

6. Daylight, Sunlight and Overshadowing

Introduction

- 6.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to daylight, sunlight and overshadowing.
- 6.2 The Chapter describes the technical consultation that has been undertaken during the EIA, the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.
- 6.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details).
- 6.4 This Chapter, and its associated **Appendix 6.1- 6.3**, is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**).
- 6.5 In addition, this Chapter should be read in conjunction with **Chapter 15: Assessment of Cumulative Effects**.

Summary of Consultation

- 6.6 There are no specialists within Manchester City Council (MCC) or other statutory consultees relevant to the area of daylight, sunlight and overshadowing. As such, no consultation has been undertaken.

Scope of the Assessment

Effects Not Considered to be Significant

- 6.7 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this.

Effects upon the daylight and sunlight amenity within commercial properties

- 6.8 The BRE Guidelines¹ consider that residential properties have the highest requirement for daylight and sunlight. As such, daylight and sunlight effects to commercial buildings surrounding the Site are not considered to be significant and will not be considered further in the ES.

Reduced daylight and sunlight amenity within surrounding residential receptors during demolition and construction

- 6.9 Owing to the evolving and changing nature of construction activities, the assessment of potential effects during construction of the Proposed Scheme on daylight and sunlight to surrounding properties will not be modelled.
- 6.10 Since the potential daylight and sunlight effects relating to construction works will vary throughout the construction programme and gradually increase to the potential effects identified for the completed Proposed Scheme, the interim construction effects will not be assessed quantitatively as it is considered that the completed Proposed Scheme represents the worst-case assessment in terms of likely daylight and sunlight.
- 6.11 Therefore, reduced daylight and sunlight amenity within the surrounding residential receptors during the construction stages is not considered to be significant (or if it is, only on parity with the completed Proposed Scheme) and will not be considered further in the ES.

Effects Considered Likely to be Significant

- 6.12 **Table 6.1** outlines the effects that were considered likely to be significant and are reported within this Chapter.

Table 6.1: Effects Considered Likely to be Significant

Likely Significant Effect	Receptors	Applicable Stage
Reduced daylight amenity	Circle Square Block 5 & 6 Bracken House Circle Square Plot 9	Operation
Reduced sunlight amenity	Bracken House	Operation
Increased Shadow	Bracken House Nursery Playground	Operation

Assessment Methodology

Legislative Framework, Policy and Guidance

- 6.13 There is no legislation that governs daylight and sunlight. The criteria for assessment relating to daylight and sunlight is covered by national and local policy in addition to BRE guidance as set out below.
- 6.14 The following legislation and policy have informed the assessment of effects within this Chapter:
- Revised National Planning Policy Framework 2023²;
 - National Planning Policy Guidance 2021³;
 - Manchester Core Strategy (2012 – 2027)⁴; and
 - Guide to Development in Manchester Supplementary Planning Document and Planning Guidance (Adopted April 2007)⁵.

6.15 The following guidance has informed the assessment of effects within this Chapter:

- BRE 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' (2022).

Defining the Study Area

6.16 The BRE Guidelines suggest that residential properties have the highest requirement for daylight and sunlight and states that:

“the guidelines are intended for use for rooms in adjoining dwellings where light is required, including living rooms, kitchens and bedrooms.”

6.17 There is no specific guidance relating to the extent of a study area. The scope of residential properties that have been assessed has been determined through professional judgement, considering their orientation and proximity to the Site. In relation to the Proposed Scheme, the sensitive receptors fall within 130m from the centre of the Site.

6.18 The location of the surrounding sensitive receptors can be seen in the drawings in Appendix 6.1

Background Studies to Inform the ES / Establish the Baseline

6.19 **Table 6.2** summarises all analysis undertaken to inform the assessment presented within this Chapter.

Table 6.2: Background Technical Analysis

Analysis	Overview	Date of Completion
Daylight, sunlight and shadow baseline assessment	An assessment of the baseline daylight, sunlight and shadow levels to the surrounding sensitive receptors	November 2023

Assessment Process

Methodology for Determining Operational Effects

6.20 The following approaches are undertaken to assess the daylight, sunlight and shadow effects upon the surrounding sensitive receptors when the Proposed Scheme is completed and operational:

- Daylight
 - Vertical Sky Component (VSC) Method; and
 - No Sky Line (NSL) Method.
- Sunlight
 - Annual Probable Sunlight Hours (APSH) Method; and
- Shadow
 - Sun Hours on Ground (SHOG).

Outline Approach for Daylight, Sunlight and Shadow Assessments

- 6.21 The technical analyses carried out to inform the daylight, sunlight and shadow assessments have been undertaken by creating a digital three-dimensional (3D) model of the existing Site and Proposed Scheme, based on 3D photogrammetry.
- 6.22 The 3D model uses Waldram Diagrams to establish the VSC and 3D geometric calculations for daylight distribution. This model (which is orientated to north by the use of Ordnance Survey (OS) information) enables the path of the sun to be tracked throughout the year to establish the shadow cast by the existing and proposed buildings and thus calculate the sun hours on ground in each scenario.
- 6.23 In accordance with the BRE Guidance, only those surrounding properties which have windows facing towards the Site and are residential in usage were included in the assessment. If a nearby residential property has no windows facing the Site or cannot see the Site, these properties would not be affected by the Proposed Scheme in terms of light.

Daylight

- 6.24 The assessment of changes to the availability of daylight presented within this Chapter has been informed by two common methods, as set out below.

Vertical Sky Component (VSC) Method

- 6.25 The VSC method of assessment is defined in the BRE Guidelines as the:

“ratio of that part of illuminance at a point on a given vertical plane that is received directly from a CIE standard overcast sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky”.

- 6.26 This ratio is the percentage of the total unobstructed view that is available, once obstructions (e.g. the Proposed Scheme), are placed in front of the point of view.
- 6.27 The assessment is calculated from the centre of a window on the outward face and measures the amount of light available on a vertical wall or window following the introduction of visible barriers, such as buildings. The VSC has been calculated using a 'Waldram Diagram'.
- 6.28 The Waldram Diagram is effectively a snapshot taken from that point of the sky in front of the window, together with all relevant obstructions to it, i.e. the buildings. For calculation purposes, trees may be ignored unless they form dense continuous belts.

Due to the limitations of peripheral vision, the maximum VSC value is almost 40% for a completely unobstructed vertical wall or window.

No Sky Line (NSL) Method

- 6.29 The BRE Guidelines provide that where room layouts are known, the effect on the daylight distribution can be calculated by plotting the NSL. In terms of the surrounding receptors, it has not been possible to obtain room layouts for all of the properties and therefore layouts have been assumed where information is not available.

- 6.30 The NSL method is a measure of the distribution of daylight at the 'working plane' within a room. The 'working plane' means a horizontal 'desktop' plane 0.85m in height for residential properties. The NSL divides those areas of the working plane which can receive direct sky light from those which cannot. If a significant area of the working plane lies beyond the NSL (i.e. it receives no direct sky light), then the distribution of daylight in the room will be poor and supplementary electric lighting may be required.
- 6.31 The potential effects of daylighting distribution in an existing building can be found by plotting the NSL in each of the main rooms. For houses, this will include living rooms, dining rooms and kitchens. Bedrooms should also be analysed, although the BRE state that they are less important.
- 6.32 In regard to deep rooms which are lit by windows on one side, the BRE Guidelines state (para.2.2.10):

"If an existing building contains rooms lit from one side only and greater than 5m deep, then a greater movement of the no sky line may be unavoidable."

Sunlight

Annual Probable Sunlight Hours (APSH) Method

- 6.33 Sunlight is measured using a sun indicator which contains 100 spots, each representing 1% of APSH. Therefore, where no obstruction exists the total annual probable sunlight hours would amount to 1486, and each spot equates to 14.86 hours of the total annual sunlight hours.
- 6.34 In determining the effects of a development on the availability of sunlight, the assessment considers the number of spots calculated in the Baseline scenario compared to the scenario with the Proposed Scheme in place. Furthermore, assessment considers scenarios during the year and during the winter period, and a comparison made between the two. This provides a percentage of APSH for each of the time periods for each window assessed.
- 6.35 The BRE Guidelines note that:

"In housing, the main requirement for sunlight is in living rooms, where it is valued at any time of day, but especially in the afternoon."

"all main living rooms of dwellings...should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun".

"If the main living room to a dwelling has a main window facing within 90° of due north, but a secondary window facing within 90° of due south, sunlight to the secondary window should be checked."

"...a south facing window will, in general, receive most sunlight, while a north facing one will receive it only on a handful of occasions. East and west facing windows will receive sunlight only at certain times of day".

6.36 At Section 3.1.12 the BRE states that:

"If a room has multiple windows, the amount of sunlight received by each can be added together provided they occur at different times and sunlight hours are not double counted."

Overshadowing

6.37 The method for assessing hours in sun is the 'sun-on-ground indicator'. The assessment applies to both to new and existing gardens/amenity areas, which are affected by new developments. The BRE Guidelines suggest that the Spring Equinox (21st March) is a suitable date for the assessment. Using specialist software, the path of the sun is tracked to determine where the sun would reach the ground and where it would not.

Receptor Modelling

6.38 Where a residential sensitive receptor has rooms with windows which face the Site, any mitigating/dual aspect windows will also be modelled.

6.39 The following residential sensitive receptors have been modelled to publicly available floor plans:-

- Circle Square Block 5 & 6;
- Bracken House; and
- Circle Square Plot 9.

6.40 Where information to identify habitable rooms was unavailable, room uses and layouts were assumed to be habitable and their sizes and layouts assumed using professional judgement. In relation to sunlight modelling and analysis, where floor plans are not available and so making it difficult to determine room uses or confirm which window should be considered as the 'main windows', all the rooms with windows facing the Site and within 90 degrees of due south have been considered in the assessment.

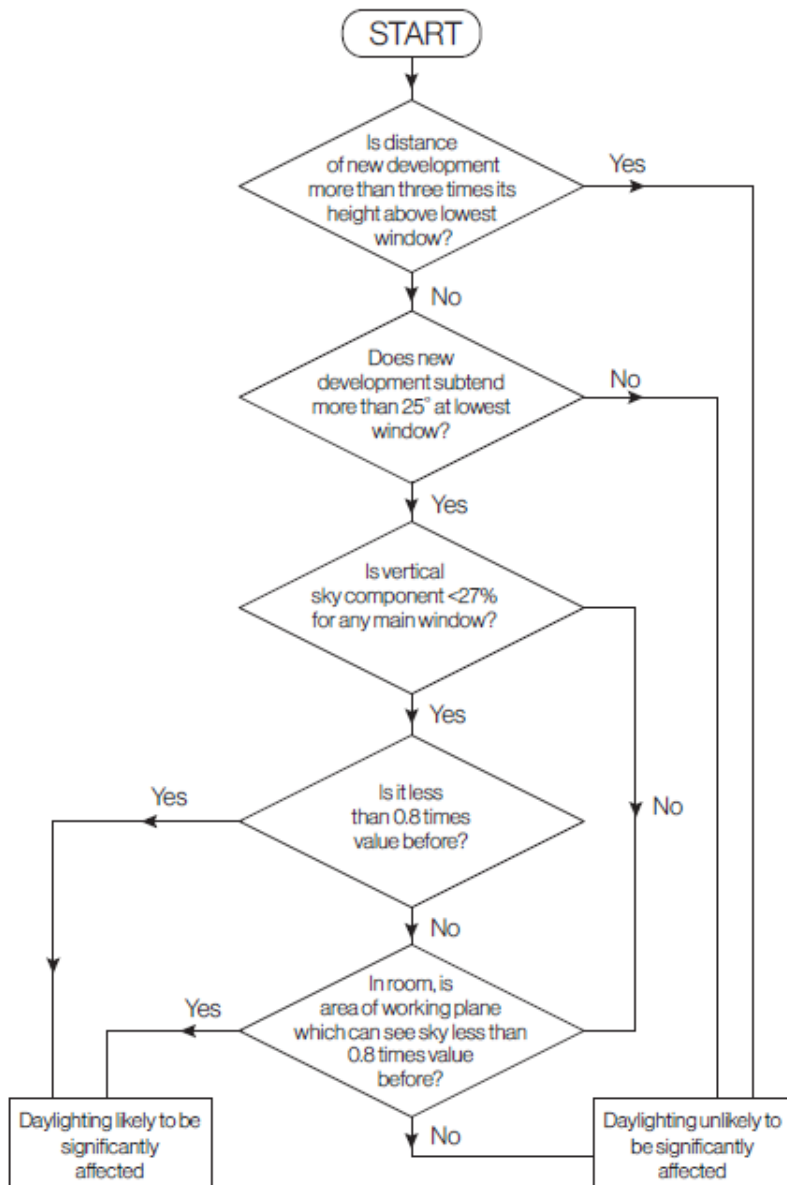
6.41 Windows that do not face within 90 degrees of due south do not have a realistic expectation of direct sunlight, due to their orientation and the sunlight path in the northern hemisphere.

Assessment Methodology

Daylight

6.42 To decide whether the daylight amenity within a neighbouring room is likely to be adversely affected by the construction of a proposed development, the BRE recommends the following assessment process be undertaken using the results of the above described VSC and NSL assessments in combination.

Figure 6.1 – BRE Decision Chart



Sunlight

- 6.43 The BRE Guidelines provide that a window may be adversely affected if a point at the centre of the window receives less than 25% of the APSH, including at least 5% of the APSH during the winter months (21 September to 21 March), or less than 0.8 times its baseline sunlight hours during either period, or if there is a reduction in total APSH which is greater than 4%.

Overshadowing

- 6.44 The BRE Guidelines recommend that at least half of a garden or amenity area should receive at least 2 hours of sunlight on March 21st or the area which receives 2 hours of direct sunlight should not be reduced to less than 0.8 times its former value (i.e. there should be no more than a 20% reduction).

Summary of Criteria for Daylight, Sunlight and Overshadowing

- 6.45 The following table provides a summary of the criteria set out within the BRE Guidelines for daylight and sunlight.

Table 6.3: Summary of Daylight and Sunlight Assessment Criteria

Method	BRE Criteria
VSC	A window may be adversely affected if its VSC measured at the centre of the window is less than 27% and less than 0.8 times its former value.
NSL	A room may be adversely affected if the daylight distribution (NSL) is reduced beyond 0.8 times its existing area.
APSH	A window may be adversely affected if a point at the centre of the window received for the whole year, less than 25% of the APSH including at least 5% of the APSH during the winter months (21 September to 21 March) and less than 0.8 times its former sunlight hours during either period, and for existing neighbouring buildings, if there is a reduction in total APSH which is greater than 4%.
SHOG	An area of outdoor amenity space may be adversely affected if less than 50% of its total area is unable to benefit from at least 2 hours of sunlight on 21st March and if the reduction in sunlight is greater than 20% of the baseline level.

Reporting of the Environmental Effect and Significance Criteria

- 6.46 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the operational stage. The following sections define the approach adopted within the assessment for the determination of sensitivity (or value/importance), magnitude of change (or impact), the level of effect and significance.

Determining Sensitivity of Receptor

- 6.47 The sensitivity of affected receptors has been considered on a scale of **high, medium, low** or **negligible**.
- 6.48 It is important that the location and nature of the Site and surroundings are considered when determining the sensitivity of the receptors identified. The BRE Guide is very clear that the

targets provided are not mandatory. The location of the Proposed Scheme could be deemed to be special circumstances in which the planning authority may wish to use different target values. This scope and view should also be followed through to the sensitivity of the surrounding receptors. There should be an expectation that a higher degree of obstruction is inevitable in an area with modern high-rise buildings. This point is also made in the NPPF and PPG.

- 6.49 For these reasons, the surrounding receptors may have a lower sensitivity to change in an urban location than those located in suburban, less dense areas. Therefore, for the purpose of this assessment sensitivity classification has been assigned based on how the receptor is able to accommodate or adapt to the effect of the development, given that the existing residential receptors surrounding the Site are in a city centre location where there is an expectation for a higher density of development.
- 6.50 Based on the above, the sensitivity of identified receptors considered within this assessment are defined below.
- 6.51 The following receptors are defined as having a medium sensitivity:
- Circle Square Block 5 & 6;
 - Bracken House;
 - Circle Square Plot 9; and
 - Bracken House Nursery Playground.

Determining the Magnitude of Change

- 6.52 The magnitude of change has been considered as the change experienced from the current baseline conditions at the sensitive receptor and has been considered on a scale of **large, medium, small or negligible**.
- 6.53 For daylight and sunlight, the BRE Guidelines outline the approach within the accompanying appendix, in terms of assigning criteria to assess the effects. Where the BRE guidance refers to the magnitude of impacts (referred to in this ES Chapter as 'magnitude of change') as major, moderate, minor and negligible below, these should be read as large, medium, small and negligible respectively:

"Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required...The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied."

"Where the loss of skylight or sunlight fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows or limited area of open space lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows or open space are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight and sunlight in the affected building or open space."

"Where the loss of skylight or sunlight does not meet the guidelines in this book, the impact is

assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:

- *Only a small number of windows are affected;*
- *The loss of light is only marginally outside the guidelines;*
- *An affected room has other sources of skylight or sunlight; and*
- *The affected building only has a low level of requirement for skylight or sunlight."*

6.54 The classification of major adverse is documented within Paragraph 7 of the BRE Guidelines:

"Factors tending towards a major adverse impact include:

- *a large number of windows are affected;*
- *the loss of light is substantially outside the guidelines;*
- *all the windows in a particular property are affected; and*
- *the affected indoor spaces have a particular strong requirement for skylight or sunlight, e.g. a living room in a dwelling".*

Beneficial impacts occur when there is a significant increase in the amount of skylight and sunlight reaching an existing building. Beneficial impacts should be worked out on the same principals as adverse impacts."

6.55 The BRE Guidelines do not provide any guidance on what constitutes a moderate (i.e. medium) magnitude of change.

6.56 Therefore, best practice guidance and professional judgment will be used to determine any impacts based on the guidance set out in Appendix I of the BRE Guidelines.

6.57 The initial numerical criteria for determining the magnitude of change is based on percentage alterations, as follows:

Table 6.4: Summary of Daylight, Sunlight and Overshadowing Assessment Criteria

Magnitude of Change	Percentage Alteration from Baseline
Negligible	0-20%
Small	20-29.9%
Medium	30-39.9%
Large	40%+

Determining the Level of Effect

6.58 The level of effect has been informed by the magnitude of change due to the Proposed Scheme and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement and **Table 6.5** has been a tool which has assisted with this process.

- 6.59 Whilst **Table 6.5** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement. For each effect, it has been concluded whether the effect is '*beneficial*' or '*adverse*'.

Table 6.5: Matrix to Support Determining the Level of Effect

		Sensitivity (or value / importance)			
		High	Medium	Low	Negligible
Magnitude of Change / Impact	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

- 6.60 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect:** where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect:** where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- **Minor effect:** where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change or/and can recover from the change; and
- **Negligible:** where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

- 6.61 Appendix F of the BRE guidelines provides an alternate baseline VSC value for city centre regions of 18% rather than the 27% referenced through the body of the document which is the level of VSC to be expected in an environment where the neighbouring construction angle is around 25° ie a more suburban location.

- 6.62 18 is 67% of 27. 67% of the BRE target value for NSL (80%) is 53.6% Therefore, as the Proposed Scheme is in a more urban location, if the changes in VSC and/or NSL should breach the standard BRE guidelines beyond a small extent, the level of effect is still considered to be of minor significance provided that the windows either experience no change or retain 18% VSC and the rooms retain at least 53.6% NSL.
- 6.63 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining Significance

- 6.64 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and/or relevant guidance/legislation where applicable.
- 6.65 When assigning significance criteria for daylight and sunlight effects, professional judgement has been used. Consideration has been given to the proportion of rooms/windows affected, as well as the percentage alterations, absolute changes, sensitivity of the receptor, and any other relevant factors. There may be mitigating factors such as location and nature of development, balconies, overhangs or design features which may also affect the determination of assigning the criteria.
- 6.66 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation).

Baseline Conditions

Daylight and Sunlight

- 6.67 The full Baseline daylight and sunlight results can be found in **Appendix 6.2** and are summarised in **Table 6.6** below.

Table 6.6: Baseline Daylight and Sunlight results to surrounding residential sensitive receptors

Address	Windows that meet VSC Criteria		Rooms that meet NSL Criteria		Rooms that meet APSH Criteria	
	Total	Pass	Total	Pass	Total	Pass
Circle Square Block 5 & 6	182	60	140	82	-	-
Bracken House	46	1	44	19	44	0
Circle Square Plot 9	96	68	96	74	-	-
Total	324	129	280	175	44	0

Note: As per Table 6.1, the assessment of sunlight availability has only considered Bracken House.

- 6.68 A total of 324 windows facing the Site serving 280 rooms within 3 buildings were assessed for VSC and NSL for daylight and 44 rooms were assessed for APSH for sunlight within the 1 building which is material for consideration in sunlight terms i.e. its windows are orientated to within 90° of due south.
- 6.69 Out of the 324 windows assessed for daylight, 129 (40%) meet the BRE guidelines for VSC. For NSL, 175 (63%) of the 280 rooms assessed meet the BRE criteria. For sunlight, none of the 44 rooms assessed meet the BRE criteria for either Winter or Annual APSH.
- 6.70 The reason for the low baseline daylight and sunlight compliance levels is due to the dense urban location of the surrounding residential sensitive receptors.

Overshadowing

- 6.71 The full Baseline overshadowing results can be found in **Appendix 6.3** and are summarised in **Table 6.7** below.

Table 6.7: Baseline levels of SHOG within the surrounding sensitive receptors

Area Name	Area benefitting from 2 hours of SHOG on 21st March (%)	Meets SHOG Criteria?
Bracken House Nursery Playground	0	No

- 6.72 In accordance with the BRE Guidelines, as less than 50% of the playground area will be able to benefit at least 2 hours of SHOG on 21st March, it is unlikely to be adequately sunlit throughout the year in the baseline situation.
- 6.73 The reason for the low baseline SHOG levels is due to the dense urban location of the surrounding sensitive receptor.

Future Baseline

- 6.74 If the Proposed Scheme was not constructed the baseline daylight, sunlight and overshadowing levels would remain the same as there are no ‘natural’ factors that would influence baseline conditions, only human induced changes (i.e. development). With respect to human induced changes, any proposed development of the Site could influence the baseline conditions of varying degrees, as any drivers for change in baseline conditions would be linked to massing and layout of any development.

Primary and Tertiary Mitigation

Operational Stage

- 6.75 No primary or tertiary mitigation has been considered as part of the operational stage assessment.

Assessment of Effects, Secondary Mitigation and Residual Effects

Operational Stage

- 6.76 The results of the daylight and sunlight (where relevant) assessment modelling has been presented below together on a receptor-by-receptor basis, for ease of understanding of effects occurring at the specified receptors.

Reduced daylight and sunlight amenity

- 6.77 The outputs of the computer modelling for both daylight and sunlight is provided in full within **Appendix 6.2**, with the key metrics provided in **Tables 6.8 to 6.11** below.
- 6.78 A total of 324 windows facing the Site serving 280 rooms within 3 buildings were assessed for VSC and NSL for daylight and 44 rooms were assessed for APSH for sunlight within the 1 building which is material for consideration in sunlight terms i.e., its windows are orientated to within 90° of due south.
- 6.79 The breakdown of the baseline results against the Proposed Scheme for each of the individual buildings forming part of this assessment are discussed in more detail below.

Table 6.8: Summary of VSC Daylight Results

Address	Total No. of windows	No. of windows that meet BRE Guidelines	Below BRE Guidelines Magnitude of Change		
			Small	Medium	Large
Circle Square Blocks 5 & 6	182	129	27	24	2
Bracken House	46	1	0	1	44
Circle Square Plot 9	96	87	7	2	0
Total	324	217	34	27	46

Table 6.9: Summary of NSL Daylight Results

Address	Total No. of rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines Magnitude of Change		
			Small	Medium	Large
Circle Square Blocks 5 & 6	140	122	9	7	2
Bracken House	44	9	1	0	34

Address	Total No. of rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines Magnitude of Change		
			Small	Medium	Large
Circle Square Plot 9	96	89	4	2	1
Total	280	220	14	9	37

Table 6.10: Summary of Annual Sunlight Results

Address	Total No. of rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines Magnitude of Change		
			Small	Medium	Large
Bracken House	44	1	0	0	43
Total	44	1	0	0	43

Table 6.11: Summary of Winter Sunlight Results

Address	Total No. of rooms	No. of rooms that meet BRE Guidelines	Below BRE Guidelines Magnitude of Change		
			Small	Medium	Large
Bracken House	44	31	0	4	9
Total	44	31	0	4	9

Circle Square Blocks 5 & 6

Daylight

- 6.80 A total of 182 windows serving 140 rooms were assessed for daylight within this property.
- 6.81 Any changes in daylight amenity (VSC & NSL) to 84 of the 140 rooms assessed will be fully BRE compliant. The magnitude of change to the daylight amenity within these 84 rooms is therefore considered to be negligible as, in accordance with the BRE's decision chart, the daylighting within these rooms is unlikely to be significantly affected.
- 6.82 In accordance with the assessment methodology above, the magnitude of VSC and/or NSL change within 31 of the remaining 56 rooms will be small.
- 6.83 8 of the remaining 25 rooms are all served by 2 or 3 windows, all of which have baseline VSC levels of below the BRE recommended 27%. As a result of these low baseline values, the no greater than 9.2% absolute VSC changes caused by the Proposed Scheme to one of the windows serving each room will, when expressed as a percentage of the baseline value, present itself as being medium to large in magnitude of change terms. The other window/s serving each room will all experience BRE compliant (negligible) changes in VSC, all of which are less than 1%. All 8

rooms will experience BRE compliant (negligible) changes in NSL and retain daylight distribution to between 74% and 88% of the room area. The overall magnitude of change to the daylight amenity within these 8 rooms is considered to be small.

- 6.84 10 of the remaining 17 rooms are bedrooms, which all have, by virtue of their usage, a lesser requirement for daylight amenity. Construction of the Proposed Scheme will result in the windows serving these 10 bedrooms experiencing changes in VSC which are medium in magnitude of change terms and changes in NSL which are negligible to small in magnitude of change terms. In view of the usage of these 10 rooms, the overall magnitude of change to the daylight amenity within these 10 bedrooms is considered to be small.
- 6.85 The remaining 7 rooms are all combined lounge kitchen dining rooms whose windows will experience VSC changes which are medium in magnitude with the rooms experiencing changes in NSL which range from negligible to large in magnitude. The overall magnitude of change to the daylight amenity within these 7 rooms is considered to be medium.
- 6.86 The sensitivity of Circle Square Blocks 5 & 6 is considered to be medium. In view of the isolated number of rooms which will experience changes in daylight amenity which are medium in magnitude, the overall magnitude of change to the daylight amenity in this building is considered small. Therefore, there is likely to be a direct, permanent, long-term adverse daylight effect upon this property which is considered to be minor.

Secondary Mitigation or Enhancement

- 6.87 No secondary mitigation or enhancement is required.

Residual Effect

- 6.88 In the absence of secondary mitigation, the residual effects for this property are the same as that reported in the pre-mitigation scenario.

Significance

- 6.89 This effect is considered to be **Not Significant**.

Bracken House

Daylight

- 6.90 A total of 46 windows serving 44 rooms were assessed for daylight within this property.
- 6.91 The majority of the VSC & NSL changes caused by the Proposed Scheme will be medium to large in magnitude of change terms. It should be noted, however, that, in the context of the surrounding buildings, the Site is undeveloped.
- 6.92 Manchester City Centre has experienced considerable change over recent years. The City Centre has always been a focus for new development, an approach in line with national planning policy on delivering development in the most sustainable locations. With this in mind, it should be anticipated that any vacant or underutilised Site in the City Centre should come forward for development. This means that, within a city centre context, the Site's current open nature creates an 'artificial baseline' for surrounding buildings, which experience improved levels of

sunlight and daylight compared with what should reasonably be expected and existing daylight levels at surrounding receptors are not currently representative of city centre living within Manchester. In planning for a higher density city centre there must be an expectation of a trade-off between high levels of sunlight and daylight and convenient access to a growing and extensive range of amenities.

- 6.93 It is also worth noting that the relationship between Bracken House and the Proposed Scheme is very similar to that of Oxford Place and the Maldron Hotel. The retained levels of daylight amenity within Bracken House are also commensurate with those in Oxford Place.
- 6.94 The sensitivity of Bracken House is considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term adverse daylight effect upon this property which is considered to be moderate.

Secondary Mitigation or Enhancement

- 6.95 No secondary mitigation or enhancement is required in view of the retained values being commensurate with the surrounding context.

Residual Effect

- 6.96 In the absence of secondary mitigation, the residual effects for this property are the same as that reported in the pre-mitigation scenario.

Significance

- 6.97 This effect is considered to be **Significant**.

Sunlight

- 6.98 A total of 46 windows serving 44 rooms were assessed for sunlight within this property.
- 6.99 The changes in sunlight amenity to all of the 44 rooms are similar in scale to the changes in daylight amenity for the same reasons.
- 6.100 The sensitivity of Bracken House is considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term adverse daylight effect upon this property which is considered to be moderate.

Secondary Mitigation or Enhancement

- 6.101 No secondary mitigation or enhancement is required in view of the retained values being commensurate with the surrounding context.

Residual Effect

- 6.102 In the absence of secondary mitigation, the residual effects for this property are the same as that reported in the pre-mitigation scenario.

Significance

- 6.103 This effect is considered to be **Significant**.

Circle Square, Plot 9

Daylight

- 6.104 A total of 96 windows serving 96 rooms were assessed for daylight within this property.
- 6.105 Any changes in daylight amenity (VSC & NSL) to 83 of the 96 rooms assessed will be fully BRE compliant. The effect upon the daylight amenity within these 83 rooms is therefore considered to be negligible as, in accordance with the BRE's decision chart, the daylighting within these rooms is unlikely to be significantly affected.
- 6.106 In accordance with the assessment methodology, the magnitude of VSC and/or NSL change within 8 of the remaining 13 rooms will be small.
- 6.107 The remaining 5 rooms are all studio apartments whose windows will experience VSC changes which are negligible to medium in magnitude with the rooms experiencing changes in NSL which range from negligible to large in magnitude. The overall magnitude of change to the daylight amenity within these 5 rooms is considered to be medium.
- 6.108 The sensitivity of Circle Square, Plot 9 is considered to be medium. In view of the isolated number of rooms which will experience changes in daylight amenity which are medium in magnitude, the overall magnitude of change to the daylight amenity in this building is considered small. Therefore, there is likely to be a direct, permanent, long-term adverse daylight effect upon this property which is considered to be minor.

Secondary Mitigation or Enhancement

- 6.109 No secondary mitigation or enhancement is required.

Residual Effect

- 6.110 In the absence of secondary mitigation, the residual effects for this property are the same as that reported in the pre-mitigation scenario.

Significance

- 6.111 This effect is considered to be **Not Significant**.

Increased Shadow

6.112 The outputs of the SHOG analysis is provided in full within **Appendix 6.3**, with a summary provided in **Table 6.12** below.

Table 6.12: Summary of SHOG Results

Area Name	Baseline area benefitting from 2 hours of SHOG on 21st March (%)	Proposed area benefitting from 2 hours of SHOG on 21st March (%)	Meets BRE Criteria ?
Bracken House Nursery Playground	0	0	Yes

6.113 As there will be no change in the area of the playground that will be able to benefit from at least 2 hours of SHOG on the 21st March in the proposed scenario, the change is BRE compliant. The playground will continue to be inadequately sunlit throughout the year.

Limitations and Assumptions

6.114 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- Where actual room layouts were available on the planning portal, these have been considered in regard to the modelling of the internal layouts within the existing surrounding properties. Where layout information was not available, assumptions have been made as to the use and internal configuration of the rooms (from external observations during a site inspection) behind the fenestration observed.
- Floor levels have been assumed for adjoining properties assessed, where access has not been obtained. This dictates the level of the working plane which is relevant for the NSL assessments.
- The Proposed Scheme has changed since the modelling and analysis which informed this Chapter was completed. The maximum height increase from 142.221m AOD to 143.525m AOD is, however, unlikely to materially alter the significance of effect conclusions reached.

Summary

6.115 **Table 6.13** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

6.116 The table only provides a summary of the residual effects identified within the assessment. Details of all primary, secondary and tertiary mitigation (where applicable) that has been taken into account is set out in detail within the Chapter and summarised within Environmental Management Plan included within **Volume 3: Environmental Management Plan**.

Table 6.13: Summary of Residual and Significant Effects

Effect	Receptor	Residual Effect	Is the Effect Significant?
Reduced daylight amenity	Circle Square Blocks 5 & 6	Minor Adverse	No
	Bracken House	Moderate Adverse	Yes
	Circle Square Plot 9	Minor Adverse	No
Reduced sunlight amenity	Bracken House	Moderate Adverse	Yes
Increase Shadow	Bracken House Nursery Playground	Negligible	No

References

¹ Building Research Establishment (BRE) (2022). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice, Third Edition

² Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework. 2023.

³ Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). National Planning Policy Guidance. 2021.

⁴ Manchester City Council (2012). Manchester Core Strategy (2012 – 2027).

⁵ Manchester City Council (2007). Guide to Development in Manchester Supplementary Planning Document and Planning Guidance Adopted April 2007