

15 DAYLIGHT, SUNLIGHT & OVERSHADOWING

15.1 INTRODUCTION

15.1.1 Company

Anstey Horne

15.1.2 Author

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Lance Harris is a Senior Director at Anstey Horne with over 30 years of experience in daylight, sunlight and overshadowing, advising local authorities, design teams, developers and adjoining owners. Lance works on all building types and uses across the country, such as residential development, hotel, commercial, industrial projects, with project costs ranging from domestic extensions to major developments.

Simon Holmes - BA (Hons) MEng (Hons)

Simon Holmes is an Associate Director at Anstey Horne and is well versed in daylight and sunlight matters on a broad range of projects from large scale masterplans to smaller scale developments. Simon has experience advising a range of clients including large scale residential developers, London borough councils and commercial units.

Gracie Irvine – BSc (Hons)

Gracie Irvine is a Senior Surveyor at Anstey Horne who has experience advising on daylight and sunlight for a range of development schemes.

15.1.3 Chapter Purpose

This chapter of the ES assesses the likely significant effects of the proposed development on the environment in terms of Daylight, Sunlight and Overshadowing.

The chapter and its supporting appendices describe the planning policy context, the assessment methodology; the baseline conditions at the application site and surroundings; the likely significant effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; the likely residual effects after these measures have been employed; and the cumulative effects. The objectives of the chapter are to:

- Assess the impact of the proposed development on the access to daylight of surrounding properties;
- Assess the impact of the proposed development on the access to sunlight of surrounding properties; and
- Assess the impact of the proposed development on the access to sunlight of surrounding open spaces.

15.1.4 Chapter Updates for Revised 2020 Submission

Despite the scheme amendments relevant to this ES Chapter being relatively minor in scale, a full technical assessment (a 'Level 3 update') has been undertaken to confirm the validity of the results reported in the previous ES chapter.

This Daylight, Sunlight and Overshadowing ES Chapter has also been reviewed against the following aspects and for each it has been confirmed that there are no amendments required to the content of the chapter:

- Baseline data validity: there are no relevant changes to the baseline data;
- Legislation/policy revisions: there have been no related updates to legislation/policy that have affected either the methodology or findings of this assessment;

This Chapter has also been reviewed against additional cumulative schemes in the vicinity of the site. All of these, with the exception of the Regent Road Hotel, (LPA ref. 20F/0217 – pending determination) are considered not to have cumulative interactions with the proposed development due to their distance/form of development. Therefore, they have not been further assessed within this chapter. The Regent Road Hotel scheme has been included in the cumulative assessment for impact on neighbours and the light levels within the hotel have also been assessed.

There were limited planning application statutory consultee comments received in relation to this topic. A comment was raised by Natural England in respect of the potential overshadowing of Nelson Dock caused by the proposed stadium. Anstey Horne have provided a response to Natural England which confirms that the stadium would not cause any overshadowing to Nelson Dock, as it sits to the south of the stadium.

The updated assessment results indicate that the previously reported mitigation measures remain valid and the residual effects previously identified have remained the same.

The sections that have been updated are detailed below:

- Section 15.3.11
- Section 15.3.2
- Section 15.6.1
- Section 15.6.2
- Section 15.9

15.1.5 Figures

- Figure 15.1 – Site Plan in the Future Baseline (Condition A)

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 - 15.1.2 Daylight Distribution Contours
 - 15.1.3 VSC Results
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15.4.7 ADF Results

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15.4.9 APSH Results

15.2 METHODOLOGY

15.2.1 Legislation, Policy and Guidance

This section reviews the existing national, regional and local planning policy legislation and guidance relevant to daylight, sunlight and overshadowing.

15.2.1.1 Liverpool Local Plan (Submission Version May 2018)

The existing adopted Unitary Development Plan (UDP) contains no policies or guidance relevant to the assessment. The new Local Plan, which is awaiting formal examination, does however contain policy UD2 'Development Layout and Form' which states that:

"1. Development proposals should demonstrate that the layout and form of the proposal ensures that: ... n. There is sufficient sunlight and daylight to penetrate into and between buildings and ensure that adjoining land or properties are protected from unacceptable overshadowing."

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Draft Policy UD5 (New Buildings) specifies that all new buildings must be designed to the highest design standards, based on a clear rationale, and aesthetic based on the characteristics of the area. Design proposals for new buildings must demonstrate that (clause c) orientation and micro-climate, overlooking and interface issues that may impact on existing structures or neighbouring plots have been considered.

15.2.1.2 National Planning Policy

There is no current, specific national planning policy or legislation relating to developments and their potential effects on daylight, sunlight and overshadowing.

15.2.1.3 Building Research Establishment Handbook: Site Layout Planning for Daylight and Sunlight 2011: A Guide to Good Practice (Second Edition) (BRE Guidelines) (2011)

Detailed guidance on daylight, sunlight and overshadowing was published by the BRE in 2011. The daylight, sunlight and overshadowing assessments have been undertaken in accordance with the methodologies and numerical guidelines recommended in the BRE Guidelines.

The BRE Guidelines provide guidance on site layout to retain good daylighting and sunlighting in existing surrounding buildings. Whilst the guidelines are intended for use by designers, consultants and planning officers and give numerical guidelines, the advice given is not mandatory and should not be used as an instrument of planning policy. The introduction section of the BRE Guidelines states that:

“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 light is only one of many factors in site layout and design.”

The Guidelines further state:

“...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 the application site layout design. In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings” (Section 1, Paragraphs 6).

15.2.2 Consultees

Consultation with regards to Daylight, Sunlight and Overshadowing has been undertaken through the EIA scoping process, as set out in the section below.

15.2.3 Scoping

Following issue of the EIA Scoping Report (Appendix 2.1) to LCC on 15th May 2017, no specific advice was received from LCC in regard to daylight,

sunlight or overshadowing within the formal Scoping Opinion (Appendix 2.2) that was issued by LCC on 8th November 2017.

Consequently, the assessment in this chapter has been carried out in accordance with the methodology described in the EIA Scoping Report.

15.2.4 Consideration of Climate Change

The projected climate that is predicted to occur as a result of climate change is set out in Chapter 2 EIA Methodology of this ES. The climate changes that are predicted are not anticipated to significantly affect the daylight, sunlight and overshadowing assessments reported in this ES chapter.

15.2.5 Consideration of Human Health

People expect good natural lighting in their homes, as outlined by the BRE guidelines. Sunlight in particular is an integral factor in human health, as sunlight is considered to provide light and warmth, make a room look bright and cheerful and also have a therapeutic effect. As such, the assessments reported in this ES chapter inherently include a consideration of effects on human health.

15.2.6 Consideration of Risk of Major Accidents and/or Disasters

Major accidents and/or disasters identified as relevant to the proposed development are not applicable to the daylight, sunlight and overshadowing studies and therefore have not been considered in this chapter.

15.2.7 Alternatives

Chapter 5: Alternatives and Design Evolution within this volume of the ES discusses the alternative designs and alternative sites considered for the development.

It should be noted that the application site is located within the Northern Docks Neighbourhood (comprising Nelson Dock and Bramley-Moore Dock) area within the Liverpool Waters planning consent (LPA ref. 19NM/1121 – non-material amendment to the original outline permission ref. 10O/2424). The permission, which is based on fixed development block parameters, is for a predominantly residential-led scheme on the Northern Docks site (quaysides) with development anticipated to take place between 2036 and 2041. Whilst there is a further non-material amendment (LPA ref. 20NM/1801) awaiting determination, it does not propose any changes to the Nelson Dock / Northern Dock Neighbourhood area of the wider Liverpool Waters scheme (as approved).

The alternative scenarios that have been considered relate to the extant Liverpool Waters planning permission are set out below.

15.2.8 Future Baseline Condition

The future baseline condition consists of the consented Liverpool Waters scheme built out across both the application site and Nelson Dock adjacent (comprising the Northern Docks Neighbourhood).

To assess the future baseline as robustly as possible:

- The first step undertaken is to establish the daylight and sunlight conditions for the application site in existing conditions assuming the development of the Liverpool Waters scheme on Nelson Dock;
- The daylight and sunlight conditions under the above scenario were then compared to the equivalent conditions when the Liverpool Waters scheme is built out in its entirety across the application site and Nelson Dock.

The above analysis is then capable of being compared against the impacts of the proposed development against a future baseline which assumes that the Liverpool Waters scheme is built out in Nelson Dock so that the different impacts of the proposed development, and of the Liverpool Waters scheme, at BMD can be contrasted (see further below, under the heading “Assessment Scenarios”).

15.2.9 Technical Assessment Methodology

15.2.9.1 Data Collection

The data on the existing and proposed surrounding buildings was collated from the following sources:

- Murphy Surveyors 2D survey received 13/07/2017 and 20/07/17
- Massing of the consented Liverpool Waters scheme was provided by Planit I.E. Limited on 28/08/19. Drawing No. 1868-VW-009 rev.09 (Parameter Plan 006 Liverpool Waters Building Heights). This drawing provides the footprint and maximum height of each of the consented blocks.
- Massing of the proposed development was provided by Pattern Architects and included the following Revit files:

- BMD01-PAT-ZZ-ZZ-M3-A-02SiteRevit_Ver2
- BMD01-PAT-ZZ-ZZ-M3-A-04EnvelopeFacadeRevit_Ver4
- BMD01-PAT-ZZ-ZZ-M3-A-05EnvelopeRoofRevit_Ver3
- BMD01-PAT-ZZ-ZZ-M3-A-06BowlRevit_Ver3
- BMD01-BHE-ZZ-ZZ-M3-S-CoreRevit_Ver7
- BMD01-BHE-ZZ-ZZ-M3-S-RoofRevit_Ver4

15.2.10 Computer Modelling

Computer simulation was used to carry out the technical analysis using the tests recommended within the BRE Guidelines. A three-dimensional computer model was built in AutoCAD from measured survey. The model includes the existing Application Site, surrounding residential receptors, the proposed development and any other background context massing which may have a bearing on daylight, sunlight and overshadowing.

Specialist software, which uses the Waldram Method of analysis as described in Appendix B of the BRE Report 209, was used to quantify the

level of daylight and sunlight in the Baseline Scenario and Cumulative Scenarios.

The assessment of potential effects of the proposed development has primarily considered the operational phase of the completed scheme, which is the permanent position. The approach to the assessment of construction phase effects is discussed in the 'Assessment Scenarios' section below.

The operational phase impact assessment was carried out using the tests recommended in the BRE guidelines, as described below.

15.2.10.1 Daylight to Surrounding Buildings

Section 2.2 of BRE Guidelines makes recommendations concerning the effect of new development on daylight to existing buildings. In summary, the BRE Guidelines states that:

"If any part of a new building or extension, measured in a vertical section perpendicular to a main window wall of an existing building from the centre of the lowest window, subtends an angle of more than 25° to the horizontal, then the diffuse daylighting of the existing building may be adversely affected."

So, where the angle to the horizontal subtended by a new development, measured at the centre of the lowest window in an existing surrounding building (the angle of obstruction), is less than 25°, the diffuse daylight to that building is unlikely to be adversely affected and therefore, it has not been assessed.

Where the obstruction angle is greater than 25°, the BRE Guidelines recommend carrying out two more detailed daylight tests, namely the vertical sky component (VSC) and the no-sky line tests.

Vertical Sky Component (VSC)

The VSC test measures the amount of sky visible at the centre of a window on the external plane of the window wall. It has a maximum value of almost 40% for a completely unobstructed vertical window wall. The test takes no account of the size of the window being tested, the size of the room it lights or the fact that the room may be lit by more than one window. The results can therefore be misleading if considered in isolation and they need to be read in conjunction with the results of the second test, namely daylight distribution.

Daylight Distribution

The no-sky line (NSL) test assesses the daylight distribution inside the room by calculating the area at working plane level that will have a direct view of the sky. This is done by plotting the no-sky line, which is the line on the horizontal working plane beyond which no direct light from the sky will reach. This no-sky line is plotted in both the Baseline Scenario and Development Scenario so that the effect on Daylight Distribution (DD) can be quantified as either a loss or gain in lit area.

One benefit of the daylight distribution test is that the resulting contour plans show where the daylight falls within a room and a judgment may be made as to whether the room will retain light to a reasonable depth.

In respect of dwellings, the BRE Guidelines state at paragraph 2.2.2 that daylight in living rooms, dining rooms and kitchens should be assessed. Bedrooms should also be checked, although it states that these are less important. Other rooms such as bathrooms, toilets, storerooms, circulation areas and garages need not be checked.

Average Daylight Factor (ADF)

The ADF assessment is an absolute test which is recommended by the BRE Guidelines for the assessment of daylight provision within new rooms. Where the internal layout of an adjacent property is known, the Average Daylight Factor (ADF) calculation can be undertaken. The ADF is defined as:

"A ratio of total daylight flux incident on a reference area to the total area of the reference area, expressed as a percentage of outdoor luminance on a horizontal plane, due to an unobstructed sky of assumed or known luminance distribution".

Thus a 1% ADF would mean that the average indoor illuminance would be one hundredth the outdoor unobstructed illuminance. The ADF target depends on the room use in question.

The ADF method of assessment takes into account:

- The diffuse visible transmittance of the glazing to the room in question (i.e. how much light gets through the window glass);
- The net glazed area of the window in question;
- The total area of the room surfaces (ceiling, walls, floor and windows);
- The proportion of window located above the working plane; and
- The angle of visible sky reaching the window/windows in question.

It also makes allowance for the average reflectance of the internal surfaces of the room and for external obstruction. Reasonable estimations of internal reflectance are used if not known.

The BRE guidelines (Building Research Establishment, 2011) set out the ADF test at Appendix C, and further guidance, such as the reflectance of certain materials, is provided within BS8206-2:2008.

The BRE guidelines and BS 8206-2:2008 suggest that the following ADF values should be achieved for the following room types:

- Bedrooms 1%;
- Living Rooms 1.5%; and
- Kitchens 2%.

Certain constants are assumed in the formula, which in the case of the assessments confirmed in this report, are as follows:

- The diffuse light transmittance is taken as 0.68;
- Maintenance factor for dirt on glass is taken as 0.92; and

- The average reflectance of interior surface was taken as 0.5 (when assessing the proposed building for a development higher reflectance values are usually applied. However, as in the case of the Regent Road Hotel the assessment is of a neighbouring development for which the developer of the stadium has no control over the reflectance values, lower reflectance's have been assumed).

The ADF results are obtained for each room individually and expressed as a percentage. Where there are two or more windows serving one room, the ADF is calculated separately for each window, and the results summed.

15.2.10.2 Sunlight to Surrounding Buildings

Section 3.2 of the BRE Guidelines makes recommendations concerning the effect of development on levels of sunlight. The BRE Guidelines note that:

"...obstruction to sunlight may become an issue if:

some part of a new development is situated within 90° of due south of a main window wall of an existing building; and,

in the section drawn perpendicular to the existing window wall, the new development subtends an angle greater than 25° to the horizontal measured from a point 2m above the ground."

If these criteria are not met, the BRE Guidelines recommend a more detailed check to calculate the effect of new development on the available sunlight. Paragraph 3.2.3 of The BRE Guidelines suggest:

"...all main living rooms of dwellings, and conservatories, 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."

Annual Probable Sunlight Hours

The available sunlight is measured in terms of the percentage of annual probable sunlight hours (APSH) at the same reference point as the VSC. Probable sunlight hours are defined at paragraph 3.1.10 of the BRE Guidelines as:

"...the total amount of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question. The BRE guidelines suggest that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important. For completeness all rooms with a window facing within 90° of due south have been included in the assessment of the proposed development.

A number of the of the potentially affected windows in the receptors do not face within 90 degrees of due south and the application site lies to their north. Therefore, in accordance with the BRE Guidelines, it would not be necessary to undertake an assessment of the impact of the proposed development on sunlight using the BRE APSH methodology in relation to these receptors.

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15.2.10.3 Sun on Ground in Amenity Areas

Section 3.3 of BRE Report 209 makes recommendations concerning the effect of new development on sunlight to open spaces situated between buildings, such as main back gardens of houses, allotments, parks and playing fields, children's playgrounds, outdoor swimming pools, sitting-out areas (such as in public squares) and focal points for views (such as a group of monuments or fountains). The guide recommends that the level of overshadowing on such areas should be checked on the equinox (21 March). The BRE Guidelines note that sunlight into these open spaces is valuable for a number of reasons, to:

"...provide attractive sunlit views (all year); make outdoor activities like sitting out and children's play more pleasant (mainly warmer months); encourage plant growth (mainly spring and summer); dry out the ground, reducing moss and slime (mainly in colder months); melt frost, ice and snow (in winter); dry clothes (all year)."

The BRE Guidelines recognise that each of the above open spaces has different sunlighting requirements and that it is difficult to suggest a hard and fast rule. It recommends that:

"...at least half of the amenity areas listed above should receive at least two hours of sunlight on 21 March."

When assessing the impact of a development on the level of overshadowing of an existing open amenity, the BRE Guidelines recommends that:

"...if, as a result of new development the area which can receive two hours of direct sunlight on 21 March is reduced to less than 0.8 times its former size, this further loss of sunlight is significant. The garden or amenity area will tend to look more heavily overshadowed."

The BRE method of assessment takes no account of fences or walls less than 1.5 metres high or trees or shrubs. The BRE guidelines note that:

"Normally trees and shrubs need not be included, partly because their shapes are almost impossible to predict, and partly the dappled shade of a tree is more pleasant than a deep shadow of a building (this applies to deciduous trees)".

As indicated, deciduous trees provide welcome shade in the summer whilst allowing sunlight to penetrate during the winter months.

15.2.10.4 Application of the Guidance in BRE Report 209

The BRE Guidelines comprise an advisory document which does not constitute a rigid set of rules. In its introduction it is stated:

(Its) "main aim is ... to help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions.

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document 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 because natural lighting is only one of many factors in Site layout design."

In theory the BRE Guidelines may be applied to any setting, whether that is a city centre, suburban area or rural village. However, the document notes:

"In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings."

At page 7 it is stated that:

"...numerical values given here are purely advisory. Different criteria may be used, based upon the requirements for daylighting in an area viewed against other site layout constraints."

Care must therefore be taken in applying the recommendations of BRE Guidelines because rigid application of the numerical guidelines could well give rise to under-utilisation of land in urban areas such as the application site.

15.2.11 Assessment Scenarios

15.2.11.1 Construction Phase

The demolition and construction phases are less relevant for the assessment of daylight, sunlight and overshadowing because the full effects will only occur once construction of the proposed development is complete (currently anticipating a 3 year construction programme). Following demolition of the existing structures, there will be a temporary light increase. As the stadium is constructed, light levels will generally decrease as the proposed massing is built up.

A qualitative summary of the short-term effects of the demolition and construction phase is, however, set out in the 'Potential Effects' section of this chapter.

15.2.11.2 Baseline & Operational Phase Assessment Scenarios

The following scenarios have been considered within this chapter and are described in more detail below:

- Baseline Scenario;
- Future Baseline Scenario (Conditions A and B);
- Proposed Development versus Baseline Scenario; and
- Proposed Development versus Future Baseline Condition A

These assessment scenarios are discussed in further detail below.

Baseline Scenario

The Baseline Scenario consists of the Bramley Moore Dock (the application site) and Nelson Dock in their existing condition and considers the daylight and sunlight currently being received within the existing residential

receptors. This scenario is illustrated on drawings ROL7647_R04_V01_001, 002 and 003 at Appendix 15.1 (ES Volume III).

Future Baseline Scenario

The future baseline condition consists of the consented Liverpool Waters scheme built out across both the application site and Nelson Dock adjacent (on the basis of the approved parameters plans for the Northern Docks Neighbourhood).

To assess the future baseline as robustly as possible, assessments have been carried out against future baseline "Condition A" and future baseline "Condition B".

Condition A

This baseline establishes the daylight and sunlight levels that would be received within the existing residential receptors under the following situation:

- Existing conditions on site + Liverpool Waters scheme on Nelson Dock

This condition is illustrated on drawings ROL7647_R04_V02_001, 002 and 003 at Appendix 15.2 (ES Volume III).

Condition B

This baseline establishes the daylight and sunlight levels that would be received within existing residential receptors but assuming that the Liverpool Waters scheme is built out in its entirety across both the application site and Nelson Dock. In this part of the assessment scenario, the daylight and sunlight levels at both existing residential receptors and future residential receptors within Nelson Dock (included within the consented Liverpool Waters scheme) have been assessed.

This condition is illustrated on drawings ROL7647_R04_V02_004, 005 and 006 at Appendix 15.2 (ES Volume III).

Proposed Development versus Baseline Scenario

This assessment considers the potential daylight and sunlight effects of the proposed development at Bramley Moore Dock on the existing residential receptors assessed against the Baseline Scenario. This scenario is illustrated on drawings ROL7647_R04_V01_004, 005 and 006 at Appendix 15.1 (ES Volume III).

Proposed Development versus Future Baseline Condition A

This scenario considers the potential daylight and sunlight effects of the proposed development at the application site on surrounding receptors assessed against Condition A of the Future Baseline Scenario (Existing conditions on site + Liverpool Waters scheme on Nelson Dock).

This scenario considers the potential daylight and sunlight effects on both existing sensitive receptors and future sensitive receptors within Nelson Dock (included within the consented Liverpool Waters scheme). This scenario is illustrated on drawings ROL7647_R04_V03_004, 005 and 006 at Appendix 15.3 (ES Volume III).

Comparison of the Effects of the Proposed Development against the Effects of the Liverpool Waters Scheme

As previously noted, under the permitted Liverpool Waters scheme (LPA ref. 10O/2424 – latest consented variation is ref. 19NM/1121; latest submitted variation is ref 20NM/1801), building massing parameters are consented on both the application site and on the adjacent Nelson Dock.

The assessments in this ES chapter have been undertaken in accordance with the Building Research Establishment Handbook: Site Layout Planning for Daylight and Sunlight 2011: A guide to Good Practice (Second Edition). The guidelines are clear that where there is an extant planning permission for a site, it would be inappropriate for this to be considered in the same way as an existing building, i.e. it would be inappropriate to assess the extra/over impacts of a proposed scheme using a consented scheme on the site as a baseline.

Therefore, to allow a comparison of the effects between the consented and proposed schemes on the application site to be undertaken in a manner in accordance with the BRE guidance, for the purposes of this ES chapter, two separate scenarios have been assessed:

- The Future Baseline Scenario Condition B (assuming development of the Liverpool Waters consented scheme on the application site); and
- The Proposed Development versus Future Baseline Condition A (assuming development of the proposed development on the application site).

The results of the two scenarios have been compared within the text in the chapter.

In relation to future sensitive receptors, the part of the consented Liverpool Waters scheme on Nelson Dock has not been built (planning permission specifies that the Northern Docks Neighbourhood to be potentially constructed between 2036 – 2041), so there is no baseline condition in which to compare the results back to. The most appropriate way of assessing the potential effects to future receptors in the Liverpool Waters Scheme is to make a comparison between the results in the Cumulative Scenario and the Liverpool Waters Scenario, so as to evaluate the effects of the proposed scheme against what has already been accepted. Therefore, a façade-based assessment based on the BRE guideline recommendation absolute values for vertical sky component (VSC) and annual probable sunlight hours (APSH) has been undertaken and the results compared.

15.2.11.3 Cumulative Effects

The cumulative schemes reported in in Table 2.7 in Chapter 2 of this volume of the ES have been reviewed and there are two schemes in sufficient proximity to the application site such that cumulative daylight, sunlight and overshadowing effects could arise alongside the proposed development. These comprise the consented Liverpool Waters scheme which has been considered in both the Future Baseline and Proposed Development + Liverpool Waters Scheme scenarios, and the proposed

Regent Road Hotel (LPA ref: 20F/0217) which has been considered in the cumulative scenario as described below.

Cumulative Scenario

This assessment considers the potential daylight and sunlight effects of the proposed developments at Bramley Moore Dock and the Regent Road Hotel assessed against Future Baseline Condition A. The Regent Road Hotel has been modelled from drawings under application number 20F/0217 and has also been tested for light within the proposed condition. This scenario is illustrated on drawings ROL7647_R05_V03_004, 005 and 006 at Appendix 15.4 (ES Volume III).

15.2.12 Receptor Sensitivity

15.2.12.1 Existing Daylight and Sunlight Receptors

When assessing any potential effects on surrounding sensitive receptors, the BRE guidelines suggest that only those windows and rooms that have a ‘reasonable expectation’ of daylight and sunlight need to be assessed. In particular, the BRE guidelines state at paragraph 2.2.2:

“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. 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.”

The uses of the surrounding properties have been established from research undertaken, external observation as well as undertaking Valuation Office Agency (VOA) checks to identify those properties in residential occupation where council tax is applicable. The preliminary 25-degree test described below and within the BRE guidelines has also been applied in order to determine those sensitive receptors which require daylight and sunlight consideration.

The neighbouring commercial properties are not considered to have a reasonable expectation of daylight or sunlight, as they are designed to rely on electric lighting to provide sufficient light by which to work, rather than natural daylight or sunlight.

The existing neighbouring residential properties (the receptors) identified as requiring consideration are listed in Table 15.1 and illustrated in Figure 18.1. Further information and 3D views can be found on plan ROL7647_R04_V01_001 to 003 at Appendix 15.1.

Table 15.1
Existing Receptors Considered within the Assessment

ADDRESS	DAYLIGHT	SUNLIGHT
32-33 Regent Road	Yes	Yes
62-63 Regent Road	Yes	No

For the purposes of this assessment: for both daylight and sunlight, all windows serving habitable rooms have been attributed high sensitivity as the room uses are unknown. Bathrooms, toilets, store rooms and circulation areas have been attributed negligible sensitivity and therefore, in accordance with BRE guidelines, have not been tested.

32-33 Regent Road

This neighbouring receptor was previously ‘The Bramley Moore’ free house and is a two-storey building situated to the south east of the application site. The upper floor appears to contain a residential element. The upper floor has therefore been tested.

62-63 Regent Road

This neighbouring residential property is located to the north east of the application site and forms part a 3-storey terraced block. All windows facing the site have been assessed.

15.2.12.2 Future Daylight and Sunlight Receptors

In addition to testing of the existing sensitive receptors, the future sensitive receptors have been assessed in the relevant scenarios. These were identified as the proposed Regent Road Hotel and the approved development block parameters on the Nelson Dock site within the Liverpool Waters scheme.

Regent Road Hotel

This proposed neighbouring building is located to the north-east of the application site and the proposals under 20F/0217 are for a 9-storey hotel with a car park with associated access and servicing.

The BRE guidelines do not specifically recommend the assessment of hotels due to their transient nature; however, for completeness, the hotel has been included in the assessment. All windows which serve habitable rooms and face the site have been assessed, and these windows and rooms have been considered to be of medium sensitivity.

Liverpool Waters Scheme (Nelson Dock)

As the current approved development block parameters for Nelson Dock extend beyond the redline boundary for the stadium application, the blocks have been scaled back to the redline (e.g. buildings on Nelson Dock could be constructed right up to the application redline boundary).

This exercise was undertaken in order for the Nelson Dock consented massing to be assessed for indicative purposes only. Further details on the assumptions that were made in regard to the modelling of the interface of the two schemes at the site boundary are provided in the Assumptions and Limitations section of this chapter.

The future neighbouring properties (the receptors) identified as requiring consideration are indicated in Table 15.2 below and illustrated on Figure 15.1 below and on plans ROL7647_R04_V02_001 to 006 at Appendix 15.2 (ES Volume III).

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Table 15.2
Future Receptors Considered within the Assessment (Nelson Dock)

ADDRESS	DAYLIGHT	SUNLIGHT
Block E-04	Yes	Yes
Block E-03	Yes	Yes
Block E-02	Yes	Yes
Block E-05	Yes	Yes
Block E-06	Yes	Yes
Block E-07	Yes	Yes
Block E-08	Yes	Yes

In terms of the future sensitive receptors assessed, as the room and window locations are unknown, façade mapping has been carried out across all facades of the proposed blocks which will have a view of the application site/proposed scheme. Façade mapping provides an indication of the daylight and sunlight potential of the proposed blocks. As the uses of individual blocks are unknown, to ensure a robust conservative approach is followed, all facades have been assumed to be residential for the purpose of this assessment and therefore considered to be of high sensitivity.

15.2.12.3 Overshadowing Receptors

No existing outdoor amenity areas have been identified in sufficient proximity to the site such that they could be affected by overshadowing from the proposed development. While outdoor amenity areas may be brought forward in the future at Nelson Dock through appropriate reserved matters applications against the Liverpool Waters consent (currently LPA ref. 19NM/1121 – approved non-material amendment to ref. 10O/2424)), as the application site lies to the north of Nelson Dock, no impact on any such amenity areas would be anticipated as a result of the proposed development. As such, overshadowing has not been considered further within this ES chapter.



Figure 18.1

Plan Showing Existing Conditions on the Application Site and Liverpool Waters on Nelson Dock, with existing and future sensitive receptors labelled (Future Baseline Condition A)

DAYLIGHT, SUNLIGHT & OVERSHADOWING

15.2.13 Assessment of Magnitude

15.2.13.1 Daylight and Sunlight

In relation to the magnitude of impact, the BRE Guidelines give much more simplistic guidance for each type of assessment, simply suggesting whether the impact will be noticeable to the occupiers. Essentially, the BRE work on the general principle that a reduction in daylight or sunlight to less than 0.8 times its former value will be noticeable (equating to more than a 20% reduction), unless the quantity retained will be above a certain level. The numerical guidelines for each of the VSC, DD and APSH tests are summarised within Table 15.3 below. The ADF test has been used to assess the proposed Regent Road Hotel (LPA ref. 20F/0217). The ADF test is an absolute assessment of the daylight quality and is not intended to be used as a reduction comparable between existing and proposed conditions.

Table 15.3
BRE daylight/sunlight criteria numerical guidelines for assessing impacts on existing receptors

BRE TEST	BRE CRITERIA
VSC	The loss of daylight to a window will be noticeable if the VSC will be reduced to less than 27% and less than 0.8 times its former value.
Daylight Distribution	The loss of daylight to a room will be noticeable if the area of the working plane which can receive direct skylight will be reduced to less than 0.8 times its former value.
APSH	A window should still receive enough sunlight if it receives at least 25% APSH for the whole year including 5% of this during the winter months. If the available sunlight hours are less than this, and/or less than 0.8 times their former value, either during the winter or over the whole year, and/or the actual alteration is greater than 4% APSH, then a window may be adversely affected.

In order to develop criteria to categorise the magnitude of any impact that exceeds the preliminary numerical guidelines, professional judgement has been applied.

Tables 15.4 and 15.6 present the daylight and sunlight impact magnitude criteria that have been applied to existing sensitive receptors. The criteria show a 20% margin of acceptable deviation (as set out by the BRE guidelines) for a negligible effect and then margins of 10% deviation thereafter for low, medium and high magnitudes.

The daylight and sunlight impact magnitude criteria that have been applied to future sensitive receptors are presented in Tables 15.5 and 15.7 respectively. The façade testing on the future sensitive receptors is an absolute test and therefore the tables provide the bandings for low, medium and high magnitudes in terms of deviation from the BRE's recommended values for VSC and APSH.

Table 15.4
Scale of Impact Magnitude for Change in Daylight

MAGNITUDE	VSC	DAYLIGHT DISTRIBUTION
Negligible	Proposed VSC \geq 27% OR Proposed VSC $<$ 27% and \geq 0.8 times former value	Proposed lit area is \geq 0.8 times former value
Low	Proposed VSC $<$ 27% and between 0.7-0.79 times former value	Proposed lit area is between 0.7-0.79 times former value
Medium	Proposed VSC $<$ 27% and between 0.6-0.69 times former value	Proposed lit area is between 0.6-0.69 times former value
High	Proposed VSC $<$ 27% and $<$ 0.6 times former value	Proposed lit area is $<$ 0.6 times former value

Table 15.5
Scale of Impact Magnitude for Change in Daylight (façade testing)

MAGNITUDE	BRE CRITERIA
Negligible	\geq 27%
Low	\geq 15% $<$ 27%
Medium	\geq 5% $<$ 15%
High	$<$ 5%

Table 15.6
Scale of Magnitude for Change in Sunlight

MAGNITUDE	APSH TEST	APSH IN WINTER TEST
Negligible	Proposed APSH \geq 25% OR Proposed APSH $<$ 25% and \geq 0.8 times former value OR $<$ 4% APSH loss over the whole year	Proposed APSH in winter \geq 5% OR Proposed APSH $<$ 5% and \geq 0.8 times former value OR $<$ 4% APSH loss over the whole year
Low	Proposed APSH $<$ 25% and between 0.7-0.79 times former value	Proposed APSH in winter $<$ 5% and between 0.7-0.79 times former value
Medium	Proposed APSH $<$ 25% and between 0.6-0.69 times former value	Proposed APSH in winter $<$ 5% between 0.6-0.69 times former value
High	Proposed APSH $<$ 25% and $<$ 0.6 times former value	Proposed area is $<$ 0.6 times former value

The ADF test looks at the absolute values and not the reduction. Therefore, the magnitude is set against the BRE target values, not the reduction against

baseline, especially as future occupants will never have experienced the light loss.

Table 15.7
Scale of Magnitude for Change in Daylight (new buildings)

EFFECT SIGNIFICANCE	ROOM TYPE KITCHEN	LIVING ROOMS	BEDROOM
Major	1.2% to 0.0%	0.9% to 0%	0.6% to 0.0%
Moderate	1.59% to 1.2%	1.19% to 0.9%	0.79% to 0.6%
Minor	1.99% to 1.6%	1.49% to 1.2%	0.99% to 0.8%
Negligible	At least 2%	At least 1.5%	At least 1%

Table 15.8
Scale of Magnitude for Change in Sunlight (new buildings)

EFFECT SIGNIFICANCE	ANNUAL PROBABLE SUNLIGHT HOURS (APSH) TEST	APSH IN WINTER TEST
Major	$<$ 15%	$<$ 3%
Moderate	\geq 15% $<$ 20%	\geq 3% $<$ 4%
Minor	\geq 20% $<$ 25%	\geq 4% $<$ 5%
Negligible	\geq 25%	\geq 5%

Table 15.9
Scale of Magnitude for Change in Sunlight (Façade testing)

MAGNITUDE	ANNUAL PROBABLE SUNLIGHT HOURS (APSH) TEST	APSH IN WINTER TEST
Negligible	\geq 25%	\geq 5%
Low	\geq 15% $<$ 27%	\geq 4% $<$ 5%
Medium	\geq 5% $<$ 15%	\geq 2% $<$ 4%
High	\geq 5% $<$ 15%	\geq 2% $<$ 4%

All effects are considered permanent unless otherwise stated in the text. However, given that the dock infill methodology allows for a reversal of the infill method in the future without causing damage to the dock walls, all effects are considered reversible.

These numerical guidelines and the provisions within Appendix I of the BRE Guidelines have been considered. Positive effects (i.e. gains in light) are described as beneficial and negative effects (i.e. reductions in light) are described as adverse, except where the impacts are within the BRE numerical guidelines, in which case they are described as negligible.

15.2.14 Assessment of Significance

Appendix I of the BRE Guidelines explains how to apply the daylight and sunlight criteria to Environmental Impact Assessments.

Appendix I, paragraph I3 of the BRE Guidelines states:

“Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is it required, or in the amount of sunlight reaching an open space”

Paragraph I5 states:

“Where the loss of skylight or sunlight fully meets the guidelines in this book, 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 area 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.”

Paragraphs I6 and I7 continue:

“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 or limited area of open space are affected*
- the loss of light is only marginally outside the guidelines*
- an affected room has other sources of skylight or sunlight*
- the affected building or open space only has a low-level requirement for skylight or sunlight*
- there are particular reasons why an alternative, less stringent, guideline should be applied”.*

“Factors tending towards a major adverse impact include:

 - a large number of windows or large area of open space are affected*
 - the loss of light is substantially outside the guidelines*
 - all the windows in a particular property are affected*
 - the affected indoor or outdoor spaces have a particularly strong requirement for skylight or sunlight, e.g. a living room in a dwelling or a children’s playground.”*

Effect significance has been assessed in accordance with the matrix presented in Table 15.10 below.

Table 15.10

Significance Matrix

IMPACT MAGNITUDE	SENSITIVITY OF RECEPTOR		
	High	Medium	Low
High	Major	Moderate to Major	Minor to moderate
Medium	Moderate	Moderate	Minor
Low	Minor	Minor	Minor
Negligible	Negligible	Negligible	Negligible

15.2.15 Relevant Associated Development

The proposed associated development is described in Chapter 3 of this volume of the ES. None of the proposed works are considered relevant to the assessment.

15.2.16 Assumptions/Limitations

In undertaking the Daylight and Sunlight assessment of the application site and wider surrounding area, there are a number of limitations and constraints affecting the outputs from this work. These include:

- Where plans or access to the properties/public amenity spaces were not available, the internal layouts have been based on assumptions (where possible from external observation, otherwise using professional judgment). Where the layouts have been estimated, this has no bearing on the assessment of the vertical sky component or annual probable sunlight hours tests which are both considered at the centre of the window. The internal dimensions are only relevant to the daylight distribution (the second method of daylight analysis). However, in the absence of suitable plans, estimation is the conventional approach.
- In terms of the façade testing analysis, this presents a worst-case scenario by considering all sensitive facades to contain residential content. Façade testing provides an indication of the daylight and sunlight potential of the approved development blocks, however, this will change as the detailed design evolves. Only the facades facing the development site were assessed.
- In order to accommodate the proposed stadium development on the application site under the scenarios where Liverpool Waters is in place to the south (The future baseline scenario and the proposed development + Liverpool Waters scenario), the following amendments to the consented Liverpool Waters scheme (ref. 19NM/1121 as most recent non-material amendment to original permission ref. 10O/2424) have been assumed for the purposes of the assessments (plot numbers as per latest approved parameters plan):
 - Removal of proposed buildings immediately around and within Bramley Moore Dock (this includes 27m building to the north (plot E-15); 28m building to the east (plot E-14); two 33m buildings to the south (plot E-11 and E-12); 38m building to the west (plot E-13); and 8m building in the centre of the dock (plot-E17)).

- Removal of proposed buildings on the northern extent of Nelson Dock, including the two 33m buildings (plot E-09 and E-10) and the 31m building (part of plot E-04) on the north east corner of Nelson Dock.
- The proposed 38m building on the western side of Nelson Dock (plot E-06) to be reduced in length to reflect the redline for the stadium development.
- An offset from the redline may be required for the northern extent of the proposed 38m building on the west of Nelson Dock (plot E-06) and the 28m building on the east of Nelson Dock (plot E-04). The potential offset requirements would be determined based on the results of the EIA technical assessments.
- The two proposed buildings in the centre of Nelson Dock (plot E-07) and 7m (plot E-08) are assumed to be two storeys in height.
- The remaining buildings to stay as proposed in the approved Liverpool Waters scheme.

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15.3 BASELINE CONDITIONS

15.3.1 Baseline

The Baseline Scenario for daylight and sunlight around the application site has been quantified and compared against the BRE criteria summarised in Table 15.3 and detailed below. The Baseline Scenario consists of the application site in its current condition and the existing surrounding sensitive receptors. This scenario confirms the daylight and sunlight levels currently experienced by the neighbouring sensitive receptors. The detailed results of the baseline daylight and sunlight conditions are set out in the following table and in the contour drawings (existing contour coloured green) within Appendix 15.1.

RECEPTOR	VERTICAL SKY COMPONENT (VSC)		DAYLIGHT DISTRIBUTION (DD)		ANNUAL PROBABLE SUNLIGHT HOURS (APSH)			FURTHER INFORMATION
	WINDOWS ASSESSED	≥ 27% VSC	ROOMS ASSESSED	≥ 80% DAYLIT AREA	ROOMS ASSESSED	≥ 25% APSH	≥ 5% APSH IN WINTER	
32-33 Regent Road	8	8	5	5	1	1	1	Appendix 15.1.2 - 15.1.5, ES Volume III
62-63 Regent Road	11	11	6	6	0	N/A	N/A	Appendix 15.1.2 – 15.1.4, ES Volume III

15.3.1.1 32-33 Regent Road

Of the 8 windows tested for VSC, all 8 (100%) satisfy the BRE Guidelines by exceeding 27% VSC. In terms of daylight distribution, all 5 (100%) of the rooms tested satisfy the BRE guidelines, receiving daylight over at least 80% of the area of the working plane.

A single room has been tested for APSH. This room currently receives more than the BRE recommended 25% annual APSH and 5% winter APSH.

15.3.1.2 62-63 Regent Road

Of the 11 windows tested for VSC, all 11 (100%) receive more than the BRE recommended 27% VSC. In terms of daylight distribution, all 6 (100%) of the rooms tested satisfy the BRE guidelines, receiving daylight over at least 80% of the area of the working plane.

15.3.1.3 Summary of Baseline Condition

In summary, the application site has been tested in its current condition and the assessment demonstrates that all of the neighbouring receptors considered in the assessment exceed the BRE guideline levels for daylight and sunlight availability, which for an urban environment is uncharacteristic. This is because there is little or no massing on the application site that might impact the existing neighbours.

15.3.2 Future Baseline

15.3.2.1 Condition A: Existing Conditions on Site + Liverpool Waters Scheme on Nelson Dock

The daylight and sunlight results for this condition have been quantified and compared against the BRE criteria summarised in Table 15.3.

The detailed results for this condition of the future baseline assessment are set out in the following table and in contour drawings (existing contour coloured green) within Appendix 15.2. These results confirm the daylight and sunlight levels the neighbouring existing receptors would experience if the portion of the Liverpool Waters Scheme on Nelson Dock were to be built out.

RECEPTOR	VERTICAL SKY COMPONENT (VSC)		DAYLIGHT DISTRIBUTION (DD)		ANNUAL PROBABLE SUNLIGHT HOURS (APSH)			FURTHER INFORMATION
	WINDOWS ASSESSED	≥ 27% VSC	ROOMS ASSESSED	≥ 80% DAYLIT AREA	ROOMS ASSESSED	≥ 25% APSH	≥ 5% APSH IN WINTER	
32-33 Regent Road	8	8	5	5	1	1	1	Appendix 15.2.2 – 15.2.5 ES Volume III
62-63 Regent Road	11	11	6	6	0	N/A	N/A	Appendix 15.2.2 – 15.2.4 ES Volume III

32-33 Regent Road

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Of the 8 windows tested for VSC, all 8 (100%) will satisfy the BRE Guidelines by exceeding 27% VSC. In terms of daylight distribution, all 5 (100%) of the rooms tested will satisfy the BRE guidelines, receiving daylight over at least 80% of the area of the working plane.

A single room has been tested for APSH. This room will receive more than the BRE recommended 25% annual APSH and 5% winter APSH.

62-63 Regent Road

Of the 11 windows tested for VSC, all 11 (100%) will continue to receive more than the BRE recommended 27% VSC. In terms of daylight distribution, all 6 (100%) of the rooms tested will satisfy the BRE guidelines, receiving daylight over at least 80% of the area of the working plane.

Summary of Condition A

In summary, the assessment demonstrates that all of the existing neighbouring receptors will exceed the BRE guideline levels for daylight and sunlight availability, which for an urban environment like this is uncharacteristic. This is because currently there is little or no massing on the application site that might impact the existing neighbours.

15.3.2.2 Condition B: Future Baseline

The daylight and sunlight results for this condition have been quantified and compared against the BRE criteria summarised in Tables 15.4 and 15.6.

The detailed results of the daylight and sunlight conditions under the Future Baseline Scenario are set out in the following tables for the existing and future sensitive receptors respectively and contour drawings (existing contour coloured green) within Appendix 15.2 (ES Volume III).

PHASE	RECEPTOR	VSC	DAYLIGHT DISTRIBUITION									APSH					MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
		NO. OF WINDOWS	WINDOWS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	< 0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	< 0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	< 0.6 X FORMER VALUE				
Operation	32-33 Regent Road	8	1	0	7	0	5	5	0	0	0	1	1	0	0	0	Low/ Negligible	Minor/ Negligible	No	Appendix 15.2.2 – 15.2.5 ES Volume III
Operation	62-63 Regent Road	11	11	0	0	0	6	6	0	0	0	0	0	0	0	0	Negligible/ N/A	Negligible/ N/A	No	Appendix 15.2.2 -15.2.4 ES Volume III

32-33 Regent Road

Of the 8 windows tested for VSC, 1 (12.5%) will continue to receive more than the BRE recommended 27% VSC. The remaining 7 windows would retain between 0.66 and 0.68 times their former value. Individual VSC results in isolation can often be misleading and it is advised by the BRE Guidelines to consider these results in tandem with the daylight distribution results in order to gain a more realistic view of the daylight within the room. For these receptors, all 5 (100%) of the rooms tested satisfy the BRE Guidelines in terms of the daylight distribution test.

The 1 room tested for APSH satisfied the BRE guidelines by achieving the BRE recommended values of 25% annual APSH and 5% winter APSH.

It is therefore considered that the effect of the consented Liverpool Waters Scheme (Including the consented massing on the application site) on the daylight and sunlight to these receptors would be **minor adverse** because there are moderate effects in the VSC test, but negligible effects identified for daylight distribution. When compared to the Proposed Development + Liverpool Waters Scheme Scenario (reported in section 15.6 of this chapter), the results show that the proposed development has a lesser effect on the neighbouring properties in terms of daylight and sunlight than the consented Liverpool Waters Scheme.

62-63 Regent Road

Of the 11 windows tested for VSC, all 11 (100%) will continue to receive more than the BRE recommended 27% VSC. In terms of daylight distribution, all 6 (100%) of the rooms tested will satisfy the BRE guidelines.

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It is therefore considered that the effect of the proposed development on the daylight and sunlight to these receptors would be **negligible**. When compared to the Proposed Development + Liverpool Waters Scheme Scenario (reported in section 15.6 of this chapter), the results show that the proposed development has a comparable effect on the neighbouring properties in terms of daylight and sunlight.

PHASE	RECEPTOR	NO. OF POINTS	VSC			APSH (ANNUAL)				APSH (WINTER)					MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
			<= 27%	<27% & >= 15%	<15% % >= 5%	<5%	>= 25%	<25% % >= 15%	<15% % >= 5%	<5%	>= 5%	<5% % >= 4%	<4% % >= 2%	<2%	DAYLIGHT/SUNLIGHT	DAYLIGHT/SUNLIGHT		
Operation	Block E-04	5256	3393 (65%)	1430 (27%)	433 (8%)	0 (0%)	3658 (70%)	559 (11%)	1039 (20%)	0 (0%)	3641 (69%)	93 (2%)	500 (10%)	1022 (19%)	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.2.6 ES Volume III
Operation	Block E-03	4389	3912 (89%)	412 (9%)	65 (1%)	0 (0%)	1367 (31%)	19 (0%)	3003 (68%)	0 (0%)	1255 (29%)	11 (0%)	120 (3%)	3003 (68%)	Negligible/Low	Negligible/Minor	No	Appendix 15.2.6 ES Volume III
Operation	Block E-02	380	380 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	380 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	380 (100%)	Negligible/Medium	Negligible/Moderate	No	Appendix 15.2.6 ES Volume III
Operation	Block E-05	2812	1976 (70%)	563 (20%)	273 (10%)	0 (0%)	874 (31%)	0 (0%)	1938 (69%)	0 (0%)	874 (31%)	0 (0%)	0 (0%)	1938 (69%)	Negligible/Low	Negligible/Minor	No	Appendix 15.2.6 ES Volume III
Operation	Block E-06	6042	5481 (91%)	561 (9%)	0 (0%)	0 (0%)	4899 (81%)	3 (0%)	1140 (19%)	0 (0%)	4807 (80%)	3 (0%)	22 (0%)	1210 (20%)	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.2.6 ES Volume III
Operation	Block E-07	552	366 (66%)	186 (34%)	0 (0%)	0 (0%)	372 (67%)	0 (0%)	180 (33%)	0 (0%)	372 (67%)	0 (0%)	0 (0%)	180 (33%)	Low/Negligible	Minor/Negligible	No	Appendix 15.2.6 ES Volume III
Operation	Block E-08	644	357 (55%)	287 (45%)	0 (0%)	0 (0%)	434 (67%)	0 (0%)	210 (33%)	0 (0%)	434 (67%)	0 (0%)	0 (0%)	210 (33%)	Low/Negligible	Minor/Negligible	No	Appendix 15.2.6 ES Volume III
Operation	Total	20075	15865 (79%)	3439 (17%)	771 (4%)	0 (0%)	11604 (58%)	581 (3%)	7890 (39%)	0 (0%)	11383 (57%)	107 (1%)	642 (3%)	7943 (40%)	Negligible/Low	Negligible/Minor	No	Appendix 15.2.6 ES Volume III

The façade testing in the Future Baseline Scenario has included a greater number of assessment points than the façade testing in the Proposed Development + Liverpool Waters Scheme Scenario. This is because when taking away the blocks from the Bramley Moore Dock site, Block E-06 is shortened in the Proposed Development + Liverpool Waters condition, and Block E-04 has an element removed also. However, it is reasonable to still review the statistical level of adherence for each of the façade tests in both of the scenarios.

The results show that 79% of the tested points achieve over 27% VSC. Of the remaining tested points, 17% achieve VSC levels between 15% and below 27%, 4% achieve VSC levels between 5% and below 15% and 0% achieve VSC levels below 5%. This demonstrates that the majority of points tested achieve the guideline values ensuring that when detailed designs are brought forward, a high level of daylight will be achievable.

In terms of sunlight, because of the orientation of the site, the majority of the facades assessed are either north facing or face east or west (i.e. none of the facades are south facing). Therefore, the adherence rates have excluded the better performing south facing elevations, which would potentially be exploited by any detailed design through subsequent reserved matters submissions for Nelson Dock. Given the adherence rates, it is considered that the magnitude is low and the significance is negligible to minor.

15.4 POTENTIAL SIGNIFICANT IMPACTS

PHASE	DESCRIPTION	ADVERSE/BENEFICIAL
Construction	Potential daylight, sunlight and overshadowing effects on neighbouring receptors as the structure is constructed, increasing to a maximum equal to the impact caused by the operational development and not exceeding this. Given that effects will be temporary and short-term and will not exceed the operational phase effects assessed in this chapter, the construction phase effects have not been assessed further in this chapter.	Beneficial (immediately following demolition) to Adverse (as the stadium is constructed)
Operation	Potential effects on daylight levels on neighbouring residential receptors from the proposed building massing.	Adverse

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Operation	Potential effects on sunlight levels on neighbouring residential receptors from the proposed building massing.	Adverse
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15.5 DESIGN INTERVENTIONS

In relation to daylight, sunlight and overshadowing, no design interventions have been considered necessary, as a high level of BRE adherence is achieved in the context of the completed and operational development.

15.6 ASSESSMENT OF PROPOSED DEVELOPMENT PRE-MITIGATION (INCLUDING DESIGN INTERVENTION)

15.6.1 Proposed Development versus Baseline Scenario

Daylight and sunlight around the application site has been quantified under the Proposed Development Scenario and compared against the BRE criteria summarised in Table 15.4 and 15.6.

The detailed results are set out in the following table and in 3D views and contour drawings (existing contour coloured green) within Appendix 15.1.

PHASE	RECEPTOR	VSC					DAYLIGHT DISTRIBUTION					APSH					MAGNITUDE PRE-MITIGATION DAYLIGHT/ SUNLIGHT	SIGNIFICANCE PRE-MITIGATION DAYLIGHT/ SUNLIGHT	MITIGATION PROPOSED?	FURTHER INFORMATION
		NO. OF WINDOWS	WINDOWS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE				
Operation	32-33 Regent Road	8	8	0	0	0	5	5	0	0	0	1	1	0	0	0	Negligible/ Negligible	Negligible/ Negligible	No	Appendix 15.1.2 – 15.1.5 ES Volume III
Operation	62-63 Regent Road	11	11	0	0	0	6	6	0	0	0	0	0	0	0	0	Negligible/ N/A	Negligible/ N/A	No	Appendix 15.1.2 – 15.1.4 ES Volume III

32-33 Regent Road

Of the 8 windows tested for VSC, all 8 (100%) will satisfy the BRE Guidelines and either retain a VSC of at least 27% or at least 0.8 times their former value in the proposed condition. In terms of daylight distribution, all 5 (100%) of the rooms tested will satisfy the BRE guidelines.

A single room has been tested for APSH. This room continues to receive more than the BRE recommended 25% annual APSH and more than the BRE recommended 5% winter APSH with the proposed development in place.

It is therefore considered that the effect of the proposed development on the daylight and sunlight to these receptors will be **negligible**.

62-63 Regent Road

Of the 11 windows tested for VSC, all 11 (100%) will continue to receive more than the BRE recommended 27% VSC in the proposed condition. In terms of daylight distribution, all 6 (100%) of the rooms tested will satisfy the BRE guidelines.

It is therefore considered that the effect of the proposed development on the daylight and sunlight to these receptors will be **negligible**.

15.6.2 Proposed Development versus Future Baseline Condition A (Existing Conditions on Site + Liverpool Waters Scheme on Nelson Dock)

Daylight and sunlight around the application site has been quantified and compared against the BRE criteria summarised in Tables 15.4 and 15.6.

Detailed results of the daylight and sunlight conditions are set out in the following tables and 3D views and contour drawings (existing contour coloured green) within Appendix 15.3.

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15.6.2.1 Existing Sensitive Receptors

PHASE	RECEPTOR	VSC		DAYLIGHT DISTRIBUTION								APSH								MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
		NO. OF WINDOWS	WINDOWS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE							
																	DAYLIGHT/SUNLIGHT	DAYLIGHT/SUNLIGHT					
Operation	32-33 Regent Road	8	8	0	0	0	5	5	0	0	0	1	1	0	0	0	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.3.2 – 15.3.5 ES Volume III			
Operation	62-63 Regent Road	11	11	0	0	0	6	6	0	0	0	0	0	0	0	0	Negligible/N/A	Negligible/N/A	No	Appendix 15.3.2 – 15.3.4 ES Volume III			

32-33 Regent Road

Of the 8 windows tested for VSC, all 8 (100%) will satisfy the BRE Guidelines and either retain a VSC of at least 27% or at least 0.8 times their former value in the proposed condition. In terms of daylight distribution, all 5 (100%) of the rooms tested will satisfy the BRE guidelines.

A single room has been tested for APSH. This room continues to receive more than the BRE recommended 25% annual APSH and more than the BRE recommended 5% winter APSH with the proposed development in place.

It is therefore considered that the effect of the proposed development on the daylight and sunlight to these receptors will be **negligible**. When compared to the Future Baseline Scenario, (reported in section 15.3 of this chapter), the results show that the proposed development has a lesser effect on the neighbouring properties in terms of daylight and sunlight than the consented Liverpool Waters Scheme.

62-63 Regent Road

Of the 11 windows tested for VSC, all 11 (100%) will continue to receive more than the BRE recommended 27% VSC in the proposed condition. In terms of daylight distribution, all 6 (100%) of the rooms tested will satisfy the BRE guidelines.

It is therefore considered that the effect of the proposed development on the daylight and sunlight to these receptors will be **negligible**. When compared to the Future Baseline Scenario, (reported in section 15.3 of this chapter), the results show that the proposed development has a comparable effect on the neighbouring properties in terms of daylight and sunlight to the consented Liverpool Waters Scheme.

DAYLIGHT, SUNLIGHT & OVERSHADOWING

15.6.2.2 Future Sensitive Receptors

PHASE	RECEPTOR	NO. OF POINTS	VSC			APSH (ANNUAL)				APSH (WINTER)					MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
			<= 27%	< 27% & >= 15%	< 15% & >= 5%	< 5%	>= 25%	< 25% & >= 15%	< 15% & >= 5%	< 5%	>= 5%	< 5% & >= 4%	< 4% & >= 2%	< 2%				
Operation	Block E-04	4536	3517 (78%)	952 (21%)	67 (1%)	0 (0%)	3266 (72%)	327 (7%)	925 (20%)	18 (0%)	3015 (66%)	94 (2%)	501 (11%)	926 (20%)	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.3.6 ES Volume III
	Block E-03	4389	3908 (89%)	416 (9%)	65 (1%)	0 (0%)	1367 (31%)	19 (0%)	3003 (68%)	0 (0%)	1255 (29%)	11 (0%)	120 (3%)	3003 (68%)	Negligible/Low	Negligible/Minor	No	Appendix 15.3.6 ES Volume III
	Block E-02	380	380 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	380 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	380 (100%)	Negligible/Medium	Negligible/Moderate	No	Appendix 15.3.6 ES Volume III
	Block E-05	2812	1985 (71%)	554 (20%)	273 (10%)	0 (0%)	874 (31%)	0 (0%)	1938 (69%)	0 (0%)	874 (31%)	0 (0%)	0 (0%)	1938 (69%)	Negligible/Low	Negligible/Minor	No	Appendix 15.3.6 ES Volume III
	Block E-06	5244	5244 (100%)	0 (0%)	0 (0%)	0 (0%)	4101 (78%)	3 (0%)	1140 (22%)	0 (0%)	4009 (76%)	3 (0%)	22 (0%)	1210 (23%)	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.3.6 ES Volume III
	Block E-07	552	341 (62%)	208 (38%)	3 (1%)	0 (0%)	372 (67%)	0 (0%)	180 (33%)	0 (0%)	372 (67%)	0 (0%)	0 (0%)	180 (33%)	Low/Negligible	Minor/Negligible	No	Appendix 15.3.6 ES Volume III
	Block E-08	644	380 (59%)	114 (18%)	150 (23%)	0 (0%)	434 (67%)	0 (0%)	210 (33%)	0 (0%)	434 (67%)	0 (0%)	0 (0%)	210 (33%)	Low/Negligible	Minor/Negligible	No	Appendix 15.3.6 ES Volume III
	Total	18557	15755 (85%)	2244 (12%)	558 (3%)	0 (0%)	10414 (56%)	349 (2%)	7776 (42%)	18 (0%)	9959 (54%)	108 (1%)	643 (3%)	7847 (42%)	Negligible/Low	Negligible/ Minor	No	Appendix 15.3.6 ES Volume III

The results show that 85% of the tested points achieve over 27% VSC. Of the remaining tested points, 12% achieve VSC levels between 15% and below 27%, 3% achieve VSC levels between 5% and below 15% and 0% achieve VSC levels below 5%. This demonstrates that the majority of points tested achieve the guideline values ensuring that when detailed designs are brought forward, a high level of daylight will be achievable.

In terms of sunlight, because of the orientation of the docks (Bramley-Moore and Nelson), the majority of the facades assessed are either north facing or face directly east or west (i.e. none of the facades which would interact with the application site are south facing). Therefore, sunlight is not a material consideration in terms of the effect from the proposed development, as it is to the north. However, the sunlight tests have been run regardless and compared against the Future Baseline Scenario, as this is what has been considered acceptable.

The sunlight results show comparable effects, which in the Liverpool Waters Scenario are considered of low magnitude and **negligible to minor significance**. It is likely that as the detailed design of the blocks within Liverpool Waters comes forward via subsequent reserved matters submissions, the south facing facades (not considered in this ES Chapter) will have access to high levels of sunlight with the proposed development in place.

When compared to the Future Baseline Condition B (reported in section 15.3 of this chapter), the results show that the proposed development has a comparable effect on the neighbouring properties in terms of daylight and sunlight to the consented Liverpool Waters Scheme.

15.7 MITIGATION & ENHANCEMENT MEASURES

No mitigation or enhancement measures are proposed in regard to the assessments reported in this chapter.

15.8 ASSESSMENT POST-MITIGATION

Given that no mitigation or enhancement measures are proposed, the residual effects of the proposed development remain in accordance with the effects reported in section 15.6 above. All effects are **Negligible to Minor** (not significant in EIA terms), adverse, long-term, direct, permanent and reversible.

DAYLIGHT, SUNLIGHT & OVERSHADOWING

15.9 DAYLIGHT AND SUNLIGHT: INTER-CUMULATIVE SCHEME IMPACTS

15.9.1 Cumulative Development versus Future Baseline Condition A (Existing Conditions on Site + Liverpool Waters Scheme on Nelson Dock)

Daylight and sunlight around the application site has been quantified and compared against the BRE criteria summarised in Tables 15.4 and 15.6. Detailed results of the daylight and sunlight conditions are set out in the following tables and 3D views and contour drawings (existing contour coloured green) within Appendix 15.4.

15.9.1.1 Existing Sensitive Receptors

PHASE	RECEPTOR	VSC					DAYLIGHT DISTRIBUTION					APSH					MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
		NO. OF WINDOWS	WINDOWS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE	TOTAL NO. OF ROOMS ASSESSED	ROOMS SATISFYING BRE CRITERIA	0.79-0.7 X FORMER VALUE	0.69-0.6 X FORMER VALUE	<0.6 X FORMER VALUE	DAYLIGHT/SUNLIGHT	DAYLIGHT/SUNLIGHT		
Operation	32-33 Regent Road	8	8	0	0	0	5	5	0	0	0	1	1	0	0	0	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.4.2 – 15.4.5 ES Volume III
Operation	62-63 Regent Road	11	11	0	0	0	6	6	0	0	0	0	0	0	0	0	Negligible/N/A	Negligible/N/A	No	Appendix 15.4.2 – 15.4.4 ES Volume III

32-33 Regent Road

Of the 8 windows tested for VSC, all 8 (100%) will satisfy the BRE Guidelines and either retain a VSC of at least 27% or at least 0.8 times their former value in the proposed condition. In terms of daylight distribution, all 5 (100%) of the rooms tested will satisfy the BRE guidelines.

A single room has been tested for APSH. This room continues to receive more than the BRE recommended 25% annual APSH and more than the BRE recommended 5% winter APSH with the proposed development in place.

It is therefore considered that the effect of the cumulative developments on the daylight and sunlight to these receptors will be **negligible**. When compared to the Proposed Development versus Future Baseline Condition A (reported in section 15.3 of this chapter), the results show that the daylight and sunlight effects are no different in the cumulative scenario.

62-63 Regent Road

Of the 11 windows tested for VSC, all 11 (100%) will continue to receive more than the BRE recommended 27% VSC in the proposed condition. In terms of daylight distribution, all 6 (100%) of the rooms tested will satisfy the BRE guidelines.

It is therefore considered that the effect of the proposed development on the daylight and sunlight to these receptors will be **negligible**. When compared to the Proposed Development versus Future Baseline Condition A (reported in section 15.3 of this chapter), the results show that the daylight and sunlight effects are no different in the cumulative scenario.

DAYLIGHT, SUNLIGHT & OVERSHADOWING

15.9.1.2 Future Sensitive Receptors (Nelson Dock)

PHASE	RECEPTOR	NO. OF POINTS	VSC			APSH (ANNUAL)				APSH (WINTER)				MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION		MITIGATION PROPOSED?	FURTHER INFORMATION
			<= 27%	< 27% & >= 15%	< 15% & >= 5%	< 5%	>= 25%	< 25% & >= 15%	< 15% & >= 5%	< 5%	>= 5%	< 5% & >= 4%	< 4% & >= 2%	< 2%	DAYLIGHT/SUNLIGHT	DAYLIGHT/SUNLIGHT		
Operation	Block E-04	4536	3502 (77%)	967 (21%)	67 (1%)	0 (0%)	3266 (72%)	327 (7%)	925 (20%)	18 (0%)	3015 (66%)	94 (2%)	501 (11%)	926 (20%)	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.4.6 ES Volume III
	Block E-03	4389	3908 (89%)	416 (9%)	65 (1%)	0 (0%)	1367 (31%)	19 (0%)	3003 (68%)	0 (0%)	1255 (29%)	11 (0%)	120 (3%)	3003 (68%)	Negligible/Low	Negligible/Minor	No	Appendix 15.4.6 ES Volume III
	Block E-02	380	380 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	380 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	380 (100%)	Negligible/Medium	Negligible/Moderate	No	Appendix 15.4.6 ES Volume III
	Block E-05	2812	1985 (71%)	554 (20%)	273 (10%)	0 (0%)	874 (31%)	0 (0%)	1938 (69%)	0 (0%)	874 (31%)	0 (0%)	0 (0%)	1938 (69%)	Negligible/Low	Negligible/Minor	No	Appendix 15.4.6 ES Volume III
	Block E-06	5244	5244 (100%)	0 (0%)	0 (0%)	0 (0%)	4101 (78%)	3 (0%)	1140 (22%)	0 (0%)	4009 (76%)	3 (0%)	22 (0%)	1210 (23%)	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.4.6 ES Volume III
	Block E-07	552	341 (62%)	208 (38%)	3 (1%)	0 (0%)	372 (67%)	0 (0%)	180 (33%)	0 (0%)	372 (67%)	0 (0%)	0 (0%)	180 (33%)	Low/Negligible	Minor/Negligible	No	Appendix 15.4.6 ES Volume III
	Block E-08	644	379 (59%)	115 (18%)	150 (23%)	0 (0%)	434 (67%)	0 (0%)	210 (33%)	0 (0%)	434 (67%)	0 (0%)	0 (0%)	210 (33%)	Low/Negligible	Minor/Negligible	No	Appendix 15.4.6 ES Volume III
	Total	18557	15739 (85%)	2260 (12%)	558 (3%)	0 (0%)	10414 (56%)	349 (2%)	7776 (42%)	18 (0%)	9959 (54%)	108 (1%)	643 (3%)	7847 (42%)	Negligible/Low	Negligible/ Minor	No	Appendix 15.4.6 ES Volume III

The results show that 85% of the tested points achieve over 27% VSC. Of the remaining tested points, 12% achieve VSC levels between 15% and below 27%, 3% achieve VSC levels between 5% and below 15% and 0% achieve VSC levels below 5%. This demonstrates that the majority of points tested achieve the guideline values ensuring that when detailed designs are brought forward, a high level of daylight will be achievable.

In terms of sunlight, because of the orientation of the docks (Bramley-Moore and Nelson), the majority of the facades assessed are either north facing or face directly east or west (i.e. none of the facades which would interact with the application site or the Regent Road Hotel are south facing). Therefore, sunlight is not a material consideration in terms of the effect from the proposed developments, as it is to the north. However, the sunlight tests have been run regardless and compared against the Future Baseline Scenario, as this is what has been considered acceptable.

The sunlight results show comparable effects, which in the Liverpool Waters Scenario are considered of low magnitude and **negligible to minor significance**. It is likely that as the detailed design of the blocks within Liverpool Waters comes forward via subsequent reserved matters submissions, the south facing facades (not considered in this ES Chapter) will have access to high levels of sunlight with the proposed development in place.

When compared to the Proposed Development versus Future Baseline Condition A (reported in section 15.4 of this chapter), the results show that the cumulative development has a comparable effect on the neighbouring properties in terms of daylight and sunlight to the proposed development.

15.9.1.3 Future Sensitive Receptors (Regent Road Hotel)

The ADF test has been used to assess the proposed Regent Road Hotel (LPA ref. 20F/0217) as this is a future receptor which is yet to be granted planning permission. The ADF test is an absolute assessment of the daylight quality and is not intended to be used as a reduction comparable between existing and proposed conditions. However, consideration has been given to the effects of the proposed scheme on Regent Road Hotel. The rooms tested in Regent Road Hotel are potential future receptors and are not currently occupied. Therefore, there is no existing condition for future occupants to compare against. All of the rooms tested are bedrooms and have therefore been assessed against the 1% guideline ADF value for a bedroom.

Daylight and sunlight around the application site has been quantified and compared against the BRE criteria summarised in Tables 15.7 and 15.8.

DAYLIGHT, SUNLIGHT & OVERSHADOWING

PHASE	RECEPTOR	ADF	APSH (ANNUAL)					APSH (WINTER)					MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION				
		NO. OF BEDROOMS ASSESSED	AT LEAST 1%	0.99% TO 0.8%	0.79% TO 0.6%	0.6% TO 0.0%	NO. OF ROOMS ASSESSED	≥25%	≥20% < 25%	≥15% < 20%	< 15%	NO. OF ROOMS ASSESSED	≥5%	≥4% < 5%			≥3% < 4%	< 3%	DAYLIGHT/SUNLIGHT	DAYLIGHT/SUNLIGHT
Operation	Regent Road Hotel	52	52 (100%)	0 (0%)	0 (0%)	0 (0%)	6 (100%)	0 (0%)	0 (0%)	0 (0%)	6 (100%)	0 (0%)	0 (0%)	0 (0%)	Negligible/Negligible	Negligible/Negligible	No	Appendix 15.4.7 – 15.4.9 ES Volume III		

The results show that all of the 52 bedrooms assessed within the proposed Regent Road Hotel scheme will exceed the BRE’s recommended values for ADF. In terms of sunlight, 6 (100%) of the 6 rooms assessed which face within 90 degrees of due south will achieve the guideline values.

The results show that the rooms within the Regent Road Hotel will meet the guidelines for both ADF and APSH and therefore the results are **negligible**.

15.10 REFERENCES

DCLG, (2019). Revised National Planning Policy Framework, February 2019.

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