GVA Schatunowski Brooks

A **Bilfinger Real Estate** company

Detailed Daylight & Sunlight Report

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Proposed Development at Crogsland Road London NW1

London Borough of Camden

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For and on behalf of
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CONTENTS

1. Introduction

1.1 GVA Schatunowski Brooks has been instructed by London Borough of Camden to undertake a review of the potential effects to daylight and sunlight amenity of residential neighbours adjacent their proposed development at Crogsland Road to provide a new care centre for residents of the current Charlie Ratchford building opposite the site.

1.2 The following detailed Daylight and Sunlight Report has been based upon a site inspection in conjunction with desktop research of the immediate area including the potentially affected buildings.

1.3 The technical analysis was based upon measured land survey data of the existing site buildings and those adjacent (3D topo model received from Maltby Surveys reference MBS14_372 Crogsland Road-Camden.dwg) and drawings of the proposed development as issued by PRP Architects, drawing numbers AA4796/1005E, AA4796/1006E and AA4796 – Option 1 – 031214.dwg.

2. Daylight/Sunlight Planning Principles

2.1 The Building Research Establishment (BRE) 2011 guidelines – Site Layout Planning for Daylight and Sunlight: a guide to good practice is the document referred to by most local authorities. The BRE Guide covers amenity requirements for sunlight and daylight to buildings around any development site.

2.2 The introduction to the guidelines (para 1.6) states: -

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."

and:

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

Daylighting to Existing Neighbours

2.3 The requirements governing daylighting to existing residential buildings around a development site are set out in Part 2.2 of the guidelines.

2.4 The amount of light available to any window depends upon the amount of unobstructed sky that can be seen from the centre of the window under consideration. The amount of visible sky and consequently the amount of available skylight is assessed by calculating the vertical sky component at the centre of the window.

2.5 The guidelines advise that bathrooms, toilets, storerooms, circulation areas and garages need not be analysed. The guidelines also suggest that where layouts of existing neighbours are known that the distribution of daylight within rooms is reviewed although bedrooms are considered to be less important.

2.6 The Vertical Sky Component (VSC) can be calculated by using the skylight indicator provided as part of the guidelines, by mathematical methods using what is known as a Waldram diagram or by 3D CAD modelling.

2.7 The guidelines states the following:-

"If this vertical sky component is greater than 27% then enough skylight should still be reaching the window of the existing building. Any reduction below this level should be kept to a minimum. If the vertical sky component with the new development in place, is both less than 27% and less than 0.8 times its former value, then occupants of the existing building will notice the reduction in the amount of skylight."

2.8 The VSC calculation only measures light reaching the outside plane of the window under consideration, so this is potential light rather than actual. Depending upon the room and window size, the room may still be adequately lit with a lesser VSC value than the target values referred to above.

Daylighting within Proposed Development

2.9 The quality of Daylight for New-Build dwellings is measured using the standards set out in the British Standard Code of Practice for Daylighting, BS8206 Part 2. These standards are also referred to in Appendix C of the BRE Guidelines. For New-Build dwellings, Daylight is measured using Average Daylight Factors (ADF) rather than Vertical Sky Components (VSC) as the Designer has greater control over the various design inputs and variables which dictate the availability of daylight within the room.

2.10 VSC is more commonly used for assessing the availability of Daylight to existing neighbouring buildings as it represents the amount of light striking the face of a window. It is a "spot" measurement and equates to the amount of direct light from the sky that is incident on the face of the window. As such, it has its limitations as it does not take account of the size of the window or the size of the room served by the window. It therefore does not necessarily represent the availability and quality of daylight that will be received within the room itself.

2.11 In the case of New-Build dwellings, it is possible to change aspects of the design in order to achieve good daylighting conditions. The use of ADF is therefore seen as a more appropriate method of measurement during the design process as it is

calculated from a number of design variables and co-efficients which provide a more accurate assessment of internal lighting conditions.

2.12 Those input variables comprise:-

- The size of the window serving the room (area of glazing).
- The size of the room being assessed (internal surface area).
- The average reflectance values of the internal finishes.
- The loss of transmittance of Daylight through the glazing.
- A correction factor for maintenance and soiling of the glass finish.
- The amount of daylight actually received by the window (the angle of visible sky) calculated from the VSC.
- The actual use of the room in question.

2.13 In addition, the application of ADF values makes a distinction between the different uses of the rooms being assessed. For example, a higher ADF value should be achieved for a principal living room in comparison to a bedroom.

2.14 In the present circumstances, the design of the flats incorporate combined Living/Kitchen/Diners and where there is a combined use, we have applied the equivalent Living Room ADF target of 1.5% df. The equivalent ADF value for a domestic bedroom is 1%df.

Sunlighting to Existing Neighbours

2.15 Requirements for protection of sunlighting to existing residential buildings around a development site are set out in Part 3.2 of the BRE guidelines. There is a requirement to assess windows of surrounding properties where the main windows face within 90 degrees of due south.

2.16 The calculations are taken at the window reference point at the centre of each window on the plane of the inside surface of the wall. The guidelines further state that kitchens and bedrooms are less important in the context of considering sunlight, although care should be taken not to block too much sun.

2.17 The guidelines sets the following standard:-

"If this window reference point can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months of 21 September and 21 March, then the room should still receive enough sunlight. The sunlight availability indicator in Appendix A can be used to check this.

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 given and less than 0.8 times their former value, either over the whole year or just during the winter months then the occupants of the existing building will notice the loss of sunlight."

2.18 To summarize the above, a good level of sunlight to a window is 25% annual probable sunlight hours, of which 5% should be in winter months. Where sunlight levels fall below the suggested level, a comparison with the existing condition is reviewed and if the ratio reduction is within 0.8 (the same as saying a 20% reduction) its former value then the sunlight loss will not be noticeable. Sunlight reduction that fall below 0.8, ie 0.7 (greater than 20%) then the sunlight losses will be noticed by the occupants.

3. Report

3.1 Please refer to Appendix 1, which contains a series of 3D views illustrating the existing and proposed site conditions in context with the potentially affected neighbouring properties.

3.2 Our site inspection and desktop research indicated the following potentially affected properties as containing residential use, which were therefore considered for potential effects to existing daylight and sunlight amenity of occupants:

- 9 Crogsland Road (Drawing BRE11),
- 11 Crogsland Road (Drawing BRE11), and
- 141-156 Denton Estate, Crogsland Road (Drawing BRE12& BRE13).

3.3 Consideration was also given with respect to the quality of internal daylight and sunlight amenity within the newly proposed habitable rooms (Drawings BRE06).

9 Crogsland Road

3.4 The VSC assessments of the potentially affected windows indicate that all would retain in excess of 27% VSC, the minimum recommended target as set out in the BRE Guidance.

3.5 In terms of the internally assessed No Sky Line contour analysis this indicates no difference post-development, with all rooms retaining in excess of 80% of their floor area lit by the No Sky Line contour.

3.6 An assessment was also undertaken with regards to the affects to sunlight amenity in respect of the southerly-oriented windows serving the property.

3.7 The APSH analysis indicated that all windows would either retain in excess of 25% total APSH of which 5% winter months or experience slight unnoticeable differences throughout the year.

3.8 As a result the impact to daylight and sunlight amenity is considered to be fully compliant with the BRE recommendations.

11 Crogsland Road

3.9 This end of terrace property is directly adjacent the currently cleared proposed development site and contains windows which derive their lights from across the site boundary.

3.10 This is considered an unusual circumstance, one in which the BRE guidance would consider as representing a 'bad neighbour' situation, in which it may be necessary to apply alternative target criteria to the typical recommendations set out in the BRE guidance. Notwithstanding the potential constraint presented by this property, the VSC assessment indicated that nearly all windows would either continue to retain in excess of 27% VSC or experience small unnoticeable differences post-development.

3.11 The one exception to this is the second window serving room R1/12 at second floor level as shown on attached drawing BRE/11 and in the above image.

3.12 This window faces directly towards the proposed development site which is an unusual circumstance following unobstructed light from across the site boundary. As a result, the VSC assessment indicated the potential for a noticeable reduction in daylight. The room served by this window is dual aspect, i.e. served by a further unobstructed window. The analysis of this second window indicated that there would be hardly any difference post-development with in excess of 27% VSC retained which exceeds BRE guidelines.

3.13 As the room is dual aspect we have also taken regard of the internally assessed Average Daylight Factor and No Sky Line assessments, finding that there would be a no worsening situation within the room itself.

3.14 As such the effects to existing daylight amenity enjoyed by occupants is considered negligible.

3.15 We have also conducted a set of APSH assessments in respect of the southerly oriented windows serving 11 Crogsland Road.

3.16 These studies found that all windows assessed would either retain in excess of 25% total APSH of which 5% winter months or experience small and unnoticeable differences post-development.

3.17 As such the effects to existing daylight and sunlight amenity of occupants at 11 Crogsland Road are considered negligible.

141-156 Denton Estate, Crogsland Road

3.18 This residential block is situated directly opposite the currently cleared site and therefore a set of detailed analyses were undertaken with respect to the potentially affected windows.

3.19 The self-obstructing effect of the projections above the ground floor level windows is evident from review of the existing (i.e. pre-development) VSC values, which are significantly lower than the windows above, even taking into account the general expectation of improvements in daylight higher up an elevation.

3.20 Review of the existing VSC values indicate that whilst at 1st, 2nd and 3rd floor levels these are generally between 35% and 38% VSC, the windows on the ground floor are in some places as low as 3.39% VSC pre-development.

3.21 In terms of overall impacts post development, these are generally considered to be small.

3.22 At 1st, 2nd and 3rd floor levels the retained VSC levels are generally in excess of the 27% minimum recommended target.

3.23 However at ground floor level, given the low baseline values, these same slight reductions would be expressed as high percentages when compared to existing values given the small numbers involved.

3.24 In typical circumstances reductions of this magnitude in terms of percentage differences (i.e. greater than 20%) would be considered as potentially noticeable to occupants, however the BRE Guide recognises that in situations where windows serving adjacent properties are significantly self-obstructed that even a modest obstruction opposite may result in a large relative impact on VSC and daylight distribution.

3.25 The BRE guide suggests that one way to demonstrate this would be conduct VSC assessments without the effect of the self-obstructions.

3.26 As is evidenced with the results of the floors above ground level, such an assessment would indicate that it is the self-limiting design as opposed to the scale and bulk of the proposals causing VSC reductions in excess of 20%.

3.27 As these windows are oriented in a southerly direction, consideration has also been given to any effects to sunlight amenity which may arise.

3.28 The APSH analyses indicated that all windows assessed would retain in excess of 25% total APSH, of which 5% are in winter months.

3.29 As such, the effects to Denton Estate are considered acceptable as all difference in excess of 20% occur in self obstructed locations and retained VSC values would be considered adequate for an urban environment.

Quality of Natural Light Amenity within the Proposed Development

3.30 The assessments were undertaken in respect of the main habitable areas located behind the winter gardens.

3.31 All bedrooms achieve the minimum recommended target for ADF of greater than 1%.

3.32 With respect to the Living/Kitchen/Dining rooms, in common with the majority of contemporary dwellings the kitchen area is located at the rear of a large open plan area and is not designed to receive natural light directly.

3.33 As set out in the BRE guidance, these are all directly linked to well-lit living rooms which achieve greater than the minimum recommended target of at least 1.5% ADF.

3.34 As recommended in the BRE guidance, the majority of living areas are served by southerly oriented windows, ensuring access to available sunlight. The technical assessments indicated adequate APSH levels for an urban environment.

4. Conclusions

4.1 The range of detailed analyses and consideration of the BRE guidance are considered to demonstrate acceptable effects to daylight and sunlight amenity of properties neighbouring the proposed development.

4.2 The design has incorporated measures to ensure adequate internal natural light amenity for future occupants, by reference to the BRE/BS guidance.

4.3 In overall conclusion therefore the effects daylight and sunlight amenity both to existing neighbours and future occupants are considered fully compliant with London Borough of Camden Planning Policy and therefore acceptable.

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Report

Appendices

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Report

Appendix I – Drawings CR63-05 BRE/011 to BRE/013 inclusive plus associated Technical Results Data Tables