



DAYLIGHT AND SUNLIGHT

IMPACT ON NEIGHBOURING
PROPERTIES REPORT

Westgate 2040 Project

Louth County Council

08 April 2024

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1 INTRODUCTION

- 1.1 GIA have undertaken a detailed daylight and sunlight assessment of the proposed development at Old Abbey Lane, namely the erection of a Corten steel roof canopy which forms part of the regeneration project within the Westgate Vision Area of Drogheda, Co. Louth (known as the 'Westgate 2040 Project').
- 1.2 The technical analysis has been considered by reference to the criteria and methodology within the Building Research Establishment Guidance (BR209, 2022) which when published, recognised that it *"is advisory and the numerical target values within it may be varied to meet the needs of the development and its location."*¹
- 1.3 Paragraph 1.6 of BR209 states that the *'The guide is intended for building designers and their clients, consultants, and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design.'*²
- 1.4 In normal circumstances we would only consider residential properties within our assessment, or non-domestic properties that have a reasonable expectation for natural light (such as hotels, schools, hospitals etc). Paragraph 2.2.2 of the BRE guidelines that states *"the guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens, and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed."*³
- 1.5 In this instance, GIA have been asked to extend the scope of our study to all use classes, including commercial and mixed use buildings. This led to the assessment of five different buildings, the addresses of which are set out in Figures 03 and 04 in Section 4.0.
- 1.6 Daylight to neighbouring buildings is typically assessed by reference to two methods. One is the Vertical Sky Component ("VSC") methodology, which considers the impact to a window (usually a calculation point in the centre face of the window). The other is the No Sky Line ('NSL'), which considers the distribution of daylight within the room itself. The Annual Probable Sunlight Hours ("APSH") methodology is used for the assessment of sunlight to neighbouring windows.
- 1.7 GIA have sourced historic floor plans for the dance studio which led us to consider 8 windows and 4 rooms within the assessment.
- 1.8 The site is located in the town centre where the urban fabric is more dense and separation distances between buildings are less. As a result, expectations for exceptionally high levels of daylight and sunlight in town centre locations are typically lowered.

1 Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press, p 85 para F1

2 Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press, p 7

3 Littlefair, P. (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press, p 14

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2 THE SITE & PROPOSED DEVELOPMENT

THE SITE

- 2.1 The application site covers an area of approx. 1.89 hectares which includes the following lanes/streets/roads/areas and their adjoining footpath/public realm/junction areas: R132/Bridge of Peace/George's Street (including the underpass on the northern side of the River Boyne); George's Square; Father Connolly Way (including part of an existing car park area); Dominick Street; Patrickswell Lane; Old Abbey Lane (including an area to the rear of 56/57 West Street); Scholes Lane; R900/West Street/Narrow West Street; Fair Street; and Wellington Quay, in the townland of Moneymore, Drogheda, Co Louth. The focus of this assessment will be the old ruin along Old Abbey Lane. Figure 02 below illustrates the Site in the existing scenario.

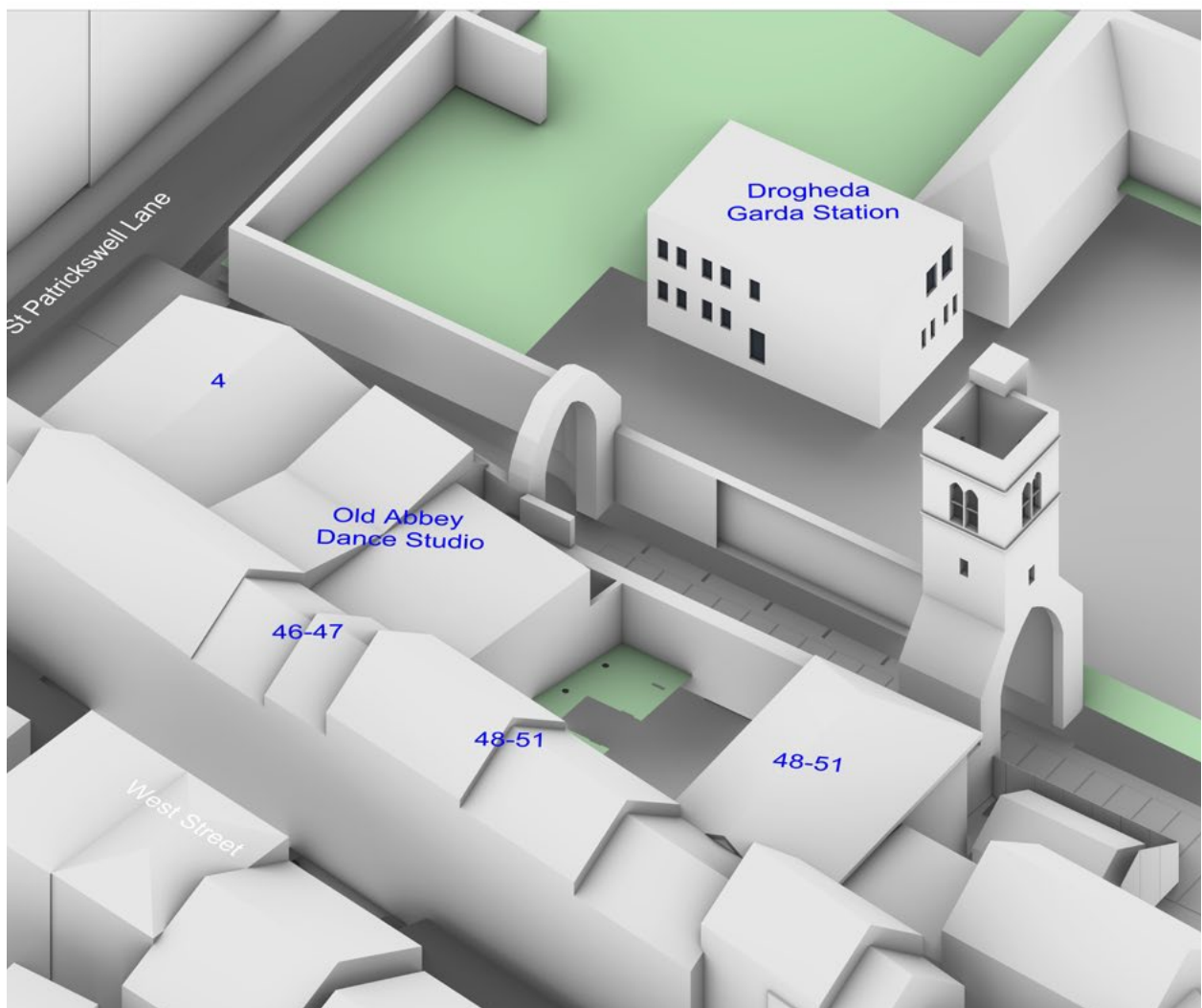


Figure 01: 3D model of existing site

PROPOSED DEVELOPMENT

- 2.2 The overall objective of the 'Westgate 2040' project is to act as a catalyst to support positive urban regeneration and public realm improvements in the Westgate Vision Area of Drogheda Town Centre.
- 2.3 GIA's study focuses on the "new freestanding Corten steel canopy will be constructed within, but offset from, the remains of the Old Abbey to create a flexible and covered outdoor space which can be used for a variety of culture, arts and community events/performances".
- 2.4 Figure 02 below illustrates the Proposed Canopy (in teal) at Old Abbey Lane.

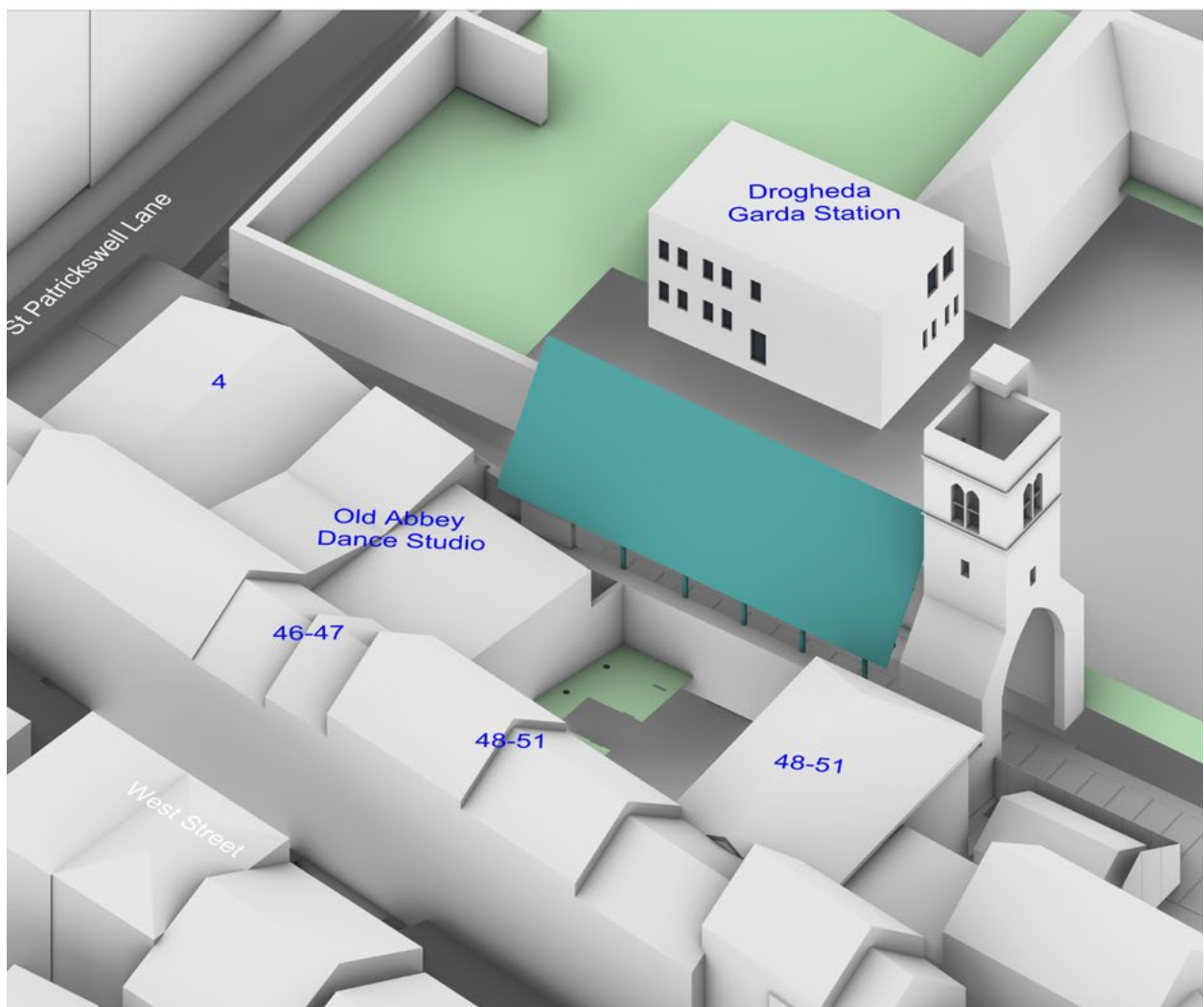


Figure 02: 3D model of the Proposed Canopy at Old Abbey Lane (in teal)

3 POLICY & GUIDANCE

This section details the relevant policy and guidance for daylight and sunlight amenity.

3.1 Below we have detailed sections from the following documents as they are the most pertinent in relation to daylight and sunlight matters and how GIA have approached the effects of the Proposed Development on the relevant neighbouring properties:

- The Planning and Development Act 2000 (as amended)
- Planning and Development Regulations 2001 – 2020 (as amended)
- Louth County Development Plan 2021-2027
- Building Research Establishment Guidelines 2022.

THE PLANNING AND DEVELOPMENT ACT 2000 (AS AMENDED)

3.2 The Planning and Development Act 2000 (as amended) is the primary legislation which deals with a number of planning-related issues. This legislation combines all former planning acts, setting out the details of the regional planning guidelines, development plans and local area plans. Moreover, it provides the statutory basis for the protection of natural and architectural heritage, the provision of social and affordable housing, and conduction of Environmental Impact Assessments.

THE PLANNING AND DEVELOPMENT REGULATIONS 2001 – 2020

3.3 The Planning and Development Regulations 2001 (as amended) forms the secondary legislation for Ireland and consolidates the regulations set out within the Planning and Development Act 2000. These regulations detail the processes and procedures which make up the Irish planning code including the classes of exempted development, steps to make a planning application or appeal, and the processes for local and state authorities when carrying out certain types of development.

LOUTH COUNTY DEVELOPMENT PLAN 2021-2027

3.4 The Louth County Development Plan 2021-2027 sets out the Council's overall strategy for the proper planning and sustainable development of

County Louth in accordance with the Planning and Development Act 2000 (as amended).

3.5 GIA have considered the relevant paragraphs on daylight and sunlight. Paragraph 13.8.10 states that;

"Care shall be taken in the design of residential developments to ensure adequate levels of natural light can be achieved in new dwellings and unacceptable impacts on light to nearby properties are avoided. The Building Research Establishment (BRE) guidelines 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (2011) and BS 8206-2008 'Lighting for Buildings – Part 2: Code of Practice for Daylighting' – provide useful guidance on avoiding unacceptable loss of light...."

BUILDING RESEARCH ESTABLISHMENT GUIDELINES (BR209, 2022)

3.6 The BRE Guidelines 2022 offer a numerical methodology to calculate changes in daylight and sunlight condition and are widely used in the industry. The key criteria within the BRE (Vertical Sky Component "VSC", No Sky Line "NSL" and Annual Probable Sunlight Hours "APSH") have been used to understand and compare the existing and retained levels of light once the Proposed Development has been implemented. A summary of the BRE Guidelines 2022 are provided within Appendix 01.

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4 DAYLIGHT & SUNLIGHT IMPACTS TO NEIGHBOURING PROPERTIES

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

MODELLING

- 4.1 A three-dimensional computer model of the Site and surrounding properties was produced based on photogrammetric survey techniques. Where available, floor plans of the relevant properties have been included 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 03.

detail. All properties are identified in Figures 03 and 04 (overleaf).

- 4.5 As part of the due diligence and research into the layouts of neighbouring properties, we were able to obtain floor plans for Old Abbey Dance Studio.

TWO-STAGE APPROACH

- 4.2 The impacts to relevant neighbouring properties have been considered in two stages:

Stage 1 - Is there a strict compliance with the BRE Guidelines?

- The national numerical assessments for daylight and sunlight as outlined in the BRE Guidelines are applied. Where properties, windows and/or rooms meet the recommendations of the BRE Guidelines, these are not discussed further.

Stage 2 - Is there an unacceptable loss of daylight/sunlight amenity?

- Where properties, windows and/or rooms do not meet the recommendations of the BRE Guidelines, wider material considerations are examined and applied.

RELEVANT NEIGHBOURING PROPERTIES

- 4.3 GIA have identified the following properties to be included as part of the daylight and sunlight assessment. All results can be found in Appendix 04;
- 48 Narrow West Street
 - 46-47 Narrow West Street
 - Old Abbey Dance Studio
 - 4 St Patrickswell Lane
 - Drogheda Garda Station
- 4.4 Four of the five properties assessed will fully meet BRE criteria when assessed against the VSC (daylight) and APSH (sunlight) methodologies. The remaining property, Old Abbey Dance Studio (map ref: 3), does not fully adhere to the numerical recommendations set out within the BRE Guidelines for residential properties and is considered in further

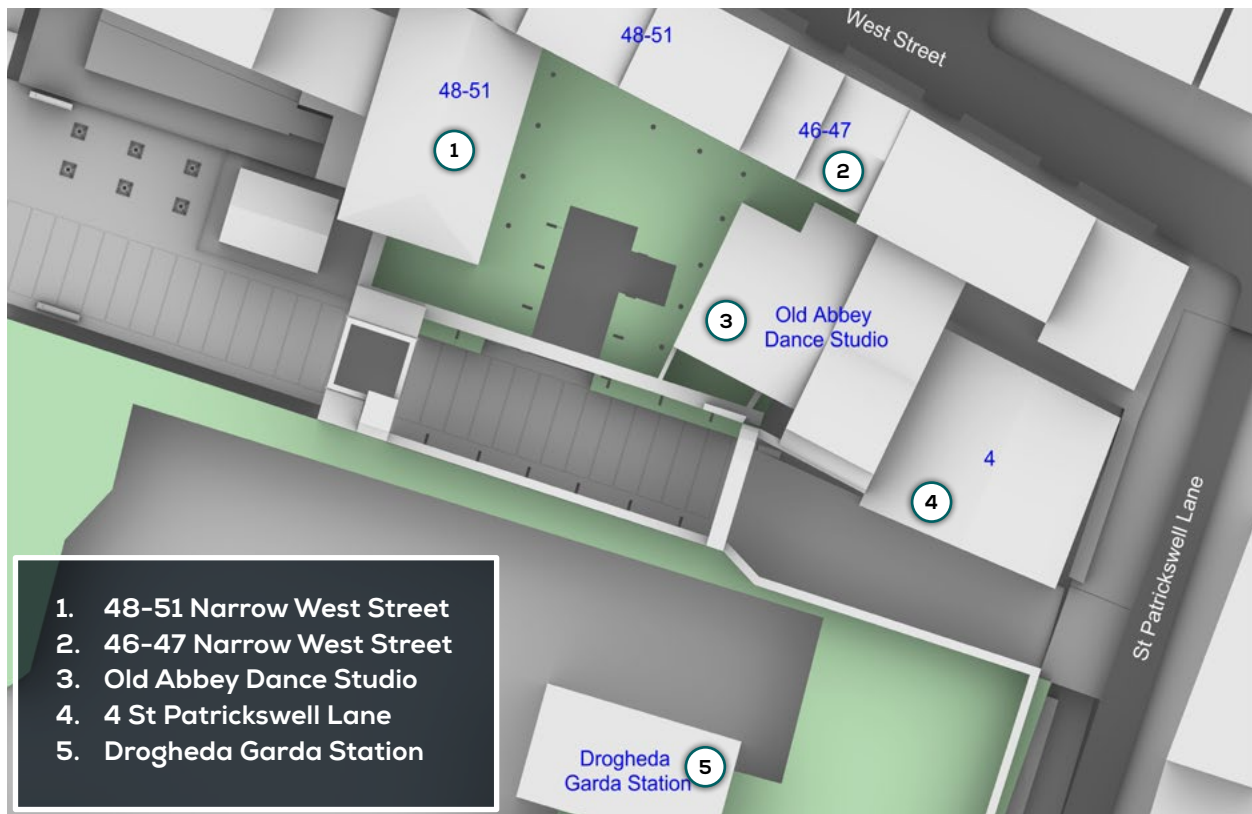


Figure 03: Location of properties assessed (plan view)

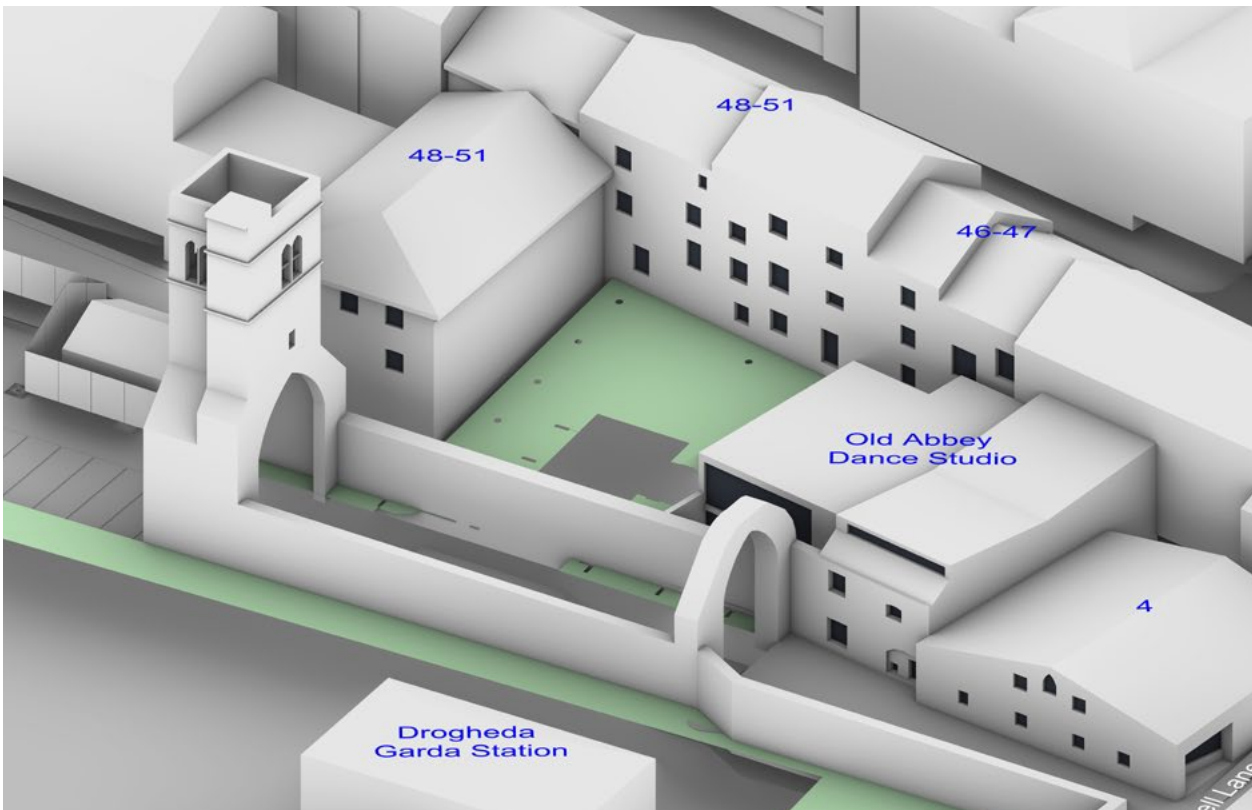
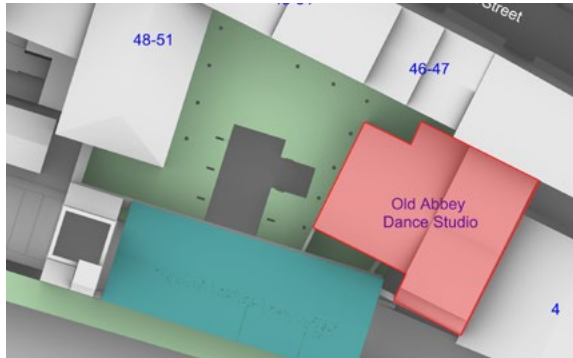


Figure 04: Location of properties assessed (3D view)

OLD ABBEY DANCE STUDIO



- 4.6 The Old Abbey Dance Studio is located immediately north of the Site with windows that directly overlooks the eastern end of the Proposed Canopy.
- 4.7 GIA have been able to obtain floor plans for the building from the online planning portal (LCC ref: 04510244) and have incorporated them into our model for more accurate results.
- 4.8 When undertaking our technical analysis for this building, GIA have considered there to be eight windows serving four separate rooms.

Stage 1 - Is there a strict compliance with the recommendations in the BRE Guidelines?

- 4.9 When assessed against the VSC methodology for daylight, five of the eight (63%) windows assessed will meet BRE criteria. When we consider the rooms against the NSL daylight methodology, all four rooms will pass the BRE criteria.
- 4.10 In relation to sunlight, six of the eight windows (75%) will meet BRE criteria when assessed against the APSH sunlight methodology

Stage 2 - Is there an unacceptable loss of daylight/sunlight amenity?

- 4.11 One window (W3/F00) falling short of BRE criteria will experience a minor VSC alteration of 22.2% (against a BRE target value of 20%). This window is framed blue in Figure 06. This represents a minor transgression from guidance and would typically fall within the intended flexibility of the guide itself.
- 4.12 We note that the ground floor window (F00/W1) serves a cafe and sits behind a tall masonry wall resulting in a low existing VSC value of 8% (against

a target of 27%), which is further reduced to 4.9% in the proposed scenario. This is a 3.1% loss in absolute terms albeit 38.7% in percentage terms which can be seen as disproportionate given the extremely low levels of existing daylighting.

- 4.13 The first floor window serving a dance studio will see the VSC value reduced from 28.7% to 13.5% in the proposed scenario which is a 52.1% reduction. In this instance the VSC test in isolation has limitations, as the VSC results for a very small window would be the same as the result for a very large floor to ceiling glazed wall (as is the case within the first floor studio).
- 4.14 The No Sky Line (NSL) is an assessment of daylight distribution within the room and accounts for the room size, number and size of windows serving a room, making it a more useful assessment in this instance as the VSC assessment only considers the amount of skylight reaching a single reference point (i.e. the window). As seen Figure 07 and Figure 08, the windows serving the ground floor cafe and first floor dance studio are floor to near ceiling height which will provide good levels of natural light into the room behind. As a result, the NSL analysis demonstrates that all four rooms meet BRE guidance for this assessment, experiencing only negligible alterations.
- 4.15 In relation to sunlight, two windows will fall short of guidance when assessed against the APSH sunlight methodology. The ground floor window (W1/F00) will experience an alteration in annual sunlight from 10% to 4% in the proposed scenario. Winter sunlight values are recorded as 0% in both the existing and proposed scenarios meaning there will be no change. Lower sunlight values are to be expected given the windows position behind the tall masonry wall.
- 4.16 The first floor window (W1/F01) has exceptionally high existing sunlight levels with 62% APSH. In the proposed scenario, this will reduce to 34% (against a BRE target value of 25%) Whilst the change is likely to be noticeable, the pertinent consideration is that the window will retain APSH levels far exceeding recommendations. Winter sunlight will reduce from 14% to 3% (against a BRE target value of 5%) in the proposed scenario, this is a result of the suns lower position in the sky (behind the proposed canopy) during this period.



Figure 05: Impacted window (W3/F00)



Figure 06: Impacted windows (W1/F00 and W1/F01)



Figure 07: Ground floor cafe served by W1/F00



Figure 08: First floor dance studio served by W1/F01

5 CONCLUSIONS

GIA have undertaken a daylight and sunlight assessment in relation to the Proposed Canopy at Old Abbey Lane. The technical analysis has been undertaken in accordance with the BRE Guidelines.

- 5.1 GIA have completed a comprehensive technical analysis of the impact to daylight and sunlight produced by Proposed Canopy at Old Abbey Lane which forms part of the Westgate 2040 Project.
- 5.2 When constructing buildings alterations in light to adjoining properties are often unavoidable and the numerical guidance given in the BRE document can be treated flexibly in consideration of site specifics.
- 5.3 Our technical analysis demonstrates that four of the five properties will meet BRE recommendations for VSC (daylight) and APSH (sunlight).
- 5.4 Whilst it is evident the windows within the Old Abbey Dance Studio facing directly onto the proposed roof canopy will see a reduction in VSC and APSH, it is also evident from our assessment that the rooms behind the fenestration will continue to enjoy good (or the same) levels of NSL/ Daylight Distribution as before and that sunlight levels will remain far in excess of the BREs recommended levels, even for residential dwellings.
- 5.5 The commercial nature of the space and its location in a town centre should also be considered when appraising the acceptability of the impacts resulting from the proposed development.
- 5.6 Having considered the Proposed Canopy in the context of its location in the town centre and that the single impacted building is not residential in use, it is in our view that the daylight and sunlight impacts isolated to three windows does not give rise to an unacceptable loss of daylight and sunlight.
- 5.7 It is worth reiterating that the BRE's numerical guidance should be treated flexibly in an urban environment. Furthermore, Section 1.6 of the BRE suggests that; *"Although, it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design"*.



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