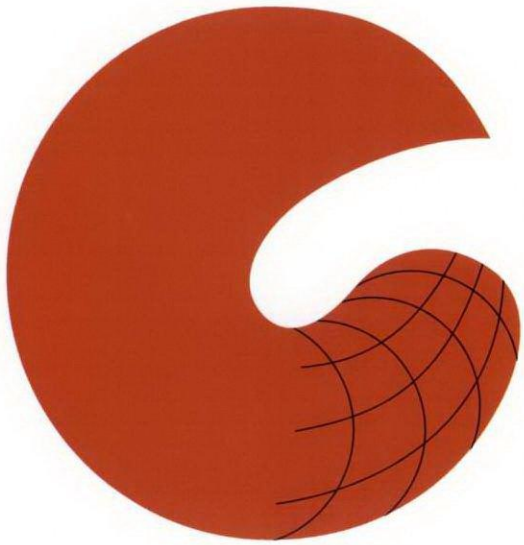

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17 & 19 FERDINAND STREET, LONDON, NW1 8EU
Daylight/Sunlight Report

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Reference: PS/CS/P11-282/02

Date: November 2011

17 & 19 Ferdinand Street, London, NW1 8EU
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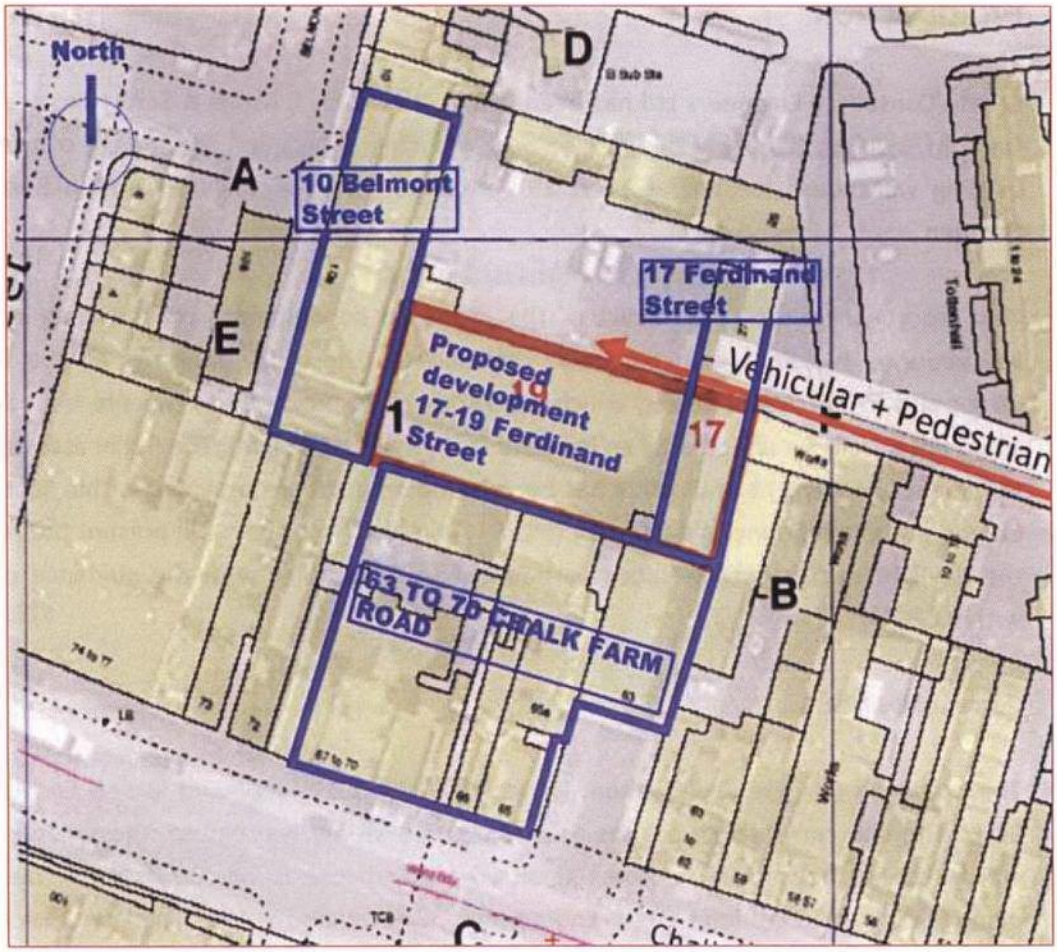

Figure 1: Site Location Plan, 17 & 19 Ferdinand Street, London, NW1 8EU

Background

1.6 Amanda Peck, Principal Planning Officer at the London Borough of Camden, has advised that a 25 degree test is undertaken on the basis that the height of the proposed mixed use building will increase by 0.6m compared to the existing warehouse. The 25 degree test has been suggested to assess the impact the increased height of the building will have on nearby windows of the surrounding buildings. Particular reference has been made to the office windows at 10a Belmont Street and 17 Ferdinand Street, which are within close proximity to the site boundary and could potentially be affected by a 0.6m increase in building height. Due to the enclosed nature of the courtyard it has also been suggested that the residential units opposite the current warehouse within the courtyard may also be affected by a 0.6m increase, and should therefore be assessed.

1.7 The 25 degree line test has been undertaken to assess the impact the increase in the building height has on the surrounding buildings. The results of the 25 degree line test are presented within the following chapter of this report. Copies of the results were submitted to Camden Council's Principal Planning Officer Amanda Peck on 25 October 2011. It has been advised that a further daylight/sunlight test should be carried out on the windows which will be affected by the proposed development.

2.0 CALCULATION METHODOLOGY

2.1 The existing warehouse at 17 & 19 Ferdinand Street already represents a significant obstruction to daylight availability to the surrounding buildings. Only the additional obstruction posed by the 0.6m increase in the building height over and above that of the original development will be assessed.

2.2 This initial assessment on the impact on daylight availability has been based upon the guidance given in Section 6 of Camden Borough Council's document 'CPG 6 Amenity', specifically the two quick daylight access methods involving the projection of a 25 degree line from the existing buildings window or from the wall of the proposed development.

2.3 For areas identified as failing the 25 degree line test Camden Guidance CPG 6 presents two additional methods for more in-depth daylight analysis. These are the Vertical Sky Component (VSC) and Average Daylight Factors.

2.4 The Vertical Sky Component method has been undertaken using the procedures detailed in the BRE publication 'Site Layout Planning for Daylight and Sunlight'. This document offers two alternative processes for calculating Vertical Sky Component. This report uses the skylight indicator method detailed in Appendix A of the BRE document.

2.5 The Average Daylight Factor method has been undertaken using the IES VE building simulation software. The IES VE system is an industry recognised building simulation package commonly used to undertake thermal, air flow and daylight modelling. The Flucs DL module has been used to determine the average daylight factors.

2.6 Geometric information on the existing and proposed development along with the surrounding buildings has been supplied by GLA Architecture and Design. This information has been supplied in AutoCAD DWG format.

3.0 25 DEGREE LINE TEST

3.1 The following section of this report provides the results of the 25 degree test. The following section of this report has been divided into the main buildings that may be affected by the proposed increase in building height. The results have been presented diagrammatically. The green lines represent the existing warehouse; the red lines represent the proposed mixed use development. The windows most likely to be affected by the increase in the building height are shown in blue.

10a Belmont Street

3.2 The proposed building (in red) and existing building (in green) are shown below in relation to 10a Belmont Street. The rows of windows most likely to be affected by the new development are highlighted blue.

3.3 Calculations undertaken using the available drawings indicate that for the affected row of windows, the current best case will have a projected line of 0° and the worst case will have a projected line of 17°. The new development will increase the worst projected line to 20° indicating the new development should not have an adverse affect on daylight availability at 10a Belmont Street.

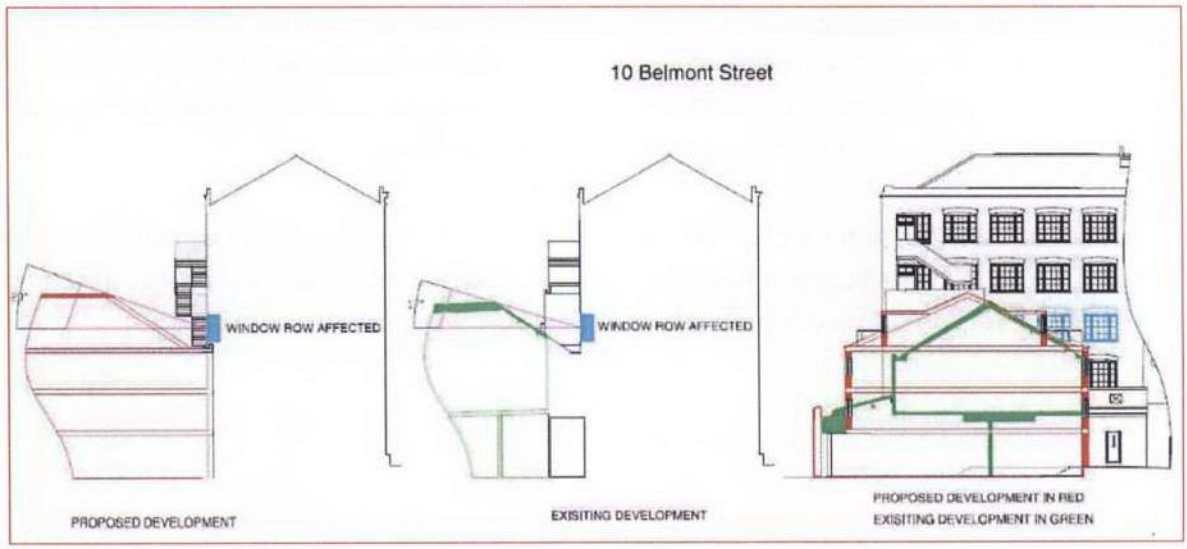

Figure 2: 25 Degree daylight results for 10a Belmont Street

17 Ferdinand Street

3.4 The proposed buildings (in red) and existing buildings (in green) are shown below in relation to 17 Ferdinand Street. Six windows have been identified as being potentially affected by restricted daylight access as a result of the increased height of the proposed development.

3.5 The quick check method has been carried out on each of the 6 windows at 17 Ferdinand Street to compare the daylight access restrictions of the existing building compared to the proposed development. The results for the windows are summarised in the Table 1 below. Please note angular dimensions are not shown on the above drawing to preserve clarity.

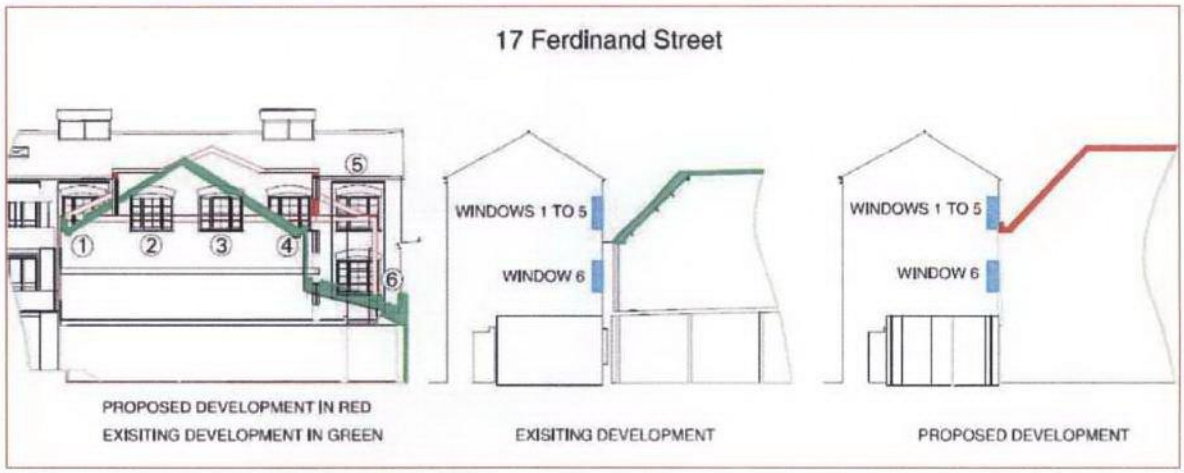

Figure 3: 25 Degree daylight results for 17 Ferdinand Street

Window Number	Projected line angle for existing building	Projected line angle for new development
1	0°	15°
2	34°	34°
3	27°	37°
4	0°	34°
5	0°	5°
6	0°	69°

Table 1: Comparison of the projected line angle for the existing building and proposed development at 17 Ferdinand Street

3.6 The results indicate that the amount of daylight received by windows 4 and 6 will be restricted due to the new development. Figure 4 below provides a detailed image of the existing building compared to the increased height of the proposed development and its likely obstruction to windows 4 and 6 at 17 Ferdinand Street.

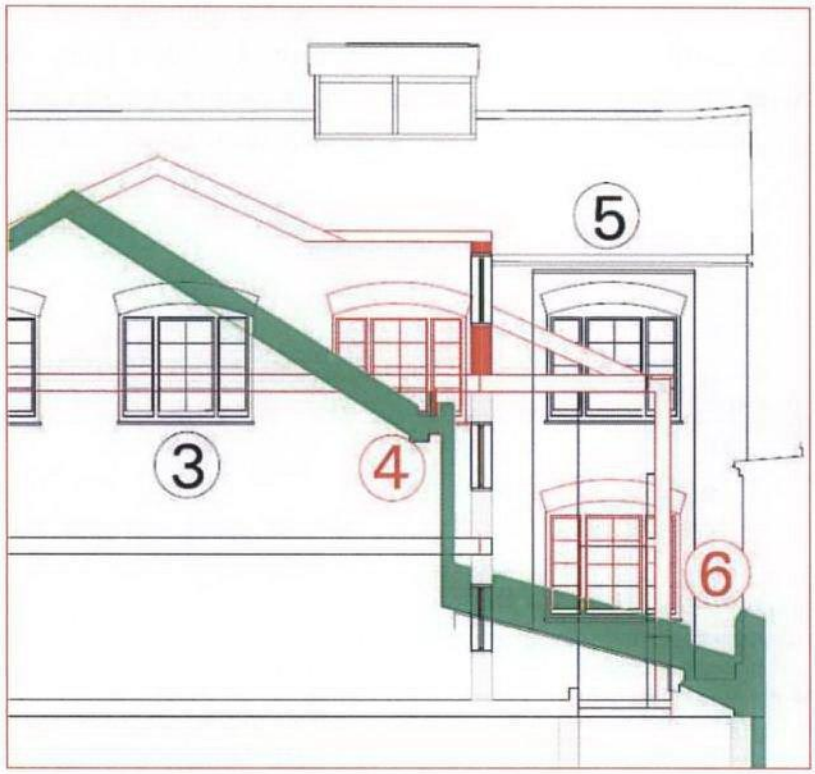

Figure 4: Detailed image of the existing building compared to the proposed development and its impact on 17 Ferdinand Street

3.7 The obstruction to the amount of daylight received by windows 4 and 6 at 17 Ferdinand Street is such that further daylight/sunlight tests will be required. A vertical sky component calculation has been carried out for windows 4 and 6 and then presented in Section 4.0 of this report.

Buildings to the South of the Proposed Development

3.8 The area to the south of the development is detailed below. The analysis has been divided into the west and east side of the developments south facing elevation.

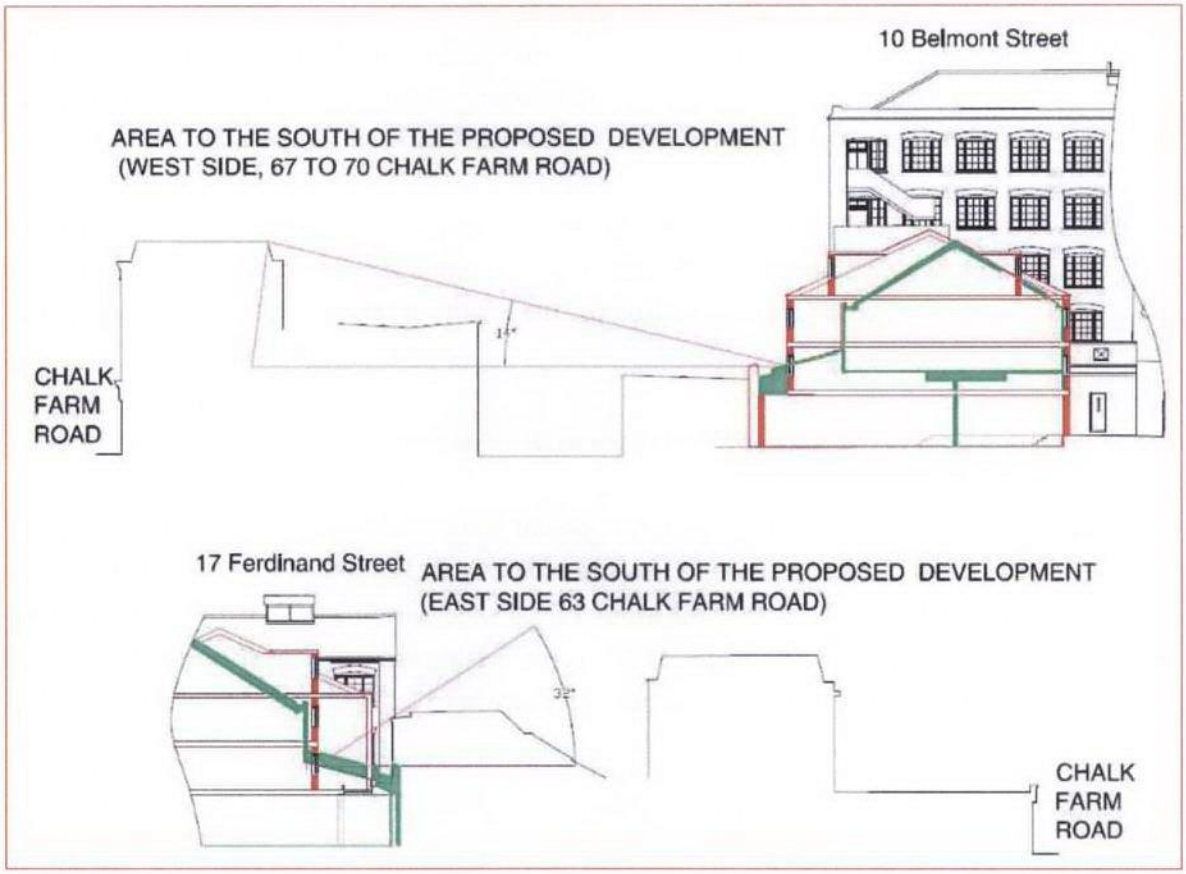

Figure 5: 25 Degree Daylight results for the existing buildings to the south of the proposed development

Western Side of the Development

3.9 Based on the available geometric information the quick check method shows that the new development will cause the existing buildings to have a worst case projected line angle of 25°. This assumes the projected line will start 2m from the ground. By comparison the same start position would result in a projected line angle of 21° when measured to the highest point of the present existing building.

3.10 The new development will have a worst case projected line angle of 14° for the south facing western side residential units. The ground floor commercial south facing elevations would have restricted daylight access (angle higher than 25°).

Eastern Side of the Development

3.11 Based on the available geometric information the quick check method shows that the new development will not have any impact on the daylight availability of the existing buildings located to the south, beyond the impact already incurred by the existing warehouse building.

3.12 The new development will have a worst case projected line angle of 32° for the south facing eastern side first floor residential units. The second and third floor residential units will have angles below 15°. The ground floor commercial south facing elevations would have restricted daylight access (angle higher than 25°).

3.13 The first floor residential units affected will be flats 1,2 and 6. The areas affected in these flats will be the bedrooms. The IES VE system has been used to carry out an average daylight factor calculation for these bedrooms. The results of this calculation are presented in Section 5.0 of this report.

Buildings to the North of the Proposed Development

3.14 The area to the north of the development is detailed below. The courtyard to the north of the development is bordered to the north by 21, 23 and 25 Ferdinand Street. The quick check method shows that the ground floor windows on 21, 23 and 25 Ferdinand Street will have a projected line angle of 23° from the highest point of the new development. The existing development on this site gives an angle of 21° from the same windows.

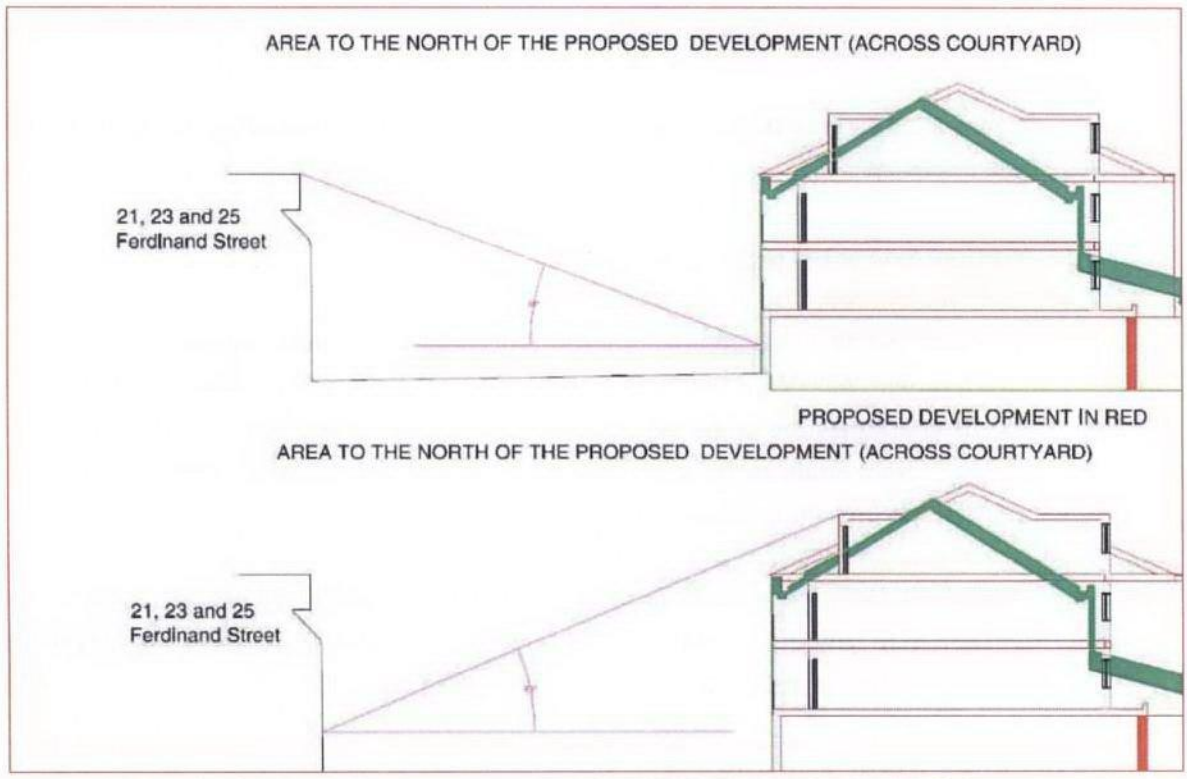

Figure 6: 25 Degree daylight results for the existing buildings to the north of the proposed development

3.15 The new development will result in a change to the skyline in comparison to the existing development. The illustration below demonstrates the existing and proposed development as seen from the north elevation. The new development will result in an increase in roof

height over the existing development of approximately 0.6m on the western side (10 Belmont Street) and approximately 1.4m on the eastern side (17 Ferdinand Street).

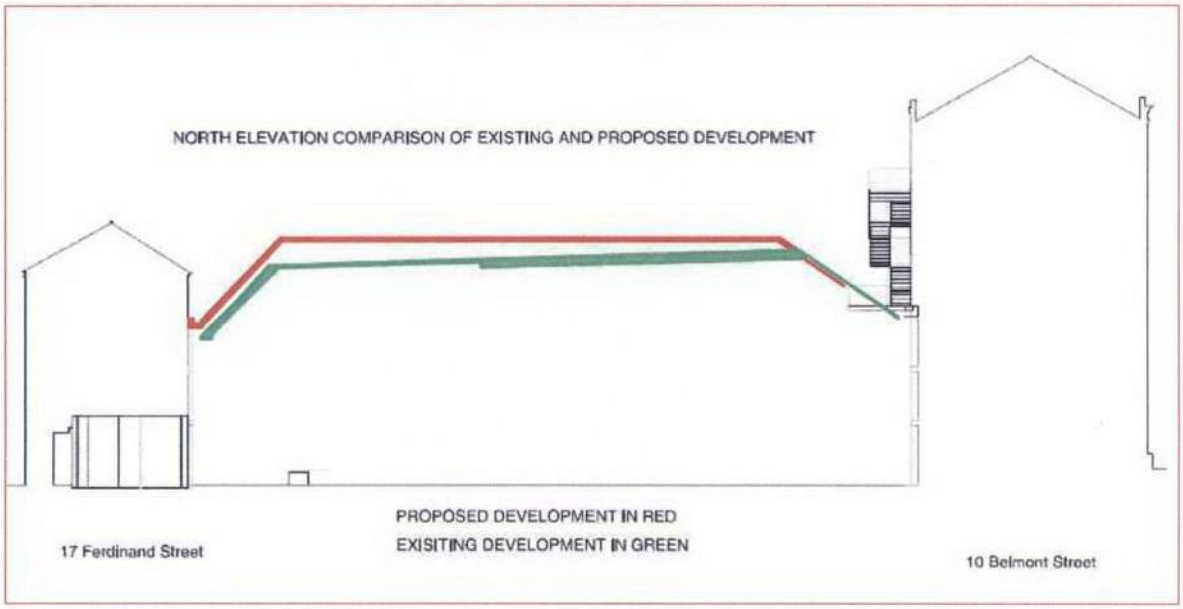

Figure 7: North elevation of existing and proposed roof lines.

Summary of the 25 Degree Test Results

3.16 A 25 degree daylight test has been undertaken to assess the impact the increased height of the proposed building will have on the amount of daylight received by the windows of the adjacent buildings at 10a Belmont Street, 17 Ferdinand Street and buildings to the north and south of the proposed development.

3.17 An increase in the building height of 0.6m proposed by the mixed use building will not have an adverse effect on the amount of daylight received by the existing offices at 10a Belmont Street. The residential buildings located within the courtyard to the north of the proposed development will also remain unaffected by the proposed change in building height.

3.18 Windows 4 and 6, located on the first and second floor of the existing building at 17 Ferdinand Street will experience a reduction in daylight availability as a consequence of the increased height of the building. The 25 degree test also identified that the proposed mixed use development will receive a reduction in daylight due to the presence of the buildings at 63 – 70 Chalk Farm Road. The south facing ground floor commercial units will experience restricted daylight availability; however it is recognised that this is a constraint of the site and that adequate daylight will be received at the north elevation for the open plan offices. Apartments 1, 2 and 6 located on the first floor on the south elevation will also be affected by the buildings on Chalk Farm Road.

3.19 Further daylight/sunlight tests have been undertaken to assess the amount of daylight received by windows 4 & 6 at 17 Ferdinand Street and apartments 1, 2 and 6 located on the first floor of the proposed building. The following sections of this report present the methods of assessment used and their findings.

4.0 VERTICAL SKY COMPONENT

4.1 The 25° line check showed that two windows on 17 Ferdinand Street will be affected by reduced daylight availability as a result of the proposed development. These windows are identified on Figure 5 as windows 4 and 6.

4.2 Vertical sky component calculations have been carried out for both these windows using the skylight indicator method detailed in Appendix 1 of the BRE publication 'Site Layout Planning for Daylight and Sunlight'. This method requires that the indicator is placed with its origin on the reference point (in this case the windows being assessed) and the distance to the height ratio of any obscuring point be plotted. The skylight indicator has 80 crosses each of which equates to 0.5% Vertical Sky Component. Only crosses that are not covered by the areas plotted from the obscuring points count towards the Vertical Sky Component.

4.3 The Skylight indicators for windows 4 and 6 of 17 Ferdinand Street are shown below. The areas located below the yellow line are obscured.

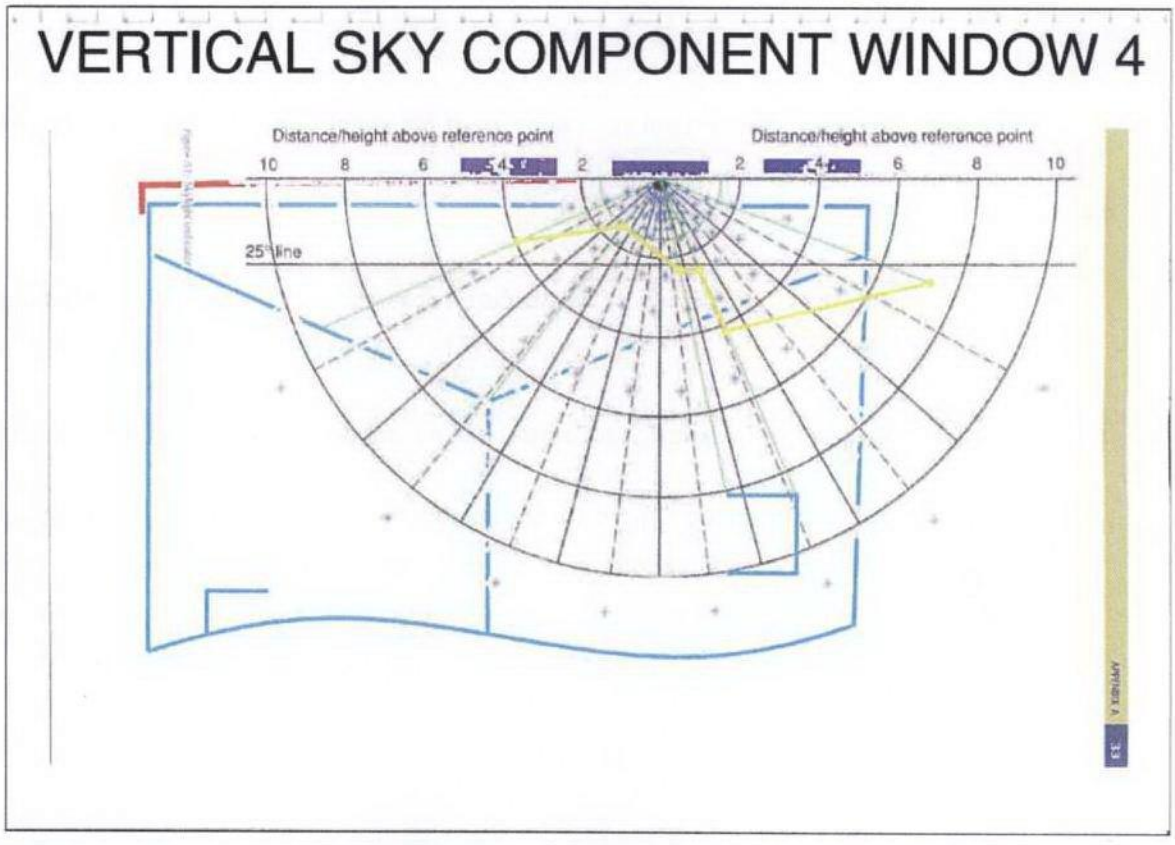

Figure 8: Results of the Vertical Sky Component for window 4 at 17 Ferdinand Street

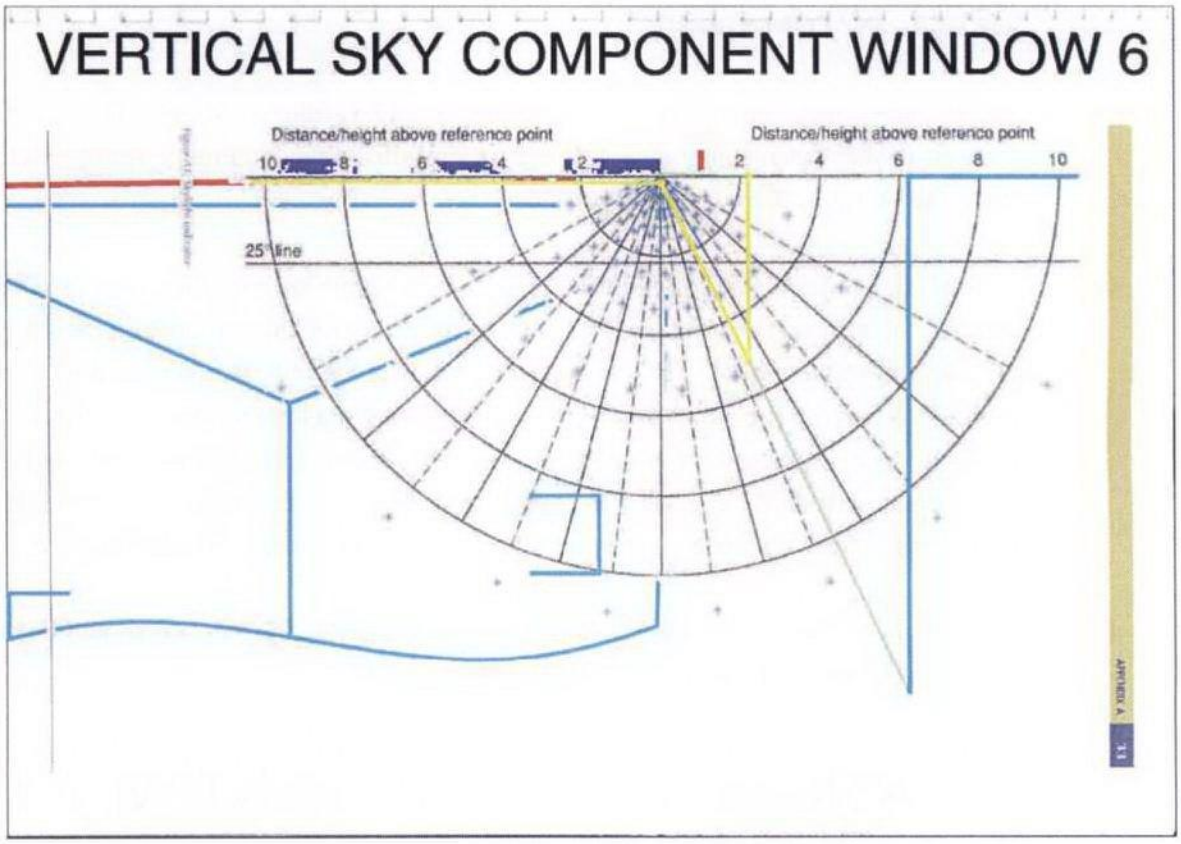

Figure 9: Results of the Vertical Sky Component for window 4 at 17 Ferdinand Street

4.4 The sky light indicators show the following:

Window	Un-obscured crosses	Vertical Sky Component
4	52	26%
6	17	8.5%

Table 2: Results of the Vertical Sky Component for windows 4 and 6 at 17 Ferdinand Street

4.5 As both windows fall below the 27% Vertical Sky Component threshold specified by the London Borough of Camden additional analysis is required using the Average Daylight Factor method.

5.0 AVERAGE DAYLIGHT FACTOR

5.1 The 25 degree test indicated that the windows on the first and second floor of the existing building at 17 Ferdinand Street will experience a reduction in daylight availability as a consequence of the increased height of the building. The Vertical Sky Component method suggests that both the windows fall below the minimum vertical threshold specified by Camden. An assessment of the average daylight factor is recommended in such cases where the thresholds cannot be achieved.

5.2 The 25 degree test also identified that the proposed mixed use development will receive a reduction in daylight due to the presence of the buildings at Chalk Farm Road, with particular reference to bedroom areas of apartments 1, 2 and 6 located on the first floor.

5.3 The average daylight factors of these areas have been calculated using the IES VE program.

5.4 Average daylight factors are specified by Camden's Planning Document CPG 6 – *Amenity* as an acceptable method for assessing likely daylight availability. The daylight factor is the ratio of the internal to external illuminance. As a ratio it will be constant irrespective of time of day or year. The daylight factor is measured using the CIE standard overcast sky and as such only the indirect sky light component (not direct sun light) is assessed. This is essentially the worst case scenario for assessing daylight availability.

5.5 The proposed development and the surrounding buildings that would affect daylight access have been modelled using the IES VE program. Figure 9 below shows a view of the simulation model looking from the south west.

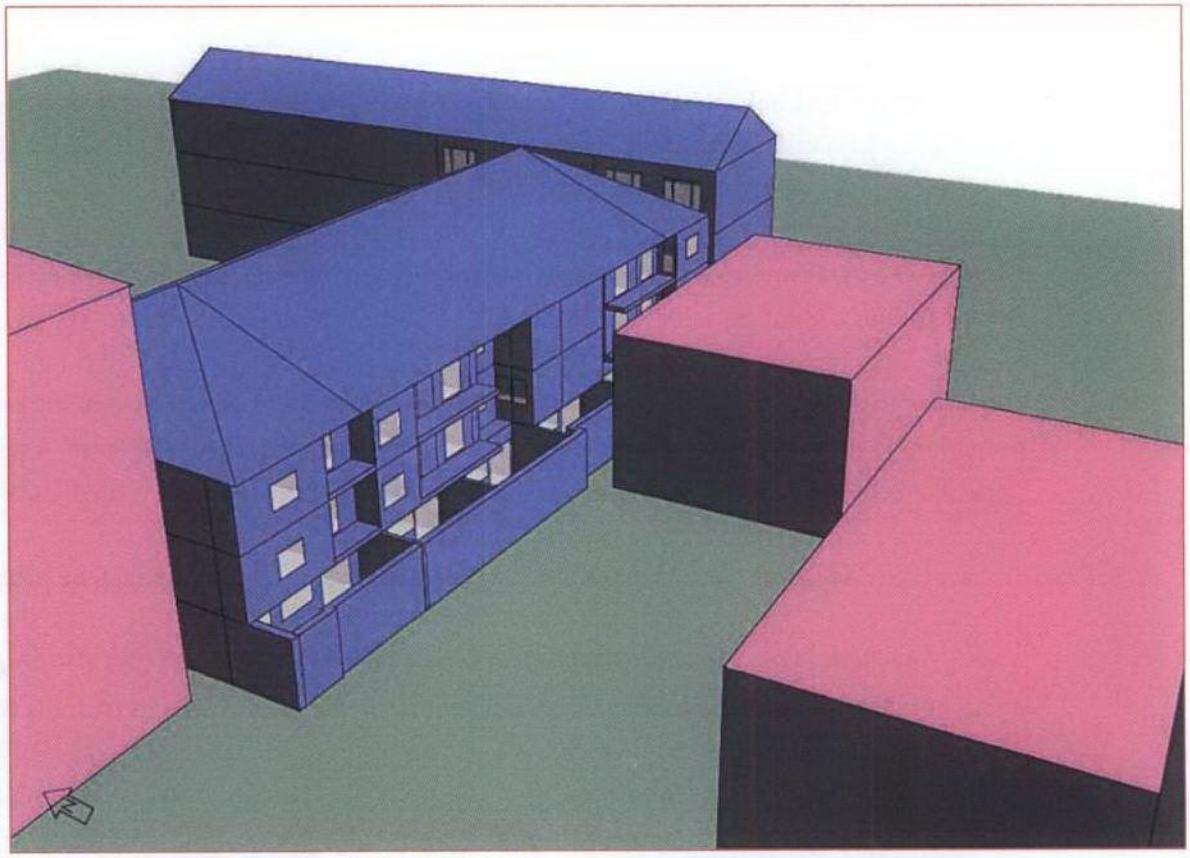

Figure 10: Simulation model from IES VE Program from a south west orientation

5.6 The blue buildings are those that have been analysed for daylight access. Both the proposed new development and the existing building at 17 Ferdinand Street have been analysed. The magenta buildings are those that will obscure daylight access to those areas of the development that have been identified by the 25 degree line check as problematic. All dimensions for the proposed and existing surrounding buildings have been based upon drawings supplied by GLA Architecture and Design.

Average Daylight Factor - 17 Ferdinand Street

5.7 The internal layout of 17 Ferdinand Street has been based upon information supplied by GLA Architecture and Design. The windows identified by the 25 degree line test and the Vertical Sky Component analysis (windows 4 and 6 in Figure 4) are located on the 1st and 2nd floors of the southern building end stairwell of 17 Ferdinand Street.

5.8 The images below indicate the daylight factor distribution within the end stairwell at 17 Ferdinand Street and a corresponding scale for daylight factors. The scale ranges from daylight factors of 0 to 20.

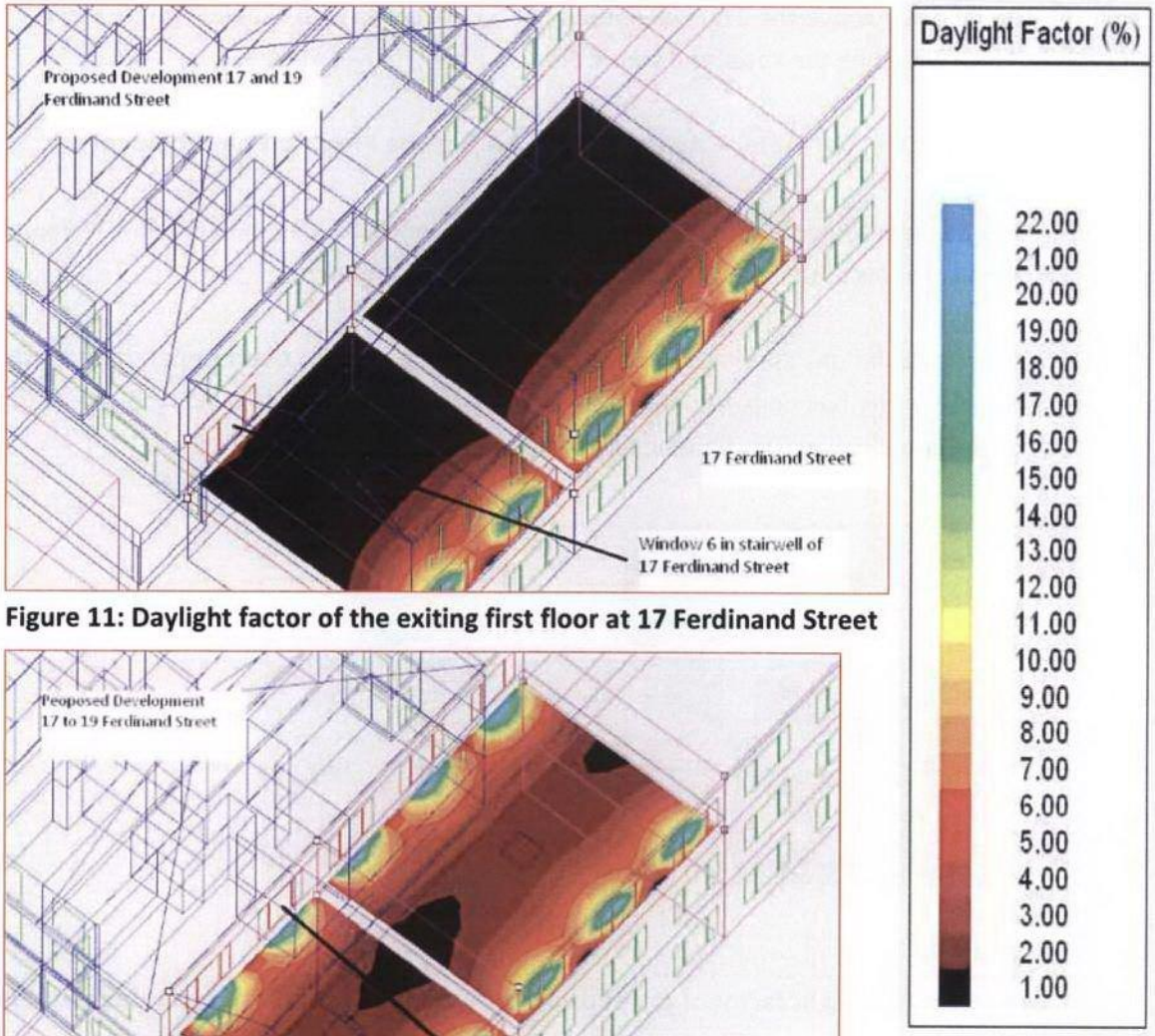

Figure 11: Daylight factor of the exiting first floor at 17 Ferdinand Street

Figure 12: Daylight factor of the exiting second floor at 17 Ferdinand Street

5.9 The results from the daylight analysis are displayed in the following table. The table shows the average daylight factor of the first and second floor stair well.

17 Ferdinand Street	Average Daylight Factor
1st floor stair well	3%
2nd floor stair well	5.6%

Table 3: Daylight factor results for the first and second floor stairwell at 17 Ferdinand Street

5.10 There are no minimum recommended daylight factor levels for a staircase as these zones are typically only subject to transient occupancy. The daylight factor levels shown are however

significantly above the 2% level noted in CPG 6 for areas with supplementary electric lighting which would be the case for a stair well.

Average Daylight Factor – Apartments 1, 2 & 6 of the Proposed Development

5.11 The daylight factor distribution along with a reference scale is shown below in Figure 10 for the bedrooms of flats 1, 2 and 6 of the proposed development.

5.12 These calculations assume standard levels of reflectance for the internal room surfaces and the obscuring buildings as defined by the Chartered Institute of Building Services Engineers (CIBSE) publication 'Day lighting and Window Design'.

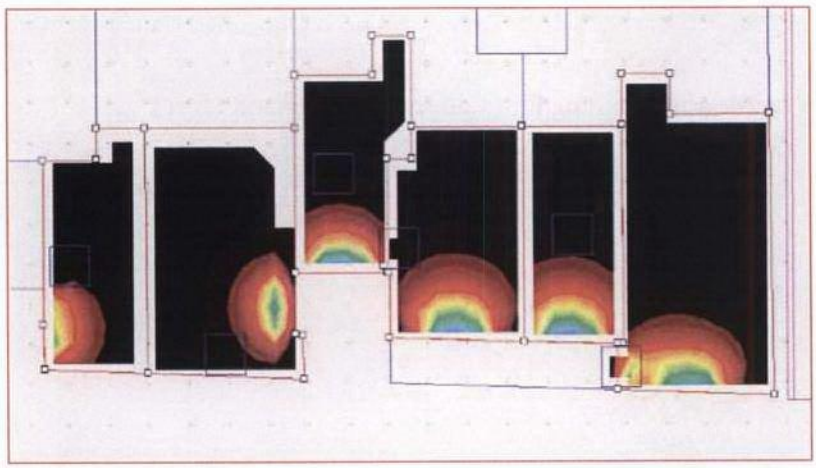

Figure 13: Daylight factor of the bedrooms on the first floor of the proposed development

5.13 The results from the daylight analysis are displayed in the following table. The table shows the average daylight factor of bedrooms of apartments 1, 2 and 6.

Proposed Development	Average Daylight Factor
Flat 1 bed 1	1.9%
Flat 1 bed 2	3.4%
Flat 2 bed 1	2.8%
Flat 2 bed 2	2.4%
Flat 6 bed 1	1.2%
Flat 6 bed 2	1.7%

Table 4: Daylight factor results for flats 1, 2 and 6 within the proposed development

5.14 The recommended daylight factor level for a bedroom is 1%. All of the bedrooms identified as potentially having restricted daylight availability will meet and exceed the minimum recommended daylight factor recommended for bedrooms.

6.0 CONCLUSIONS

6.1 Daylight modelling of the amount of daylight received by windows 4 and 6 at 17 Ferdinand Street indicates that the building will continue to maintain a daylight factor significantly above those recommended by the London of Borough of Camden within their Policy Document CPG 6 – *Amenity.*

6.2 This report also shows that the areas identified within the proposed new development subject to the greatest restrictions in daylight availability (the bedrooms of flats 1, 2 and 6) will also meet and exceed the minimum recommended daylight factor values.

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