

BRE Client Report

Review of daylight, sunlight and overshadowing EA chapter for Whitechapel Estate

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Executive Summary

A planning application, reference PA/15/02959, has been submitted to the London Borough of Tower Hamlets for a proposal to provide a new development on the site of the Whitechapel Estate in Tower Hamlets. An assessment of the daylight and sunlight impact of the development is contained in chapter 7 of an environmental assessment. BRE have been commissioned to evaluate the chapter. The evaluation was to review the scope, methodology, text and conclusions of the chapter, but not verification of the calculations.

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

The chapter states that one analysis method for loss of daylight to existing premises in the BRE Report is Average Daylight Factor (ADF). However, the Report only recommends use of ADF for new buildings and loss to buildings which have not yet been constructed.

It is possible that locations with a reasonable expectation of daylight and sunlight have not been assessed. A student hostel to the north of the site, Floyer House, would have a reasonable expectation of daylight and sunlight, and is likely to be affected by the development.

The chapter assesses individual windows/rooms and then provides a total summary with a range of impact between negligible and major. While this is reasonable, it is helpful to summarise for individual buildings and groups of buildings.

We would summarise the daylight impacts as follows for the locations assessed:

- 57-69 Philpot Street – minor adverse
- 43-55 Philpot Street – minor to moderate adverse, but major for 43
- Cavell Street – negligible for 49 and 58 Cavell Street, moderate to major adverse for 67 to 81 and to 56 Cavell Street
- Wilton Court – moderate to major adverse
- Silvester House – moderate to major adverse, but with mitigating factors due to the building's own design
- Joscoyne House – moderate adverse for the elevation facing the site. Negligible for the elevation with a sideways view and the small corner elevation
- Porchester House – minor to moderate adverse for the elevation facing Block E. Moderate to major adverse for the elevation facing Block C
- Dickson House – Negligible
- Mellish House – moderate to major adverse, but with mitigating factors due to the building's own design
- Varden Street – minor adverse for 70 Varden Street. Moderate adverse for 20-30 Varden Street
- Turner Street – minor adverse
- Walden Street – moderate to major adverse

Ashfield Street does not appear to have residential accommodation.

We would analyse the sunlight impacts as follows for the locations assessed:

- Cavell Street – major adverse
- Wilton Court – major adverse



- Walden Street – major adverse

Daylight and sunlight provision to the proposed properties have been evaluated using British Standard 8206-2:2008 'Code of Practice for Daylighting'³. The Standard contains guidance on daylight and sunlight for new dwellings, including recommended minimum values for Average Daylight Factor (ADF) and Annual Probable Sunlight Hours (APSH).

There are some very low values of average daylight factor for the rooms analysed in the proposed development. In some cases this is due to the design of the building, which blocks daylight from the upper part of the sky and to either side. An existing building opposite then blocks the daylight from in front, leaving very little to reach the windows. One living room in Block F receives no daylight at all and would have to be considered a non-daylit space.

A studio in Block E is very poorly daylit. This is a particular problem because it is the only room available and the occupant will not have the compensatory benefit of another room with more daylight.

Larger windows and removal of obstructions could improve the daylight provision to some of the rooms with low levels of daylight.

Sunlight to the living rooms of the new development has not been analysed. This would have been expected.

The development does not significantly reduce the amount of existing amenity area which receives at least 2 hours of sunlight on March 21, and the impact on sunlight to amenity spaces would therefore be considered negligible.

Slightly more than half of the main proposed amenity space, consisting of areas 1, 2, 3, 4 and 5, would receive at least 2 hours of sunlight on March 21, and it would therefore achieve the BRE guidelines. Two separate amenity spaces, 6 and 7, would receive no sunlight on March 21 and would be generally gloomy.



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1 Introduction

- 1.1.1 A planning application, reference PA/15/02959, has been submitted to the London Borough of Tower Hamlets for a proposal to provide a new development on the site of the Whitechapel Estate in Tower Hamlets. An assessment of the daylight and sunlight impact of the proposed development is contained in chapter 7 of an environmental assessment submitted by the developer in support of the application. The chapter was written by Delva Patman Redler.
- 1.1.2 BRE have been commissioned by the London Borough of Tower Hamlets to evaluate the chapter. The evaluation was to review the scope, methodology, text and conclusions of the chapter, but not verification of the calculations. This report gives the results of the evaluation.
- 1.1.3 A site visit was not carried out.

2 Evaluation criteria

2.1 Loss of light to existing dwellings

- 2.1.1 The ES chapter evaluates loss of daylight and sunlight to existing properties using BRE Report BR 209, 'Site Layout Planning for Daylight and Sunlight, a guide to good practice' (ref 1). This source is appropriate and is widely used by local authorities to help determine planning applications.
- 2.1.2 The BRE Report states that its own numerical guidelines 'should be interpreted flexibly since natural lighting is only one of many factors in 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 a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings'.
- 2.1.3 The chapter states that the site's historic city centre location justifies a flexible approach, but it does not put forward any alternative criteria values.
- 2.1.4 The guidance is advisory in nature and is intended to assist with good design. There is no formal requirement to comply with the advice it contains.
- 2.1.5 To assess the impact on the amount of diffuse daylighting entering existing buildings, the Report first recommends the measurement or calculation of obstruction angle. This is the angle to the horizontal subtended by the new development at the centre of the lowest window in each affected window wall, in a plane perpendicular to it. If this angle is less than 25° for the whole of the development, then the new building would not have a substantial effect on the diffuse skylight (or sunlight) enjoyed by the existing building.

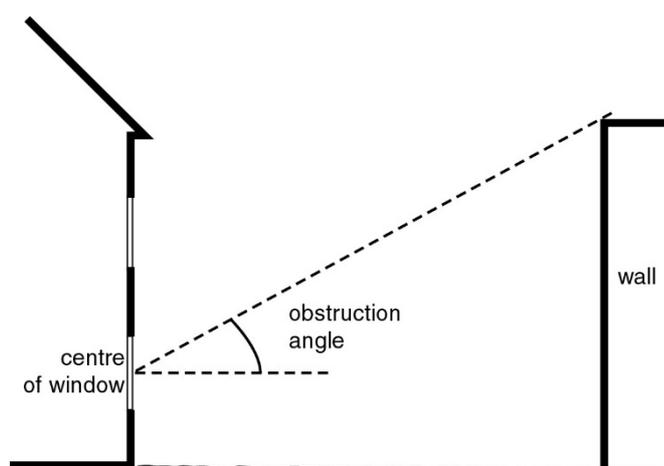


Figure 1 Example of obstruction angle

- 2.1.6 Where the obstruction angle exceeds 25° , a calculation is needed to assess the impact on the amount of diffuse daylighting entering existing buildings. The Report recommends the calculation



of the vertical sky component. This is the ratio of the direct sky illuminance falling on the outside of a window, to the simultaneous horizontal illuminance under an unobstructed sky. The standard CIE Overcast Sky² is used and the ratio is usually expressed as a percentage. The maximum value is almost 40% for a completely unobstructed vertical wall. The vertical sky component on a window is a good measure of the amount of daylight entering it.

- 2.1.7 The BRE Report sets out the following two guidelines for vertical sky component:
- a) Where 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.
 - b) Where 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.
- 2.1.8 Where room dimensions are known, 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. Daylight distribution assessment is only recommended by the BRE Report where room layouts are known. Where room layouts are not known, the results are liable to considerable uncertainty.
- 2.1.9 The chapter does not state which daylight distribution results are based on actual room dimensions and which on assumed. Where room uses are not identified, this suggests that room dimensions would also be unlikely to be known. We have therefore only reviewed daylight distribution where room uses are identified.
- 2.1.10 For loss of daylight, the chapter states that average daylight factor (ADF) is a method of assessment in the BRE report. This is not recommended in the BRE Report. The guidance 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 recommended in BS 8206-2. Because BS 8206-2 quotes a number of recommended ADF 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.’
- 2.1.11 As ADF is not recommended by the BRE Report for use in assessment of loss of daylight to existing premises, the guidelines cannot be used to indicate acceptability of a proposal in this respect. We have therefore not reviewed ADF results where they refer to existing premises.
- 2.1.12 There are some situations identified in Appendix F of the BRE Report where meeting a set ADF target value with the new development in place could be appropriate as a criterion for loss of light. These include where the existing building is proposed but not built, for example where the neighbouring building has received planning permission but not yet been constructed. In this circumstance, the occupant will not have had the opportunity to become accustomed to a higher level of daylight.



2.1.13 The chapter quotes the part of the BRE Report which states that in special circumstances, the developer or planning authority may wish to use different target values, and argues that as the site is located in a city centre, that “less stringent, higher BRE target percentage loss values and significance criteria may be justifiable”. However, no alternative targets are proposed.

2.1.14 Daylight provision to new dwellings

2.1.15 Daylight and sunlight provision to the proposed properties have been evaluated using British Standard 8206-2:2008 ‘Code of Practice for Daylighting’³. The Standard contains guidance on daylight and sunlight for new dwellings, including recommended minimum values for Average Daylight Factor (ADF) and Annual Probable Sunlight Hours (APSH).

2.1.16 For daylight provision in new dwellings, the British Standard recommends the following minimum values for ADF:

- Bedrooms 1.0%
- Living rooms 1.5%
- Kitchens 2.0%

2.1.17 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 an ADF of 2-5% will normally need supplementary electric lighting.

2.1.18 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.

2.2 Loss of sunlight to existing dwellings

2.2.1 The BRE Report recommends that loss of sunlight should be checked for main living rooms of dwellings, and conservatories, if they have a window facing within 90° of due south.

2.2.2 According to the BRE Report, 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. If the window already receives less than this, a reduction to less than 0.8 times its current value and a reduction of more than 4% of annual probable sunlight hours over the year may lead to the room it serves appearing colder and less cheerful and pleasant.

2.2.3 The assessment analyses sunlight to a number of bedrooms, which would not be necessary for the BRE Report. The additional information does no harm, but only living rooms and rooms which could potentially be living rooms need be considered in counts of windows outside the guidelines.

2.2.4 Sunlight provision to new dwellings

2.2.5 For sunlight, BS 8206-2 recommends that interiors where the occupants expect sunlight should receive at least 25% of annual probable sunlight hours, including at least 5% in the winter



months between 21 September and 21 March. This would normally be the main living room of a dwelling.

- 2.2.6 Sunlight provision calculations have not been reported for the new development. Some sort of sunlight assessment would have been expected.

2.3 Overshadowing

- 2.3.1 For outdoor amenity areas, the 2011 edition of the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' recommends that at least half of the space should receive at least two hours of sunlight on 21 March. Sunlight at an altitude of 10° or less does not count.
- 2.3.2 If as a result of new development less than half of an existing garden or amenity area receives two hours of sunlight and the area that does is reduced to less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

2.4 Numerical significance criteria in ES chapter

- 2.4.1 The significance of the amount of change has been quantified in Table 7.1 of the chapter using the decimal ratio of after/before. This is the method used in the BRE Report, as vertical sky component and available proportion of annual probable sunlight hours are themselves percentage values. However, the tables containing the results of the assessment are then presented in a different format, as percentage losses rather than ratios. This is an alternative way of presenting the same information. A ratio of 0.8 would be equivalent to a loss of 20%.
- 2.4.2 To avoid confusion, in this report we will use the percentage loss format used in the table data contained within the appendices. Where percentage values refer to the calculated values, for example the amount of annual probable sunlight hours received by a window, rather than the loss ratio, the percent symbol is shown in brackets.
- 2.4.3 We do not always agree with placing results for loss of daylight and sunlight into categories as this can hide very large impacts. For example, there is a great difference between a loss of 40% and a loss of 90% but both of these would be classified as a major impact. For this reason, we will highlight particularly large losses and provide ranges rather than repeat the counts available in the original assessment.
- 2.4.4 The chapter identifies impact to individual windows and rooms and then summarises a range for the site. While this is reasonable, because whether the proposals have little or no impact on one property does not reduce the impact on another, it is still helpful to have a summary for each building or group of buildings. We have summarised impact for each building or group of buildings.



3 Loss of daylight to existing properties

3.1.1 The analysed locations are reviewed below. A site visit has not been carried out, and therefore we have not identified whether there are residential or other locations which should have been analysed but were not. If the hospital buildings to the north of the site facing onto Ashfield Street contain patient wards or student rooms, this would be a non-residential use with a reasonable requirement for daylight and sunlight. Foyer House is a student's hostel, and we would therefore have expected analysis of loss of daylight to those windows.

3.2 Philpot Street

3.2.1 57 to 69 and 43 to 55 Philpot Street have been considered separately in the chapter and appendices. This is appropriate if the two terraces are in different locations.

3.2.2 Although properties at 57 to 69 Philpot Street would be affected by the development, they do not face the site directly. The 13 losses of VSC outside the guidelines would all be at numbers 57 and 59 and would range between 20.49% and 23.06%. Four rooms, one each at 59, 61, 63 and 65, would experience a change in daylight for daylight distribution between 20% and 31%. We would consider the overall impact on this terrace to be minor adverse.

3.2.3 43 to 55 Philpot Street would face Block I to the front and Block A to the rear. Most of the windows (51 of 64) would be outside the guidelines, with losses between 23% and 43%. The windows at the lower street numbers are more affected. Changes to daylight distribution would be within the guidelines. We would consider the overall impact on this terrace to be minor to moderate adverse for the most part, but 43 would experience a major impact.

3.3 Cavell Street

3.3.1 Some properties at Cavell Street would be significantly affected by the development. Two of the properties analysed, 56 and 81, would experience a loss of daylight outside the guidelines to some but not all of the windows analysed. 67 to 79 Cavell Street would experience a loss outside the guidelines to all of their windows analysed. Losses of VSC outside the guidelines would range between 21% and 58%. Changes to daylight distribution outside the guidelines would range between 25% and 55%. We would consider the overall impact on these properties to be moderate to major adverse.

3.3.2 All of the windows analysed at 58 Cavell Street would be within the guidelines. Impact on this property would be negligible.

3.3.3 One location at Cavell Street, 49, is located elsewhere in the table data and would be within the guidelines for all criteria. The impact on this building would also be negligible.

3.4 Wilton Court

3.4.1 Wilton Court would experience large losses of VSC to all of its windows analysed except one on each floor, W15, which is likely to be around a corner and facing Varden Street as it is not shown in the window maps. Losses of VSC to the other windows range between 25% and 56%. Changes to daylight distribution would be outside the guidelines for a particular section of the building which contains windows W8 to W15 on each floor, plus W7 on the ground floor only. Changes outside the guidelines here would range between 29% and 55%. The three values



below 30% would be for the living room which is served by W14 and W15, where W15 is unaffected by the development and slightly mitigates the impact on daylight distribution. All the other rooms are served by single windows and would experience changes of more than 30%. We would consider the overall impact on these properties to be moderate to major adverse.

3.5 Silvester House

- 3.5.1 Silvester House would experience large relative losses to many of its windows analysed. These losses are so large that a categorisation scheme designating loss over 40% as major does not really address them. The design of Silvester House means that the windows on the ground and second floors are located underneath deep overhangs which limit daylight from the highest part of the sky and render them dependent on light from over the site. Already low levels of VSC would be reduced to negligible levels in some cases, with up to total loss of 100% on the ground floor. A few windows on the eastern end of the building would retain more daylight, particularly on the second floor, but would still receive very little daylight. In total 22 of 22 windows under overhangs would be outside the guidelines for VSC.
- 3.5.2 Where a building's own design renders it dependent on light across another site, for example due to an overhang, the BRE Report suggests additional analysis with the overhang removed to establish whether the guidelines would be achieved without the effect of the overhang. Although the chapter text discusses additional calculations carried out in this respect, the results are not reported in the appendices. The first and third floor results are a good indicator of the likely outcome as they do not have overhangs directly above them. These would experience losses outside the guidelines of 21% to 44%, with loss of VSC to 19 of 22 windows being outside the guidelines. Three windows on the eastern end would stay within the guidelines.
- 3.5.3 Daylight distribution would also be affected by the proposed development, with the rooms with windows beneath overhangs again seeing much larger changes. 17 of 22 rooms would be outside the guidelines, with changes outside the guidelines being between 23% and 78%. For the rooms with windows not under overhangs, 11 of 22 rooms would be outside the guidelines, with changes outside the guidelines being between 23% and 51%.
- 3.5.4 Overall, we would consider the impact on this building to be moderate to major adverse. The buildings own design is a mitigating factor. If the rooms are solely used as kitchens rather than kitchen diners or living/kitchen/diners, this would also be a mitigating factor, as a non-daylit kitchen would be less of a problem than a non-daylit habitable room like a living room.

3.6 Joscoyne House

- 3.6.1 Window analysis at Joscoyne House covers two main elevations, one directly facing the site and one with a view of the site to one side. We would consider these separately because the results are very different. There is also a corner elevation with one window on each floor.
- 3.6.2 The elevation facing the site comprises 20 windows. All of them would experience a loss of daylight outside the BRE guidelines, with losses between 31% and 40%. Changes to daylight distribution would also be outside the guidelines for two rooms at 25% and 21%. One of these is only just outside the guidelines. Overall, we would consider the impact to be moderate adverse.
- 3.6.3 Loss of daylight to the windows on the other large elevation and changes in daylight distribution to the rooms served by them would be within the BRE guidelines in all cases. Windows on the small corner elevation would also be within the guidelines for both criteria, although they would be affected more than the large elevation. We would consider the overall impact on these two elevations to be negligible.



3.7 Porchester House

- 3.7.1 The windows analysed at Porchester House face out of opposing sides of the building, where they would have a view of very different proposed buildings. Windows W1 to W8 are on the east elevation where they would face Block E. Windows W9 to W15 are on the west elevation where they would face Block C.
- 3.7.2 Not all of the windows shown in the window diagrams in Appendix 7.2 are analysed. Windows W10 and W13 are missing on the ground floor. Windows W10, W12 and W14 are missing on the first and second floors and windows W11 and W13 on the third floor. These are the same windows on each floor, and therefore are likely to have been omitted because they serve spaces such as bathrooms, hallways or staircases.
- 3.7.3 Of 32 east facing windows which would face Block E, 20 would fall outside the guidelines for loss of VSC. Losses outside the guidelines would range between 22% and 41%. Only one result is above 40%, with most being in the range of 20% to 30%. The rooms served by the windows would remain within the guidelines for daylight distribution except for one room on the third floor, which would be only just outside at 20%. Overall, we would consider the impact on this elevation to be minor to moderate adverse.
- 3.7.4 The west facing elevation sees a much greater impact than the east facing one as Blocks C and D are much closer than Block E. 14 of the 16 of the west facing windows would fall outside the guidelines for loss of VSC, with losses outside the guidelines ranging between 24% and 87%. The end window closest to the road, labelled W14 on the ground floor, is less affected than most of the windows. On the top two floors, this window would be within the guidelines, and on the lower two floors, losses would be 24% and 26%. Other windows lose at least 42% of their daylight. The worst losses are in the column of windows furthest away from the road, where the window is obstructed by Block C in front, Block D to one side and by a projection of their own building to the other side. Changes to daylight distribution in the rooms served by the windows would also be outside the guidelines for all but two windows on the third floor. Changes outside the guidelines would range between 22% and 79%. Changes to daylight distribution below 30% would be confined to the column of windows nearest the road. Overall, we would consider the impact on this elevation to be moderate to major adverse.

3.8 Dickson House

- 3.8.1 6 windows have been analysed at Dickson House. These represent the two columns of windows which would be most likely to be affected by the development. As they would all be within the BRE guidelines for both VSC and daylight distribution, it is reasonable to assume that the rest of the windows and rooms on the elevation would also be within the guidelines. The impact on this building would be negligible.

3.9 Mellish House

- 3.9.1 Mellish House directly faces Block C across Varden Road. This has a similar design to Silvester House, with windows on the ground and second floors located underneath an overhang. Results to the windows and rooms therefore show a similar pattern, with very large relative losses to windows under overhangs compared to those which are not.
- 3.9.2 The 10 windows under overhangs all lose between 86% and 99.6%, well outside the guidelines and with the rooms served essentially becoming non-daylit spaces with windows which receive less than 1% of VSC. Loss of daylight to the 20 windows on the first and third floors without overhangs would also all be outside the guidelines, but with losses between 25% and 37%.



Changes in daylight distribution to the rooms served by the windows underneath overhangs would also all be well outside the guidelines, with changes between 49% and 77%. Of the 20 rooms served by the windows on the first and third floors, 11 would be outside the guidelines for daylight distribution. These comprise all of the rooms on the first floor and one room on the third floor. Changes outside the guidelines would range between 20% (on the third floor) and 49%.

- 3.9.3 Overall, we would consider daylight impact on this building to be moderate to major adverse, with the same mitigating factors as Silvester House.

3.10 Varden Street

- 3.10.1 70 Varden Street is located in a different section of the tables as it is located at the other end of Varden Street to the other properties, next to Silvester House and closest to Block G. This does mean that it would be affected differently to the other properties on the street and it is reasonable for it to be considered separately. The 7 windows at this property which would be outside the BRE guidelines lose between 20% and 28% of VSC. One room would be outside the guideline for daylight distribution at 26% relative loss. We would consider the overall impact to be minor adverse.
- 3.10.2 The other Varden Street properties, 20 to 30 Varden Street, are next to Mellish House, closest to Block C. The design of these houses means that some windows will be set back further away from the development but be obstructed to the sides by walls of their own properties, some will be closer but less obstructed to the sides, and some will face at right angles to the development. They also have basement windows on the front elevation.
- 3.10.3 Of 36 windows analysed, 17 would be outside the guidelines for loss of VSC. Losses of daylight outside the guidelines range between 21% and 37%. The higher numbers along Varden Street would be more affected than the lower numbers. Of 24 rooms served by the windows, 12 would be outside the guidelines for daylight distribution. Changes in daylight distribution range between 21% and 53%. We would consider the overall impact on these houses to be moderate adverse.

3.11 Turner Street

- 3.11.1 Most of the houses in Turner Street would not be significantly affected by the proposed development. All of the windows at 12 to 16 Turner Street and 19 to 39 Turner Street would be within the guidelines for loss of VSC, with the exception of a single kitchen window at 23 Turner Street. Although this window would see a loss of 31%, this is because the window already has an extremely low VSC of 0.73(%). A loss of just 0.23(%) of VSC therefore results in a high percentage loss, when in fact the window already receives so little daylight that the room it serves will already be dependent on electric light and a further loss would lead to very little change in this respect.
- 3.11.2 From 41 to 45 Turner Street, 7 of 18 windows would lose between 21% and 29% of their VSC, and would consequently be outside the BRE guidelines. Unlike the window in the preceding paragraph, these windows currently receive an appreciable amount of daylight. Changes to daylight distribution would be within the BRE guidelines.
- 3.11.3 We would consider the overall impact on Turner Street to be minor adverse.

3.12 Ashfield Street

- 3.12.1 46 and 48 Ashfield Street have been analysed for loss of daylight, with losses to all but one basement window outside the guidelines. However, Valuation Office Agency records indicate



that there is currently no residential accommodation at no. 46 or no.48, and 46 is believed to be in office use.

3.13 Walden Street

- 3.13.1 33 to 49 Walden Street would face Blocks D1 and D2. There would be some very large losses of VSC, which would be distributed throughout the terrace. The 35 losses outside the guidelines would range between 22% and 56%. Changes in daylight distribution would also be substantial, with the 32 changes outside the guidelines ranging between 21% and 73%. The rooms with the largest changes, around 70%, are all basement living rooms. Living rooms on the ground floor would have changes between 40% and 60%. Daylight distribution is more important in living rooms than in bedrooms. We would consider the overall impact on this terrace to be moderate to major adverse.



4 Loss of sunlight to existing properties

4.1.1 Many of the residential properties analysed do not face within 90° of due south, and therefore would not require analysis of loss of sunlight under the BRE guidelines. Those which do are reviewed below. We have separated out living rooms and potential living rooms for consideration.

4.2 Cavell Street

4.2.1 35 windows in Cavell Street face within 90° of due south and serve either living rooms or rooms of unknown use which could potentially be living rooms. In some cases two or three windows serve the same room. Of these 31 would fall outside the BRE guidelines for loss of annual probable sunlight hours (APSH). Losses outside the guidelines would range between 26% and 83%. Of the windows falling outside the guidelines for APSH, 25 would also be outside the guidelines for winter probable sunlight hours, with losses between 50% and 80%. Overall, we would consider the impact to be moderate to major adverse.

4.3 Wilton Court

4.3.1 20 windows at Wilton Court face within 90° of due south and serve living rooms. In some cases, two windows serve the same room. Of the 20 windows, 16 would fall outside the BRE guidelines for loss of annual probable sunlight hours (APSH). However the room served by window W14 on the first floor has another window which would remain within the guidelines, and therefore they would be achieved for the room, leaving 15 windows outside the guidelines. Losses outside the guidelines would range between 37% and 65%. Of the windows falling outside the guidelines for APSH, 10 would also be outside the guidelines for winter probable sunlight hours, with losses between 33% and total loss. Overall, we would consider the impact on sunlight to be moderate to major adverse.

4.4 Walden Street

4.4.1 14 windows at Walden Street face within 90° of due south and serve living rooms. Of these, 7 would fall outside the BRE guidelines for loss of annual probable sunlight hours (APSH). Losses outside the guidelines would range between 47% and 67%. More windows, 12 in total are outside the guidelines for winter probable sunlight hours. These comprise all of the windows which would be outside the guidelines for APSH and another 5 which would continue receive enough sunlight year round but not in the winter. Losses would be between 87% and total loss. Overall, we would consider the impact on sunlight to be major adverse.



5 Overshadowing

- 5.1.1 The calculations for sunlight provision to amenity areas indicate that changes to the amount of direct sunlight received by existing amenity areas on 21 March would be within the BRE guidelines in each case.
- 5.1.2 Less than 50% of proposed amenity areas 1, 3, 6 and 7 would receive at least two hours of sunlight on 21 March, and therefore sunlight to these would be outside the guidelines. We would not normally agree with aggregating the results for different amenity areas, but in this case, the divisions between areas 1, 2, 3, 4 and 5 appear to be arbitrary, and it would be reasonable for these to be considered together. A single amenity area covering areas 1, 2, 3, 4 and 5 would receive at least two hours of sunlight over 51.3% of its area on 21 March, and would fall just within the guidelines.
- 5.1.3 Areas 6 and 7 appear to be distinct from the other areas, and the same case cannot be made to include these. These would be heavily shaded, with none of their area receiving at least two hours of sunlight on 21 March.
- 5.1.4 The shadow plots suggest that most of the direct sunlight reaching the amenity areas will arrive through the gaps between the buildings at the south of the site or over Building F. Overshadowing by Block I will be transient and will largely fall on the buildings on Ashfield Street to the north.



6 Daylight provision to new properties

- 6.1.1 Residential rooms on the lowest floors of each block have been analysed for daylight provision using Average Daylight Factor (ADF). This is reasonable if the rooms are of the same design on higher floors, as rooms on higher floors would be anticipated to have higher ADFs. If rooms on higher floors have different room designs which potentially receive less daylight due to obstruction or small window area relative to room size, these should also be analysed. Rooms which have a low ADF value on the lowest floor analysed may also have low ADF values on higher floors too.
- 6.1.2 In total, 18 rooms would not achieve the recommended minimum for their room type.
- 6.1.3 Ten rooms described as kitchens would not achieve the recommended minimum ADF for kitchens. However, these are all living/kitchen/diners or kitchen diners. Local authorities often allow the living room standard in this circumstance, which would make the recommended minimum ADF 1.5% instead of 2.0%. Four of the ten would achieve the recommended minimum for living rooms.
- 6.1.4 Five bedrooms would not achieve the recommended minimum ADF for bedrooms. One, R10 in Block E is particularly low at 0.27% where the recommended minimum is 1.0%.
- 6.1.5 Three rooms described as living rooms would not achieve the recommended minimum ADF for living rooms. These all have extremely low ADFs at 0.16% (R5 in block E), 0.18% (R9 in Block F) and 0.0% (R4 in Block F). This latter room would essentially be a non-daylit room.
- 6.1.6 Two of these rooms are located on the same elevation of Block F, which faces Silvester House on Varden Street. Along with two kitchen diners, R5 and R7, they are set back under overhangs and have walls to either side. As the design of Block F obstructs daylight from above and from either side, this has the effect of making them dependent upon daylight from directly in front of them. Silvester House is directly in front of them and also blocking daylight in that direction, leading to little or no daylight reaching the rooms and ADFs between zero and 0.18%. Two bedrooms which are not set back do not have the same problem and receive the recommended minimum ADF.
- 6.1.7 The third living room with a very low ADF, R5 in Block E which would have an ADF of 0.16%, is actually a studio rather than the living room it is described as. Low values of ADF are a particular issue for studios because the room is the only space available to the occupant; they do not have other, brighter rooms to compensate. This room is set into a corner of the building where the two windows are obstructed to the sides and also face a tall building, Block I. Although one of the windows could potentially be widened, the amount of obstruction means that this room would still be very poorly lit even with maximum glazing.
- 6.1.8 Other rooms in the development suffer the same problem as the south elevation of Block F, with reduced ADFs due to overhangs and side obstruction, but to a lesser extent. These are R7, R8 and R10 in Block D1.
- 6.1.9 Some of the bedrooms which would not receive enough daylight might have the potential for glazing area to be increased, for example R3 in Block E and R13 in Block C.



- 6.1.10 Kitchen/living/diner R2 in Block A might have the potential to receive more daylight from widening window W3 and/or removing the obstruction from its own building in front of window W4.



7 Conclusions

- 7.1.1 A planning application, reference PA/15/02959, has been submitted to the London Borough of Tower Hamlets for a proposal to provide a new development on the site of the Whitechapel Estate in Tower Hamlets. An assessment of the daylight and sunlight impact of the development is contained in chapter 7 of an environmental assessment. BRE have been commissioned to evaluate the chapter. The evaluation was to review the scope, methodology, text and conclusions of the chapter, but not verification of the calculations.
- 7.1.2 It is possible that locations with a reasonable expectation of daylight and sunlight have not been assessed. A student hostel to the north of the site, Floyer House, would have a reasonable expectation of daylight and sunlight, and is likely to be affected by the development.
- 7.1.3 The chapter assesses individual windows/rooms and then provides a total summary with a range of impact between negligible and major. While this is reasonable, it is helpful to summarise for individual buildings and groups of buildings.
- 7.1.4 We would summarise the daylight impacts as follows for the locations assessed:
- 57-69 Philpot Street – minor adverse
 - 43-55 Philpot Street – minor to moderate adverse, but major for 43
 - Cavell Street – negligible for 49 and 58 Cavell Street, moderate to major adverse for 67 to 81 and to 56 Cavell Street
 - Wilton Court – moderate to major adverse
 - Silvester House – moderate to major adverse, but with mitigating factors due to the building's own design
 - Joscoyne House – moderate adverse for the elevation facing the site. Negligible for the elevation with a sideways view and the small corner elevation
 - Porchester House – minor to moderate adverse for the elevation facing Block E. Moderate to major adverse for the elevation facing Block C
 - Dickson House – Negligible
 - Mellish House – moderate to major adverse, but with mitigating factors due to the building's own design
 - Varden Street – minor adverse for 70 Varden Street. Moderate adverse for 20-30 Varden Street
 - Turner Street – minor adverse
 - Walden Street – moderate to major adverse
- 7.1.5 Ashfield Street does not appear to have residential accommodation.
- 7.1.6 We would analyse the sunlight impacts as follows for the locations assessed:
- Cavell Street – major adverse
 - Wilton Court – major adverse
 - Walden Street – major adverse



- 7.1.7 There are some very low values of average daylight factor for the rooms analysed in the proposed development. In some cases this is due to the design of the building, which blocks daylight from the upper part of the sky and to either side. An existing building opposite then blocks the daylight from in front, leaving very little to reach the windows. One living room in Block F receives no daylight at all and would have to be considered a non-daylit space.
- 7.1.8 A studio in Block E is very poorly daylit. This is a particular problem because it is the only room available and the occupant will not have the compensatory benefit of another room with more daylight.
- 7.1.9 Larger windows and removal of obstructions could improve the daylight provision to some of the rooms with low levels of daylight.
- 7.1.10 Sunlight provision to the living rooms of the new development has not been analysed. This would have been expected.
- 7.1.11 The development does not significantly reduce the amount of existing amenity area which receives at least 2 hours of sunlight on March 21, and the impact on sunlight to amenity spaces would therefore be considered negligible.
- 7.1.12 Slightly more than half of the main proposed amenity space, consisting of areas 1, 2, 3, 4 and 5, would receive at least 2 hours of sunlight on March 21, and it would therefore achieve the BRE guidelines. Two separate amenity spaces, 6 and 7, would receive no sunlight on March 21 and would be generally gloomy.



8 References

1. BRE, BR209 Site Layout Planning for Daylight and Sunlight: A guide to good practice, 2011
2. Commission Internationale de L'Eclairage (International Commission on Illumination), CIE Standard 011/E:2003 Spatial distribution of daylight - CIE standard overcast sky and clear sky
3. BS8206 Part 2:2008 Lighting for Buildings, Code of Practice for Daylighting