# DAYLIGHT, SUNLIGHT OVERSHADOWING

## IMPACT ON NEIGHBOURING PROPERTIES REPORT

**British Museum (South West Energy Centre)**

British Museum

**19 October 2023**

GIA No: **14603** Fee Quote:**FQ0006018**

PROJECT DATA:

| | |
|---|---|
| Client | **British Museum** |
| Architect | **Wright and Wright** |
| Project Title | **South West Energy Centre at the British Museum** |
| Project Number | **14603** |

REPORT DATA:

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## APPENDICES (BOUND SEPARATELY)



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# 1 EXECUTIVE SUMMARY

GIA have assessed the Wright and Wright scheme (the "Proposed Development") for the South West Energy Centre at the British Museum to understand the potential changes in light to the relevant sensitive receptors.

1.1 GIA have been instructed by British Museum to provide daylight, sunlight and overshadowing advice in relation to the South West Energy Centre "SWEC" development at the British Museum.

1.2 GIA have undertaken a technical daylight, sunlight and overshadowing assessment of the Wright and Wright scheme at the SWEC "the site" to understand the potential effect of the development on the amenity of the relevant neighbouring receptors.

1.3 The technical analysis has been considered by reference to the criteria and methodology within the Building Research Establishment handbook (BR209, 2022) which when published, recognised that it *is advisory and the numerical target values within it may be vaired to meet the needs of the development and its location.*

1.4 The surrounding properties that have been considered are identified in brown on Figure 01.

1.5 There are no residential properties neighbouring the site, only two hotels, 36-38 Bloomsbury Street and 40 Bloomsbury Street.

1.6 The lease and letting agent for the tenant has confirmed that the property Nos.36-40 are used as a hotel. A hotel bedroom, by nature is a space used for sleeping and as such it is questionable as to whether there is any reasonable expectation or requirement for natural light.

1.7 GIA have tested these properties, however, any change in light would not have a direct impact as there are no occupiers that would notice the change in light. Overall, whilst there are transgressions from the BRE targets, retained daylight levels at ground floor and above are considered to be in keeping with typical values in central London. Moreover, as hotels, GIA consider greater flexibility from the BRE targets to be appropriate.

1.8 The sunlight test has not been required due to the orientation of the hotel windows from the site.

1.9 All amenity areas assessed for the Sun Hours on Ground (SHoG) Overshadowing assessment remain fully BRE compliant. All windows and rooms located at the ground/ first floor and above will retain what we would consider good levels of retained daylight, which are commensurate in an urban location such as this.

1.10 All adjoining properties gardens will achieve BRE compliance for overshadowing.


Figure 01: Sensitive receptors map in plan

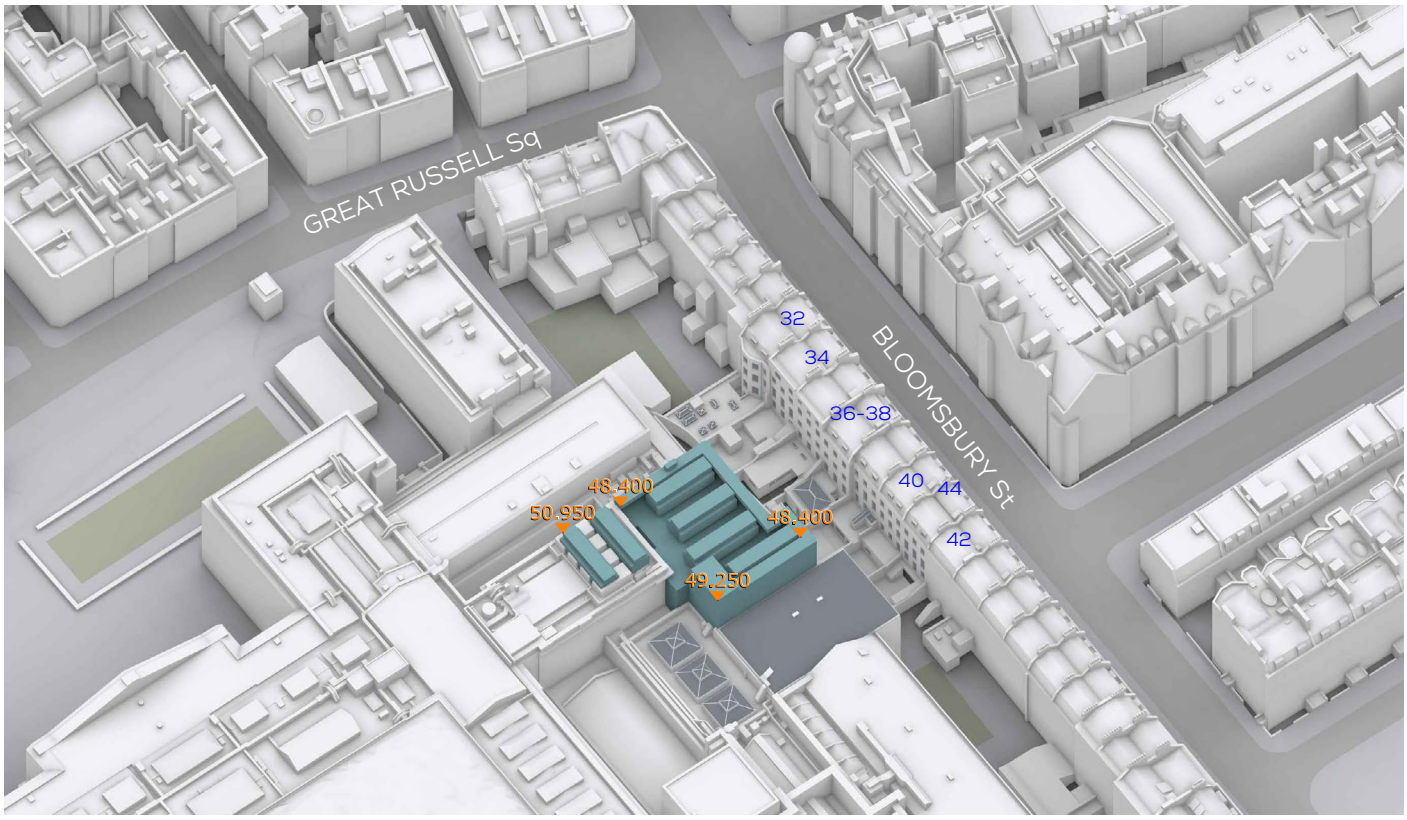


Figure 02: Proposal in 3D

# 2 THE SITE

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

## THE SITE

2.1 The Site is located in the London Borough of Camden and is a part of the British Museum.

2.2 Figure 03 below illustrates the Site. Further drawings are enclosed at Appendix 03 of this report.

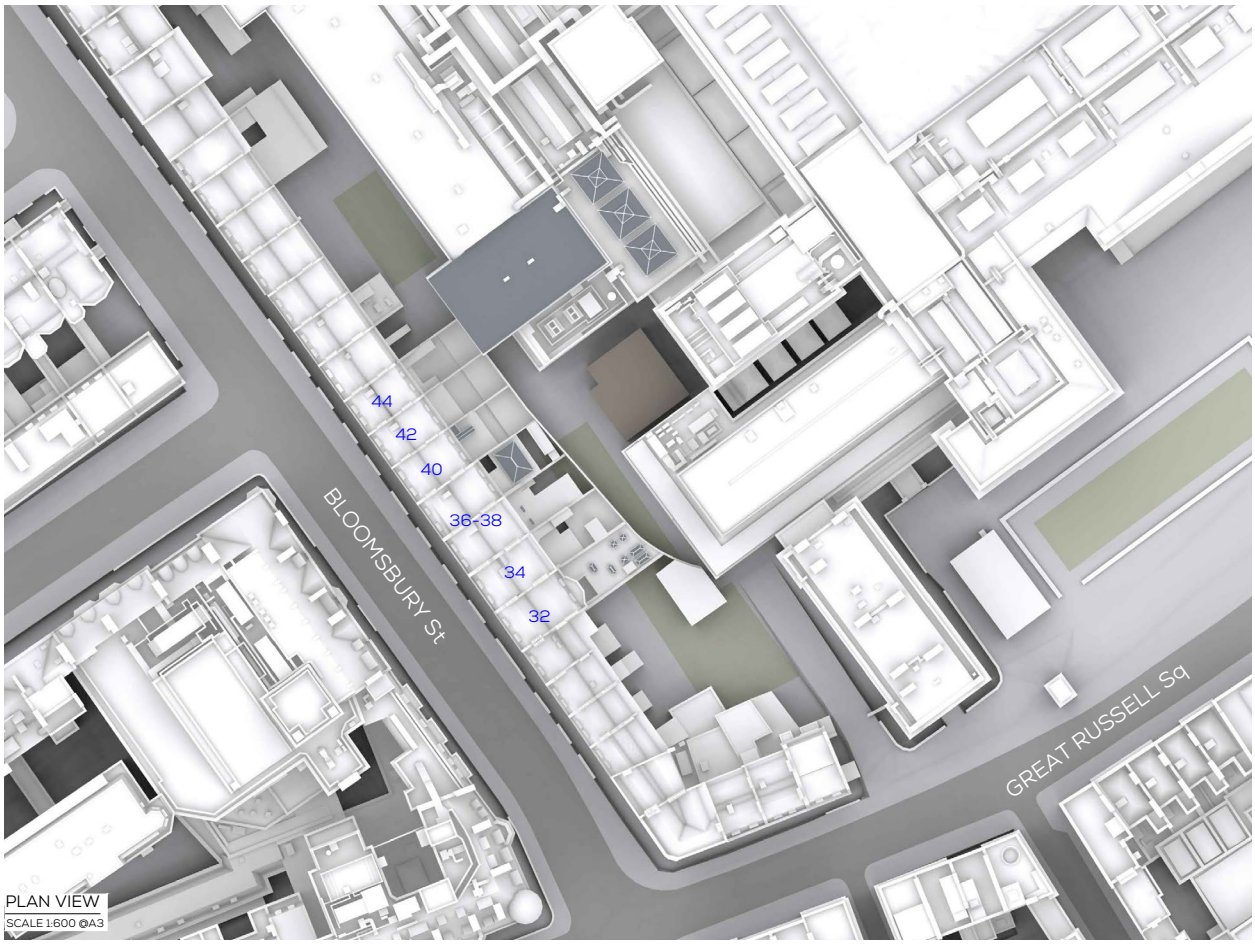


Figure 03: 3D model of the site and Existing Property

## PROPOSED DEVELOPMENT

2.3 The proposed development comprises of the demolition of the existing Energy Centre to internal West Road. Removal of temporary buildings to the south of the existing energy centre on the internal West Road and to the north and east of the White Wing facing Montague Street. Erection of new energy centre incorporating maintenance support accommodation to internal West Road, new substation off Montague Street, all together with associated internal and external works, service runs, erection of plant, landscaping, and temporary works associated with construction.

2.4 GIA's understanding of the Proposed Development is illustrated in Figure 04 and further drawings are enclosed at Appendix 03.

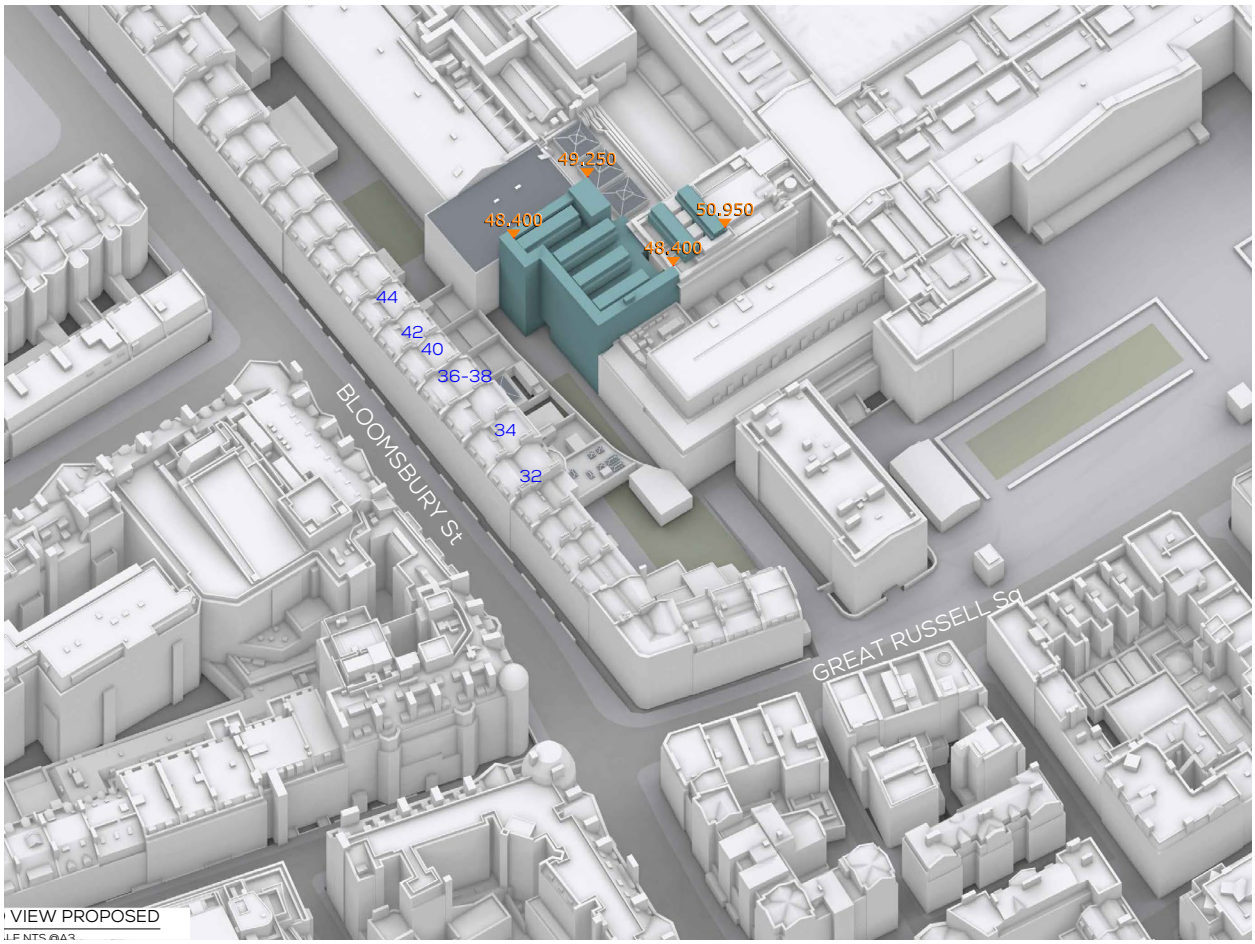


Figure 04: 3D Perspective View of the Proposed Scheme

# 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 (September 2023);**
- **National Planning Practice Guidance (updated June 2021);**
- **The London Plan (March 2021) (Greater London Authority);**
- **Camden Local Plan 2017**
- **Camden Planning Guidance on amenity 2021**

## NATIONAL PLANNING POLICY FRAMEWORK (SEPTEMBER 2023)

3.2 The NPPF (July 2021) states that local planning authorities should refuse applications which they consider fail to make efficient use of land. Although the Application is not of residential use, 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:

> *"Local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, 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 (JUNE 2021)

3.3 In light of the update to the Government's Planning Practice Guidance, GIA have considered the relevant paragraphs which relate to 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".

3.5 Paragraph 7 (Ref ID: 66-007-20190722) refers to the wider planning considerations in assessing appropriate levels of daylight and sunlight. The test is whether living standards are 'acceptable' and recognises that acceptability will depend to some extent on context.

## THE LONDON PLAN (MARCH 2021)

3.6 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.

3.7 The supporting text for Policy D1 (London's form, character and capacity for growth) states that:

> *"As change is a fundamental characteristic of London, respecting character and accommodating change should not be seen as mutually exclusive. Understanding of the character of a place should not seek to preserve things in a static way but should ensure an appropriate balance is struck between existing fabric and any proposed change. Opportunities for change and transformation, through new building forms and typologies, should be informed by an understanding of a place's distinctive character, recognising that not all elements of a place are special and valued."*

3.8 Part A of Policy D2 (Infrastructure requirements for sustainable densities) states that:

> *"The density of development proposals should:*
>
> *1) consider, and be linked to, the provision of future planned levels of infrastructure rather than existing levels*
>
> *2) be proportionate to the site's connectivity and accessibility by walking, cycling, and public transport to jobs and services (including both PTAL and access to local services)"*

3.9 Part D of Policy D6 (Housing Quality and Standards) (CD-4.22) 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."*

3.10 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.

## CAMDEN LOCAL PLAN (2017)

3.11 Policy A1: Managing the impact of development

> *"The Council will seek to protect the quality of life of occupiers and neighbours. We will grant permission for development unless this causes unacceptable harm to amenity", which includes daylight and sunlight*
>
> *6.5 Sunlight, daylight and overshadowing*
>
> *Loss of daylight and sunlight can be caused if spaces are overshadowed by development. To assess whether acceptable levels of daylight and sunlight are available to habitable, outdoor amenity and open spaces, the Council will take into account the most recent guidance published by the Building Research Establishment (currently the Building Research Establishment's Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice 2011). Further detail can be found within our supplementary planning document Camden Planning Guidance on amenity."*

## CAMDEN PLANNING GUIDANCE ON AMENITY (2021)

3.12 We have only extracted the relevant parts from Section 3 of this guidance note.

3.13 **Key Messages:**

- *The Council expects applicants to consider the impact of development schemes on daylight and sunlight levels. Where appropriate a daylight and sunlight assessment should submitted which should be follow the guidance in the BRE's Site layout planning for daylight and sunlight: A guide to good practice.*
- *Levels of reported daylight and sunlight will be considered flexibly taking into account site-specific circumstances and context.*

3.14 Flexible consideration of daylight and sunlight:

> *3.14 The Council notes the intentions of the BRE document is to provide advice to developers and decision makers and therefore it should be regarded as a guide rather than policy.*
>
> *3.15 While we support the aims of the BRE methodology for assessing sunlight and daylight we will consider the outcomes of the assessments flexibility where appropriate, taking into account site specific circumstances and context. For example, to enable new development to respect the existing layout and form in some historic areas, or dense urban environments, it may be necessary to consider exceptions to the recommendations cited in the BRE guidance. Any exceptions will assessed on a case-by-case basis.*

# 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 (BR209, 2022)'*, guidelines and methodology for the measurement and assessment of daylight and sunlight.

## BUILDING RESEARCH ESTABLISHMENT GUIDELINES (BR209, 2022)

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 BS EN 17037 Daylighting of Buildings and the Chartered Institution of Building Services Engineers (CIBSE) LG 10 Daylighting – a guide for designers.

4.2 The BRE handbook *is intended for use in rooms in adjoining dwellings where daylight is required, including living rooms, kitchens, and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. The guidelines may also be applied to any existing non-domestic building where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops, and some offices.*

4.3 The BRE guidelines provides two methodologies for daylight assessment of neighbouring properties, namely;

1 The Vertical Sky Component (VSC); and

2 The No Sky Line (NSL).

4.4 To avoid significant effects to daylight (in accordance with Figure 20 of the BRE Guidelines), both the VSC and NSL tests have to be met.

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 guide provides two methods of overshadowing assessment, the "two sun hours contour" and transient overshadowing studies.

4.8 The guidance in respect of overshadowing of amenity spaces is set out in section 3.3 of the BRE Guidelines 2022.

> *It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March.* [1]

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.

1 Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press, p 29 para 3.3.17

# 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 based on a measured survey undertaken by GIA in December 2022. Where available we have included floor plans of the relevant properties and this context model has been used to carry out the technical assessments. All relevant assumptions made in producing this model can be found in Appendix 01.

## RELEVANT SENSITIVE RECEPTORS

5.2 GIA have identified the following properties as relevant for daylight and sunlight assessment:

- 40 Bloomsbury Street- Hotel
- 36-38 Bloomsbury Street- Hotel

5.3 It should be noted that we have assessed the hotel bedrooms at 36-38 Bloomsbury Street, and 40 Bloomsbury Street, even though it is not residential in use.

5.4 The user of this property will likely only use it as a place to sleep whilst visiting the city and as such, it can be argued that there will not be an occupier that will "notice" a change in daylight. As per the BRE we have tested this property as it can be applied to such users, although lesser weighting to the impact is generally given.

5.5 Where changes in daylight and sunlight occur, the impacts are fully discussed in the following sections. All results can be found in Appendix 04.

5.6 To assist the readers understanding of the surrounding properties and window locations, we have produced window maps which are enclosed at Appendix 05 of this report.


Figure 05: Sensitive receptors map by use

## DISCUSSION OF RESULTS

**40 Bloomsbury Street**

5.7 This hotel is located to the west of the site. We have not been able to source floor plans so have assumed room uses and layouts.

**Daylight (VSC & NSL)**

5.8 Two of the 14 windows assessed for VSC achieve BRE compliance.

*Basement*

5.9 The three windows that serve the basement room are constrained: they overlook a tall boundary wall opposite and as a result, they are more sensitive to any increase in massing on Site.

5.10 The three windows that have been assessed at the basement would experience VSC and NSL losses in excess of guideline criteria.

5.11 Given that we would not expect high levels of daylight to a basement room in an urban environment, the retained VSC and NSL levels we feel would be typical for this type of urban environment.

*Ground floor*

5.12 R2 has two windows that serve it that would not achieve BRE compliance for VSC and NSL. It should however be noted that the room in question would still see the sky to c.61% of its area at the working plane which is considered high in this constrained urban environment.

5.13 There is only one window serving R3 and although it would experience a VSC transgression, it would retain a 17.1% VSC value following the implementation of the proposed development. GIA consider this retained value to be adequate in an urban situation such as this.

5.14 The room in question would not achieve BRE compliance for NSL however, the overall change in the NSL is 3.1 sqm.

*First Floor*

5.15 There are three windows that serve two rooms at the first floor. All windows would experience transgressions to their VSC values beyond the suggestions made by the BRE guidance. However, all three windows would retain between 16-20% VSC. We would consider this to be reasonable in the context of the urban environment and the property use.

5.16 The rooms in question achieve BRE compliance for NSL.

*Second Floor*

5.17 There are three windows serving two rooms on this floor. The three windows would not achieve BRE compliance for VSC however it is important to note that they also retain VSC values of c.21-25% against a target of 27%. We would consider this to be reasonable in the context of the urban environment and the property use.

5.18 The two rooms would achieve BRE compliance for NSL.

*Third Floor*

5.19 All windows at Floor 3 would achieve BRE compliance for VSC. R1 however experiences NSL transgressions, although it would still see the sky to c.75% of the room area at the working plane which is considered high in this constrained urban environment. R2 achieves BRE compliance for NSL.

**Sunlight (APSH)**

5.20 There are no windows relevant for APSH assessment due to their orientation.

**Conclusion**

5.21 The majority of site facing windows within this property would not achieve BRE compliance for VSC. However, the windows located at the first floor and above retain good levels of VSC following implementation of the proposed scheme. GIA consider the retained values to be considered as being commensurate in an urban location such as this.

5.22 The windows at the basement and ground floor are located in a more constrained location so compliance is harder to achieve. The retained daylight levels we feel would be typical of lower floors in an urban location such as this.

5.23 Given the property is used as hotel accommodation an occupier would only be residing for short periods and as such we feel that the daylight and sunlight issues are not as sensitive as if this was a primary residential property.

**36-38 Bloomsbury Street**

5.24 This hotel is located to the west of the site and we have not obtained floor plans for the property. We have only focused on impacts to the hotel bedrooms within this property.

**Daylight (VSC & NSL)**

5.25 Of the 23 windows that have been assessed for VSC, nine would achieve BRE compliance.

5.26 All windows falling short of their VSC targets located on the ground, first and second floors of the hotel retain over 15% VSC which could be considered as commensurate in an urban location such as this.

5.27 Of the 19 rooms assessed for NSL, ten achieve BRE compliance following implementation of the proposed scheme. The vast majority of rooms that do not meet BRE compliance all retain over 50% NSL in the proposed condition, which could be considered high given the density of this urban environment.

**Sunlight (APSH)**

5.28 There are no windows relevant for assessment due to their orientation.

**Conclusion**

5.29 This property is occupied by a hotel. Given the transient occupation of the rooms, daylight could be seen as a less important factor when compared to a primary residential use. Whilst there are BRE transgressions, retained VSC and NSL values from the ground floor and above are considered commensurate in an urban location such as this.

# 6 OVERSHADOWING ASSESSMENT

This section details the overshadowing impacts in relation to the relevant properties neighbouring the Site.

6.1 The gardens to the following areas have been considered in relation to overshadowing given their proximity to the Site:

- 36-38 Bloomsbury Street
- 40 Bloomsbury Street

6.2 This has been appraised by undertaking Sun Hours on Ground (SHOG) analyses.

6.3 The methodology used and output of the assessment can be found in Appendix 06 and GIA can confirm that the development will not result in any additional shadow to these garden areas.

| FLOOR | AMENITY | AMENITY AREA SQM | LIT AREA EXISTING SQM | LIT AREA EXISTING % | LIT AREA PROPOSED SQM | LIT AREA PROPOSED % | LOSS % |
|---|---|---|---|---|---|---|---|
| **40 Bloomsbury Street** | | | | | | | |
| B01 | A1 | 13.55 | -1 | -7.38% | -1 | -7.38% | 0.00% |
| B01 | A2 | 29.4 | -1 | -3.40% | -1 | -3.40% | 0.00% |
| F00 | A1 | 25.43 | -1 | -3.93% | -1 | -3.93% | 0.00% |
| **TOTAL** | | **68.38** | **-3.00** | **-4.39%** | **-3.00** | **-4.39%** | **0.00%** |
| **36-38 Bloomsbury Street** | | | | | | | |
| F00 | A1 | 50.03 | -1 | -2.00% | -1 | -2.00% | 0.00% |
| **TOTAL** | | **50.03** | **-1.00** | **-2.00%** | **-1.00** | **-2.00%** | **0.00%** |

# 7 CONCLUSIONS

GIA have undertaken a daylight, sunlight and overshadowing assessment in relation to the Proposed Development at SWEC. The technical analysis has been undertaken in accordance with the BRE handbook.

7.1 When constructing buildings alterations in light to adjoining properties is often unavoidable. The numerical guidance given in the BRE document can be treated flexibly in consideration of site specifics.

7.2 Our technical analysis shows that following the implementation of the Proposed Development some surrounding properties will experience changes outside of the BRE recommendations.

7.3 Whilst there are transgressions from the BRE targets, these are considered inevitable due to low existing values, meaning even very small absolute changes under the VSC and NSL assessment results in disproportionate greater percentage reductions.

7.4 The properties are hotel in use and therefore daylight could be seen as a less important factor when compared to a primary residential use. In many instances the retained levels within the upper floors are high. GIA consider that these results are reasonable in this urban location.

7.5 All areas assessed would achieve BRE compliance for SHOG.

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