



DAYLIGHT & SUNLIGHT

IMPACT ON NEIGHBOURING
PROPERTIES REPORT

Castle Yard

Exton Estates

19 January 2022

GIA No: **18254**

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1 EXECUTIVE SUMMARY

GIA have assessed the proposed Dn-a Architecture scheme “proposed development” for the Castle Yard site to understand the potential changes in light to the relevant surrounding properties.

- 1.1 GIA have been instructed by Exton Estates to provide daylight and sunlight advice in relation to the Castle Yard development in Richmond. The site is located in the London Borough of Richmond Upon Thames and currently consists of a three-storey office block known as 1 Castle Yard, whilst the proposal incorporates the addition of a further two stories to the existing massing.
- 1.2 GIA have undertaken a technical daylight and sunlight assessment of the architect’s scheme at Castle Yard “the site” to understand the potential effect of the development on the daylight and sunlight amenity of the relevant neighbouring properties.
- 1.3 The requirement in London boroughs for significantly more living and working spaces necessitates higher density development.
- 1.4 The daylight and sunlight analysis has been considered by reference to the criteria and methodology within the Building Research Establishment Guidelines (2011), which when published, recognised that it should not form a mandatory set of criteria, rather it should be used to help and inform design.
- 1.5 Upon successful completion of the proposed scheme, 73.7% of windows and 85.1% of rooms considered relevant for assessment will meet the national numerical values identified in paragraphs 2.2.21 and 3.2.11 of the BRE handbook for daylight and sunlight.
- 1.6 In light of the above, it is our opinion that the scheme performs very well from a daylight and sunlight perspective and does not cause unacceptable harm to the relevant neighbouring properties.



Figure 01: Illustration of the proposed Castle Yard development designed by Dn-a Architecture

2 THE SITE

GIA have been instructed to review and advise on the daylight and sunlight impacts associated with the implementation of the proposed development at Castle Yard.

THE SITE

- 2.1 The Site is located in the London Borough of Richmond Upon Thames and currently consists of a three-storey office block known as 1 Castle Yard. It is bounded by a mixed-use property known as Glovers Lodge to the immediate south, together with further fully residential and mixed-use properties situated on Lewis Road, Castle Yard and Hill Street.
- 2.2 Figure 02 below illustrates the Site. Further drawings are enclosed at Appendix 03 of this report.

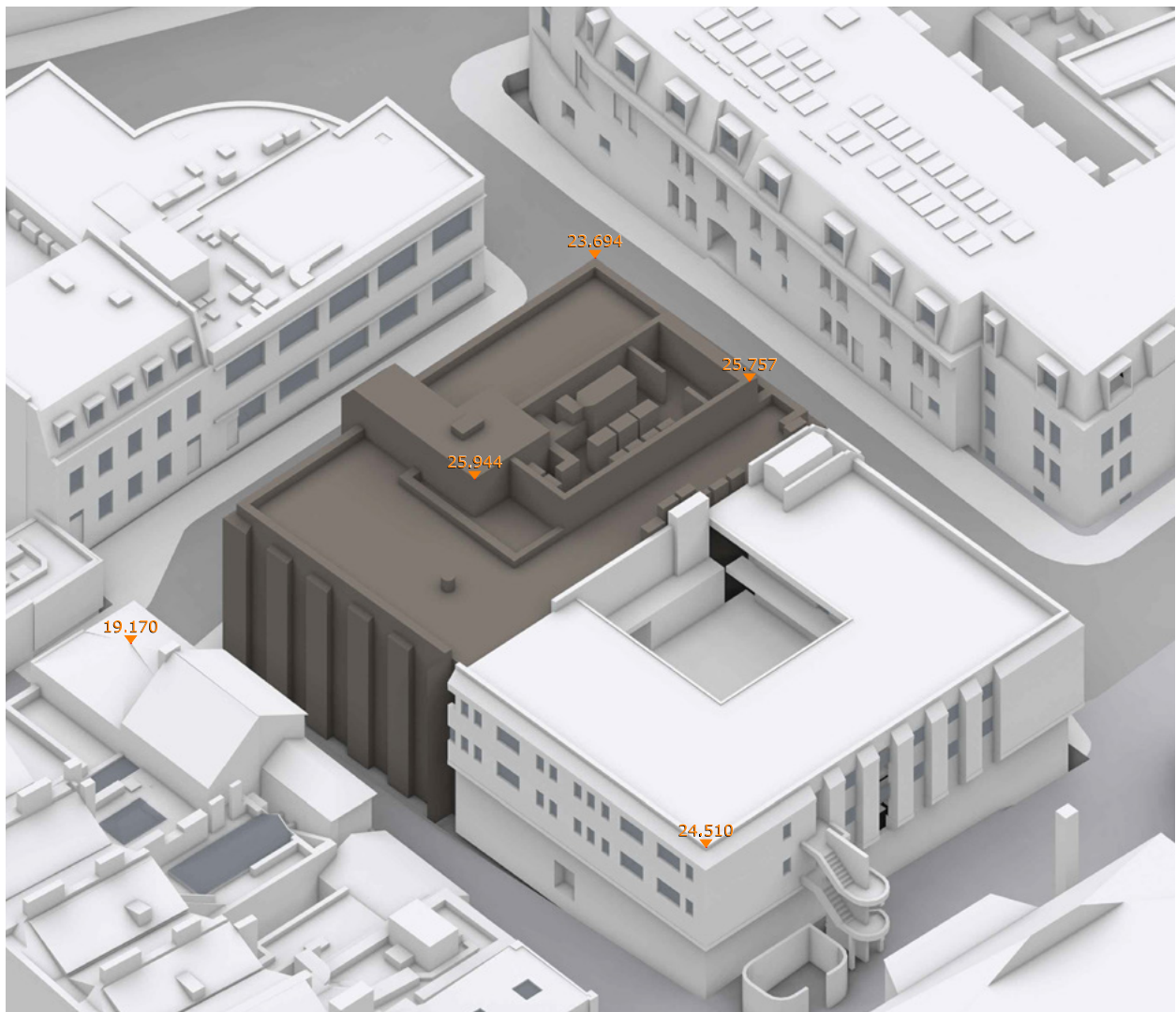


Figure 02: 3D model of the site and Existing Property

PROPOSED DEVELOPMENT

- 2.3 The Dn-a Architects proposal incorporates the internal renovation and reconfiguration of the existing building together with a two storey roof extension with associated ancillary works, to accommodate 8,213 sq.ft of additional commercial floorspace.
- 2.4 GIA's understanding of the Proposed Development is illustrated in Figure 03 and further drawings are enclosed at Appendix 03.

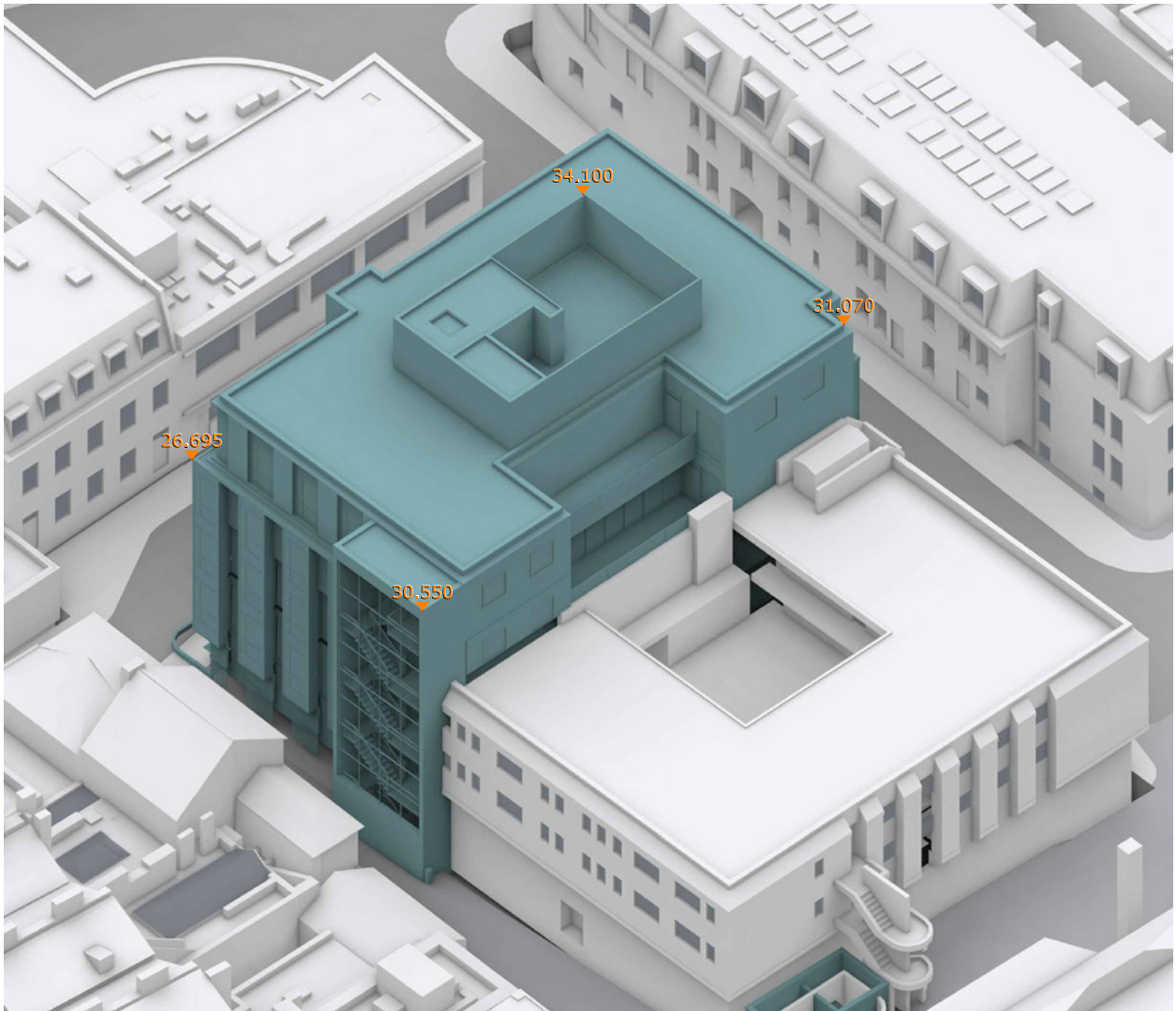


Figure 03: 3D Perspective View of the Proposed Scheme

PLANNING HISTORY

- 2.5 Following the pre-application meeting held in December 2021 it was highlighted that the relationship between the proposed stair core and the adjacent existing buildings to the west of the scheme may be compromised due to their close proximity.
- 2.6 From our due diligence we were able to ascertain that the properties fronting Castle Yard are commercial in use and therefore have not been considered relevant for assessment.

2.7 Further to this, our technical analysis has confirmed that the residential properties relevant for assessment situated along Hill Street with rear windows which face onto the development Site will fully adhere to the baseline BRE guidelines, and therefore the amenity the properties currently enjoy will not be adversely affected by the proposal and the stair core in particular.

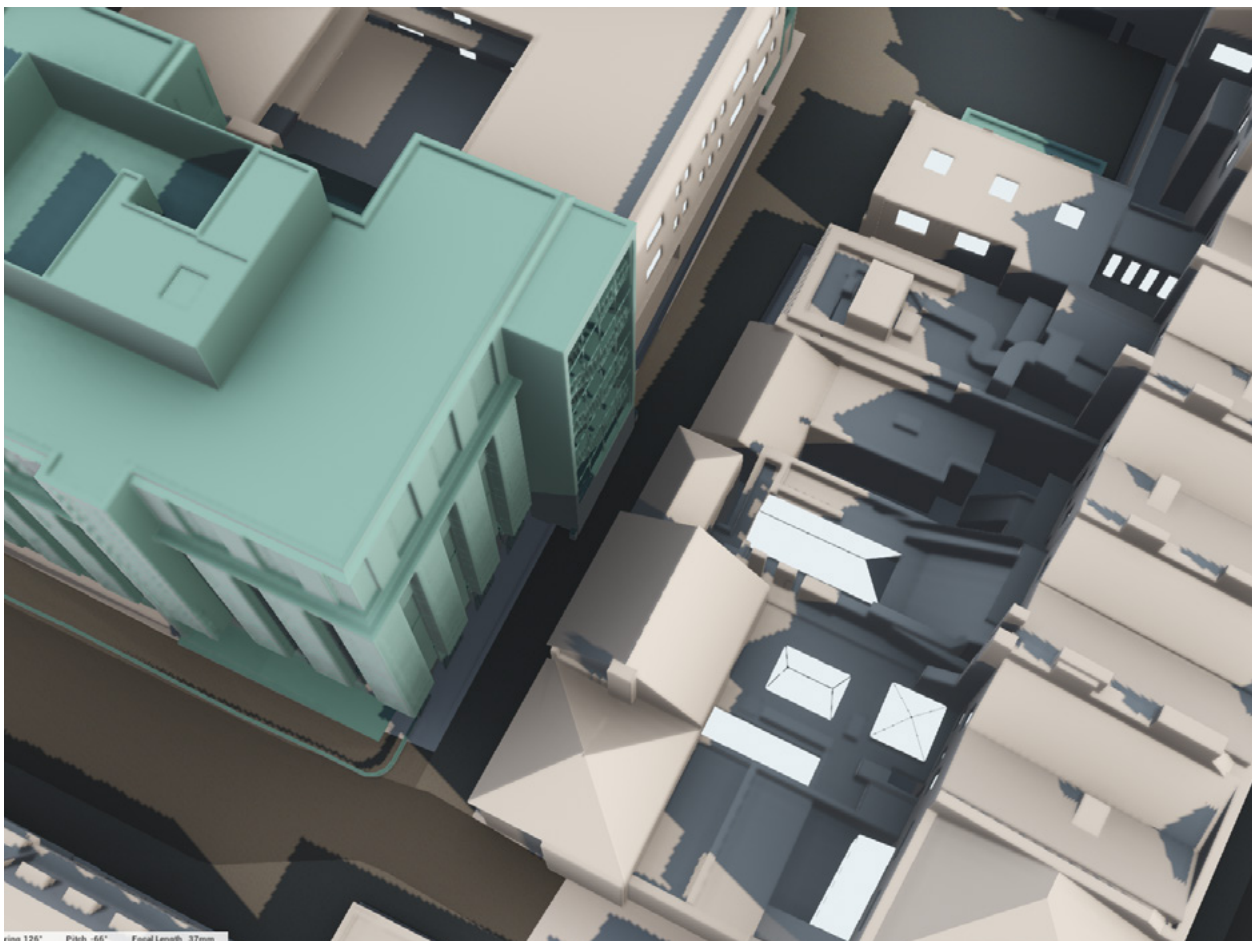


Figure 04: 3D Perspective View of the Proposed Stair Core in Relation to Properties Along Castle Yard and Hill Street

3 POLICY & THE WIDER CONTEXT

- 3.1 Below we have detailed sections from the following documents as they are, in our opinion, the most pertinent in relation to daylight and sunlight matters and how we have approached the effects of the Proposed Development on the relevant neighbouring properties:
- National Planning Policy Framework (NPPF) (Feb 2019) (Ministry of Housing Communities and Local Government (MHCLG));
 - National Planning Practice Guidance (NPPG) (updated October 2019) (MHCLG);
 - The London Plan (March 2021) (Greater London Authority);
 - Sustainable Design and Construction Supplementary Guidance (2014); and
 - London Borough of Richmond Upon Thames Local Plan (2018).

NATIONAL PLANNING POLICY FRAMEWORK (JUNE 2019)

- 3.2 The NPPF (Feb 2019) states that local planning authorities should refuse applications which they consider fail to make efficient use of land. The discussion in relation to daylight and sunlight highlights the Government's recognition that increased flexibility is required in response to the requirement for higher density development.

"When considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)"

NATIONAL PLANNING PRACTICE GUIDANCE (UPDATED JULY 2019)

- 3.3 In light of the update to the Government's Planning Practice Guidance, we have considered the relevant paragraphs on daylight and sunlight.
- 3.4 Paragraph 6 of the NPPG (Ref ID: 66-006-20190722) acknowledges that new development may cause an impact on daylight and sunlight levels enjoyed by neighbouring occupiers. It requires local authorities to assess whether the impact to neighbouring occupiers would be "unreasonable".

THE LONDON PLAN (MARCH 2021)

- 3.5 The London Plan was published in March 2021 and sets out the integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years.
- 3.6 Part D of Policy D6 (Housing Quality and Standards) states that the design of development "should provide sufficient daylight and sunlight to new and surrounding housing that is appropriate for its context, whilst avoiding overheating, minimising overshadowing and maximising the usability of outside amenity space."
- 3.7 It is clear that the GLA's focus is on sufficient or retained daylight and sunlight to neighbouring properties and highlights that context will be a consideration to determine sufficiency.

SUSTAINABLE DESIGN & CONSTRUCTION SUPPLEMENTARY PLANNING GUIDANCE (2014)

- 3.8 Section 2.3 of the SPG provides guidance on key areas such as site layout and micro-climate in relation to site layout and building design.
- 3.9 With regard to site layout, paragraph 2.3.6 refers to measures to reduce carbon dioxide emissions "include enabling access to daylight and sunlight for uses that require [light]." In addition, the guidance states that "site planning can minimise the impact of the shadow created by the new buildings to protect existing features such as open space and renewable solar technologies on roofs." It goes on to say that "developers should ensure the layout of their site and buildings maximises the opportunities provided by natural systems, such as light."
- 3.10 Paragraph 2.3.8 of the SPG continues with effects on the micro-climate caused by new buildings which include "overshadowing and reducing access to sunlight."
- 3.11 The guidance states that the above effects should "be considered during the design of a development and assessed once the designed is finalised."

LONDON BOROUGH OF RICHMOND UPON THAMES LOCAL PLAN (JULY 2018)

3.12 The Local Plan states within section 4.8.5 that:

“in assessing whether sunlight and daylight conditions are good, both inside buildings and in garden and open spaces, the Council will have regard to the most recent Building Research Establishment guidance, both for new development, and for properties affected by new development. In some circumstances, mathematical calculations to assess daylighting and sunlighting may be an inappropriate measure, and an on-site judgement will often be necessary.”

3.13 It is clear from the above that, whilst the Council will refer to the BRE guidelines, the Site and surrounding context will also be taken into consideration on an individual basis when quantifying the impacts of new development.

3.14 Further to the above, Policy LP25 of the Local Plan directly encourages new office development, particularly within the designated Key Office Areas. New/additional office space is also directly supported by policy LP41 of the Local Plan which seeks to ensure that there is a range of office premises in the borough, particularly for small and medium size business activities in the borough’s centres, to allow businesses to grow and thrive.

3.15 As the proposal seeks to expand and enhance the current level of office space in accordance with LP41C it is therefore entirely in accordance with Policy LP41.

4 BRE GUIDELINES & CONTEXT METHODOLOGY

The Building Research Establishment (BRE) have set out in their handbook '*Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2011)*', guidelines and methodology for the measurement and assessment of daylight and sunlight.

BUILDING RESEARCH ESTABLISHMENT GUIDELINES 2011

- 4.1 The BRE Guidelines note that the document is intended to be used in conjunction with the interior daylight recommendations found within the British Standard BS8206-2:2008 and The Applications Manual on Window Design of the Chartered Institution of Building Services Engineers (CIBSE).
- 4.2 The BRE Guidelines provides three methodologies for daylight assessment of neighbouring properties, namely;
 - 1 The Vertical Sky Component (VSC);
 - 2 The No Sky Line (NSL); and
 - 3 The Average Daylight Factor (ADF).
- 4.3 For daylight to be compliant (in accordance with figure 20 of the Guide), both the VSC and NSL tests have to be met.
- 4.4 The BRE Guidelines suggest that the ADF assessment should only be used to "*check that adequate daylight is provided in new rooms*", rather than existing buildings.
- 4.5 There is one methodology provided by the BRE Guidelines for sunlight assessment, denoted as Annual Probable Sunlight Hours (APSH).
- 4.6 It is an inevitable consequence of the built-up urban environment that daylight and sunlight will be more limited in dense urban areas. It is well acknowledged that in such situations there may be many planning and urban design matters to consider other than daylight and sunlight.
- 4.7 The BRE Guidelines provide alternative assessments to better understand the impact on a neighbouring property in such situations. The relevant assessments for the purpose of this report is detailed within the BRE Guidelines and summarised below.
- 4.8 The BRE Guidelines provide an alternative assessment where there are existing windows with balconies above them. This test determines whether it is the presence of the existing balcony that is the reason for the large relative impact on daylight (VSC).
- 4.9 Appendix 02 of this report elaborates on the mechanics of each of the above assessment criteria, explains the appropriateness of their use and the parameters of each specific recommendation.

5 DAYLIGHT & SUNLIGHT IMPACTS TO NEIGHBOURING PROPERTIES

This section details the daylight and sunlight impacts in relation to the relevant properties neighbouring the Site.

- 5.1 A three-dimensional computer model of the Site and surrounding properties was produced using full measured survey data in order to carry out the relevant technical studies. All relevant assumptions made in producing this model can be found in Appendix 01.
- 5.2 The BRE guidelines consider residential properties to be more sensitive in relation to daylight and sunlight and therefore, this assessment considers the impact upon the surrounding primary residential accommodation only (or where residential use is found within a mixed use property). The map in Figure 05 shows the residential properties that are relevant for assessment.

SURROUNDING PROPERTIES

- 5.3 GIA have identified the following properties as relevant for daylight and sunlight assessment:
- 36-38 Hill Street
 - 20-28 Lewis Road
 - Sandal House
 - 1-19 Glovers Lodge
 - 28 Hill Street
 - 20 Hill Street
- 5.4 The following properties adhere to the numerical values set out within the BRE Guidelines for daylight and sunlight and are not discussed further:
- 36-38 Hill Street
 - Sandal House
 - 28 Hill Street
 - 20 Hill Street
- 5.5 Where changes in daylight and sunlight occur beyond the baseline BRE guidelines to the remaining properties, the impacts are fully discussed in the following sections. All results can be found in Appendix 04.



Figure 05: Property Use Map

DISCUSSION OF RESULTS

20-28 Lewis Road

- 5.6 20-28 Lewis Road is a residential property located across Lewis Road to the Site's east. This property has been modelled using full floorplans obtained from Richmond Upon Thames Planning Portal.
- 5.7 We have assessed 43 windows within this property serving 25 rooms for daylight (NSL & VSC), 40 of these windows face within 90 degrees due south and have therefore been assessed for sunlight (APSH).

Daylight (VSC & NSL)

- 5.8 The analysis for VSC demonstrates that, of the 43 windows assessed within this property, 32 (74.4%) would adhere to the baseline BRE guidelines. Of the 11 windows situated on the ground, first and second floors that show transgressions beyond the baseline BRE guidelines, seven would experience a minor transgression of between 20%-30%, whilst the remaining four would experience a moderate transgression of between 30%-40%.
- 5.9 While this is the case, all windows showing transgressions will experience retained VSC values of c. 15% and above, which we would suggest is commensurate given the Site's urban context and which has been referenced in numerous recent London planning applications as acceptable. For example, in the Whitechapel Estate appeal (Appeal ref: APP/E5900/W/17/3171437), the decision document stated that:

"The figures show that a proportion of residual Vertical Sky Component ('VSC') values in the mid-teens have been found to be acceptable in major developments across London. This echoes the Mayor's endorsement in the pre-SPG decision at Monmouth House, Islington that VSC values in the mid-teens are acceptable in an inner urban environment"

- 5.10 Further to this, six of the 11 windows which show transgressions are known to serve bedrooms, which the BRE states have a lesser requirement for daylight, whilst all living rooms will retain a 16.2% and above VSC value.



- 5.11 In terms of the room-based method of daylight assessment (NSL), 18 of the 25 rooms assessed (72%) will meet the baseline BRE values. Of the seven rooms (situated on the basement through to the second floor) that do not meet the suggested BRE guidelines, three will experience a minor transgression of between 20%-30%, whilst the remaining four will transgress beyond 40%.
- 5.12 While this is the case, six of the seven rooms are known to be bedrooms, which are considered to have a lesser requirement for daylight by the BRE, and therefore only one primary habitable room will see a transgression as a result of the proposed scheme.

Sunlight (APSH)

- 5.13 With regard to sunlight, 39 of the 40 windows (97.5%) which face due south and have therefore been considered relevant for assessment will adhere to the baseline BRE guidelines.
- 5.14 The single window that does not adhere to the baseline BRE guidelines experiences a minor transgression of 22.6% for annual APSH, which is just marginally above the suggested 20% deemed as acceptable by the BRE. Further to this, the window will experience no change during the winter months, and only transgresses fractionally beyond the BRE's suggested annual APSH value of 25%, achieving a retained value of 24%.

Conclusion

5.15 Taking into consideration the above, whilst this property would experience transgressions beyond those suggested within the BRE, we would suggest that, given the good retained daylight and sunlight values which could be considered contextually appropriate, the impacts to this property are, in our opinion, acceptable from a daylight and sunlight perspective.

DISCUSSION OF RESULTS

1-19 Glovers Lodge

- 5.16 1-19 Glovers Lodge is a mixed-use property consisting of a leisure centre together with apartments, which adjoins the Site directly to the south. This property has been modelled using partial floorplans obtained from Richmond Upon Thames Planning Portal.
- 5.17 GIA worked closely with the architects throughout the design process in order to minimise the daylight and sunlight impacts to this building. As such, the southern portion of the proposal facing onto the courtyard of Glovers Lodge has been stepped back in order to respect the amenity of the property where possible.
- 5.18 We have assessed 35 windows within this property serving 35 rooms for daylight (NSL & VSC). 16 of these windows face within 90 degrees due south and have therefore been assessed for sunlight (APSH).

Daylight (VSC & NSL)

- 5.19 The analysis for VSC demonstrates that, of the 35 windows assessed within this property, 15 (42.9%) would adhere to the baseline BRE guidelines. Of the 20 windows (situated on the first and second floors) that show transgressions beyond those suggested as acceptable by the BRE, 11 would experience a minor transgression of between 20%-30%, whilst two would experience a 30%-40% transgression and seven would transgress beyond 40%.
- 5.20 While this is the case, the vast majority of windows showing transgressions experience very low VSC values in their existing condition at c. 10%-2%, and therefore the percentage changes in VSC could be considered disproportionate to the actual losses. This is further exacerbated by the presence of overhanging walkways and protruding sections of roof situated over the windows which face into the internal courtyard, with such architectural features restricting the daylight serving these windows in their existing condition. This is demonstrated by the Waldram diagram in Figure 06, which shows the outlook from a window located on the first floor within Glovers Lodge, with the current amount of sky visible together with the proposed scheme in blue.
- 5.21 To account for such architectural features, we have undertaken a 'no balconies' assessment, which is detailed overleaf.



Drawing Ref: 18254.MZ01-EvP
Window Ref: 1.19 GLOVERS LODGE_F01_W22

VSC Existing: 7.28
Proposed: 5.5

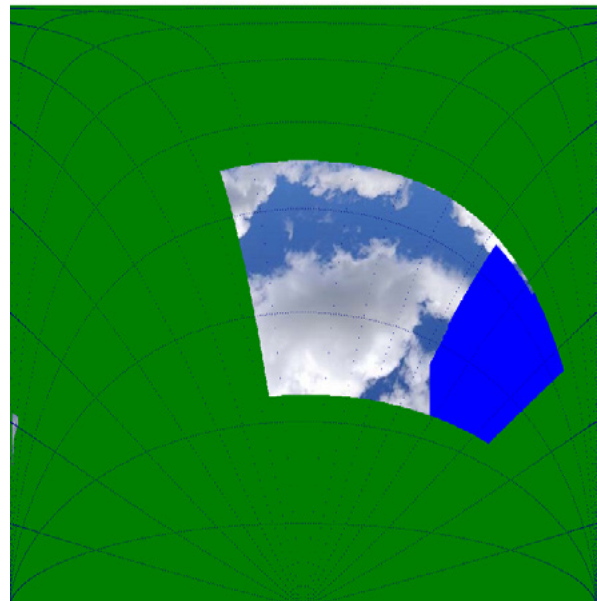


Figure 06: Waldram Diagram

- 5.22 It should also be noted that the majority of the impacted windows serve unknown rooms. Should room uses be ascertained, it may be possible to discount the windows or consider them to a lesser extent due to them serving non-primary living space.

Daylight (VSC & NSL) (Continued)

- 5.23 In terms of the second method of daylight assessment (NSL), 29 of the 35 rooms assessed (82.9%) will meet the baseline BRE values. Of the six rooms (situated on the first and second floor) that do not meet the suggested BRE guidelines, all will transgress beyond 40%.
- 5.24 It should be noted however that four of the six rooms assessed are known to be bedrooms, which are considered to have a lesser requirement for daylight by the BRE.

No Balconies Assessment

- 5.25 Whilst the above transgressions are noted, due to the presence of overhanging walkways facing the internal courtyard, in order to more accurately understand the effect of the proposed scheme without the restricting architectural features of the property, we have carried out a 'no balconies' assessment as permitted within the BRE Guidelines and noted within section 04 of this report. Please note that all windows within the block have been assessed and discussed for consistency, however this assessment is in relation to the walkways on the first floor which we have removed. Although there is an overhanging portion of roof which affects the level of light able to reach the second floor windows and rooms, we have not removed this feature and so VSC and NSL values remain unchanged.

- 5.26 When considering the no balconies assessment for VSC, 20 out of the 35 windows (57.1%) will now meet the BRE baseline values. Of the 15 windows that do not meet the BRE baseline values, seven will experience a percentage change of between 20%-30%, with four experiencing a 30%-40% and 40%+ change respectively.
- 5.27 In light of the above, an additional five windows will now meet the baseline BRE guidelines for VSC. The remaining windows on the first floor that experience transgressions now all experience retained values of no less than 8.3%, compared with retained values with walkways in place of 7% and below.
- 5.28 In relation to NSL, in the no balconies scenario, the same number of rooms assessed (29 of 35) will meet the BRE baseline values, with six rooms seeing a percentage alteration of 40% and above.
- 5.29 Again we would note that, of the six rooms that show transgressions, four are known to be bedrooms which have a lesser requirement for daylight, with the remaining two rooms being used as living/dining spaces. Further to this, all rooms on the first floor relevant for the no balconies assessment now experience an NSL value of at least 24.2%, as opposed to no more than 6.5% in the existing vs. proposed scenario.



Figure 07: Overhanging Walkway Removed for 'No Balconies' Assessment

Sunlight (APSH)

- 5.30 With regard to sunlight, 13 of the 16 windows (81.3%) which face within 90 degrees of due south and have therefore been considered relevant for assessment will adhere to the baseline BRE guidelines. The no balconies assessment provides the same results and so is not discussed in relation to APSH.
- 5.31 Two of the three windows that do not adhere to the baseline BRE guidelines would experience minor annual APSH transgressions of 22.2% and 22.7% respectively, which is marginally above the 20% threshold suggested as acceptable by the BRE. The remaining window will transgress beyond 40% annually, however it should be noted that it currently does not meet the baseline BRE values in its existing condition. Taking into account the winter months, all three windows remain unaffected.

Conclusion

- 5.32 Taking the aforementioned into consideration, whilst this property would experience transgressions beyond the baseline BRE guidelines, we would suggest that this is largely unavoidable due to the existence of overhanging walkways and portions of roof which restrict the daylight serving the windows and rooms in their existing condition. As a result of this, the impacted windows experience low levels of VSC in their current scenario and therefore the percentage changes could be deemed disproportionate to the actual losses.
- 5.33 Further to this, the majority of this property has been modelled based on assumed layouts due to a lack of floorplans available. Should full plans be obtained, they may allow further windows and rooms to be discounted based on room use, together with potentially altering the NSL results due to a difference in layouts between the assumed dimensions we have used against the actual dimensions of the rooms.

6 CONCLUSIONS

GIA have undertaken a daylight and sunlight assessment in relation to the Proposed Development at Castle Yard. The technical analysis has been undertaken in accordance with the BRE Guidelines.

- 6.1 Throughout the design process, the scheme has been subjected to extensive testing to minimise the daylight and sunlight impacts to the surrounding residential properties. The architect has undertaken design iterations based on our recommendations, which has ultimately resulted in the stepped massing on the proposal's southern edge.
- 6.2 When constructing buildings in an urban environment, alterations in daylight and sunlight to adjoining properties are often unavoidable. The numerical guidance given in the BRE document should be treated flexibly, especially in dense urban environments.
- 6.3 Our technical analysis shows that following the implementation of the Proposed Development two surrounding properties will experience changes outside of the BRE recommendations.
- 6.4 Where transgressions from the guidance occur, the assessments carried out demonstrate that the majority of windows (and rooms with a reasonable expectation of daylight/sunlight) retain levels of light that are contextually appropriate, with only isolated instances where alterations in light beyond this are likely to be unavoidable due to the proximity to the Site or existing architectural features.
- 6.5 Further to this, the 'no balconies' assessment carried out in relation to Glovers Lodge indicates that the overhanging walkways are causing the windows and rooms situated beneath them to experience exacerbated losses which could be considered disproportionate. The same could be said in relation to the overhanging roof located above the second floor, however this was not removed as part of the assessment.
- 6.6 As a result of the above, we would suggest that the Proposed Development is therefore appropriate in its context and the changes in daylight and sunlight, in our opinion, do not cause unacceptable harm to the relevant surrounding properties.



For further details please contact us on:

LONDON

T 020 7202 1400

E mail@gia.uk.com

The Whitehouse
Belvedere Road
London SE1 8GA

MANCHESTER

T 0161 672 5100

E manchester@gia.uk.com

2 Commercial Street
Manchester
M15 4RQ

BELFAST

T 02892 449 674

E belfast@gia.uk.com

River House
48-60 High Street
Belfast BT1 2BE

BRISTOL

T 0117 374 1504

E bristol@gia.uk.com

33 Bristol
Colston Avenue
Bristol BS1 4UA

DUBLIN

T 020 7202 1400

E hello@giasurveyors.ie

77 Lower Camden Street
Dublin Ireland
D02 XE80