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BRE Client Report

Review of daylight and sunlight, Murphy's Yard

Prepared for: London Borough of Camden

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Executive Summary

A planning application, 2021/3225/P, has been submitted to the London Borough of Camden for a proposal to develop a site at Murphy's Yard, off Sanderson Close, London NW5. The application is accompanied by an Environmental Statement, chapter 10 of which is entitled 'Daylight, Sunlight, Overshadowing and Solar Glare'. This chapter and the accompanying appendices were written by GIA. GIA also wrote two reports 'Daylight & sunlight impact on neighbouring properties report Murphy's Yard' dated 29 June 2021 and 'Daylight & sunlight daylight potential and overshadowing assessment Murphy's Yard, Camden' dated 28 June 2021.

BRE have been commissioned by the London Borough of Camden to evaluate this chapter and reports. The evaluation was to review the scope and methodology, text and conclusions of the chapter, but not verification of the calculations. This report gives the results of the evaluation.

The Environmental Statement has analysed a large number of existing dwellings. GIA's report has mistakenly stated that 33 properties would be affected; however some of these buildings are blocks of flats or rows of houses. In fact just over 100 dwellings would have at least one window or room with a loss of light outside the BRE guidelines. There appear to be no other existing dwellings that should have been analysed. Windows at the rear of the Christ Apostolic Church at 23 Highgate Road should have been analysed. Windows in the City Farm off Cressfield Close could also have been analysed for loss of daylight.

Table 1 summarises the impacts on daylight to surrounding dwellings.

Table 1. Assessments on impact on daylight (all are adverse, permanent and direct).

Location	Environmental Statement assessment of daylight impact	BRE assessment of daylight impact
1-4 Carrol Close	Negligible/Minor	Minor
1-14 Meru Close	Major	Major
15 Meru Close	Minor	Minor-Moderate
18-31 Meru Close	Moderate-Major	Minor-Moderate
6 Hemingway Close	Minor-Moderate	Minor-Moderate
7-34 Hemingway Close	Moderate-Major	Moderate
35-42 Hemingway Close	Major (36-42) Moderate-Major (35)	Major
Heathview	Moderate	Minor-Moderate
20 Gordon House Road	Minor	Minor
14,16,18 Gordon House Road	Negligible	Minor
19-87 Cressfield Close	Minor-Moderate	Minor/Moderate
Highgate Centre (consented)	Minor	Minor/Moderate

The worst losses of light would be to dwellings to the west, in Meru Close and Hemingway Close. These would directly face the very tall and bulky blocks K and L. The worst affected dwellings at 1-14 Meru Close and 35-42 Hemingway Close would lose around half their light, a major adverse impact. The massing of these blocks should be revisited to identify whether they can be decreased in height to reduce the impacts on these dwellings and others nearby.

In these dwellings the principal windows face north of due east, so loss of sunlight would not be an issue there. There would be a minor loss of sunlight to 6 Hemingway Close, and moderate losses to 'Heathview' and a consented scheme at the Highgate Centre.

GIA have presented detailed data on loss of sunlight to the existing gardens to the north off Gordon House Road and Mortimer Terrace, and to roof terraces at the Greenwood Centre. Loss of sunlight would be within the BRE guidelines to the gardens in Gordon House Road and Mortimer Terrace. Loss of sunlight to seven of the nine terraces at the Greenwood Centre would be outside the guidelines. The Environmental Statement identifies this as a major adverse impact for six of the terraces, and moderate adverse for one of them.

The Environmental Statement should have presented data for the other gardens considered, particularly those to the rear of 1-14 Meru Close, and 6 Hemingway Close, which are near to the development and likely to be overshadowed by it. Other areas which have not been considered, and should have been, include the grounds of 'Heathview' to the north, a play area off Sanderson Close, and nature reserve areas by the railway lines to the north.

Within the proposed development itself, most of the open space would meet the BRE guidelines, particularly in the residential areas to the north and west. Sunlight provision within open spaces will depend on the detailed layout of the buildings, and it is recommended that a revised sunlight assessment be prepared and submitted at the detailed planning stage.

An assessment of daylight provision for the illustrative masterplan indicates that most of the proposed residential buildings would have good access to daylight. The main problem areas appear to be centred around block L: where blocks K and L face each other, and the parts of blocks M and P which face block L. These areas would need careful design at the detailed stage, and a detailed assessment of daylight in the proposed development should be provided at that stage.

A sunlight assessment to residential windows in the proposed scheme has not been carried out. Sunlight provision in the final scheme could be poor unless special measures are taken to improve it.

The solar glare assessment is incomplete; it would have been useful to know whether the outline scheme facades could reflect the sun to surrounding viewpoints on roads and railways. The views provided indicate that the proposed development could have the potential to cause major adverse impacts on solar glare, particularly to train drivers. At the detailed design stage, once façade details and glazing have been established, a full solar glare study should be carried out.

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1 Introduction

1.1 A planning application, 2021/3225/P, has been submitted to the London Borough of Camden for a proposal to develop a site at Murphy's Yard, off Sanderson Close, London NW5. The application is accompanied by an Environmental Statement, chapter 10 of which is entitled 'Daylight, Sunlight, Overshadowing and Solar Glare'. This chapter and the accompanying appendices were written by GIA. GIA also wrote two reports 'Daylight & sunlight impact on neighbouring properties report Murphy's Yard' dated 29 June 2021 and 'Daylight & sunlight daylight potential and overshadowing assessment Murphy's Yard, Camden' dated 28 June 2021.

1.2 BRE have been commissioned by the London Borough of Camden to evaluate this chapter and the reports. The evaluation was to review the scope and methodology, text and conclusions of the chapter, but not verification of the calculations. This report gives the results of the evaluation.

1.3 The evaluation is based on plans of the development by Studio Egret West in a file 'Parameter Plans Consolidated'. The plans in it were dated 18.06.21. A site visit was carried out on 25 February 2022.

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2 Evaluation criteria

2.1 General approach

2.1.1 The Environmental Statement has evaluated loss of daylight and sunlight to existing properties using the BRE Report BR 209, 'Site Layout Planning for Daylight and Sunlight, a guide to good practice'. This source is appropriate and widely used by local authorities to help determine planning applications.

2.1.2 As the Environmental Statement correctly points out, the guidelines should be applied flexibly. However it is unclear whether comparators cited in the GIA impact on neighbouring properties report are applicable. The surrounding buildings are predominantly low rise, and this is not a tight site, with railway lines separating it from most of the surrounding properties. The examples cited at Monmouth House, Holy Trinity Primary School, Whitechapel Estate and particularly Buckle Street are on sites with taller buildings nearby, and with reduced distances between nearby sites. The example at Hertford Gasworks on page 20 of the GIA impact report is not relevant; the quote cited refers to loss of light to houseboats with windows on both sides, not to permanent residences with rooms lit from one side only.

2.2 Loss of daylight and sunlight – application of BRE guidelines

2.2.1 To assess the impact on the amount of diffuse daylighting entering existing buildings, the BRE Report uses the vertical sky component (VSC) on the window wall. This is one of the quantities calculated in the Environmental Statement.

2.2.2 The BRE Report sets out two guidelines for vertical sky component:

1. If the vertical sky component at the centre of the existing window exceeds 27% with the new development in place, then enough sky light should still be reaching the existing window.

2. If the vertical sky component with the new development is both less than 27% and less than 0.8 times its former value, then the area lit by the window is likely to appear more gloomy, and electric lighting will be needed for more of the time.

2.2.3 Paragraph 10.49 of the Environmental Statement suggest an alternative VSC target of 15% for a dense urban environment. As explained above, it is questionable whether this categorisation applies in this location as the surrounding buildings are predominantly low rise.

2.2.4 Page 17 of GIA's impacts on neighbouring properties report cites a GLA draft for consultation 'Good quality homes for all Londoners', which gives alternative VSC targets of 13% and 18%. However following a vote by the London Assembly, these provisions were rejected by the GLA. The draft has been withdrawn and replaced in February 2022 with another draft for consultation for a Housing Design Standards LPG. This latest draft does not contain these VSC recommendations.

2.2.5 The section on new buildings in the BRE guidelines states that if the VSC is between 15% and 27%, special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight. Thus in some existing buildings, which already have large windows and/or shallow rooms, an 15% VSC could mean that adequate daylight is retained, although there could still be a significant adverse impact as the dwelling might go from being well daylit to only just

meeting minimum standards. In other existing buildings with normal sized windows and rooms, a 15% VSC could result in inadequate daylight.

2.2.6 Appendix 4 of the GIA impact on neighbouring properties report gives tables of vertical sky component 'before' and 'after' for the affected windows. Results are given both for the outline scheme and an illustrative masterplan. In this review all assessments have been made against the outline scheme. This is a maximum parameter scheme, so the actual development might have a lower impact depending on its detailed design.

2.2.7 The BRE Report also gives guidance on the distribution of light in the existing buildings, based on the areas of the working plane which can receive direct skylight before and after. If this area is reduced to less than 0.8 times its value before, then the distribution of light in the room is likely to be adversely affected, and more of the room will appear poorly lit. The areas receiving direct skylight will depend on room layout, and the BRE report does state that the calculation can only be carried out where room layouts are known. Using estimated room layouts is likely to give inaccurate results.

2.2.8 GIA suggest an alternative criterion that 50% of the room should retain direct skylight. This is not in published guidance, and is unlikely to be acceptable to occupants because it could lead to a large gloomy area covering up to half the room.

2.2.9 Appendix 4 of the GIA impact on neighbouring properties report gives tables of daylight distribution results for the affected windows. Results are given both for the outline scheme and an illustrative masterplan.

2.2.10 The same appendix also gives average daylight factor results for a consented scheme at Highgate Centre. The average daylight factor (ADF) is a measure of the amount of daylight within a room. The ADF depends on the room and window dimensions, the reflectances of interior surfaces and the type of glass, as well as the obstructions outside.

2.2.11 Appendix F of the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' states that *'Use of the ADF for loss of light to existing buildings is not generally recommended. The use of the ADF as a criterion tends to penalise well daylit existing buildings, because they can take a much bigger and closer obstruction and still remain above the minimum ADFs in the British Standard, BS 8206 Part 2. Because the British Standard quotes a number of recommended average daylight factor values for different qualities of daylight provision, such a reduction in light would still constitute a loss of amenity to the room. Conversely if the ADF in an existing building were only just over the recommended minimum, even a tiny reduction in light*

from a new development would cause it to go below the minimum, restricting what could be built nearby.'

However there are some situations where meeting a set ADF target value with the new development in place could be appropriate as a criterion for loss of light:

(i) Where the existing building is one of a series of new buildings that are being built one after another, and each building has been designed as part of the larger group.

(ii) As a special case of (i), where the existing building is proposed but not built. A typical situation might be where the neighbouring building has received planning permission but not yet been constructed.'

2.2.12 Thus ADF analysis could be appropriate for assessing daylight to the Highgate Centre development.

2.2.13 GIA have compared the results with recommendations in the former British Standard Code of Practice for daylight, BS 8206 Part 2. The British Standard recommends the following minimum values for ADF:

Bedrooms	1.0%
Living rooms	1.5%
Kitchens	2.0%

2.2.14 These are minimum values. The Standard states that if a space has an ADF of 5% it will not normally need supplementary electric lighting provided the uniformity is satisfactory, and that a space with an ADF of 2-5% will normally need supplementary electric lighting.

2.2.15 Where a room has a shared use, the British Standard states that the higher minimum value should apply. However, local authorities frequently accept the living room standard for a shared kitchen/living room, as a small kitchen would not be considered as a habitable room. This is a practical approach, as it is seldom in the final resident's interest to have a closed off, small kitchen which is completely artificially lit in order to force compliance with the Standard for the living room. In this case an average daylight factor of 1.5% or more might be acceptable.

2.2.16 GIA do not appear to have stated what assumptions they used to calculate ADF, so it has not been possible to check these.

2.2.17 BS 8206 Part 2 has recently been superseded by BS EN 17037 'Daylight in buildings'. However the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' has not yet been updated, and still refers to BS 8206 Part 2. It would therefore be acceptable to use the methodology in BS 8206 Part 2 as GIA have done.

2.2.18 The BRE Report recommends that in existing buildings sunlight should be checked for all main living rooms of dwellings, and conservatories, if they have a window facing within 90° of due south. Access to sunlight should be calculated for the main window of each of the above rooms which faces within 90° of due south. If the centre of the window can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in the winter months between 21 September and 21 March, then the room should still receive enough sunlight. Any reduction in sunlight access below this level should be kept to a minimum. If the available sunlight hours are both less than the amount above, less than 0.8 times their former value, and more than 4% lower than previously, then the sunlighting of the existing dwelling may

be adversely affected. This guideline is also used in the Environmental Statement. Results are given in Appendix 4 of the GIA impact on neighbouring properties report. They are given both for the outline scheme and an illustrative masterplan.

2.3 Impact assessment

2.3.1 The BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' (Appendix I) also gives guidance on assessing the impact of a proposed development. Where the loss of skylight or sunlight fully meets the guidelines in the document, 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.

2.3.2 Where the loss of skylight or sunlight does not meet the guidelines in the BRE Report, 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.

2.3.3 The Environmental Statement suggests that a minor adverse impact would not count as significant. However this does not accord with the BRE guidelines, or with planning practice.

2.3.4 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, for example a living room in a dwelling or a children's playground.

2.3.5 Some councils use an alternative classification of impact which is applied on a window by window basis. Relative losses of 20-30% are classed as minor adverse, 30-40% moderate adverse, and 40%+ major adverse. There are tables in the Environmental Statement chapter giving the total numbers of windows falling into each category; in the first table, something has gone wrong with the Below BRE guidelines Criteria Total column (column 7) as the numbers are incorrect.

2.3.6 This is an objective set of criteria, and the boundaries of the categories are reasonable, but the results need careful interpretation. For example a large relative loss of light to a secondary

window, or a window with a large overhang above it, would not be as serious as the same loss of light to a main living room window.

2.4 Daylight to new development

2.4.1 To assess daylight to the new development the GIA report ‘Daylight potential and overshadowing assessment’ uses the methodology in the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' for developments where window positions have yet to be decided. This is appropriate for this application as it is an outline one.

2.4.2 The assessment has been carried out against the illustrative masterplan, rather than the outline maximum parameter scheme. This is a reasonable approach, but if planning permission were given for the development, daylight and sunlight provision within the final scheme ought to be rechecked. The Executive Summary to GIA’s report acknowledges that this will be done.

2.4.3 The BRE Report methodology involves calculating vertical sky components at intervals on the facades of proposed buildings for which daylight is expected to be required. Paragraph 2.1.6 of the report gives guidance here. If the VSC is at least 27%, conventional window design will usually give reasonable results. If the VSC is between 15% and 27%, special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight. If it is between 5% and 15%, it is very difficult to provide adequate daylight unless very large windows are used. Finally, if the VSC is less than 5%, it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed.

2.4.4 GIA have provided coloured diagrams showing the VSCs at intervals on the proposed residential facades. The labelling of the colours is ambiguous; this review assumes that the colour labelled ‘0%’ actually refers to VSCs in the 0-3% range, and so on.

3 Loss of daylight and sunlight to existing dwellings

3.1 The site and surrounding areas

3.1.1 Figure 1, taken from Annex 1 of the Environmental Statement, shows the proposed development and surrounding areas.

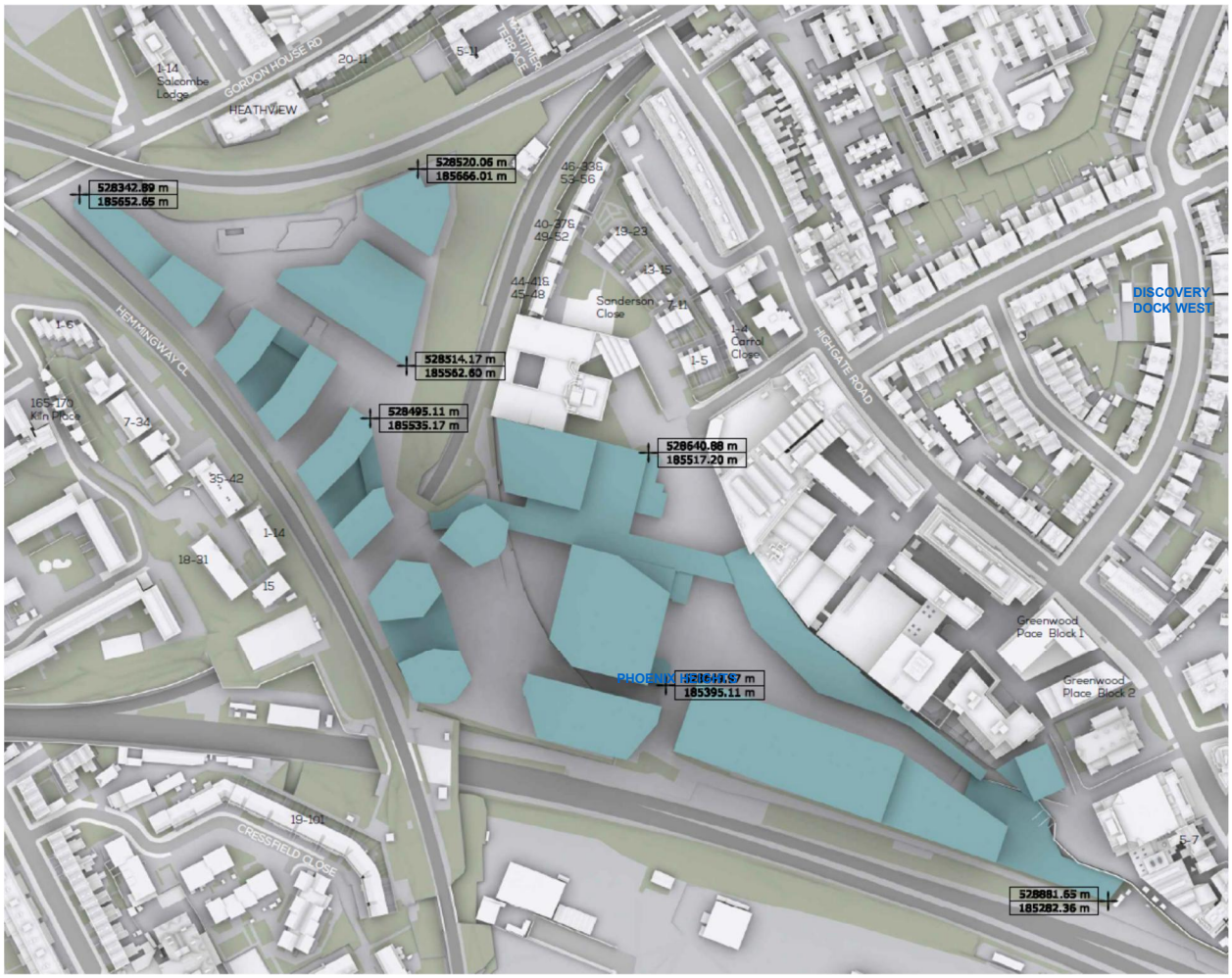

Figure 1. Plan by GIA showing the proposed development (in teal) and the nearest surrounding buildings. North is at the top of the plan.

3.1.2 The site is currently occupied by low rise commercial buildings. To the north is the Gospel Oak to Barking railway line, with dwellings on Gordon House Road and Mortimer Terrace across it. To the north east are dwellings off Sanderson Close and Carrol Close. To the east is a largely commercial area off Highgate Road. To the south is the main Midland/Thameslink railway line from St Pancras to Bedford and Sheffield, with a commercial area, and dwellings in Cressfield Close, across it. To the west of the site is another railway line, the north London line from Gospel Oak to Stratford, with dwellings in Hemingway Close, Kiln Place and Meru Close across it.

3.1.3 The Environmental Statement has analysed a large number of existing dwellings. Of these, loss of daylight and sunlight to dwellings in Mortimer Terrace, Salcombe Lodge, Kiln Place, Sanderson Close and 5-7 Highgate Road would all meet the BRE guidelines; they would have negligible impact.

3.1.4 There appear to be no other existing dwellings that should have been analysed. There could be significant loss of light to windows at the rear of the Christ Apostolic Church at 23 Highgate Road (Figure 2), so this should have been analysed. Windows in the City Farm off Cressfield Close face the proposal site and could also have been analysed for loss of daylight. It is not known what sort of rooms these windows serve. Loss of sunlight to these windows would not be an issue as they face north of due east. The farm area itself would only be overshadowed in the early morning as the new development would lie to the north east of it.

Figure 2. Windows at the Christ Apostolic Church, taken from the proposal site.

3.1.5 The dwellings that could be significantly affected are dealt with below. GIA's report has mistakenly stated that 33 properties would be affected; however some of these buildings are blocks of flats or rows of houses. In fact just over 100 dwellings would have at least one window or room with a loss of light outside the BRE guidelines.

3.2 Carrol Close

3.2.1 This is a terrace of maisonettes to the north east of the proposal site. Loss of vertical sky component to four first floor bedroom windows would be outside the BRE guidelines, though not by much. These windows have an access deck above them which restricts the light they receive. In this type of situation the BRE guidelines suggest an extra calculation without the access decks in place. GIA have not done this, but it is likely that the loss of light would be within the guidelines without the effect of the access decks. The loss of daylight is assessed as minor adverse.

3.2.2 Loss of sunlight would be within the BRE guidelines for all the living rooms and assessed as negligible.

3.3 Meru Close

3.3.1 Figure 3 shows the layout of Meru Close. Houses at the top of the plan, labelled 41 and 42 are in Hemingway Close and are dealt with below.

Figure 3. Extract from site location plan by Studio Egret West. The proposed development is to the right.

3.3.2 The worst affected flats in Meru Close would be in numbers 1-14 which would be closest to the proposed development, facing it across the railway. Windows on this side would have big reductions in vertical sky component, with most of them going from 37-38% currently, down to 14-16% with the new development in place. Some of the rooms would also have adverse impacts on their daylight distributions, though the worst affected ones may be bedrooms as they have smaller windows. There would be a major adverse impact to these dwellings in terms of relative loss of light, and the retained vertical sky components may not be enough for the dwellings to remain adequately lit.

3.3.3 15 Meru Close would be less affected because its main windows facing north and south would only have an oblique view of the proposed development. Two of the ground floor windows at the rear would have losses of vertical sky component outside the guidelines, but not by much. Two windows on the top floor under a roof overhang would have much greater relative losses. It is not known what type of rooms these windows light. The loss of light is tentatively classified as minor to moderate adverse.

3.3.4 18-31 Meru Close are further away from the proposed development, but 24 windows would still have losses of vertical sky component outside the BRE guidelines. Most of these would not be far

outside the guidelines, but there would be large relative losses on the top floor under the roof overhang. The loss of daylight would be minor to moderate adverse.

3.3.5 Loss of sunlight to main windows at 1-14 and 18-31 Meru Close would not be an issue because they face north of due east. Windows in 15 Meru Close and in the side of 8-14 Meru Close would have losses of sunlight within the guidelines.

3.4 Hemingway Close

3.4.1 Hemingway Close lies to the north of Meru Close. Figure 4 shows its layout.

Figure 4. Extract from site location plan by Studio Egret West. The proposed development is to the right.

3.4.2 1-5 Hemingway Close would not face the new development and any loss of light would be within the BRE guidelines. 6 Hemingway Close would have losses of daylight outside the guidelines to three windows at the rear. The ground floor window would also have a loss of sunlight outside the guidelines; it has an unusual canopy structure above it, and without the canopy it would meet the guidelines. The loss of daylight and sunlight to number 6 would count as minor adverse impacts.

3.4.3 7-34 Hemingway Close all face the development site across the railway. Most of the windows on this side would lose between 30-40% of their VSC, and some rooms would also have impacts on their daylight distributions. The impact on daylight would be assessed as moderate adverse.

3.4.4 The worst affected dwellings would be at 35-42 Hemingway Close (Figure 5), which are nearer to the railway and would be opposite the large blocks K and L. Their windows would typically lose just over half of their incoming vertical sky component (around two thirds for those first floor

windows with an overhang above them) and most of the rooms would have substantial impacts on their daylight distributions too. This would count as a major adverse impact on daylight.

3.4.5 Loss of sunlight would not be an issue for 7-42 Hemingway Close as the affected windows face north of due east.

Figure 5. 35-42 Hemingway Close. The proposed development would be off the left of the picture.

3.5 Gordon House Road

3.5.1 The rear of dwellings on the south of Gordon House Road would face the proposed development across the North London Line.

3.5.2 The main building affected would be Heathview, a block of flats. Loss of daylight to most of the main windows would be either just within or just outside the BRE guidelines. However there are two columns of living room windows which would have large relative losses of light, partly due to the balconies above the windows. These rooms would lose around 40% to 50% of their VSC, and sunlight loss to most of them would be outside the guidelines. However without the balconies, the loss of light would either meet the BRE guidelines or be just outside them. The loss of daylight and sunlight is assessed as moderate adverse.

3.5.3 Dwellings at 16, 18 and 20 Gordon House Road would have losses of vertical sky component outside the guidelines to two or three windows each, and 14 Gordon Road would have a daylight distribution impact outside the guidelines to one room. These would count as minor adverse impacts. Loss of sunlight to these dwellings would be within the BRE guidelines.

3.6 Cressfield Close

3.6.1 This road lies to the south west of the proposal site. The rear of dwellings at the northern side of Cressfield Close would face the new development. Although it would be around 80 metres away, the tallest part of the new development would be opposite them, and there would be some losses of daylight.

3.6.2 These dwellings appear to be flats, in groups of six around a stairwell. The numbering in GIA's appendices appears eccentric, but is probably correct. For example '67-75' would refer to a vertical column of three flats, numbers 67, 71 and 75.

3.6.3 The worst affected flats are those on the ground floor, numbers 19, 21, 31, 33, 55, 57, 67, and 69, where the rear windows are under an overhang (Figure 6). These are thought to light living rooms. Typical reductions in VSC would be in the 30%-50% range. GIA have not analysed the light without these overhangs, but it is likely to be much closer to the BRE guidelines. The loss of light would be assessed as minor adverse.

Figure 6. Rear of 81-101 Cressfield Close showing overhang over ground floor windows.

3.6.4 Windows on the first floor would all meet the guidelines. Those on the second floor also have an overhang above them and those in flats 27, 29, 39, 41, 51, 53, 63, 65, 75, 77 and 87 would have a loss of light outside the guidelines. These windows are thought to light kitchens. The loss of light is closer to the guidelines, and without the overhang would be expect to comply with them.

The loss of daylight is assessed as minor adverse. The ground floor flat at number 79 would also have a minor adverse impact.

3.6.5 Loss of sunlight would not be an issue for Cressfield Close as the affected windows face north.

3.7 Proposed development at Highgate Centre

3.7.1 This proposed development would face south west towards the application scheme. As it is not yet occupied, daylight provision with the new development in place can be assessed using the average daylight factor (ADF), which is what GIA have done.

3.7.2 In Greenwood Place 1 most of the rooms would either meet the minimum ADF recommendations or lose little light. There would be one bedroom which would go from having a very low ADF of 0.1% down to 0.0%. Another living/kitchen/diner would go from 2.1% (meeting the kitchen recommendation of 2%), down to 1.8% which would still meet the living room recommendation of 1.5%, but not the kitchen one. GIA do not give VSC data so it is not clear whether the window would meet the VSC guidelines. The daylight impact on this block would be minor adverse.

3.7.3 In Greenwood Place 2 one living/kitchen/diner would go from an ADF of 1.2% down to 0.8%; further below the recommended 1.5% and 2%. Another would go from 1.5%, just meeting the living room guideline, down to 1.3%. A third would go from 2.0%, meeting the kitchen recommendation, to 1.7%, still meeting the living room recommendation. In the absence of VSC data, the impact is assessed as minor to moderate adverse.

3.7.4 Loss of sunlight would be outside the BRE guidelines for three living rooms in Block 2 of the Greenwood Centre. This would count as a moderate adverse impact.

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4 Sunlight in gardens and open spaces

4.1 Here the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' recommends that at least half of each open space should be capable of receiving two hours' sun on March 21. If this cannot be met, it recommends that the area that can receive two hours' sun should be no less than 0.8 times the area prior to development.

4.2 GIA have presented detailed data on loss of sunlight to the existing gardens to the north off Gordon House Road and Mortimer Terrace, and to roof terraces at the Greenwood Centre. Loss of sunlight would be within the BRE guidelines to the gardens in Gordon House Road and Mortimer Terrace. Loss of sunlight to seven of the nine terraces at the Greenwood Centre would be outside the guidelines. The Environmental Statement identifies this as a major adverse impact for six of the terraces, and moderate adverse for one of them.

4.3 The Environmental Statement states that loss of sunlight would be within the BRE guidelines for rear gardens in Hemingway Close, Meru Close, Kiln Place, Carrol Close and Glenhurst Avenue, and Gospel Oak Primary School playground. However it does not give any data to substantiate this. This is a particular issue for gardens to the rear of 1-14 Meru Close, and 6 Hemingway Close, which are near to the development and likely to be overshadowed by it. Gardens in the other streets, and the school playground, are further away and would not be expected to be significantly overshadowed.

4.4 Other areas which have not been analysed, and should have been, include:

- The grounds of 'Heathview' to the north
- A play area off Sanderson Close, to the north east (Figure 7)
- Nature reserve areas by the railway lines to the north. The BRE guidelines are intended for use of the space by people. Where ecological impacts are concerned it would be better to use a different type of calculation. One possible approach is to calculate annual probable sunlight hours on the ground. For areas where this goes below 50%, corresponding to the sunlight received by an east or west facing wall, an ecological assessment would be appropriate to identify whether the shadowing could harm plants or wildlife.

4.5 Loss of sunlight to Parliament Hill Lido and Kentish Town City Farm would be minimal. Parliament Hill Lido is well to the north and would only be shadowed in mid-winter, if at all. The City Farm is to the south west and would only be shadowed in the early morning.

Figure 7. Playground off Sanderson Close, not analysed by GIA.

4.6 Sunlight provision within open spaces in the proposed development itself has also been analysed. The results are given in the GIA report 'Daylight & sunlight daylight potential and overshadowing assessment Murphy's Yard, Camden', and summarised in Figure 8.

Figure 8. Plan by GIA showing areas of the new development that can receive two hours' sunlight on March 21 (in yellow) and those that cannot (in blue). North is at the top of the plan.

4.7 Figure 8 shows the illustrative masterplan. It demonstrates that most of the open space can receive two hours' sunlight on March 21, particularly in the residential areas to the north and west. There is a sizeable area to the south east of the site which would not, but this is by buildings allocated to industrial and commercial use.

4.8 Sunlight provision within open spaces will depend on the detailed layout of the buildings. In particular, if completely enclosed courtyards are planned within some the blocks, they may be inadequately sunlit. It is recommended that a revised sunlight assessment be prepared and submitted at the detailed planning stage.

5 Daylight and sunlight provision in the new development

5.1 Daylight provision

5.1.1 GIA have assessed daylight provision within the new development. This is contained in their report 'Daylight & sunlight daylight potential and overshadowing assessment Murphy's Yard, Camden'.

5.1.2 As explained in section 2.4 above, GIA have provided coloured diagrams showing the vertical sky components at intervals on the proposed residential facades. This is recommended in the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' for developments where window positions have yet to be decided. This is appropriate for this application as it is an outline one.

5.1.3 The assessment has been carried out for the illustrative masterplan, rather than the outline maximum parameter scheme. This is a reasonable approach, but if planning permission were given for the development, daylight and sunlight provision within the final scheme ought to be rechecked. The Executive Summary to GIA's report acknowledges that this would be done.

5.1.4 The results show that most of the proposed residential buildings would have good access to daylight. This is not surprising given the low rise nature of the surroundings. The main problem areas appear to be centred around block L: where blocks K and L face each other, and the parts of blocks M and P which face block L. These areas would need careful design at the detailed stage.

5.2 Sunlight provision

5.2.1 To assess sunlight provision, the recommendation in the old British Standard Code of Practice for daylight, BS 8206 Part 2 and the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' is based on a room achieving 25% of annual probable sunlight hours year round and 5% in the winter.

5.2.2 A sunlight assessment to residential windows in the proposed scheme has not been carried out. We would expect sunlight provision in the final scheme to be poor unless special measures are taken to improve it. Each of the main blocks has one main face which could receive good levels of sunlight, but the other three faces either face northerly or would, in most cases, be obstructed by other blocks to the south of them (an exception is block J which would receive more sunlight as it is the southernmost block).

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6 Solar glare

6.1 Principles

6.1.1 Glare or dazzle can occur when sunlight is reflected from a glazed façade or area of metal cladding. This can affect road users and train drivers outside and the occupants of adjoining buildings. Guidance on this is given in the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' (ref 1).

6.1.2 For railways, more detailed guidance is given in the Glare requirements in section 5.8 of the Network Rail (High Speed) Outside Parties Development Handbook (ref 2). This requires a study of reflected sunlight as experienced by the train driver's perspective, and states that the assessment should:

- 'identify the relevant parts of the proposed facades which may reflect light
- define the occurrence of such reflections throughout the year and the day
- quantify the equivalent veiling luminance generated by the reflection at the driver's eye, undertaking goniophotometric studies if needed to accurately characterise materials which exhibit combined specular and diffuse reflection properties
- illustrate the above for a relevant stretch of the train tracks in both directions of travel
- consider the location and type of signals on the same stretch
- measure the angular distance of the reflection from the driver's line of sight'.

6.1.3 There are two types of reflected glare problem that can occur (ref 3). Discomfort glare causes visual discomfort without necessarily affecting the ability to see. Disability glare happens when a bright source of light impairs the vision of other objects. Outdoors, disability glare is easily the more serious problem, as it can affect motorists' ability to drive safely.

6.1.4 The occurrence and duration of potential reflection to a particular point can be predicted geometrically (ref 4). This approach has been used in the Environmental Statement.

6.1.5 The severity of glare depends on the type of glazing or cladding. As this is an outline scheme, glazing and cladding have yet to be selected. Thus the issue of solar glare would need to be revisited at the detailed planning stage.

6.1.6 Glare also depends on the angle of the sun and the angle at which the building is viewed. For motorists in particular, disability glare is most likely when the reflected sun is directly in the field of view and close to their direction of vision. Glare sources off to one side, or above the observer, are less likely to cause disability glare.

6.1.7 Disability glare is likely to be especially important at locations where a driver has to make a key decision, for example approaching a road junction, traffic or railway signal or pedestrian crossing.

6.1.8 In principle disability glare can also cause problems for pedestrians, especially if they are looking along a road in preparation to cross it, and fail to see an oncoming car because of the glare of the

sun in their direct line of sight. In general, though, disability glare to pedestrians is less likely to cause accidents, because they have more time to react and can more easily take avoiding action such as shielding their eyes from the reflection, or moving backwards out of the path of the reflected beam.

6.1.9 Discomfort glare is a less serious problem because it does not impair the ability to see. It can be important where work involves the continuous viewing of the outdoor space from a fixed vantage point, for example in military or security surveillance. Inside a building where glare could be an issue, shading devices such as blinds or curtains are generally provided, and therefore occasional discomfort glare can easily be controlled using such shading devices. In such spaces, discomfort glare due to reflected sun would be a significant issue if its occurrence was so prolonged as to affect the amenity of the space by requiring the continual additional use of blinds and curtains over long periods.

6.1.10 There are no specific standards setting out what constitutes an acceptable level of solar glare. Disability glare causes a veiling luminance due to scattering of light in the eye; the lit scene appears covered by a bright veil which makes it harder to see. It is possible to calculate this and compare it with guidance originally developed for road lighting.

6.1.11 There is no specific guidance on discomfort glare from the sun, apart from recommendations on the provision of shading devices. There are glare recommendations in the European standard BS EN17037 (ref 5), but these will almost certainly be exceeded when reflected sunlight is in the occupant's field of view.

6.2 Methodology and results

6.2.1 The assessment, given in Annex 6 of the daylight appendix to the Environmental Statement, was carried out for a series of viewpoints (see below), on roads and railways approaching the site. Figure 9, taken from this Annex, shows the test points used (paragraph 10.512 of the Environmental Statement refers to a 'figure 11.2' but this figure is not in the Environmental Statement).

6.2.2 The test points appear to represent the main locations from which motorists and train drivers could see the building and potentially receive reflected sunlight from it. Other locations for which solar glare might be an issue for motorists could be on Sanderson Close and Carker's Lane which both run towards the development site; however these are minor roads where people may be driving more slowly.

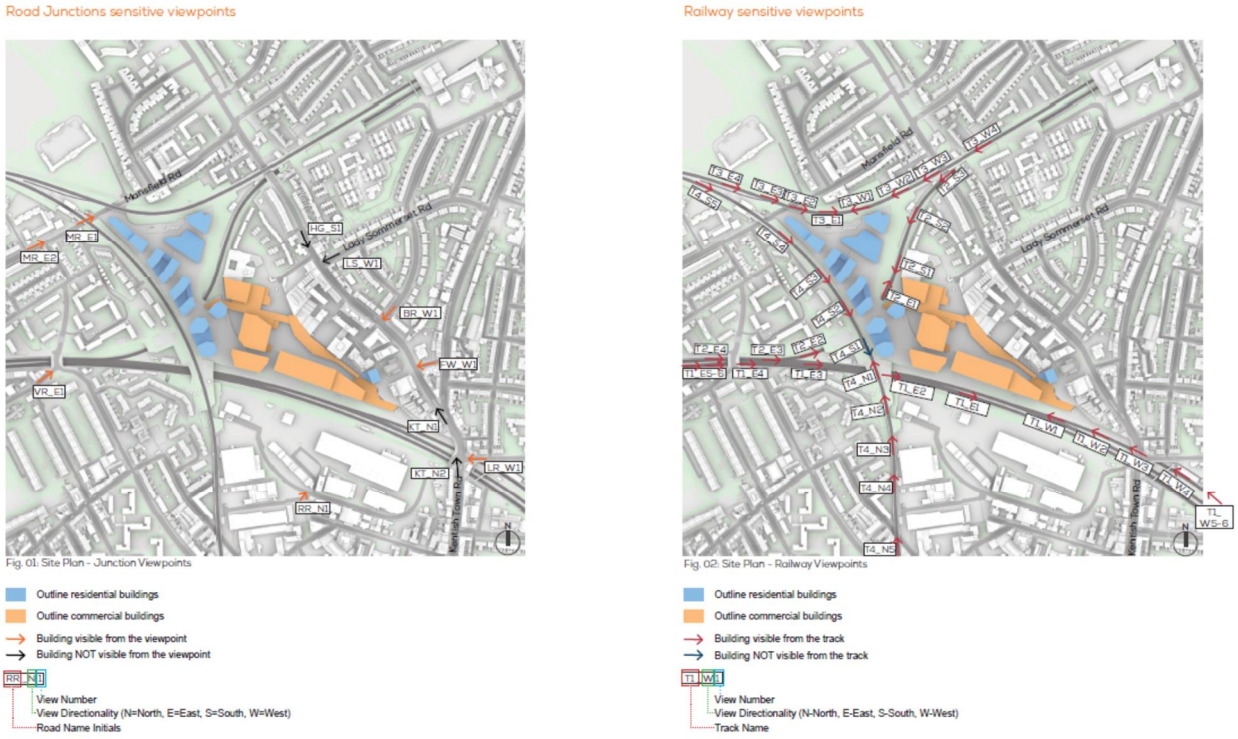

Figure 9. Plans by GIA showing test points used in the analysis. The blue and fawn shapes mark the outline of the proposed development. North is at the top of the plan.

6.2.3 For each test point the Environmental Statement gives a view showing the development and the angles from the driver's line of sight. For many of the viewpoints, the proposed buildings would be visible close to the centre of the driver's line of sight. These include point FW-W1 on Fortess Walk, as it approaches Highgate Road, and nearly all the points on the railway lines around the site. Visibility of facades close to the line of sight is a potential indicator of significant glare.

6.2.4 However Annex 6 does not give any indication of whether solar reflection could actually occur to these points. Reports by GIA for other developments have incorporated shading showing the times of day and year for which reflection could occur. This has not been done in this case. Although the results could change in a final scheme if angled glazing is used, or if there are vertical fins or other projections from the building, it would nevertheless have been useful to identify whether a particular side of a building could potentially be a source of glaring reflection without the introduction of mitigation measures.

6.2.5 Given the lack of information, the only conclusion that can be drawn is that the proposed development could have the potential to cause major adverse impacts on solar glare, particularly to train drivers. At the detailed design stage, once façade details and glazing have been established, a full solar glare study should be carried out, using the Network Rail methodology for viewpoints on railways.

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7 Conclusions

7.1 This report has reviewed the Environmental Statement chapter on 'Daylight, Sunlight, Overshadowing and Solar Glare' and two reports 'Daylight & sunlight impact on neighbouring properties report Murphy's Yard' dated 29 June 2021 and 'Daylight & sunlight daylight potential and overshadowing assessment Murphy's Yard, Camden' dated 28 June 2021. The assessment has been carried out against the guidelines in the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice'.

7.2 The Environmental Statement has analysed a large number of existing dwellings. GIA's report has mistakenly stated that 33 properties would be affected; however some of these buildings are blocks of flats or rows of houses. In fact just over 100 dwellings would have at least one window or room with a loss of light outside the BRE guidelines. There appear to be no other existing dwellings that should have been analysed. There could be significant loss of light to windows at the rear of the Christ Apostolic Church at 23 Highgate Road, so this should have been analysed. Windows in the City Farm off Cressfield Close face the proposal site and could also have been analysed for loss of daylight.

7.3 Table 1 summarises the impacts on daylight to surrounding dwellings.

Table 1. Assessments on impact on daylight (all are adverse, permanent and direct).

Location	Environmental Statement assessment of daylight impact	BRE assessment of daylight impact
1-4 Carrol Close	Negligible/Minor	Minor
1-14 Meru Close	Major	Major
15 Meru Close	Minor	Minor-Moderate
18-31 Meru Close	Moderate-Major	Minor-Moderate
6 Hemingway Close	Minor-Moderate	Minor-Moderate
7-34 Hemingway Close	Moderate-Major	Moderate
35-42 Hemingway Close	Major (36-42) Moderate-Major (35)	Major
Heathview	Moderate	Minor-Moderate
20 Gordon House Road	Minor	Minor
14,16,18 Gordon House Road	Negligible	Minor
19-87 Cressfield Close	Minor-Moderate	Minor/Moderate
Highgate Centre (consented)	Minor	Minor/Moderate

7.4 The worst losses of light would be to dwellings to the west, in Meru Close and Hemingway Close. These would directly face the very tall and bulky blocks K and L. The worst affected dwellings at 1-14 Meru Close and 35-42 Hemingway Close would lose around half their light, a major adverse impact. The massing of these blocks should be revisited to identify whether they can be decreased in height to reduce the impacts on these dwellings and others nearby.

7.5 In these dwellings the principal windows face north of due east, so loss of sunlight would not be an issue there. There would be a minor loss of sunlight to 6 Hemingway Close, and moderate losses to 'Heathview' and a consented scheme at the Highgate Centre.

7.6 GIA have presented detailed data on loss of sunlight to the existing gardens to the north off Gordon House Road and Mortimer Terrace, and to roof terraces at the Greenwood Centre. Loss of sunlight

would be within the BRE guidelines to the gardens in Gordon House Road and Mortimer Terrace. Loss of sunlight to seven of the nine terraces at the Greenwood Centre would be outside the guidelines. The Environmental Statement identifies this as a major adverse impact for six of the terraces, and moderate adverse for one of them.

7.7 The Environmental Statement should have presented data for the other gardens considered, particularly those to the rear of 1-14 Meru Close, and 6 Hemingway Close, which are near to the development and likely to be overshadowed by it. Other areas which have not been analysed, and should have been, include the grounds of 'Heathview' to the north, a play area off Sanderson Close, and nature reserve areas by the railway lines to the north.

7.8 Within the proposed development itself, most of the open space would meet the BRE guidelines, particularly in the residential areas to the north and west. Sunlight provision within open spaces will depend on the detailed layout of the buildings, and it is recommended that a revised sunlight assessment be prepared and submitted at the detailed planning stage.

7.9 An assessment of daylight provision for the illustrative masterplan indicates that most of the proposed residential buildings would have good access to daylight. The main problem areas appear to be centred around block L: where blocks K and L face each other, and the parts of blocks M and P which face block L. These areas would need careful design at the detailed stage, and a detailed assessment of daylight in the proposed development should be provided at that stage.

7.10 A sunlight assessment to residential windows in the proposed scheme has not been carried out. Sunlight provision in the final scheme could be poor unless special measures are taken to improve it.

7.11 The solar glare assessment is incomplete; it would have been useful to know whether the outline scheme facades could reflect the sun to surrounding viewpoints on roads and railways. The views provided indicate that the proposed development could have the potential to cause major adverse impacts on solar glare, particularly to train drivers. At the detailed design stage, once façade details and glazing have been established, a full solar glare study should be carried out.

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8 References

1. P J Littlefair. ‘Site layout planning for daylight and sunlight: a guide to good practice’ BRE Report BR209. Bracknell, IHS Markit, 2011.

2. Network Rail. ‘Network Rail (High Speed) outside parties development handbook. Construction work on or near the High Speed 1 railway’. Network Rail, London, 2015.

3. City of London. ‘Planning advice note: solar glare’. London, City of London Corporation, July 2017.

4. P J Littlefair. ‘Solar dazzle reflected from sloping glazed facades’ BRE Information Paper IP3/87. Bracknell, IHS/BRE Press, 1987.

5. BS EN 17037 ‘Daylight in buildings’ London, BSI, 2019.