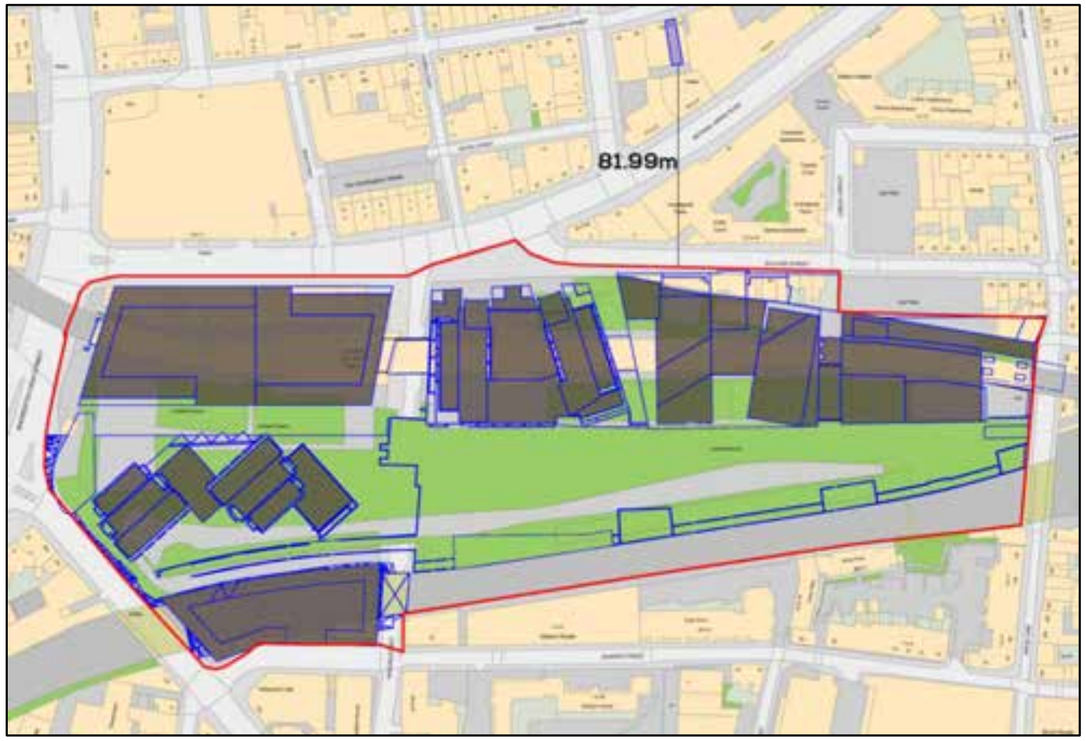


IPG Massing VSC Levels

Proposed Development VSC Levels

70 Redchurch Street

Distance from the site: ***82 m***
Use: ***Residential***
Significance (ES): ***Major Adverse***



70 Redchurch Street is located more than 80m and three building lines to the north of the site. There are 21 windows within this property serving 15 rooms. Three out of the 21 windows assessed will meet the criteria for VSC. Four windows experience percentage alterations between 20-30% which are inevitable given the existing cleared condition of the site.

Five windows would experience a percentage change between 30-40% whereas the remaining 9 windows would experience a change of 40%. A total of 18 windows within this property experience transgressions of the BRE criteria however, 13 windows will experience an alteration in absolute terms below 5% VSC and in some cases as low as 1-2% which could be considered unlikely to be noticeable to an occupant. Therefore it is the existing low levels of daylight which result in disproportionate percentage changes compared to the absolute alterations in daylight which result in transgressions of the BRE guidelines.

The rear windows within this property have a view of the Proposed Development and will experience alterations beyond the BRE guidelines. However they look into a tight courtyard area with a narrow distance separation between the buildings and therefore the windows are already obscured, particularly at the lower levels.

In addition, these windows are also obscured by the 103 Sclater Street tower which forms part of the Telford Homes scheme. The combination of both of these factors results in many of the windows experiencing low levels of VSC (over half below 13% VSC) in the existing condition prior to the implementation of the Proposed Development. In such circumstances and further obstructions and alterations could result in a disproportionate percentage change triggering a transgression of the BRE guidelines. It is, therefore, the presence of existing surrounding context which results in this property relying on an unobscured view across the site and thus the adverse impacts reported for daylight.

Furthermore the levels of retained VSC for the Proposed Development are in line with those of ab IPG Massing as interpreted in Figure 6 (see Appendix 2).

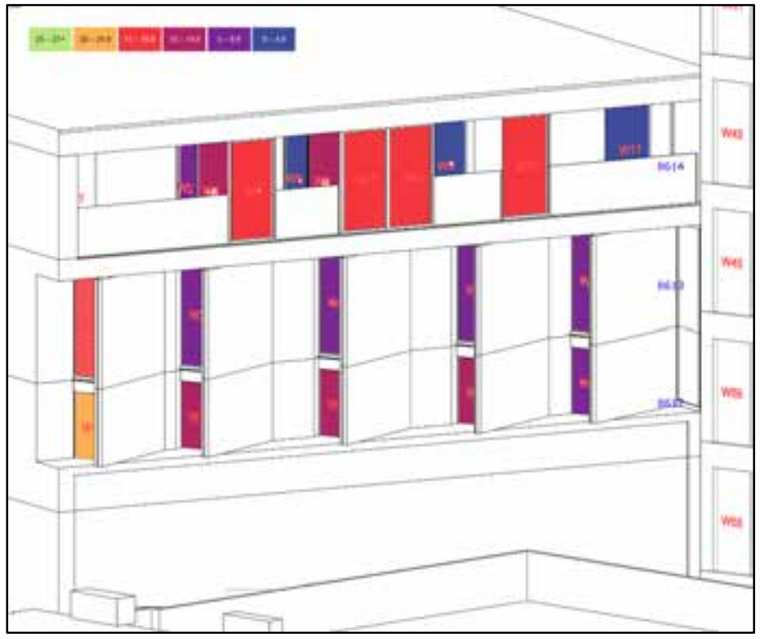
In regards to the NSL, two of the 15 rooms assessed would achieve BRE compliance. Five rooms would experience an alteration between 30-40%. However, these rooms have low existing NSL values whereby any alteration may result in a disproportionate percentage change.

The remaining 8 rooms experience an NSL alteration beyond 40%. As illustrated by the window maps below four of the windows serving four of these eight rooms (R1/8614, R3/8614, R4/8614 and R5/8614) have limited availability to view the sky due to the recessed nature of the windows serving these rooms. All four rooms have windows positioned behind balconies. The four remaining rooms on the third floor have a restricted view of the sky due to the projecting wall which obscures any daylight reaching the windows serving this room. Therefore, it would seem that the architectural design of this building rather than solely the proposed development is contributing to the daylight transgressions to this property.

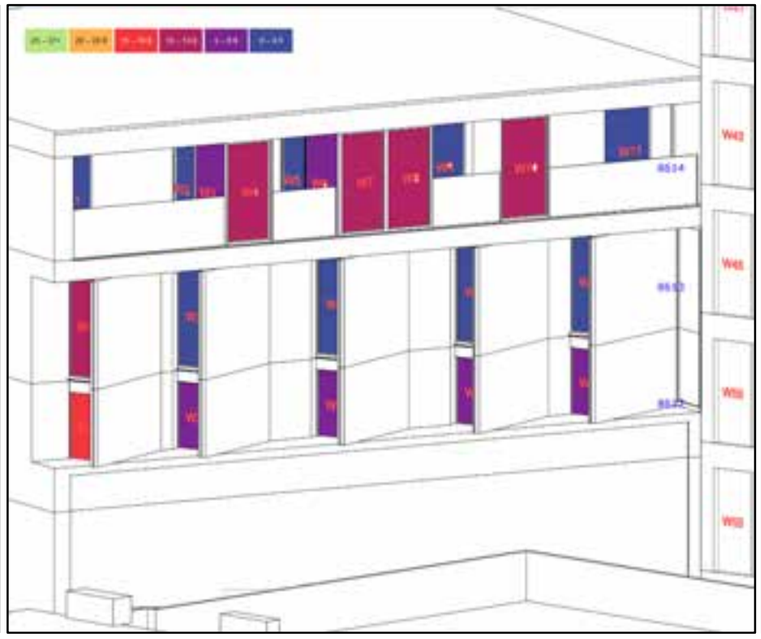
Located in excess of 80m from the site boundary, the window maps overleaf illustrate the change in VSC retained levels. Given the significant separation distance from the site, coupled with the fact that the apertures are orientated at an oblique angle, it is unlikely that the daylight will be compromised within this property.

Located in excess of 80m and several blocks of buildings from the site boundary, it is questionable that the daylight amenity to this property would be compromised. Whilst it is acknowledged that there will be a change in daylight enjoyment compared to the existing conditions, this is due to the unusually cleared site condition combined with the aspect of these windows into a small lightwell/courtyard area between buildings.

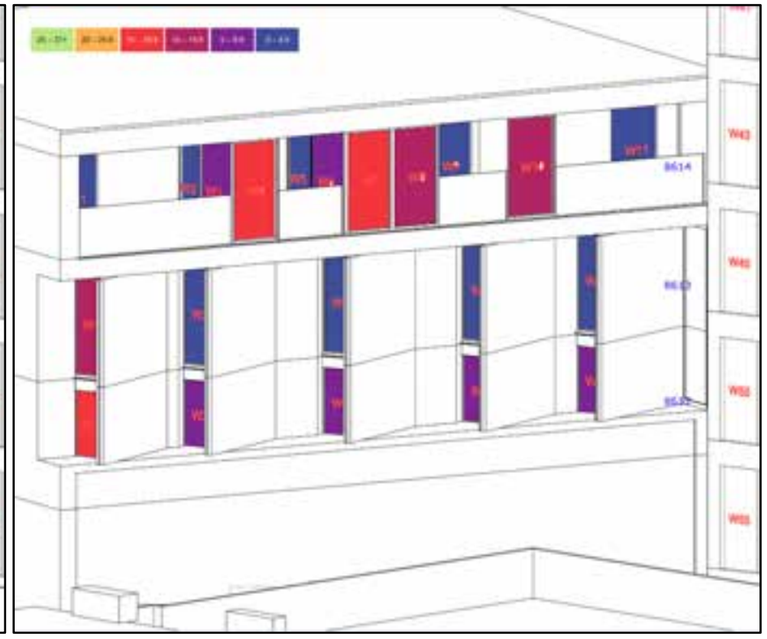
Existing VSC Levels



IPG Massing VSC Levels



Proposed Development VSC Levels



Telford Homes Block A

Distance from the site: ***10 m***
Use: ***Residential***
Significance (ES): ***Moderate to Major Adverse***

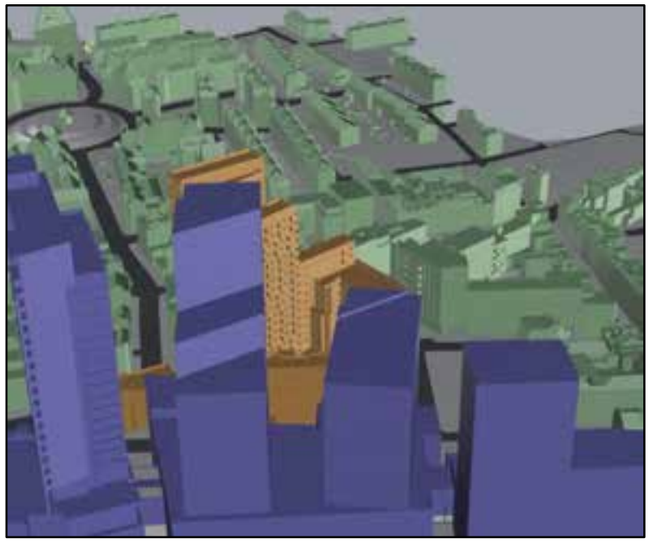
There are 788 windows within this property serving 413 rooms. Of the 788 windows assessed within this property only 264 windows will meet the BRE criteria for VSC and therefore will experience no noticeable alteration in their daylight as a result of the Proposed Development. 88 windows experience percentage changes between 20-30% which are inevitable given the cleared nature of the site in the existing scenario.

112 windows would experience a percentage change between 30-40% whereas the remaining 324 windows would experience a percentage change greater than 40%. Out of the 524 windows which do not meet the BRE, 222 windows are understood to serve bedrooms which are considered less sensitive in regards to daylight compared to living rooms.

As can be seen from the photo and following Waldram diagrams (Figures 17 & 18), many of the affected windows are located within a courtyard area where the view of the sky dome and thus the VSC levels are less likely to be BRE compliant. In addition, the presence of balconies further acts to blinker the view of the sky dome as demonstrated with 1-48 Wheler Street and acknowledged within the Holy Trinity School Appeal Case.

Within the Holy Trinity Appeal Case (copy included within Appendix 12) it was accepted that an analysis can be undertaken without the balconies to establish whether the daylight impacts are a result of the proposed development in isolation or a combination of the development and the design of the surrounding building. Like the Bishopsgate Goodsyard Site, the Holy Trinity School proposal was proposed for a site which in the existing condition had a low level of massing in the baseline and the site was strategic but in terms of educational use. In addition, similar to the Bishopsgate Goodsyard, many of the surrounding properties which were sensitive to daylight had overhanging features such as balconies. The effect such architectural features have on the ability to receive good levels of daylight was acknowledged within the appeal and a supplementary assessment undertaken to establish whether the daylight impacts were a result of the development or the overhanging features of the surrounding properties.

As per 1-48 Wheler House a without balconies assessment has been undertaken for this property and is included within Appendix 10.



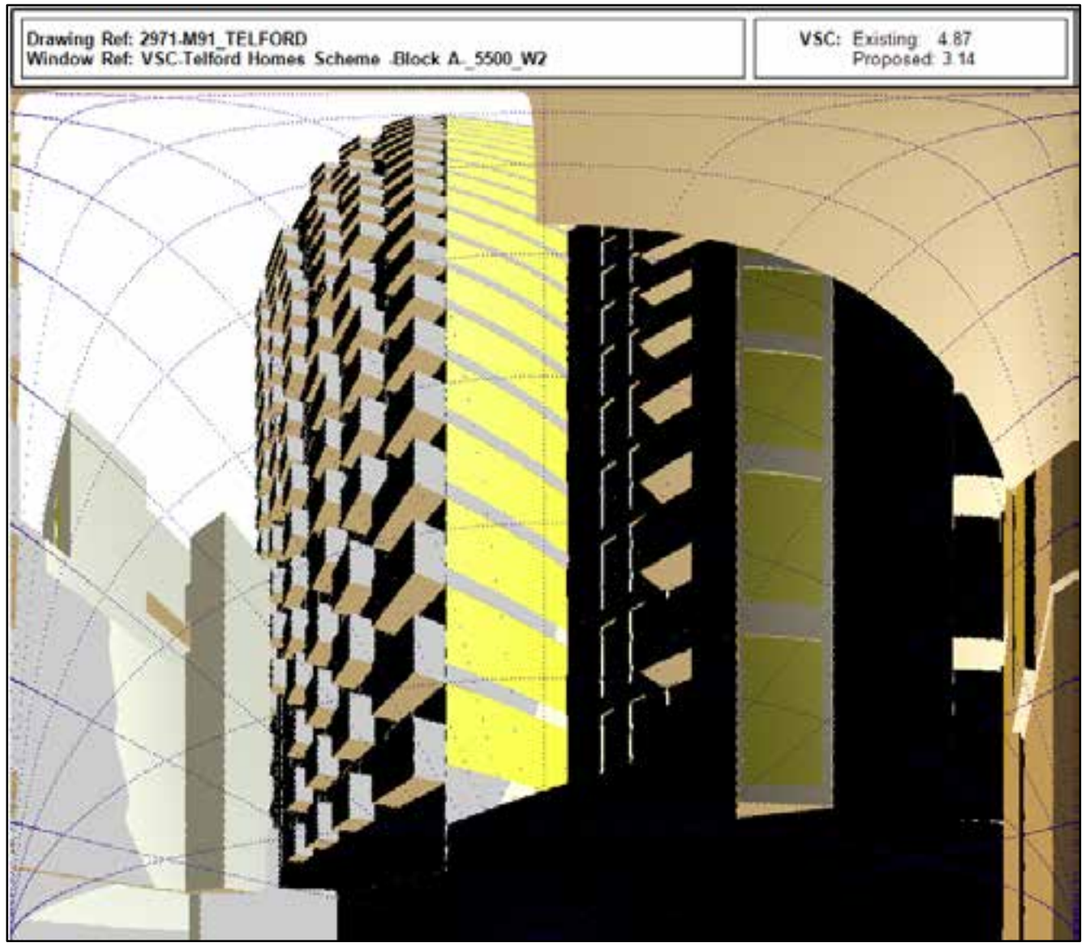


Figure 17 Telford Homes Block A Waldram Diagram Existing Scenario

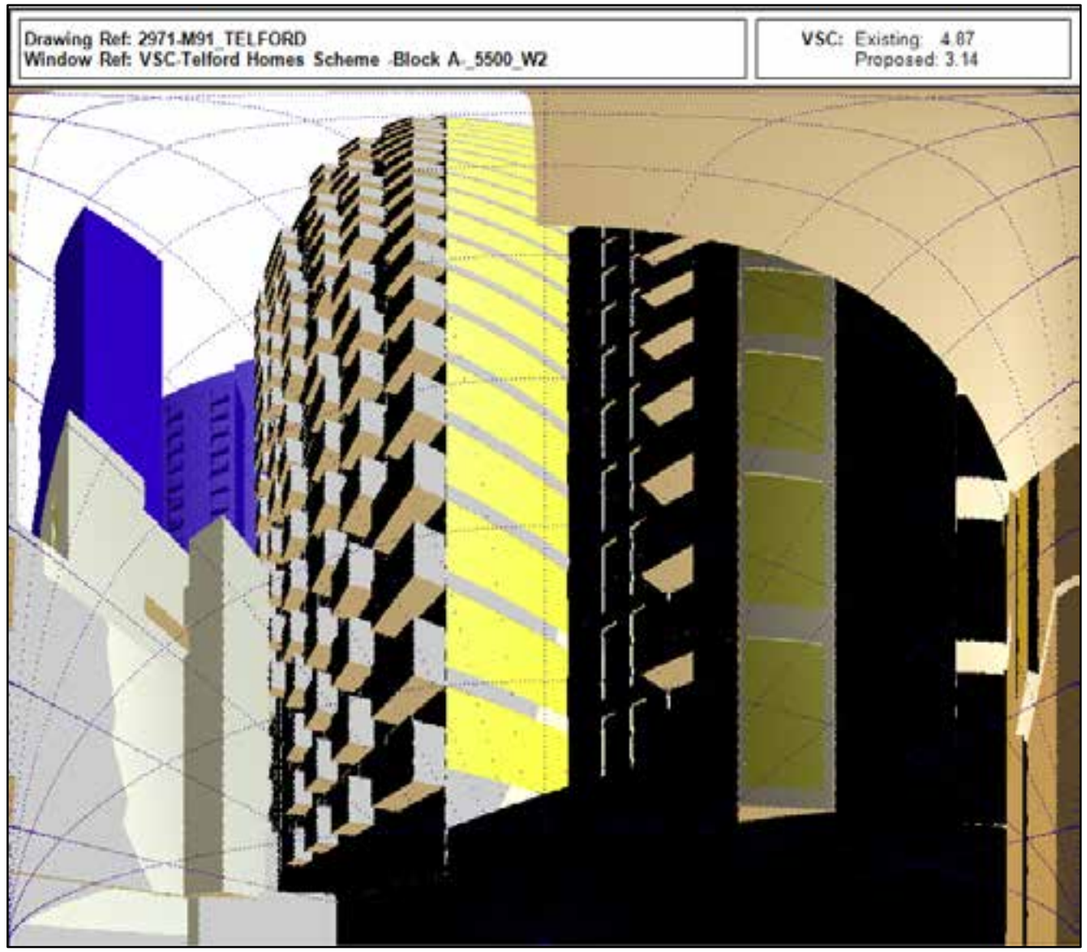


Figure 18 Telford Homes Block A Waldram Diagram Proposed Scenario

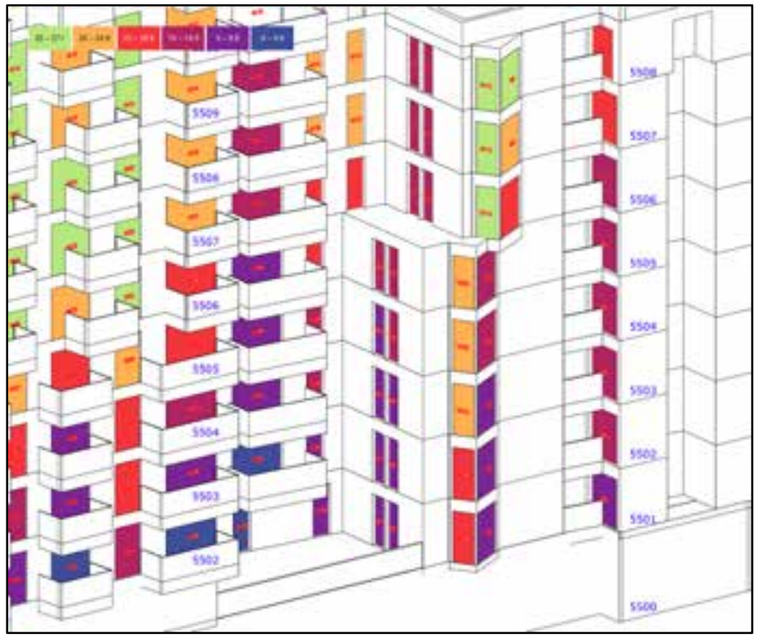
Of the 524 windows which do not meet the BRE for VSC as a result of the Proposed Development, 89 windows have low existing levels (below 10% VSC) whereby any alteration could result in a disproportionate percentage change triggering a transgression of the BRE guidelines. Given the existing limited levels of daylight any development in line with the IPG design concept and policy would result in adverse daylight impacts.

Nearly half of the windows assessed within this property will retain a VSC of at least 15% in absolute terms which may be considered commensurate with a dense urban environment. Furthermore the retained levels of VSC are not too dissimilar to those of an IPG Massing as interpreted in Figure 6.

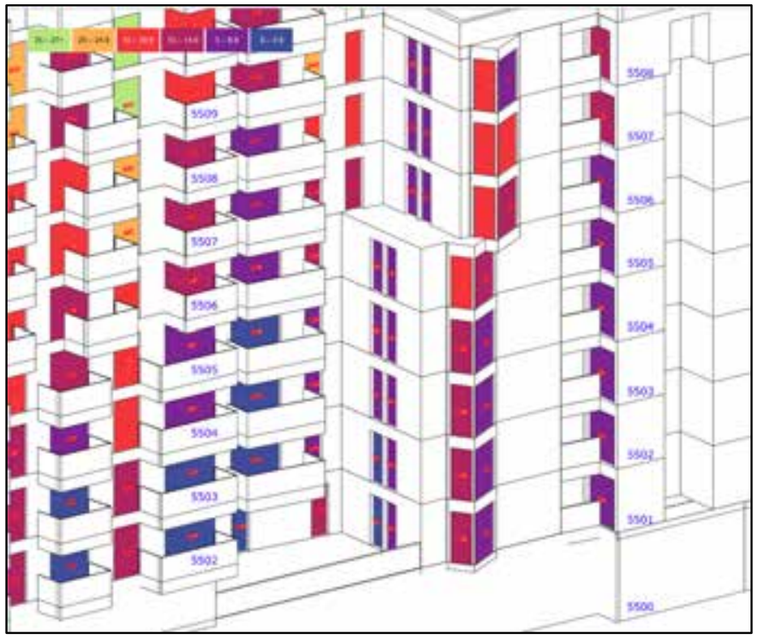
Furthermore the scheme has responded to the design of the Telford Homes Block A (as shown below) by creating a gap between the two taller elements on Block D to enable light to penetrate through into these units.

In regards to NSL, 264 out of the 413 rooms assessed would achieve BRE compliance. 218 rooms would experience losses of between 20-30% which are inevitable given the existing cleared site condition.

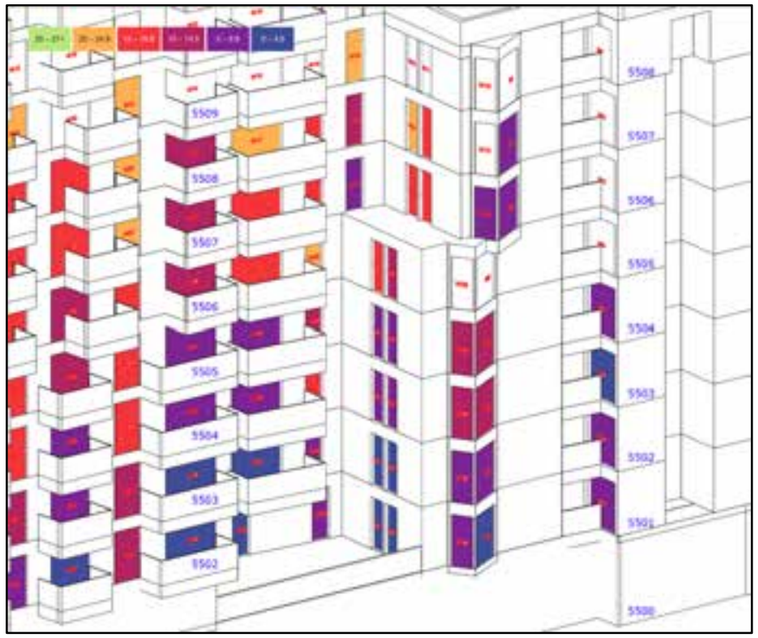
Existing VSC Levels



IPG Massing VSC Levels



Proposed Development VSC Levels



To understand what might be required in terms of scheme alterations to remove any impact (with the balconies in place) a VSC compliant cutback was undertaken as shown in the following diagram (Figure 19).

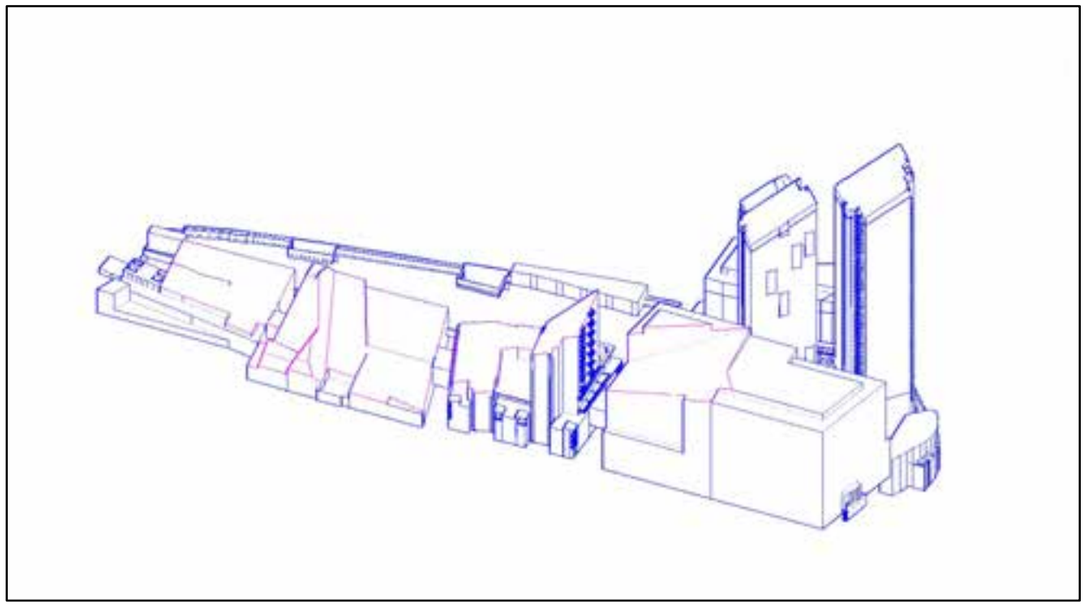


Figure 19 - VSC compliant cutback for Telford Homes Block A (with balconies)

In order to reduce the VSC impacts to this property a total of 98,366 sq m / 1.058m sq ft would need to be removed affecting all of the proposed Blocks with the exception of Block K. This therefore represents a substantial cutback and demonstrates the combined impact of the internal courtyard design with overhanging balconies which, if the BRE are to be adhered, restricts the ability to develop the majority of the eastern portion of the site.

Therefore whilst it is acknowledged that there will be a change in daylight enjoyment compared to the existing conditions, this is due to the unusually cleared site condition combined with overhanging features on the façade such as balconies that restrict the potential for good daylight and the overhanging balconies which restrict the potential for daylight. Given the cleared nature of the site any development on the site has the potential to create disproportionate percentage alterations within this property. The design of the scheme has considered the units within this property however, to reduce the daylight transgressions a significant level of massing would need to be removed affecting nearly all of the blocks within the scheme.

Potentially Unacceptable Impacts

These properties have been identified by DPR as potentially being unacceptable with further consideration needed in regards to the context of the site. The following figure identifies the location of these properties in pink.

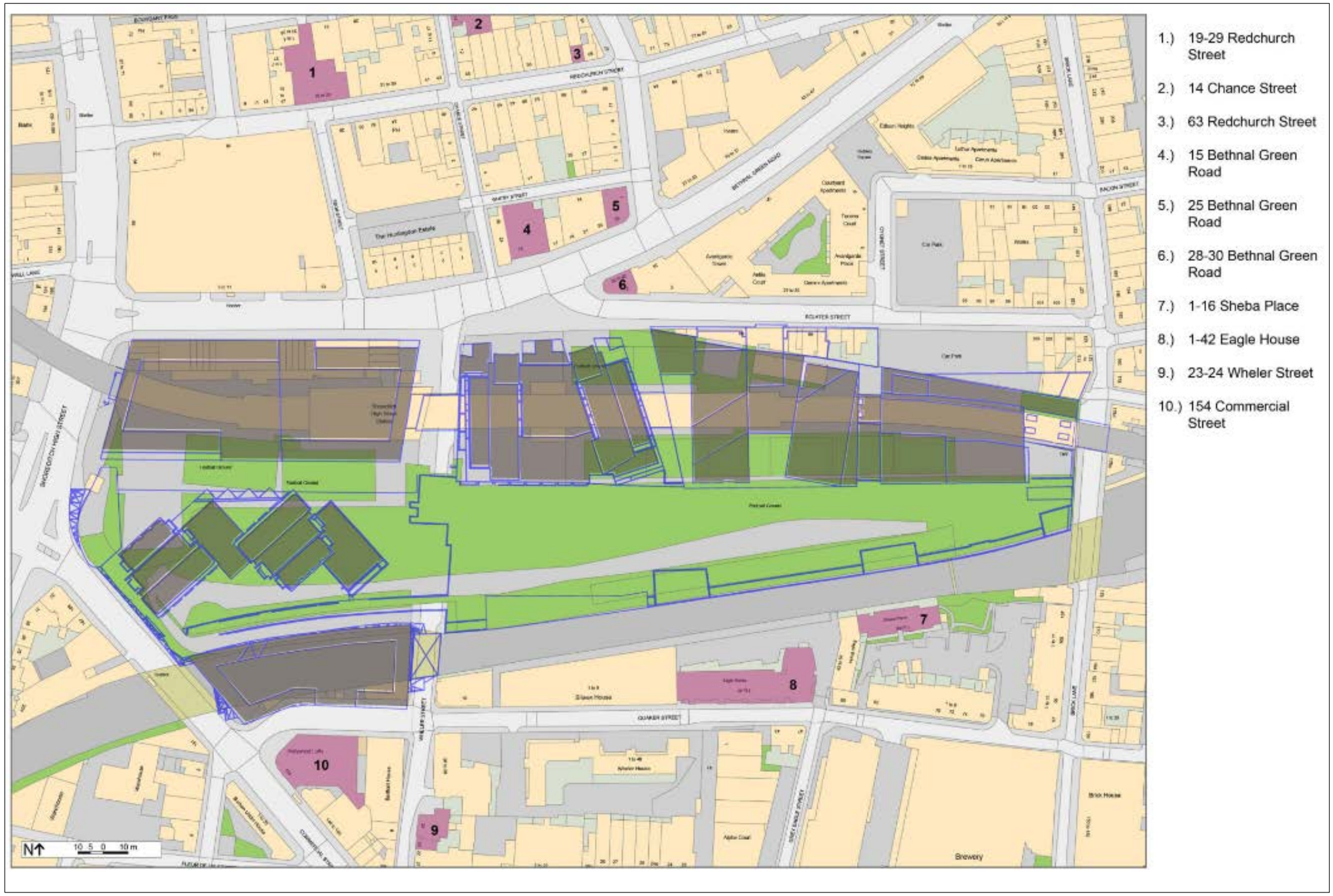


Figure 20 – Location of Properties Classified as "potentially unacceptable" in DPR Report

63 Redchurch Street

Distance from the site: ***100 m***

Use: ***Ground floor commercial, residential above***

Significance (ES): ***Minor Adverse***

63 Redchurch Street is located over 100m and four rows of buildings back from the site boundary. Six out of the eight windows assessed within this property will meet the BRE guidelines.

The two affected windows are understood to be located on the ground floor which is commercial in use. The BRE guidelines state that residential properties and habitable rooms such as living rooms, bedrooms and kitchens are the most sensitive in regards to daylight. Some commercial dwellings may be considered to have a requirement for daylight such as schools or hospitals however this building does not fall into any of these categories.

Therefore this building is not considered sensitive in regards to daylight and no further consideration is required.

1-16 Sheba Place

Distance from the site: ***17 m (53m from main building line)***
Use: ***Residential***
Significance (ES): ***Major Adverse***

1-16 Sheba Place is located 17m from the site boundary and in excess of 50m from Block E (the main building line).

There are eight windows within this property serving eight rooms. Of the eight windows assessed four would achieve BRE compliance in relation to the VSC method of assessment and therefore experience no noticeable change in daylight. The remaining four windows serving kitchens (as shown in Figure 21) experience percentage changes over 40% however three retain VSC values of approximately 16-18% which are considered commensurate with a dense urban environment.

All of the existing windows currently enjoy an almost unobstructed view of the sky indicated by the high existing levels of VSC in excess of 30% VSC which is uncharacteristic of an urban location such as this. Due to the proximity to the site and current unobscured view, any development reflective of the IPG policy would likely result in adverse daylight impacts particularly to the lower floors.

In addition, the majority of the windows retain levels of VSC in line with the IPG Massing as interpreted in Figure 6.

In regards to the NSL, four out of the eight rooms would achieve BRE compliance. Of the remaining four rooms all experience losses over 40%+ however, these are kitchens, which are less sensitive in terms of daylight compared to living rooms and where supplementary electric lighting is likely used during the day.

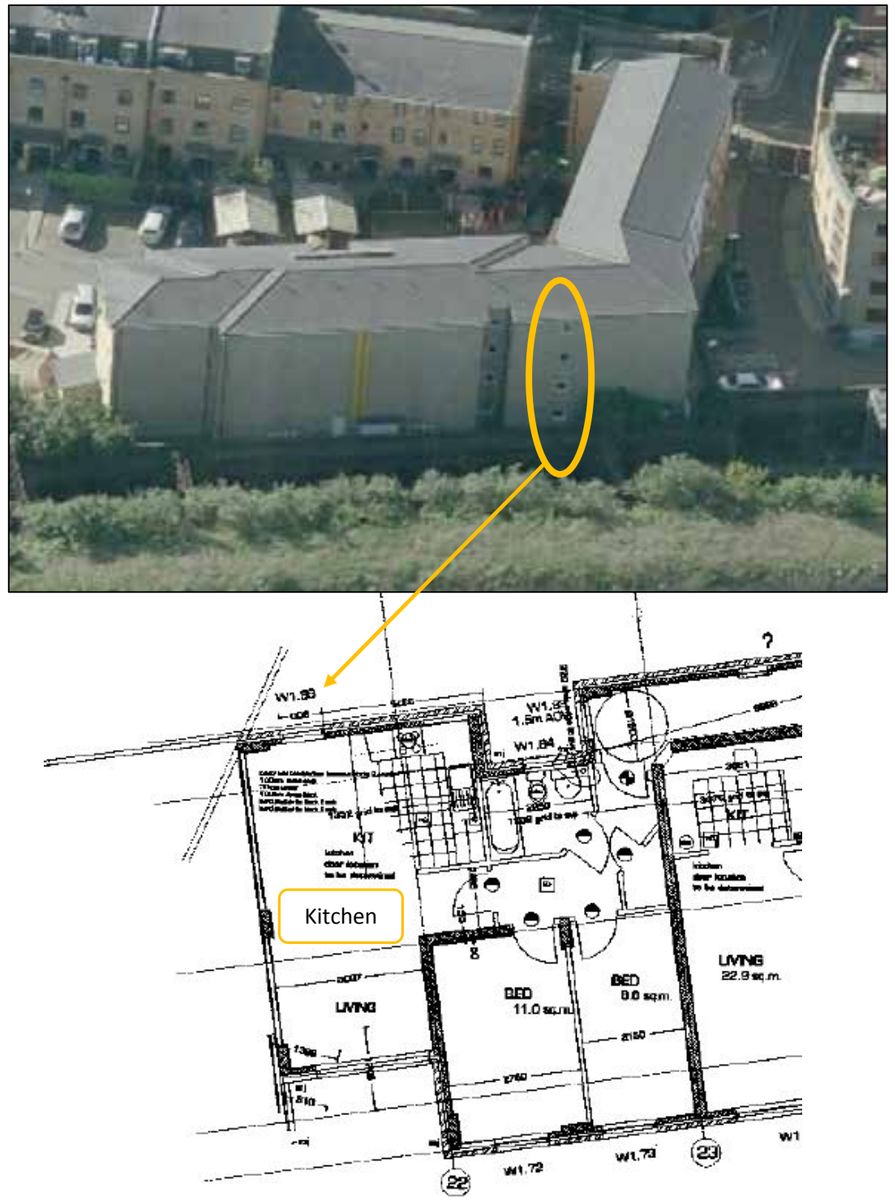
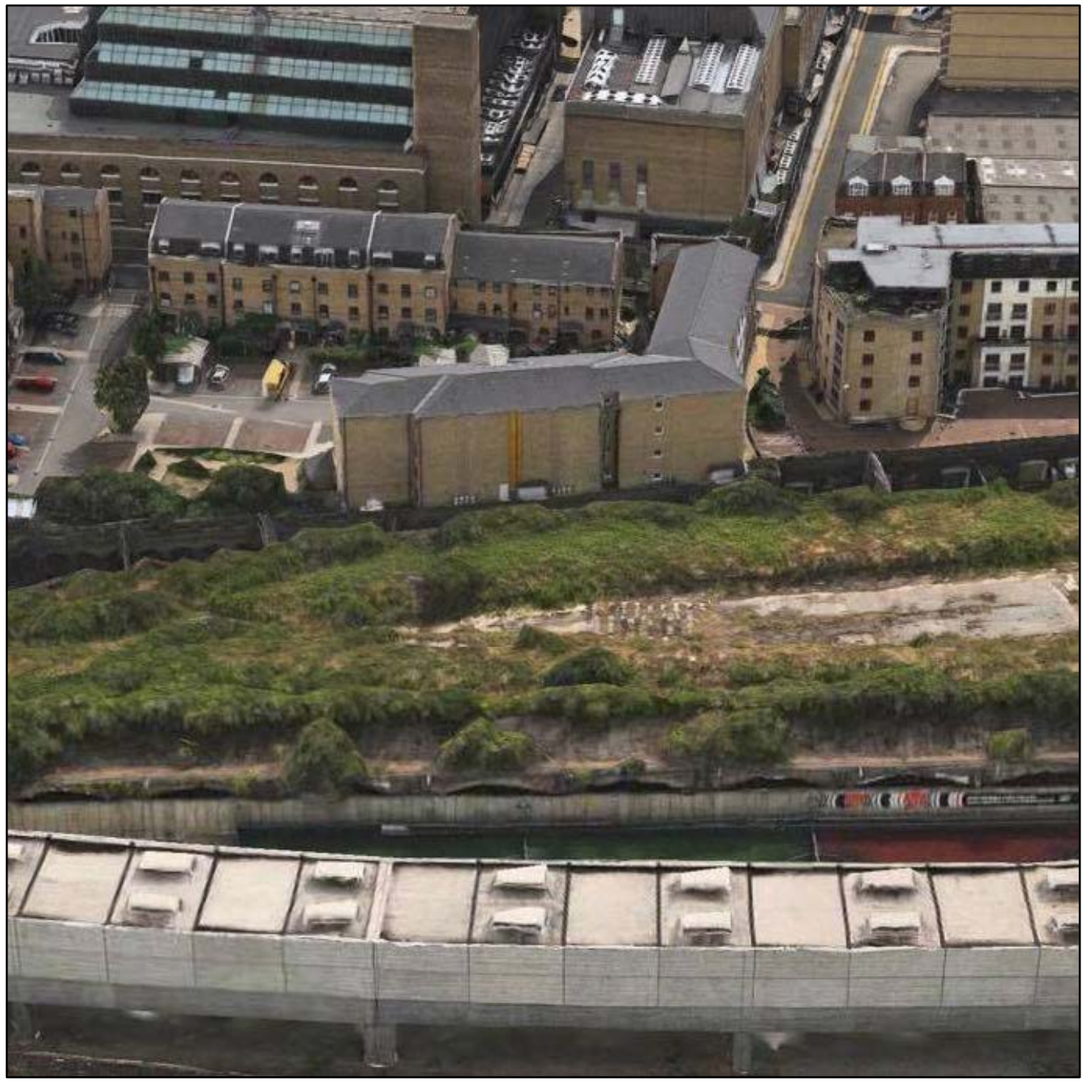
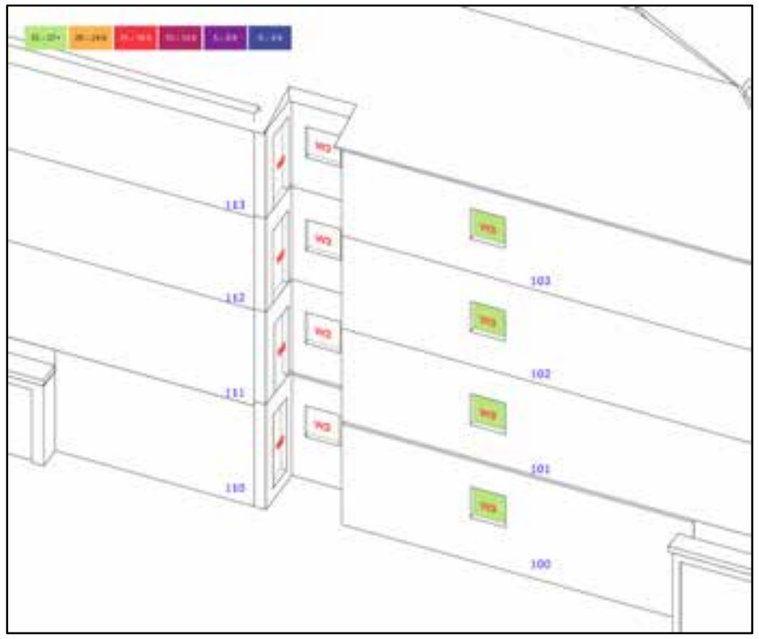


Figure 21 – floor plan showing kitchen use behind affected four windows

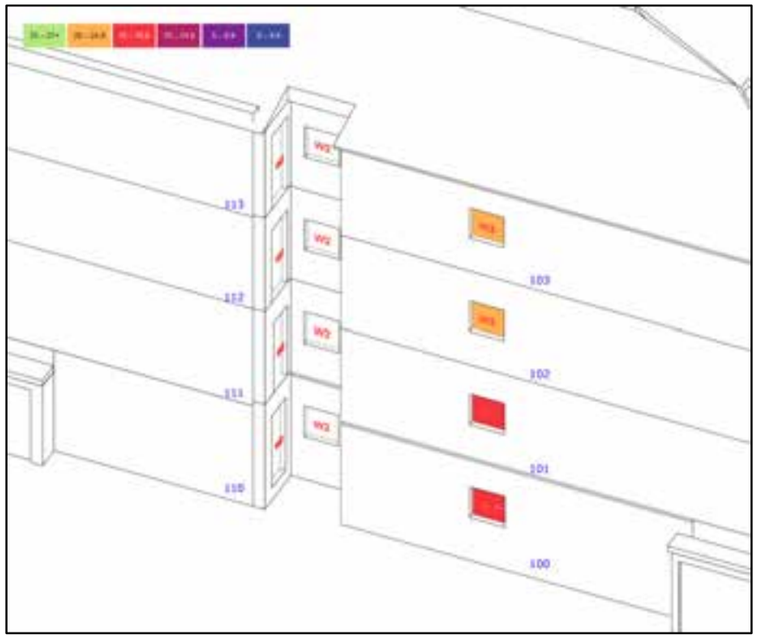
The image below visually shows the extent of the cleared nature of the site. Any development on the site has the potential to create disproportionate percentage alterations. In relation to the tallest element of the site this building is located 53m away. In addition, the view that these apertures enjoy would likely improve given the location of the park space directly in front (to the north of this property).



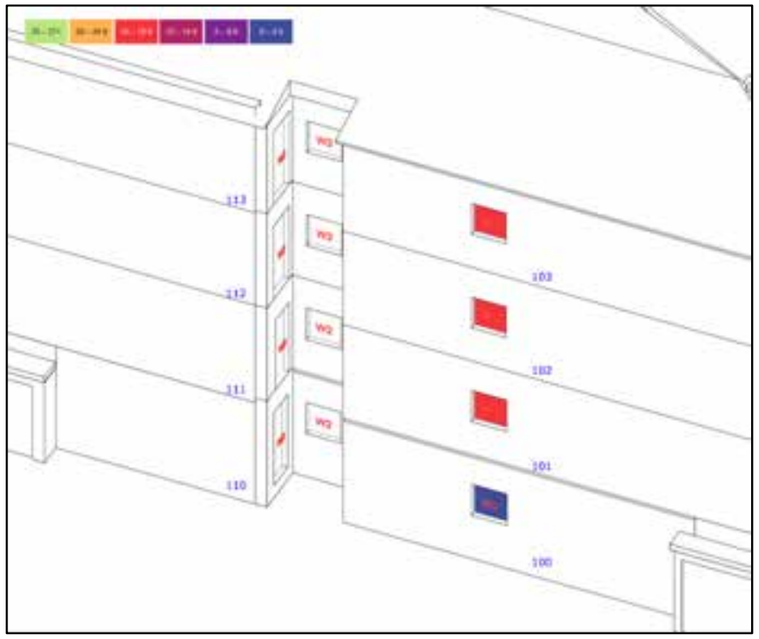
Existing VSC Levels



IPG Massing VSC Levels

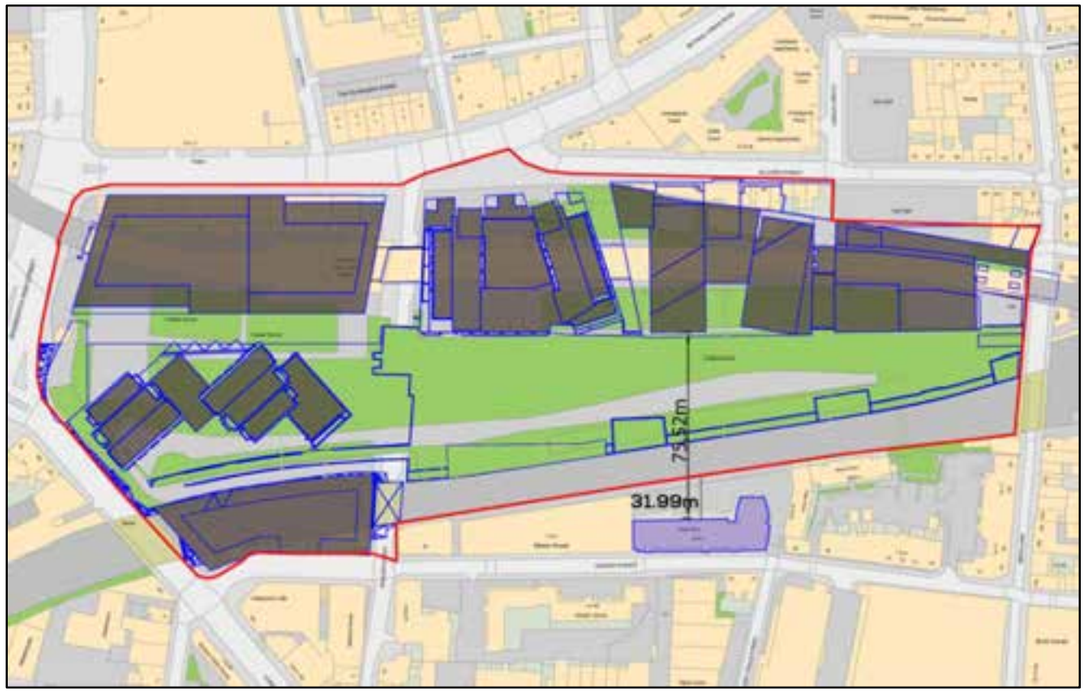


Proposed Development VSC Levels



1-42 Eagle House

Distance from the site: ***32 m (70-75m from main building line)***
Use: ***Residential***
Significance (ES): ***Moderate Adverse***



This residential property is located to the south of the site. There are 191 windows within this property serving 94 rooms.

Of the 191 windows 72 would achieve BRE compliance in relation to the VSC and therefore experience no noticeable alteration in their daylight as a result of the Proposed Development. Eight windows experience percentage alterations between 20-30% which are inevitable given the existing cleared site condition.

61 windows would experience a change of between 30-40% however. 35 of these are understood to serve bedrooms which are less sensitive in terms of daylight compared to living rooms. 50 out of these 61 windows retain a VSC of at least 16% which based on the contextual analysis and case studies, is considered commensurate with a dense urban environment.

The remaining 50 windows experience alterations beyond 40%, 25 windows of which are understood to serve bedrooms which are considered less sensitive in regards to daylight. 13 out of these 50 windows have low existing levels of VSC (below 10%) whereby any alteration could result in a disproportionate percentage change. Out of these 50 windows, 32 windows retain an absolute VSC of at least 16% which is considered commensurate with a dense urban environment.

The windows within this property currently enjoy a relatively unobscured aspect across the site which is demonstrated by the high existing values of VSC (circa 30% or more compared to the 27% VSC recommended by the BRE guidelines). The proximity of this property combined with existing high values and open aspect mean that any development reflective of the IPG concepts/policy would result in adverse daylight impacts.

Overall throughout the windows assessed, 161 out of the 191 windows assessed will retain a VSC of at least 15% in absolute terms which may be considered commensurate with a dense urban environment such as on the city fringe. Furthermore the levels of retained VSC as a result of the Proposed Development are not too dissimilar to those for an IPG Massing as interpreted in Figure 6.

In regards to the NSL, 78 out of the 94 rooms achieve BRE compliance. Nine rooms would experience percentage alterations between 20-30% which given the cleared existing condition of the site are inevitable. Four rooms would rooms experience losses of between 30-40%. However, the rooms retain a view of the sky dome to at least 60% of the total room area which is considered commensurate with a dense urban environment. The remaining three rooms would experience alterations in NSL beyond 40%, two of which are understood to be bedrooms and the other a work space which by virtue of their use ae less sensitive in daylight terms compared to living rooms.

The image below visually shows the extent of the cleared nature of the site that this property currently overlooks. Any development on the site has the potential to create disproportionate percentage alterations. In relation to the tallest element of the site this building is located 70-75m away. In addition, the aspect this property enjoys will likely improve with the location of the park directly to the north rather than the existing overgrown site condition.

Existing VSC Levels

IPG Massing VSC Levels

Proposed Development VSC Levels

23-24 Wheler Street

Distance from the site: ***73 m***
Use: ***Residential***
Significance (ES): ***Minor to Moderate Adverse***

There are 19 windows within this property serving 7 rooms. 14 out of the 19 windows will achieve BRE compliance in relation to VSC and therefore will not experience a noticeable impact in regards to daylight.

Four windows experience percentage changes between 20-30% which are likely inevitable if a development reflective of the IPG and aspirations for the site is to be realised. The remaining window will experience an alteration of 35%. The existing VSC of 11% is reduced to 7%, therefore, low existing levels result in a disproportionate change compared to the relatively small absolute change

This residential property is situated 70m+ away from the site boundary and has a number of buildings in between. The perception of the daylight alterations as a result of the Proposed Development is therefore likely to be reduced.

In terms of retained levels of daylight, nearly half of the windows will retain at least 15% VSC which may be considered commensurate with a dense urban location such as that of the city fringe. Furthermore, the retained levels of VSC are in line with those within an interpretation of the IPG Massing (Figure 6) for this property.

In regards to the NSL, four out of the seven rooms assessed will meet the BRE. The remaining rooms will experience percentage alterations of 26.4%, 32.7% and 50.1%. However, it should be noted two of these have low existing NSL contours to less than 42% of their total room area whereby any alterations would result in a disproportionate percentage change.

Located in excess of 70m from the site boundary and two rows of buildings, it is questionable that the daylight amenity to this property would be compromised. Whilst it is acknowledged that there will be a change in daylight enjoyment, the retained VSC values against each aperture demonstrate a small actual change (as can be seen in the window maps overleaf).

Existing VSC Levels

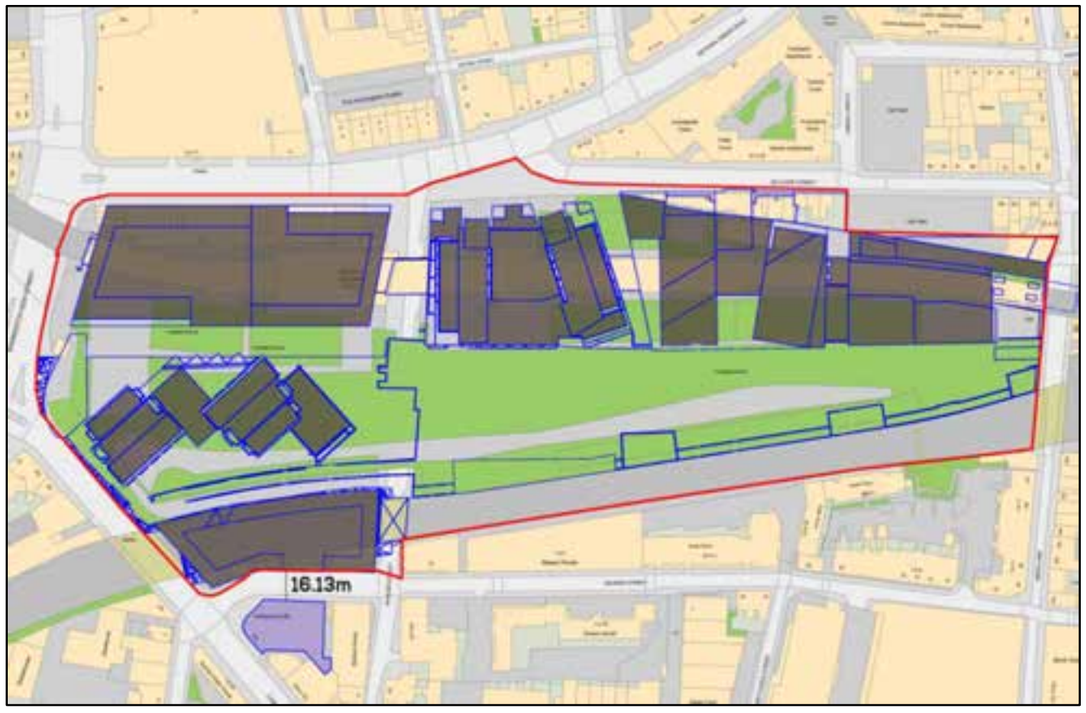
Proposed Development VSC Levels

154 Commercial Street

Distance from the site: ***16 m***

Use: ***Ground floor commercial, residential above***

Significance (ES): ***Moderate to Major Adverse***



There are 63 windows serving 37 rooms within this property. Of the 63 windows assessed, 16 would achieve BRE compliance in relation to the VSC and therefore would experience no noticeable alteration to their daylight.

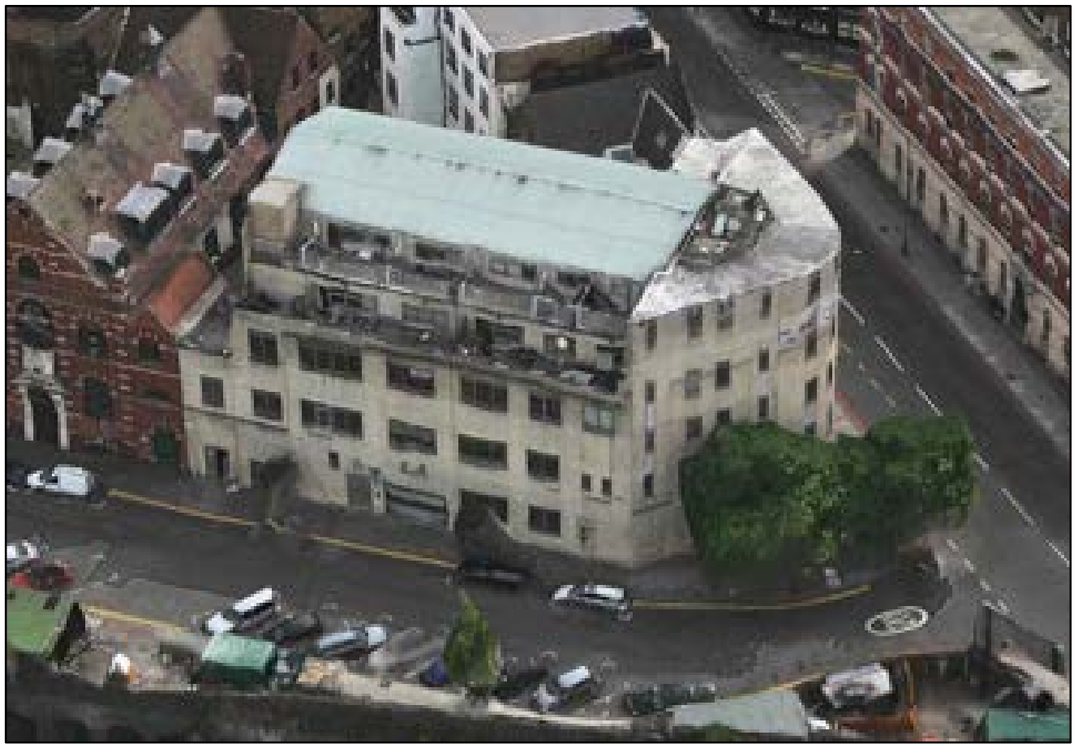
One window experiences a loss of 22% which is inevitable and unavoidable given the existing cleared condition of the site. Four windows would experience a change of between 30-40%. However, all retain a VSC of approximately 23% or more which is considered more than commensurate with a dense urban environment. The remaining 42 windows would experience a percentage change greater than 40%, however, 22 windows are understood to serve bedrooms which are less sensitive in daylight terms compared to living rooms.

Furthermore, 30 windows out of the 63 windows assessed, are understood to serve bedrooms which are considered less sensitive in regards to daylight compared to living rooms.

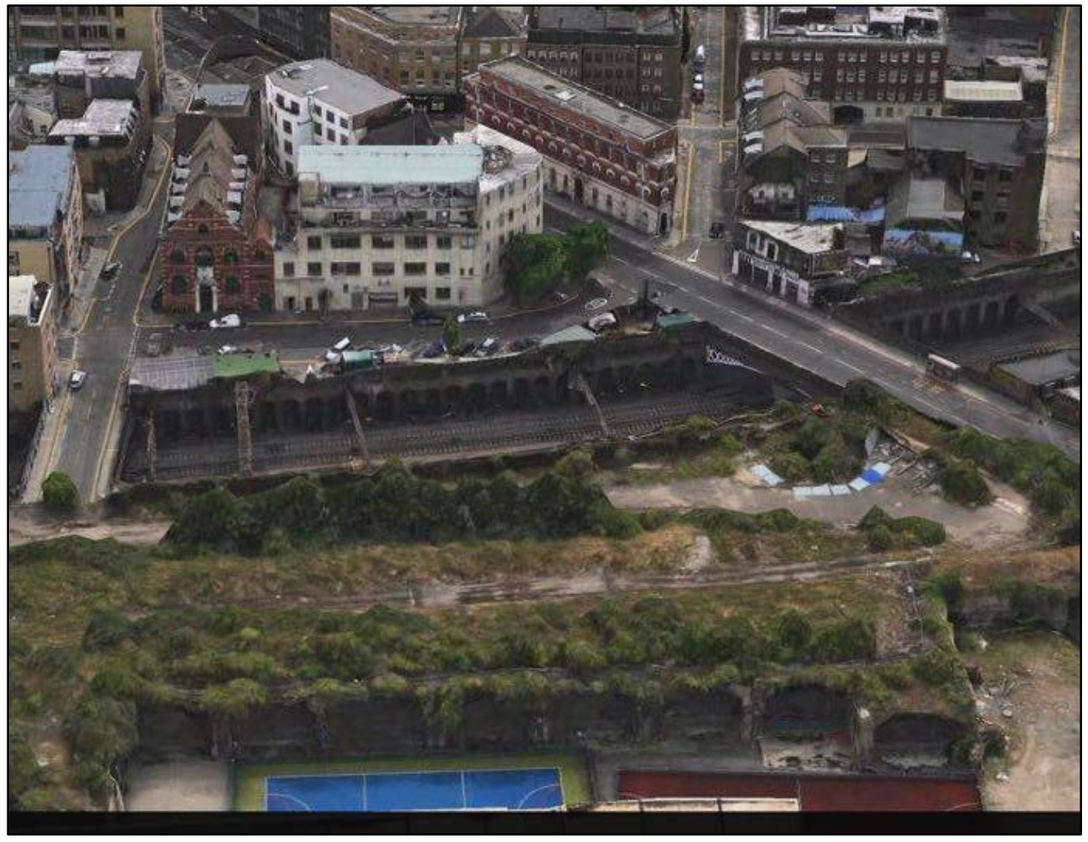
This property is located to the south of the development site and as such has an almost unobstructed view across the cleared site resulting in high existing levels of VSC (majority 35-40% VSC) which is uncharacteristic of a dense urban environment such as that of the site on the city fringe. With such high existing levels and the location to the south west of the site closest to the desired location for taller elements, it is inevitable that significant percentage alterations would occur in regards to daylight.

In regards to NSL, eight out of the 37 rooms assessed would meet the BRE guidelines. One room would experience percentage change between 20-30% which given the cleared nature of the site is inevitable if any development follows the IPG planning policy for the site. Five rooms would experience a loss between 30-40% whereas the remaining 23 rooms would experience an NSL alteration greater than 40%.

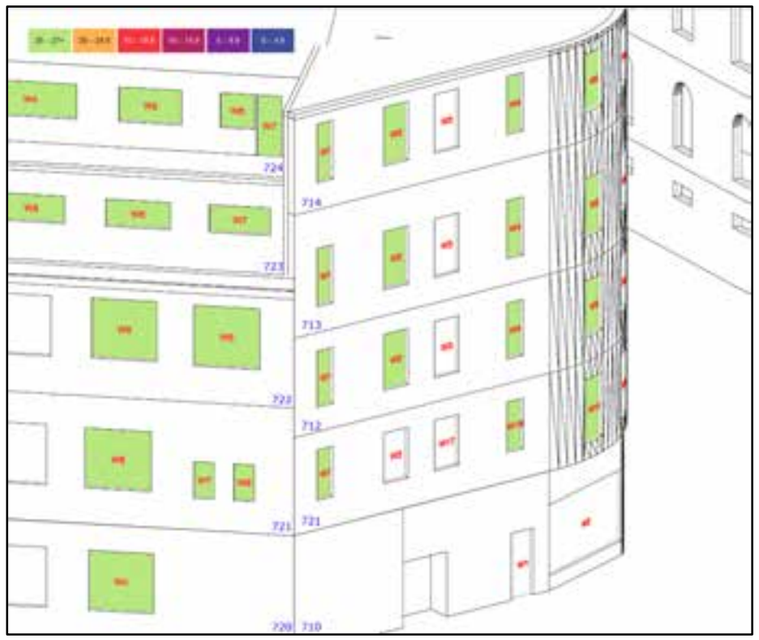
However out of the 29 rooms affected 15 rooms are understood to be bedrooms which are less sensitive in daylight terms compared to living rooms.



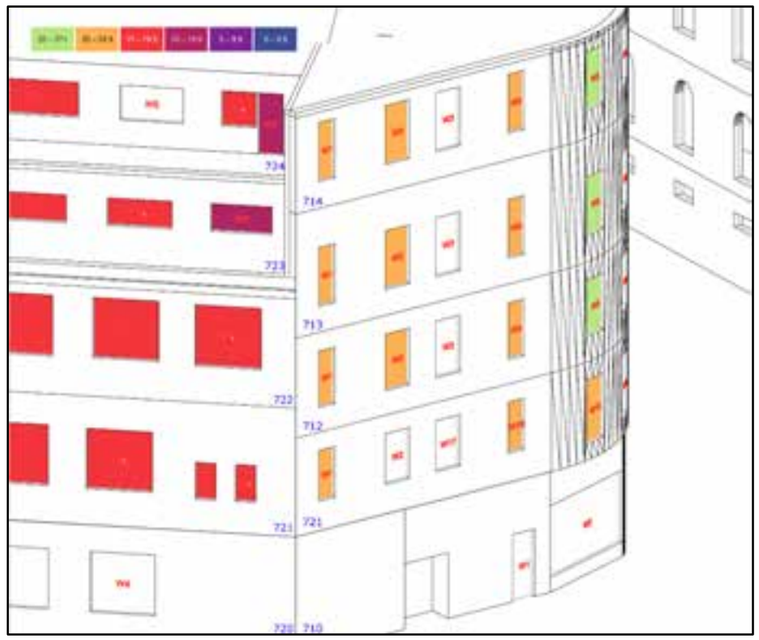
The image below visually shows the extent of the cleared nature of the site that this property currently overlooks. By virtue of its location, this property is situated directly to the south of the portion of the site allocated for taller buildings within the IPG Policy. Therefore given the cleared nature of the site, any development (reflective of the IPG policy) on the site has the potential to create disproportionate percentage alterations.



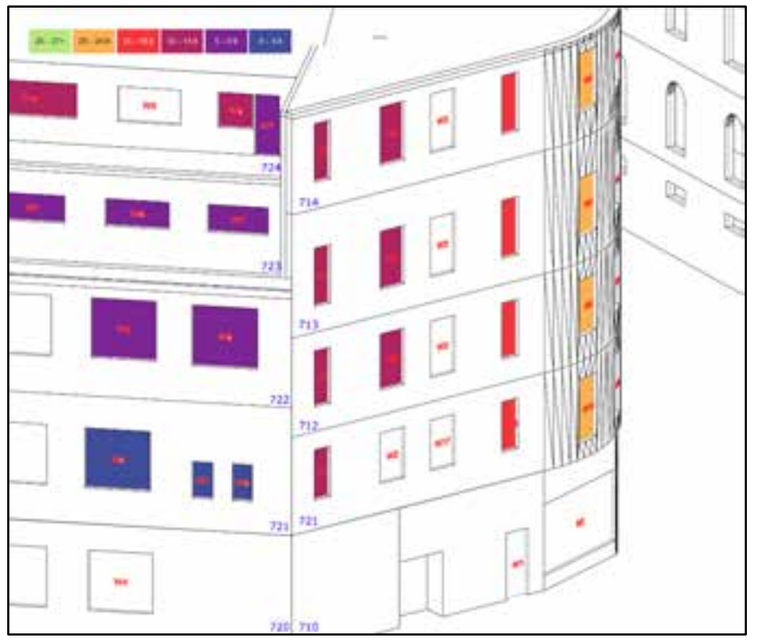
Existing VSC Levels



IPG Massing VSC Levels



Proposed Development VSC Levels

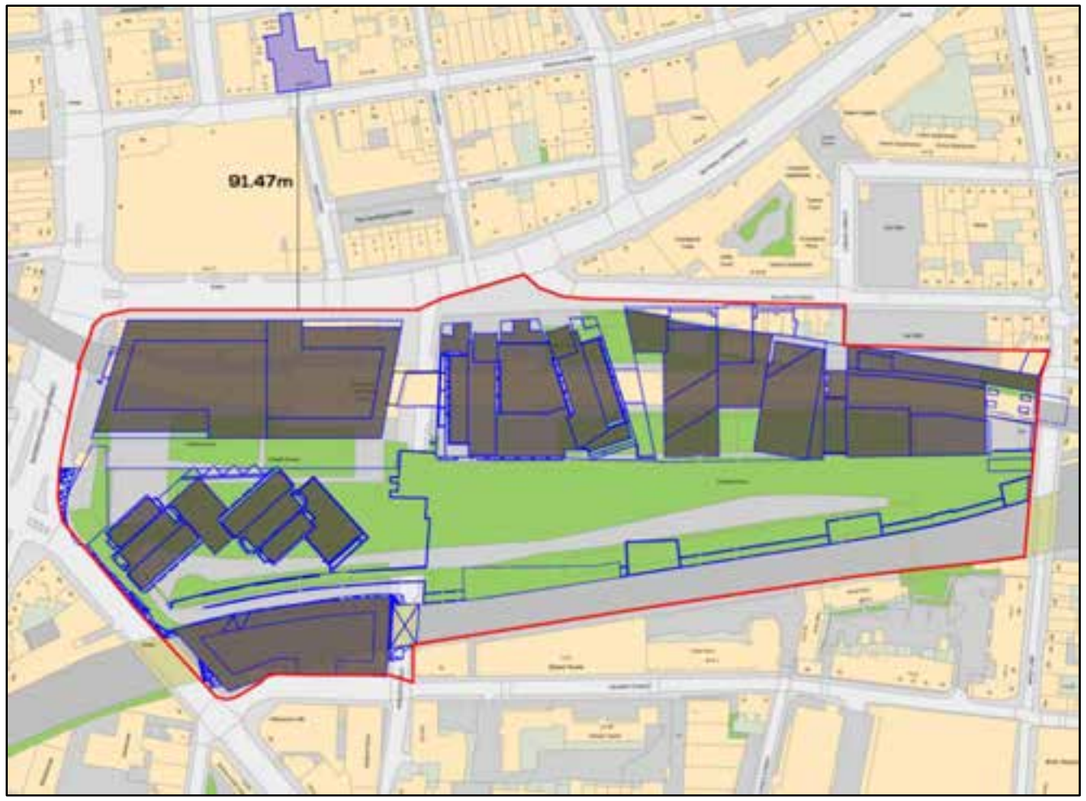


19-29 Redchurch Street

Distance from the site: ***91 m***

Use: ***Ground floor commercial, residential above***

Significance (ES): ***Moderate to Major Adverse***

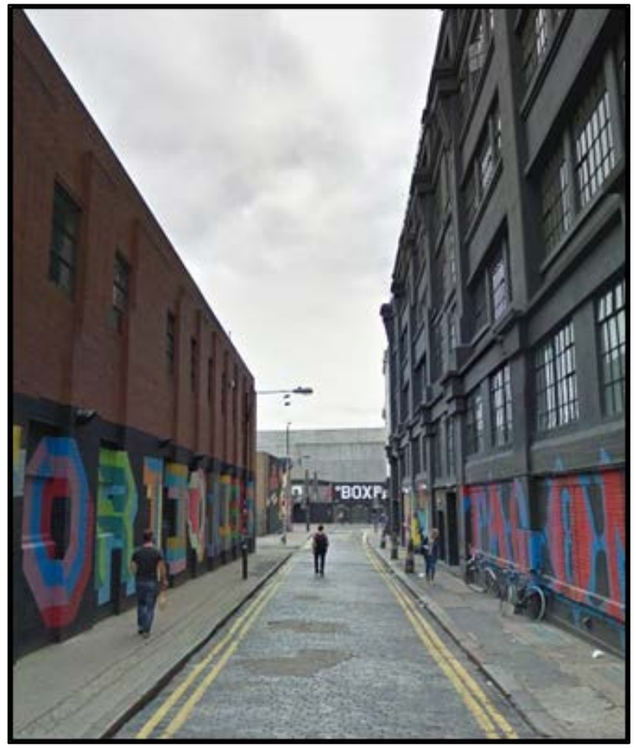


19-29 Redchurch Street is located in excess of 90m and three rows of buildings away from the site boundary.

There are 23 windows within this property serving 15 rooms which have been assessed for daylight. Of the 23 windows assessed, three would achieve BRE compliance in relation to the VSC and therefore experience no noticeable change in daylight. Seven windows will experience an alteration between 20-30% however, such changes in daylight are inevitable given the cleared existing condition of the site. Two windows would experience an alteration of between 30-40%. However, both windows would retain a VSC of 21-23% which is commensurate with an urban location.

The majority of the affected windows serve bedrooms, which as per paragraph 2.2.8 of the BRE guidelines, are considered less sensitive compared to living rooms. In addition, this property is situated in a valley of a junction and therefore currently has an unobstructed, but tunnelled view over the site (shown above). This tunnelled perspective combined with the current open nature of the site means that any development in line with the IPG concept and policy would likely result in an adverse daylight impacts to this property.

Furthermore, this property is located one row of buildings away from the site at a distance of nearly 91 metres. Therefore, the perception of any impact is likely to be less than that of a property much closer to the site. The impact to the daylight within this property is, therefore, not only a factor of the proposed development but is a technical result of its location with a tunnelled perspective.



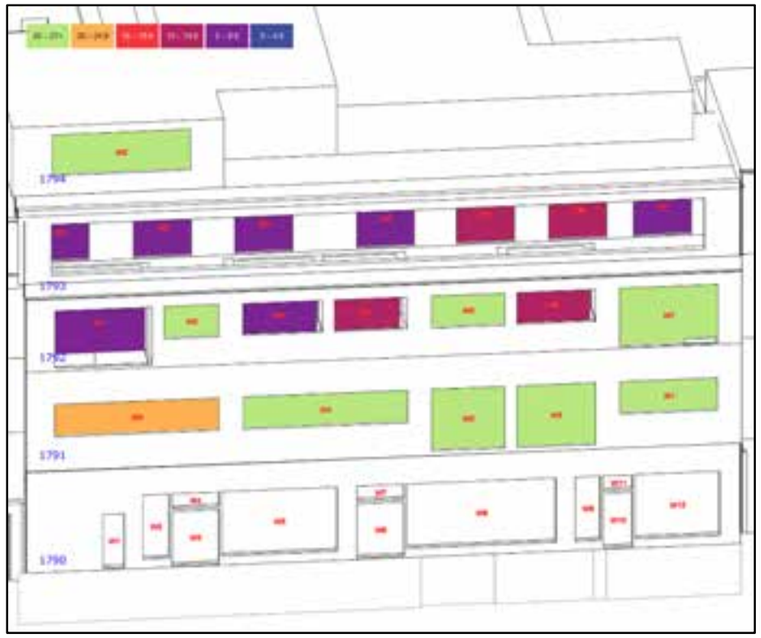
12 out of the 23 windows assessed will retain a VSC of at least 16% in absolute terms which is considered commensurate with a dense urban environment. The remaining windows all have low existing levels of VSC below or equal to 10% VSC whereby any alteration could result in a disproportionate percentage change. In addition, the retained levels of VSC are not too dissimilar to those of an IPG Massing as interpreted within Figure 6.

11 windows would experience a change of 40%+. Eight of these windows serve bedrooms which compared to living rooms are less sensitive in daylight terms. In addition, all have low existing levels of VSC whereby an alteration could result in a disproportionate percentage change. Therefore, following implementation of the Proposed Development, 12 of the 23 windows assessed retain over 16% VSC which is well above a more characteristic 10% VSC for this area.

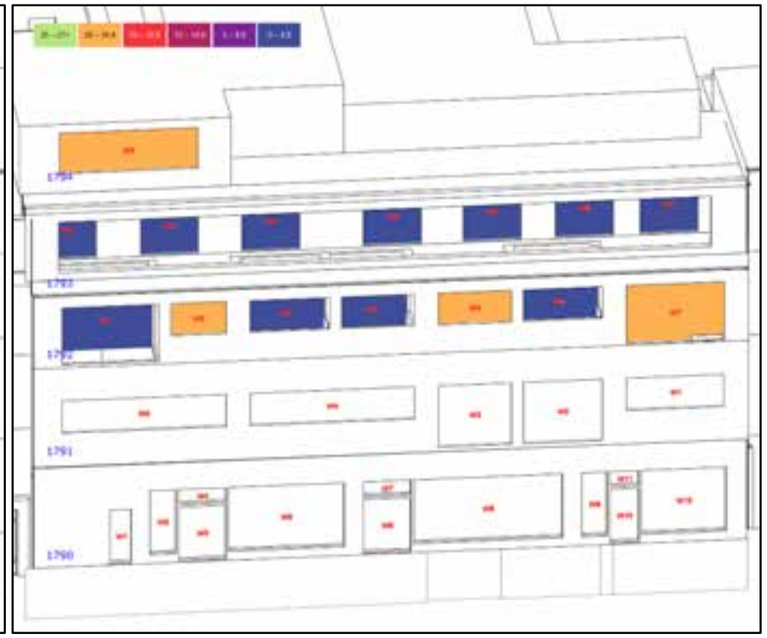
With regards to the NSL, three of the 15 rooms assessed would achieve full BRE compliance in relation to the NSL. A further four of the 12 remaining rooms would experience a loss between 20-30% which would be considered commensurate within the dense urban environment, The remaining eight rooms experience an NSL alteration of 40%+. Two rooms (R2/1792) and (R4/1793) retain a view of the sky dome to 50%+ of the working plane. 10 out of the 12 rooms affected are understood to serve bedrooms which are less sensitive in daylight terms compared to living rooms.

Located in excess of 90m from the site boundary, the following window maps illustrate the change in VSC retained levels. Given the significant separation distance from the site, coupled with the tunnelled view of the site the daylight alterations are attributable to the location and perspective of this property, not just the proposed development alone.

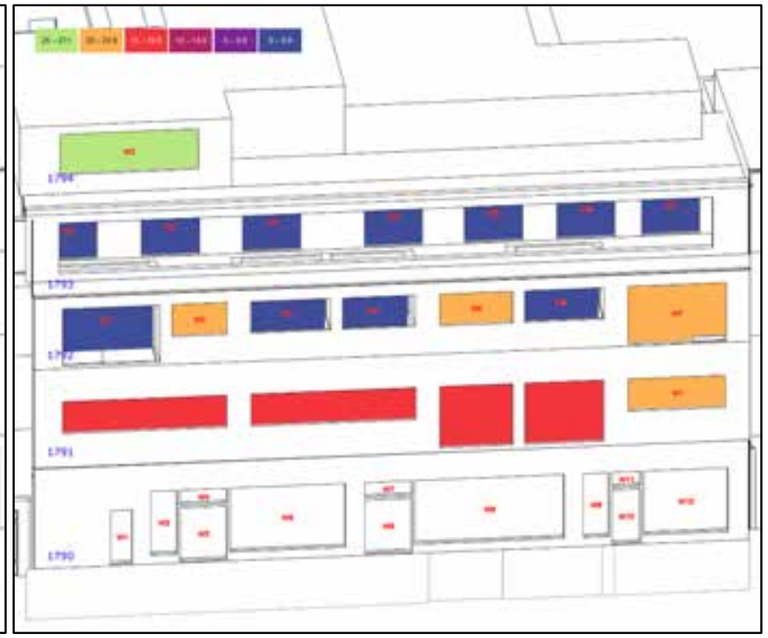
Existing VSC Levels



IPG Massing VSC Levels



Proposed Development VSC Levels

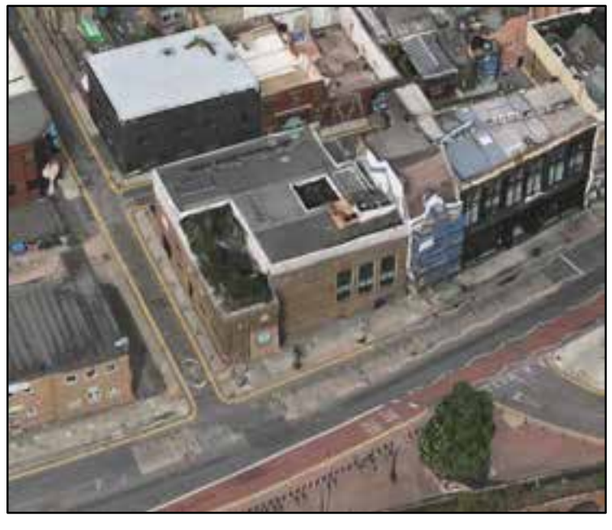


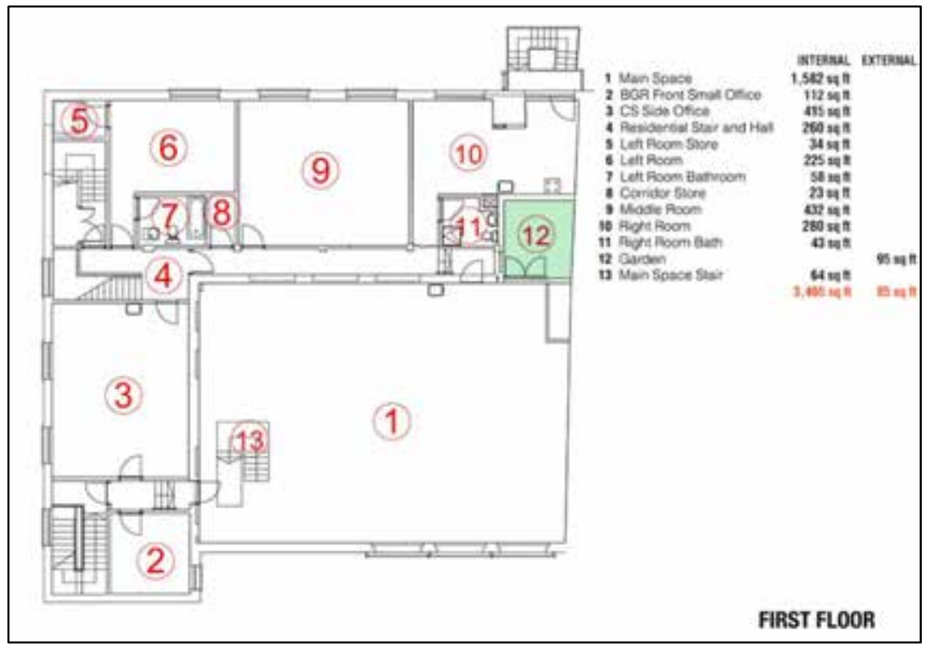
Distance from the site: ***19 m***

Use: ***VOA indicates some residential accommodation - No residential rooms facing site***

Significance (ES): ***Moderate Adverse***

15 Bethnal Green Road is located directly to the north of the site and is mixed use including residential accommodation. However, external observation and research into the floorplans indicates that whilst this property does have a council tax band the residential and habitable rooms face Chance Street on the first floor and therefore do not overlook the site, as shown in the following floor plan. On the second floor there are no forward facing apertures overlooking the site as shown in the following image.





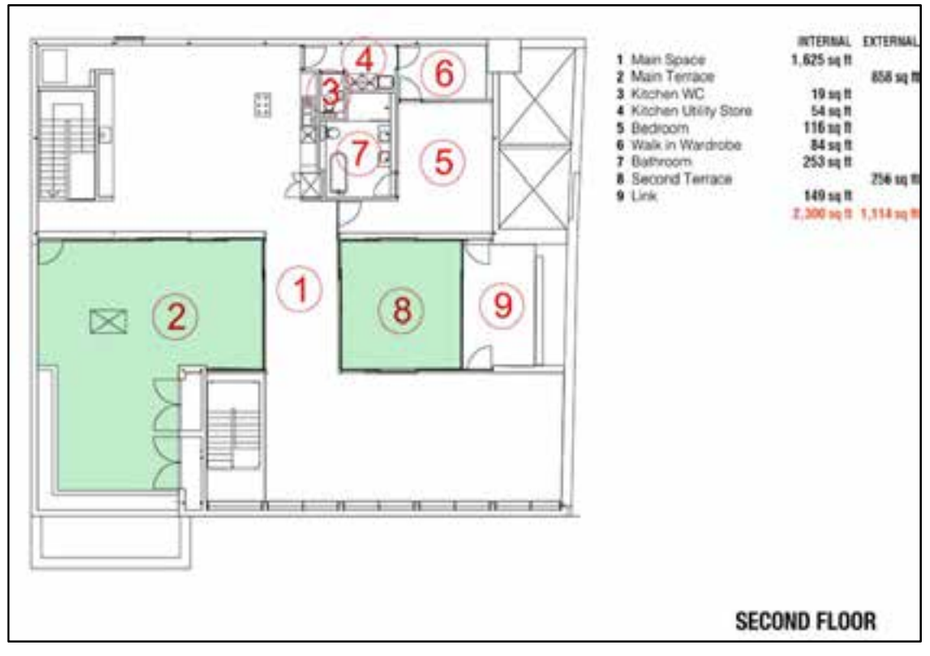


Figure 22 – Floor plans of 15 Bethnal Green Road (southern elevation facing site)

25 Bethnal Green Road

Distance from the site:	***37 m***
Use:	***Not paying council tax - commercial***
Significance (ES):	***Moderate Adverse***

This property is not registered as paying council tax and therefore it can be concluded that it is likely commercial in use.

The BRE guidelines state that residential properties and habitable rooms such as living rooms, bedrooms and kitchens are the most sensitive in regards to daylight. Some commercial dwellings may be considered to have a requirement for daylight such as schools or hospitals however this building does not fall into any of these categories.

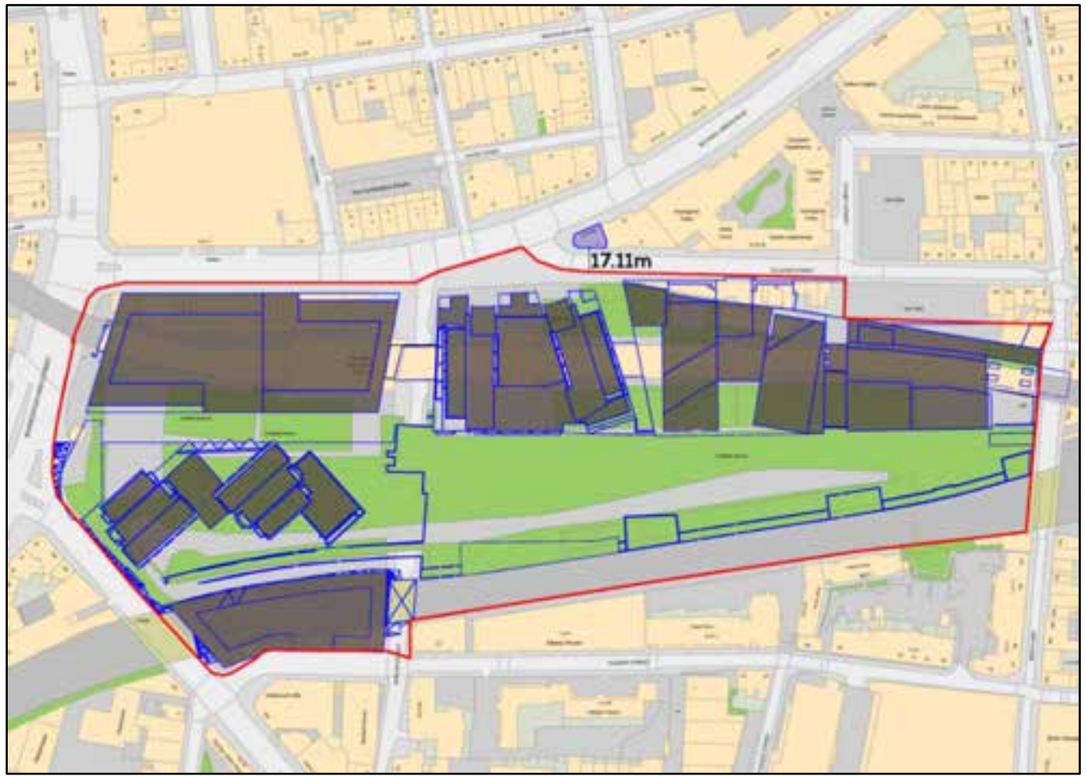
Therefore this property is not considered sensitive in regards to daylight; external observations would indicate this is to also be the case. Therefore, no further consideration is considered necessary in regards to the daylight impacts.

28-30 Bethnal Green Road

Distance from the site: ***17 m***

Use: ***Ground floor commercial, residential above from VOA***

Significance (ES): ***Moderate to Major Adverse***



This property is comprised of three residential apartments. There are 42 windows within this property serving 12 rooms. 15 out of the 42 windows will meet the BRE for VSC and therefore experience no noticeable alteration in daylight as a result of the Proposed Development.

The remaining 27 windows experience percentage alterations beyond 40%. However, the windows within this property currently enjoy an unobscured view across the site as indicated by the high existing levels of VSC (30% or more compared to the 27% recommended by the BRE). Combined with proximity to the site, any development reflective of the IPG would inevitably result in alterations in daylight beyond the BRE guidelines.

In addition, this property is situated on the junction of Bethnal Green Road Sclater Street where the expectation of amenity may be lower given the busy road junctions and proximity to other infrastructure.

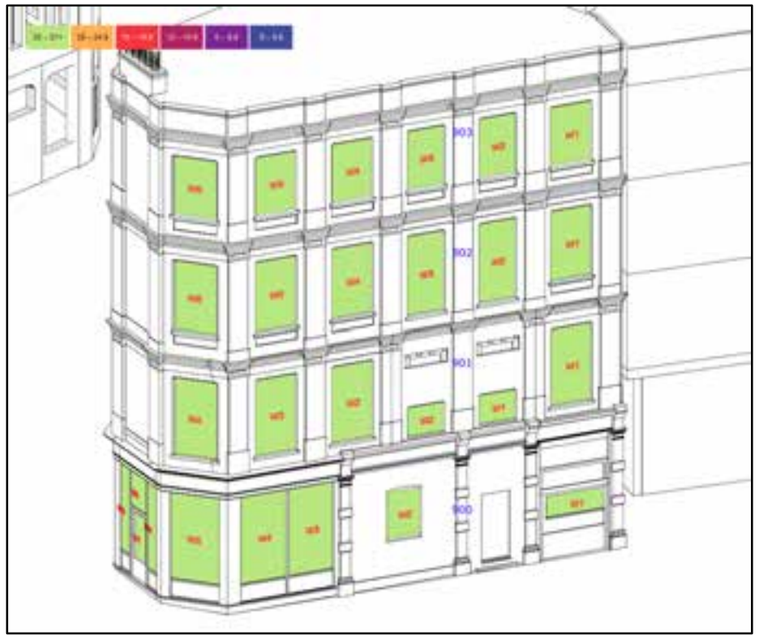
Furthermore the levels of retained VSC as a result of the Proposed Development are in line with those within an IPG Massing interpretation (Figure 6).

In regards to the NSL five out of the 12 rooms assessed will meet the BRE guidelines. A further four rooms will experience alterations between 20-30% which given the cleared nature of the site and aspirations for dense development in this location, are unavoidable.

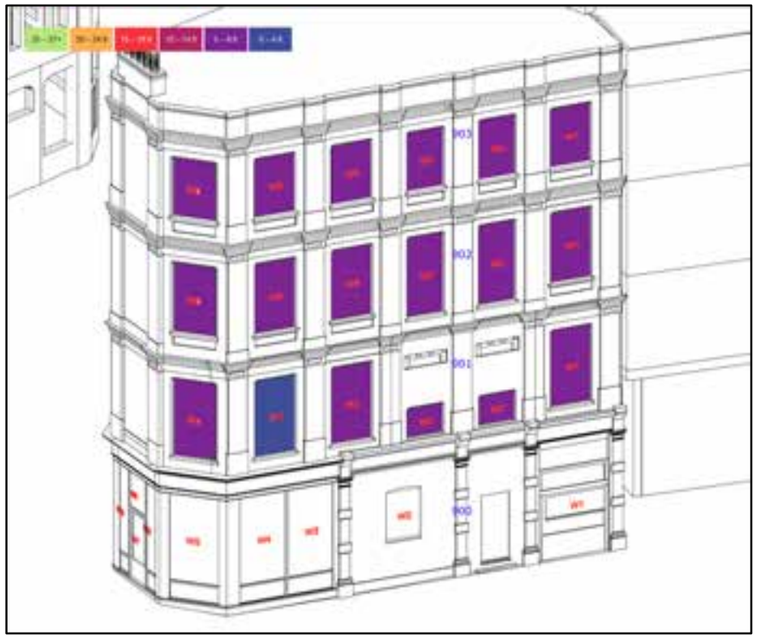
One room experiences an alteration between 30-40% however will retain a view of the sky dome to at least 60% of the room area which is considered commensurate with a dense urban environment.

The remaining two rooms which experience alterations beyond 40% are situated on the ground floor which is commercial and therefore require no further consideration.

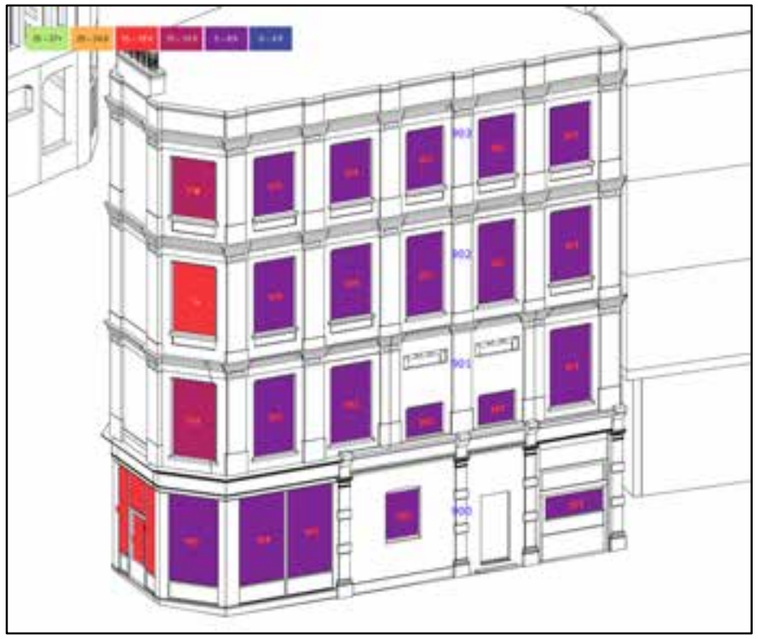
Existing VSC Levels



IPG Massing VSC Levels



Proposed Development VSC Levels



14 Chance Street

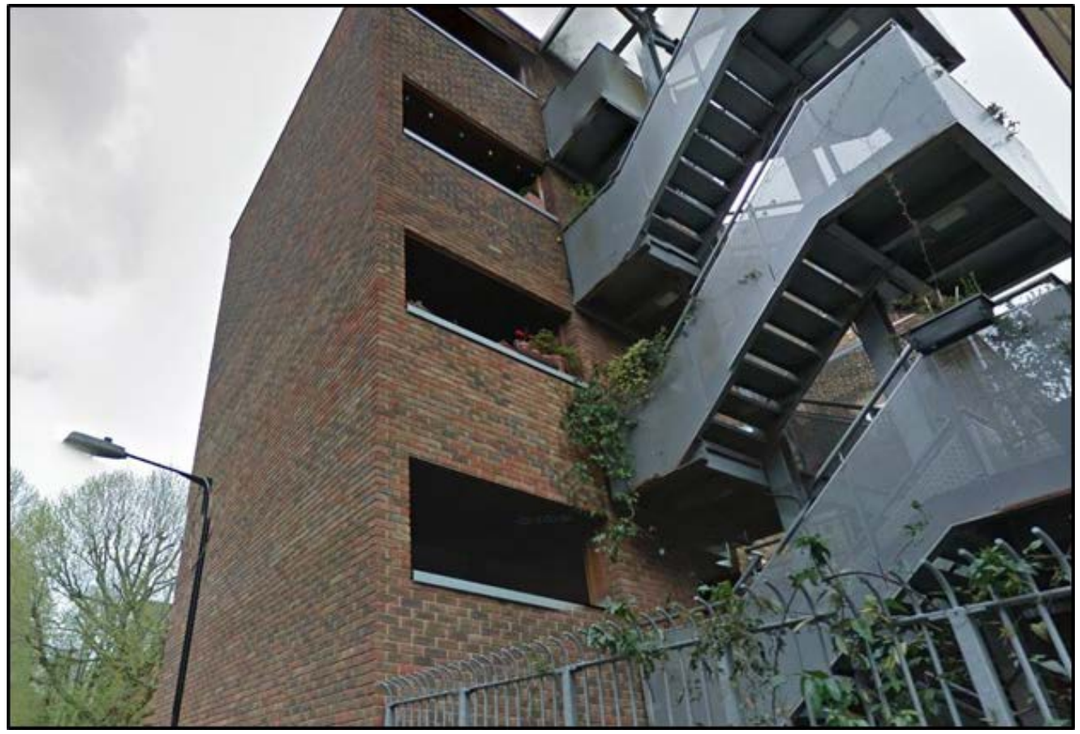
Distance from the site: ***117 m***
Use: ***Residential***
Significance (ES): ***Minor to Moderate Adverse***

This property is located 117m to the north of the development site where there are five full building plots in between. There are four windows serving four rooms within this property which have been assessed for daylight.

Of the four windows none achieve BRE compliance and the windows do experience significant percentage alterations in VSC. However, it must be noted that the windows have low existing levels of VSC (less than 8%) whereby any alteration could result in a disproportionate percentage change triggering a transgression of the BRE guidelines.

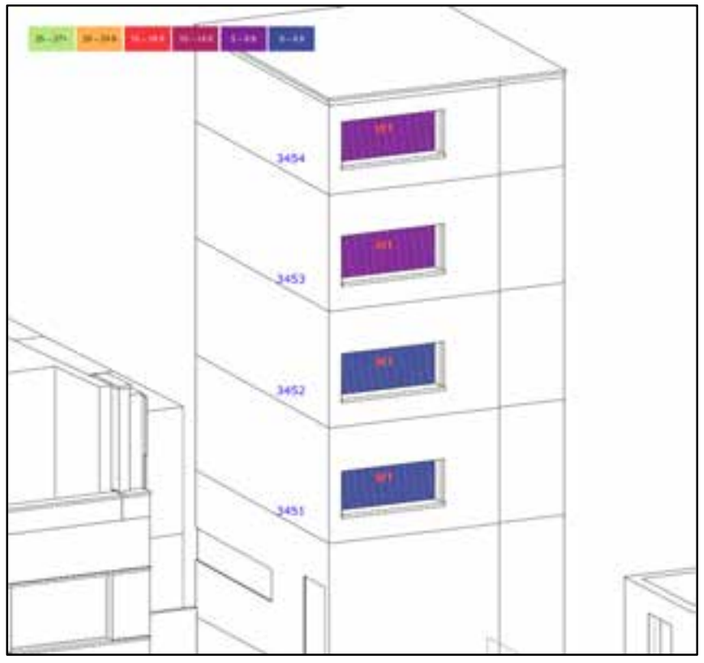
In addition, as per the image above, the windows are inset behind deep reveals which by virtue of its design restricts the potential view of the sky dome and thus the ability to receive BRE compliant levels of daylight. This is supported by the existing low levels of VSC and such design contributes to the large percentage changes following the implementation of the scheme.

In regards to NSL, out of the four rooms assessed, three will meet the BRE criteria experiencing less than 20% reduction of their former value. The remaining room experiences an alteration just above 20% suggested in the BRE guidelines. Given the cleared nature of the site and aspirations for strategic high density development such alterations are inevitable.

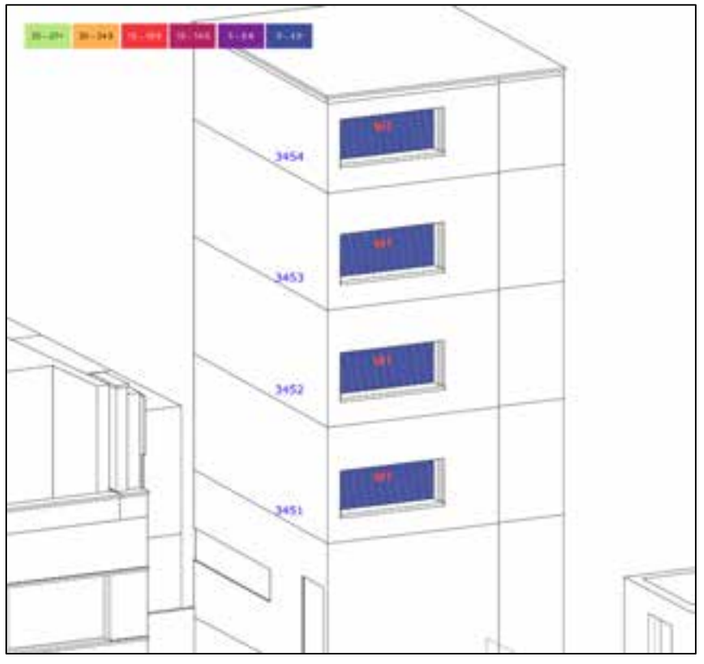


Located in excess of 117m from the site boundary and behind several building plots, it is questionable that the daylight amenity to this property would be compromised. Whilst it is acknowledged that there will be a change in daylight enjoyment, the retained VSC values against each aperture demonstrate a small actual change (as can be seen in the window maps overleaf) and such alterations are likely a result of the deep reveals/recessed balconies rather than the proposed development in isolation.

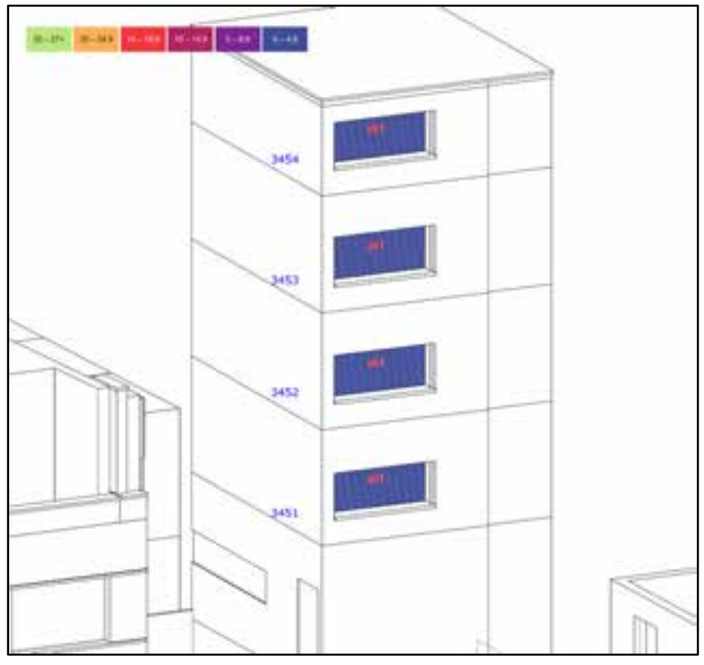
Existing VSC Levels



IPG Massing VSC Levels



Proposed Development VSC Levels



9.0 Sunlight

As discussed by DPR, impacts in terms of sunlight are inevitable to those properties located directly to the north of the site and a significant reduction likely for any properties as a result of the development incorporating tall elements being situated on an east west axis directly to the south of them. It is suggested that retained levels considered and a reduction of 4% APSH would not be materially noticeable. It is agreed that the majority of the results for annual sunlight remain good or at a level which could be considered commensurate with a dense urban location.

The impacts in winter sunlight are unlikely to be avoidable given the low position of the sun during the winter period combined with the scale of development proposed and surrounding context as well as existing cleared baseline. Due to the low position of the sun in the winter period a reduction in the heights of the towers would not necessarily result in a proportional improvement in the levels of sunlight, in particular winter sunlight. This is demonstrated in the Figure 23 below, a sun path Waldram which indicates that even if the height were reduced on the taller elements, this would not result in an increase in the number of sun spots or levels of APSH within the winter period.

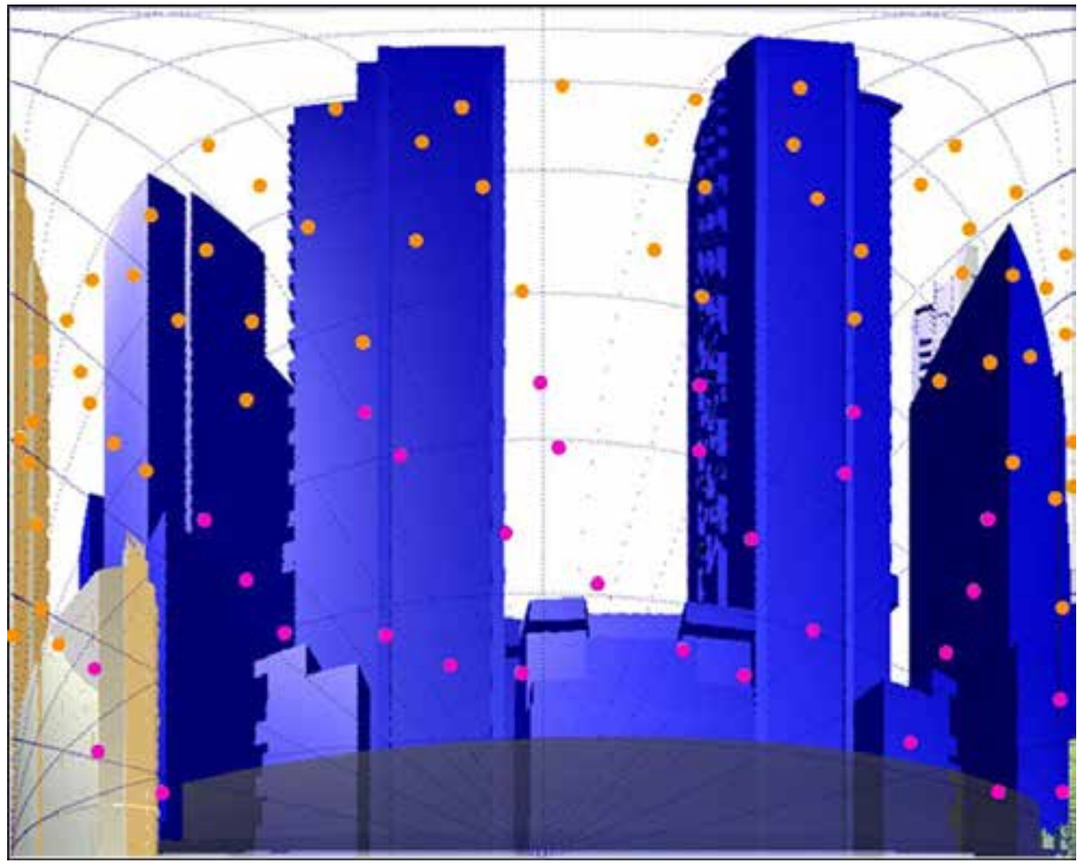


Figure 23 – Sun Path Waldram

10.0 Sun Hours on the Ground

The majority (6 out of 8 areas) of the amenity areas assessed will meet the BRE guidelines. In regards to the Shoreditch House Swimming Pool, 36% of the area will receive at least 2 hours of direct sunlight on March 21st. However, as an outdoor swimming pool this area is most likely to be predominantly used within the summer period. The results of the sun exposure and transient overshadowing assessments indicate high levels of direct sunlight during the summer period; with the whole area receiving over 8 hours of direct sunlight on June 21st.

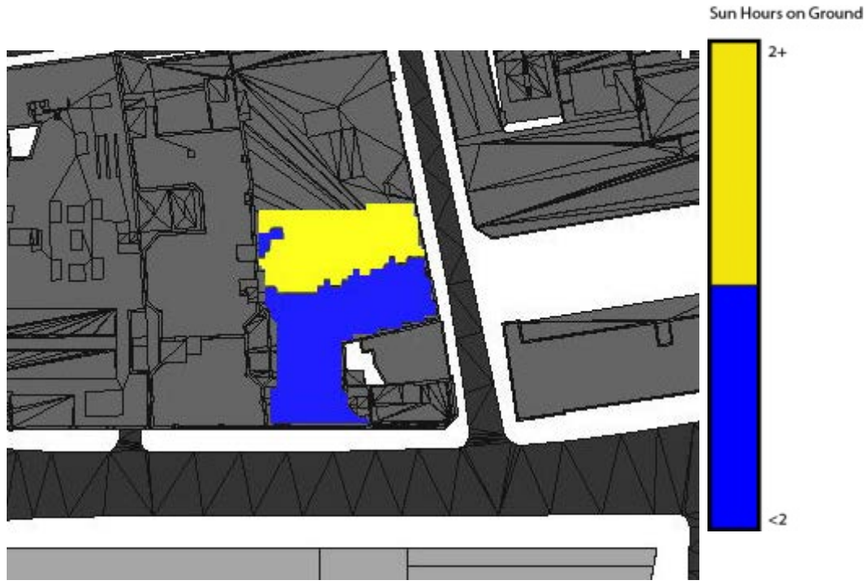


Figure 24 – Area 1 BRE- March 21st – 36%

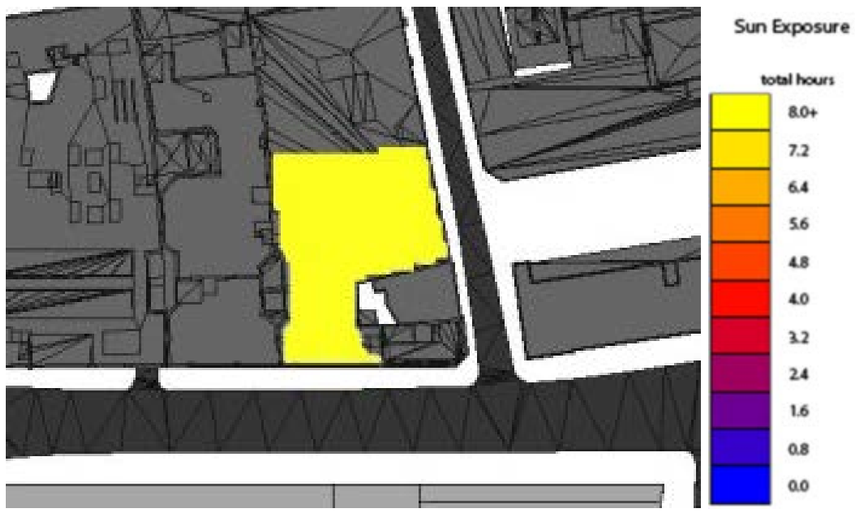


Figure 25 – Area 1 Sun Exposure – June 21st

In regards to the courtyard (Area 2) serving Telford Homes, little direct sunlight exists in the baseline prior to the implementation of the Proposed Development. This indicates that it is not the development but the inherent design of this amenity space. Typically internal courtyard areas by virtue of their design are restricted in the ability to achieve BRE compliant levels of sunlight. With the IPG and other planning policy documents identifying this site for strategic development, recognising that the majority of the development would be on the northern portion of the site and involve taller elements, a loss of sunlight to this amenity space is not unexpected. In the summer months at least half of this area will receive between 3-5 hours and therefore not be rendered in shadow throughout the year.

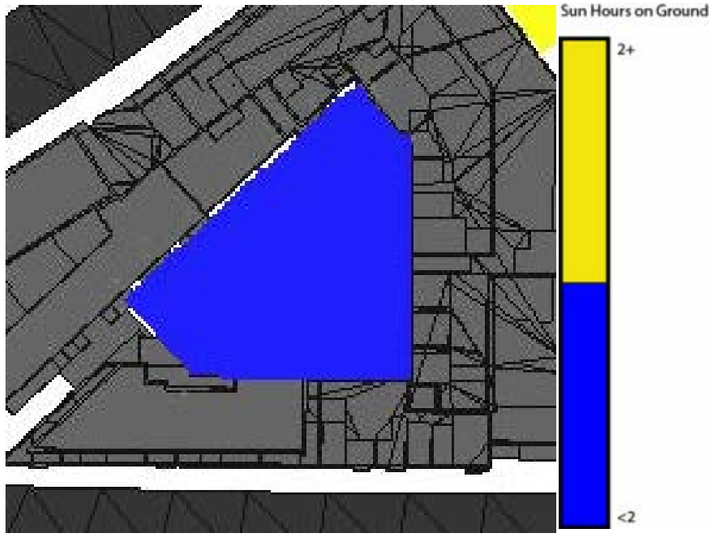


Figure 26 Area 2 BRE - March 21st – 0%

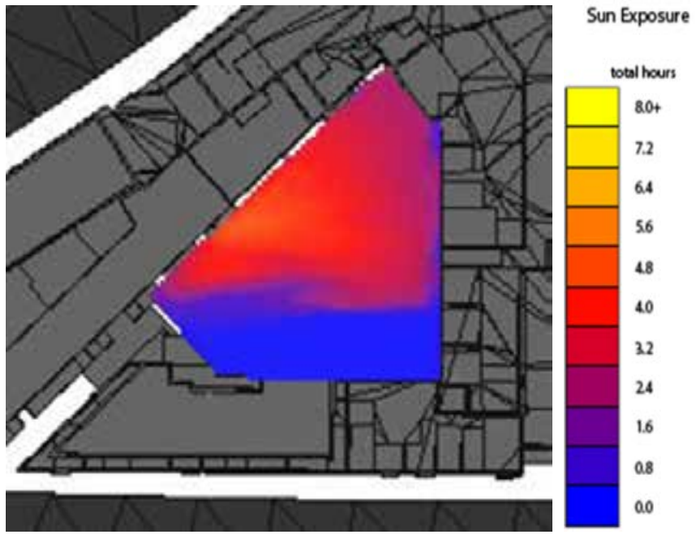


Figure 27 – Area 2 Sun Exposure – June 21st

11.0 Internal Daylight

In relation to the daylight and sunlight levels within the scheme DPR has undertaken a thorough review of both the outline and detailed elements and we agree with many of their conclusions.

As already mentioned earlier within this report, current guidance for daylight and sunlight has been drafted with a suburban context in mind. However for new developments the designs needed to provide such levels of light often run contrary to other design standards such as those for the provision of private amenity or space standards within the London Housing Design Guide. This is particularly true of the high density schemes emerging across London seeking to respond to London's housing crisis.

In addition, high levels of light in such new and sustainable developments often require very large windows which in turn increase the chance of overheating. It follows that designing a building which meets all the required standards, does not overheat and provides all occupants with good levels of daylight is exceptionally challenging and often not possible. Bishopsgate Goodsyard is one such high density development.

It is therefore accepted that the ideal levels of light will not be achieved within a number of rooms but it is expected that a development will be designed with light in mind and should seek to maximise the levels of light wherever possible. Understanding the above difficulties, GIA was instructed early on in the design process in order to help the architects maximise the levels of daylight within the proposed units without compromising the architecture.

In order to maximise the quality of natural light within the proposed units, living rooms have been located in the areas with the greatest daylight potential. This has sometimes meant that lower levels of daylight will be seen within bedrooms but it is preferable to have the living area seeing the maximum levels of daylight possible.

In addition to the above, balconies and winter gardens have been designed in order to maximise the levels of daylight seen beneath and behind them. This has resulted in their dimensions being altered to minimise light loss (whilst staying above the minimum areas required by current guidance), as well as being staggered in some locations which allows for generally greater levels of light to reach the living rooms beneath.

Finally, in order to increase the levels of daylight, window sizes have been maximised and wall thickness has been minimised, which serves to increase the daylight quantum and angles at which it will ingress.

It should be noted here that the above strategy seeks to provide the highest quality units even if it slightly reduces the overall percentage of rooms which see the levels of ADF recommended. This is a direct result of the ADF test having a higher requirement for living rooms than bedrooms; it would certainly be possible to increase the levels of daylight within bedrooms and so get more bedrooms described as 'well day lit' but this would be at the expense of the living areas. In a one bedroom flat for instance, it is considered preferable to have both rooms falling marginally short by 0.2% ADF rather than having a 'well day lit' bedroom with one and a half times the level recommended and a very poorly day lit living room with only a quarter of the light recommended.

Overall therefore, whilst DPR are correct in identifying a number of the units proposed as seeing low levels of light, this is somewhat unavoidable when considering the density of the scheme and with this density in mind these units present an exceptionally small proportion of the whole. The design has been developed with daylight in mind and performs as well as possible without compromising the architecture given the constraints of a high density development and modern design standards.

12.0 Cumulative Impact Assessment

As anticipated additional alterations occur in the cumulative scenario due to the inclusion of neighbouring schemes. As acknowledged by DPR for the majority of properties the level of significance is unaffected. There are isolated instances where the combination of the proposed development and neighbouring schemes would result in a greater alteration in daylight and/or sunlight.

The development and construction of the Huntingdon Estate will have an impact on the levels of daylight and sunlight within properties along Redchurch Street such as 30-32 and 70 Redchurch Street. There are also several taller schemes such as Principle Place, which will change the surrounding urban context of the site.

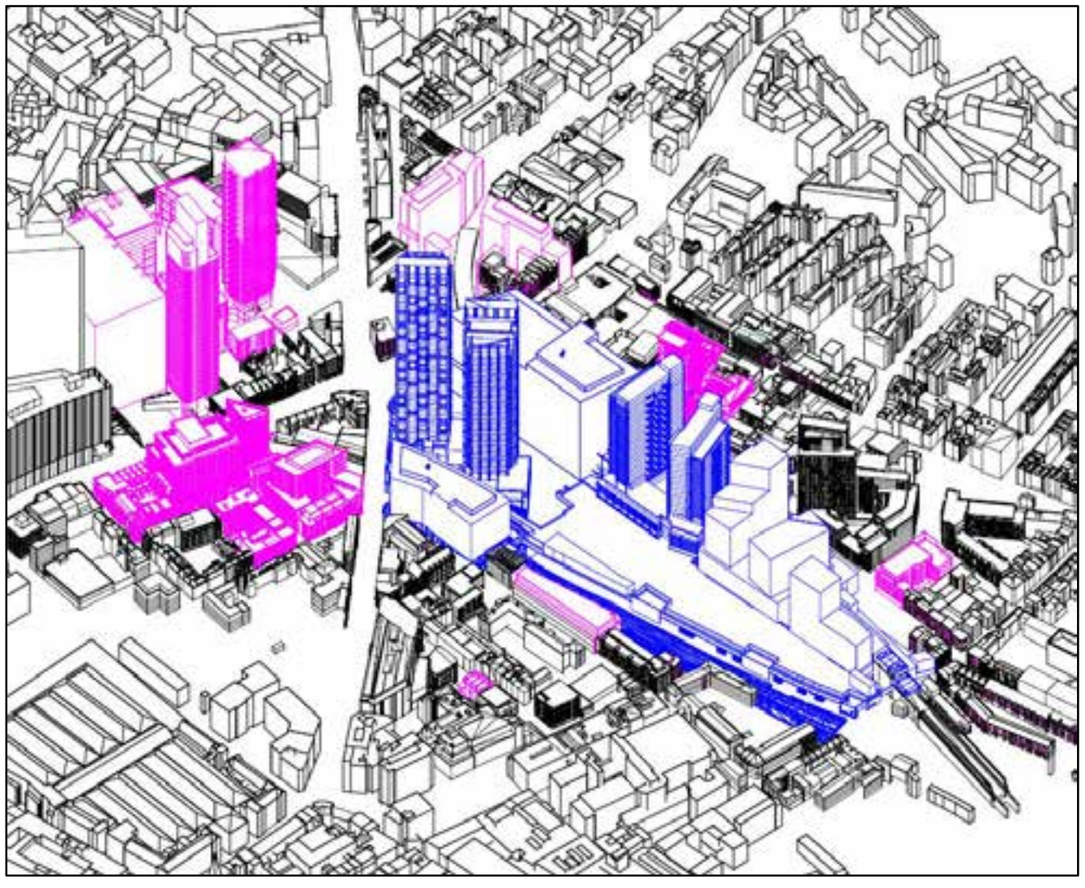


Figure 28 Cumulative Scenario

13.0 Boundary Estate – Overshadowing

The Boundary Estate to the north of the proposed development has been identified as an area of concern in relation to overshadowing. The distance of the Boundary Estate from the site was considered too great to warrant inclusion in the Environmental Impact Assessment but subsequent to that further assessments have been undertaken in order to quantify any impact from the proposed development.

A number of technical assessments have been undertaken throughout the year in order to communicate both quantitatively and visually any additional shadow. These go further than the standard assessments contained within the EIA and are designed to convey the data in much greater detail.

Overshadowing - Methodologies

Three assessment methodologies have been utilised including Sun Hours on Ground, Transient Overshadowing and Sun on Point analysis. All assessments have been undertaken in two scenarios for ease of comparison:

- Cumulative Existing (existing condition with neighbouring consented developments)
- Cumulative Proposed (proposed condition with neighbouring consented developments)

These are considered to be worst-case scenarios.

The output of all three assessments is presented visually so as to easily convey the results and the methodologies of each are discussed briefly below.

Sun Hours on Ground

This assessment, advocated by BRE, is utilised throughout the planning process and is the accepted method used to understand the potential overshadowing impact of a proposed development.

The BRE guidance suggests that in order for an area to appear well sunlit at least 50% of the area should see at least two hours of direct sunlight on the equinox. Where this is not met the guidance suggests that the area seeing at least two hours of sunlight could be reduced by up to 20%. Within an EIA should either of these conditions be met the overshadowing impact of a proposed scheme would be considered negligible. Should both be breached then professional judgment is used to assess the significance of any impact and further assessments such as those outlined below may be useful.

In addition to the equinox test recommended by BRE sun exposure assessments have also been undertaken on the summer and winter solstices. This goes beyond the BRE guidance but helps understand how the shadow alters throughout the year.

Transient Overshadowing

Transient Overshadowing uses rendered images to show visually the shadows cast over an area. Any additional caused by a development is highlighted in colour to ease identification. Assessments are again typically undertaken on the equinox and two solstices. In addition to the Sun Hours on Ground assessments, Transient Overshadowing is able to identify the times of day any additional shadow is cast. Owing to the qualitative nature of such assessments, however, there is no guidance on significance of the assessment and again professional judgement is utilised.

Sun on Point

Sun on Point assessments are not normally undertaken within the planning process but quantify the sunlight exposure throughout the year (in hours and minutes) from one specific point. Two points on the ground have been assessed after being identified as sensitive within the Boundary Estate, one within Boundary Gardens and one on the sportsground on the corner of Old Nichol and Camlet Streets.
The results for each point are presented on a chart showing:

- the existing levels of sunlight,
- the proposed levels of sunlight,
- the loss of sunlight,
- the probability of sunlight at midday,

On the 1st, 11th and 21st of every month.

Each day tested is then bracketed into scale of loss:

- No loss
- Less than 1 hour's loss
- Between 1 and 2 hours' loss
- 2 hours' loss or more

In order to estimate the whole year's sunlight from three days per month, the figure for each day is assumed to be accurate for all subsequent days until the next assessment. It is assumed that there are 365 days per year (not a leap year).

These assessments go significantly beyond those outlined within the BRE guidance but have been undertaken and presented so as to quantify any loss of sunlight.

Overshadowing - Summary of Results

The full analysis and results can be seen in Appendix 11.

Sun Hours on Ground

21st March – Equinox
The assessments have shown that the Boundary Estate is not noticeably impacted by the proposed development on the equinox and the estate is fully in line with BRE guidance.

21st June – Summer Solstice
The assessments have shown that the Boundary Estate is unaffected by the proposed development on the equinox.

21st December – Winter Solstice
The levels of sunlight are very low during the winter months owing to the long shadows caused by even modest structures including the surrounding context. A reduction in sunlight can therefore be seen within Boundary Gardens as well as within the sportsground on the corner of Old Nichol and Camlet Streets.

Transient Overshadowing

The Transient Overshadowing assessments conclude similarly to the Sun Hours on Ground and show that no additional shadow is cast onto the Boundary Estate either on the equinox or the summer solstice.

Additional shadow can be seen on the winter solstice owing to the sun's lower position in the sky casting significant shadows (the sun only reaches approximately 15 degrees altitude on this day). The additional shadow is shown over the boundary estate from 10am until 2pm.

However, it should be noted that the majority of the additional shadow shown in the assessment is on the roofs of the Boundary Estate. For this reason the assessment has been repeated without the roofs being highlighted in colour. This assessment has shown a much lesser impact as would be expected and it can be seen that the great majority of December shadow on the ground of the Boundary Estate is in fact caused by the buildings of the Boundary Estate.

Sun on Point

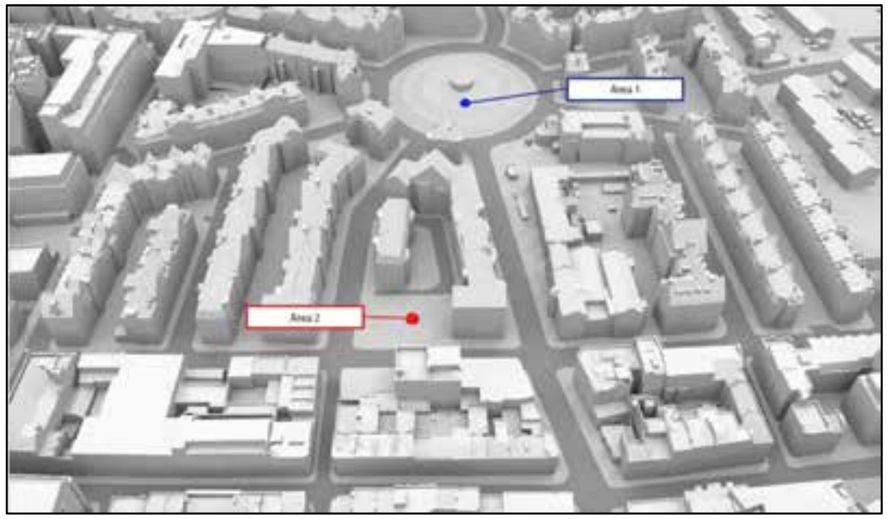


Figure 29 Sun on Point Areas Assessed

Boundary Gardens (Area 1)

This assessment point sees a reduction in sunlight owing to the proposed development broken down as follows:

Loss	Time of year	Length of time
None	21st Feb - 31st Oct	8 months, 8 days *(69.3% of the year)*
1 hour or less	11th Jan - 20th Feb 1st Nov - 10th Dec	1 months, 10 days 1 month, 10 days *(22.2% of the year)*
Between 1 and 2 hours	11th Dec - 31st Dec	21 days *(5.7% of the year)*
2 hours	1st Jan - 10th Jan	10 days *(2.7% of the year)*

Overall this area is unaffected the great majority of the year. It should also be noted that this area is covered with a large number of trees which will cause additional shadow. It is likely that with the trees taken into account any additional shadow caused by the proposed scheme would reduce.

Sportsground (Area 2)

This assessment point sees a reduction in sunlight owing to the proposed development broken down as follows:

Loss	Time of Year	Length of time
None	11th Mar - 10th Oct	6 months, 20 days *(58.6% of the year)*
1 hour or less	1st Nov - 20th Feb 1st Mar - 10th Mar 11th Oct - 20th Oct	3 months, 20 days 10 days 10 days *(36.2% of the year)*
Between 1 and 2 hours	21st Feb - 28th Feb 21st Oct - 31st Oct	8 days 11 days *(5.2% of the year)*
2 hours	*n/a*	0 days *(0% of the year)*

This area is unaffected for over half the year and the remainder of the year the majority of loss is for less than 1 hour. For 19 days there is over 1 hour of loss but this is only marginally so (1 hour and 2 minutes). In addition, the Sun Hours on Ground assessments have shown that this loss is much lesser to the south of the sportsground owing to shadow cast by the surrounding modestly sized buildings.

Overshadowing - Conclusions

Overall the amount of shadow cast over the Boundary Estate is shown to be low with the estate seeing no alteration to the levels of sunlight for the majority of the year. The entire estate is also fully in line with the recommendations set out within the BRE guidance.

Additional shadow can only be seen for a short time during the winter months when shadows are longer and additional shadow is to be expected from any development of scale on the site.

It should also be noted here that all the assessments undertaken have assumed an entirely sunny year, which of course is unrealistic. In fact the probability of sunlight (even when highest at midday) reduces markedly during the winter months to around 30-55% chance of sunshine (as shown in the Sun on Point analysis). It is for this reason that sunlight losses during winter are generally given significantly less weight than summer loss during the planning process. Overall, sunlight is more frequent and most often appreciated within areas of amenity during the summer months and the ground of the Boundary Estate is not affected at this time of year.

Within an EIA context the overshadowing effects on the areas of amenity within the Boundary Estate would be considered negligible although we note that additional shadow will be cast during the winter months.

Daylight - Methodology

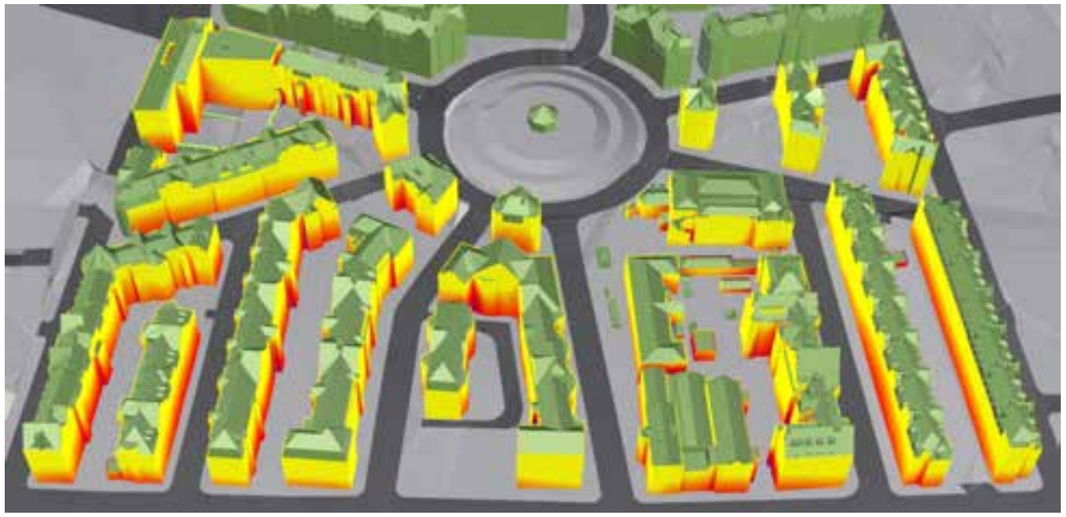
In order to understand the potential daylight impacts on the Boundary Estate, the area has been modelled to photogrammetric survey and every façade within the estate has been assessed in terms of VSC. As has been discussed previously, these assessments are likely to be an overestimation of the levels of daylight owing to the lack of façade detailing (window reveals and overhangs for example). However, as both assessments have been undertaken on the same model a fair comparison can be made and an understanding of the likely daylight impacts can be achieved.

The assessments identify the levels of VSC across the whole of each façade which are presented visually on a false colour scale from blue (0%) to yellow (27 %+). This allows for a simple comparison between two images to understand any potential impact.

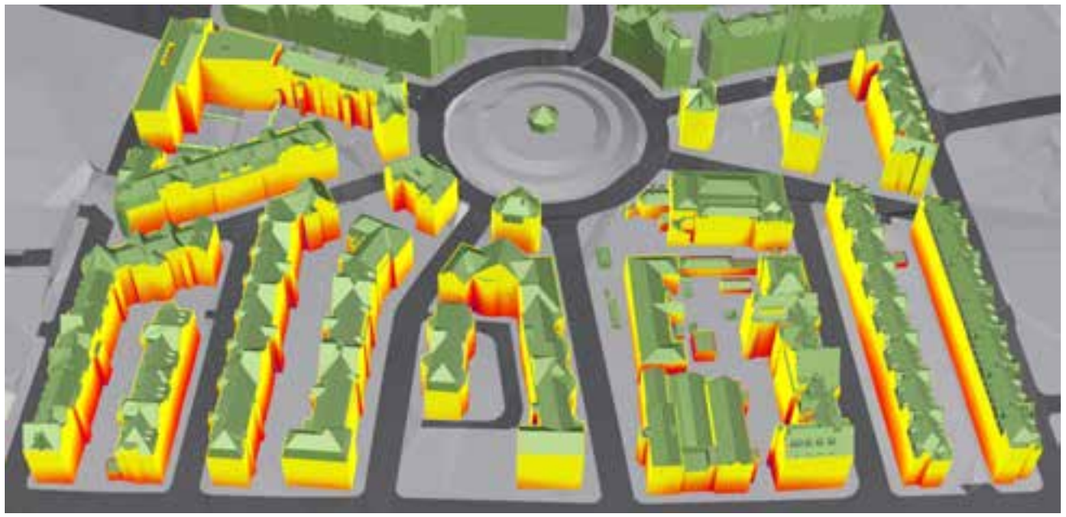
Again the assessments have been undertaken in the two 'worst-case' scenarios:

- Cumulative Existing (existing condition with neighbouring consented developments)
- Cumulative Proposed (proposed condition with neighbouring consented developments)

Daylight - Results



Existing Condition



Proposed Condition

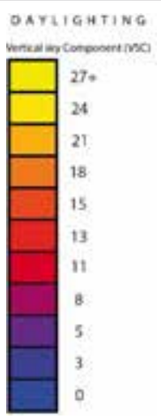


Figure 30 – Boundary Estate daylight potential

Daylight - Conclusions

As can be seen from the above, the two images are almost identical with the majority of facades facing the site seeing very good levels of daylight. We therefore conclude that there will be no material impact on the Boundary Estate in terms of daylight.

14.0 Summary/ Conclusions

GIA have been instructed to provide supplementary information in relation to daylight, sunlight and overshadowing impacts resulting from the proposed scheme at Bishopsgate Goodsyard. This report has been specifically tailored to address the daylighting/overshadowing impacts, highlighted by Delva Patman Redler (DPR) in their letter dated 21 September 2015.

Figure 31 (below), illustrates the existing site condition. As can be seen from this viewpoint, the site is largely vacant, which is uncharacteristic of a dense inner urban London location. There are a number of residential properties facing onto this site, many of which will experience an unusually high level of daylight in the existing scenario. The BRE guidelines provide recommendations on the quantum of daylight that may be altered in satisfying the assessment criteria. Against the primary daylighting test, VSC, it is suggested that a 20% alteration from the existing value is unlikely to be noticeable to the occupants.

Figure 32 **(**below), has been taken from a similar viewpoint and illustrates the extent of the massing that could be achieved on site in the event that the BRE guidelines are rigidly applied. Clearly, on a site which has been designated for high rise development, such guidelines are inappropriate as the massing depicted within the graphic below would render the proposal unviable. To that regard, it is considered that an alternative criteria, as discussed within appendix F within the BRE guidelines, should be more appropriate. In consideration to this, the daylight alterations along with retained daylighting values need to be reviewed in relation to the surrounding build environment and with a respective planning policy context.

In addition, the site has a number of physical/ design constraints including:

- Physical constraints - rail networks, heritage assets and location of foundations
- Strategic housing development with up to 2000 homes and a volume of 350,000 sq m
- Location of taller buildings on the western portion of the site
- Location of a park above the viaduct to the south of the site to maximise levels of sunlight

The Goodsyard is a strategic site, identified at both regional and local levels of planning policy as an opportunity for the regeneration and high density development of a vacant site. Using the design principles and concepts set out within the IPG, a 3D massing interpretation was created to compare against the Proposed Development. The results of the comparison indicate that the levels of retained VSC for the Proposed Development are generally in keeping with those of a notional IPG Massing.

Whilst there are a number of properties affected in regards to daylight, further research has identified that several are commercial in use or do not have habitable rooms overlooking the site and therefore these can be excluded from consideration. Furthermore, several of the surrounding properties identified by DPR have external amenity space in the form of balconies which (whilst providing desired amenity space) already limit the availability of daylight and as such have the potential to create disproportionate percentage alterations. Notwithstanding this, (as per the recommendations within the BRE) we have undertaken additional assessments without such architectural features. The results of such assessments indicate that in the majority of instances, the retained daylight will be commensurate within a dense urban environment and reflective of a notional IPG Massing.

From the cutbacks it is clear that a substantial proportion of the development massing would need to be removed to reduce the impacts and thus affecting the viability of the development of the entire Bishopsgate Goodsyard Site.

In regards to the overshadowing on the Boundary Estate, there is no alteration to the levels of overshadowing through the majority of the year and the whole area meets the BRE recommendations. In terms of daylight potential on the Boundary Estate, all of the facades facing the site see very good levels of daylight which will be unaffected by the Proposed Development.

Figure 31 – Existing Site Condition

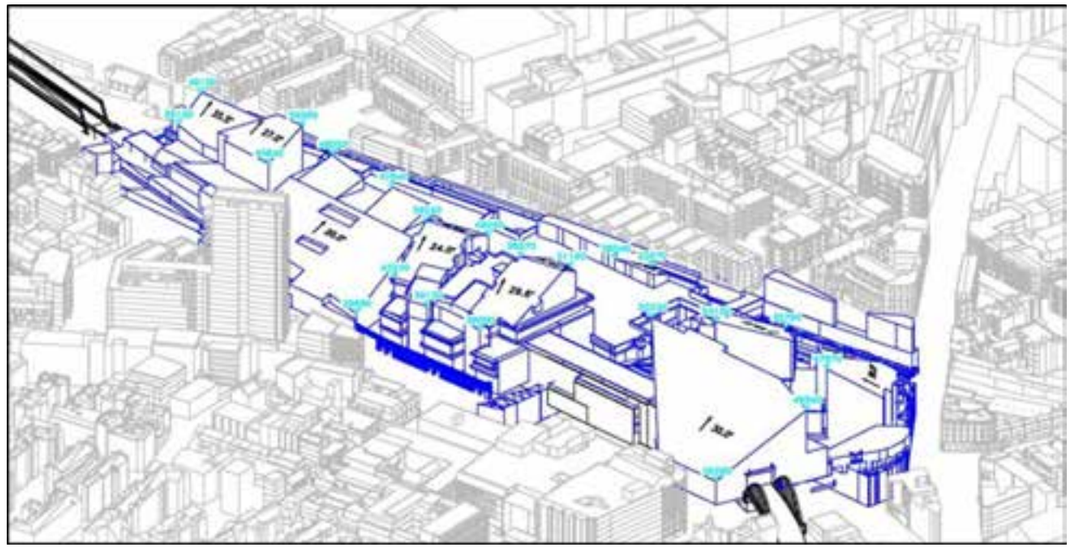


Figure 32 – VSC Compliant Cutback

To summarise, this site has a number of physical and planning/design based constraints which restrict the design and development possible against an aspirational policy context to achieve high density housing development on the site. Given the dense inner urban location, coupled with the fact that the site in its current state is largely underdeveloped, the alternative criteria within the BRE guideline is considered more appropriate in determining the daylight amenity to the neighbouring properties. Furthermore, in the majority of instances the retained levels of daylight are commensurate with an urban dense location, particularly given the site constraints, and are in line with planning policy.

15.0 Glossary of Terms

VSC Compliant – all of the windows within the property either retain a VSC of at least 27% or experience an alteration less than 20% of their former value.

VSC – Vertical Sky component. Measures the proportion of the sky visible from the centre point of a window on the outside face.

NSL – no sky line. Measures the proportion of the room at desktop height which can see the sky and which cannot.

APSH – annual probable sunlight hours. Long term average of total number of hours during a year

Working plane – level at which daily tasks take place i.e. desktop height at 0.85m in residential properties.

Negligible – in the EIA context impacts are classified in terms of impact significance or severity. Where an impact is classified as negligible either no alteration is experienced or the alterations are within the parameters set out within the BRE to be considered unnoticeable.

Material impact – noticeable alteration beyond the BRE parameters

Waldram Diagram – a tool to assist with the calculation of sky factors and visually demonstrates the quantity of sky visible from a point at the centre of the window face.

Dense urban environment – city centre locality on the fringe of the City

Adverse impact – alteration in daylight beyond the numerical criteria set out in the BRE guidelines. For example in regards to VSC, a window experiencing alterations more than 20% and retaining a value less than 27%. In regards to NSL, a window experiencing a reduction of more than 20% its former value.