AVONMOUTH HOUSE

DAYLIGHT, SUNLIGHT & OVERSHADOWING REPORT

DIRECTOR: LIAM DUNFORD

CLIENT: TRIBE AVONMOUTH HOUSE LIMITED

DATE: SEPTEMBER 2021

VERSION: V1
PROJECT: P2747

Point 2 Surveyors Limited, 17 Slingsby Place, London, WC2E 9AB



Contents

1	Introduction	3
2	Planning Overview	4
3	Methodology	5
4	Sources of Information	7
5	Standard Survey Limitations	8
6	The Site	9
7	The Proposed Scheme	10
8	Appropriate Daylight Targets	11
9	The Surrounding Properties	13
10	Overshadowing	17
11	Internal Daylight Study	18
12	Conclusions	19

.....

Appendices

Appendix 1: Site Plan & 3D Drawings

Appendix 2: Window Locations

Appendix 3: Daylight and Sunlight Technical Analysis

Appendix 4: Overshadowing Assessment

Appendix 5: Internal Daylight Assessment



1 Introduction

- 1.1 This report relates to the Stitch Proposed Scheme for the redevelopment of Avonmouth House, located in the London Borough of Southwark.
- 1.2 The proposal is for the demolition of existing building and structures and erection of a part 2, part 7, part 14, part 16 storey plus basement mixed-use development comprising 1733sqm (GIA) of space for Class E employment use and/or community health hub and/or Class F1(a) education use and 233 purpose-built student residential rooms with associated amenity space and public realm works, car and cycle parking, and ancillary infrastructure.
- 1.3 The report assesses the effects that the redevelopment will have on the daylight and sunlight amenity to the properties surrounding the site. It also considers the provision of daylight amenity within the proposed student accommodation.
- 1.4 In relation to overshadowing it assesses the effects that the proposal will have on Newington Gardens to the east of the site.



2 Planning Overview

- 2.1 It is usual to assess daylight and sunlight in relation to the guidelines set out in the 2011 Building Research Establishment (BRE) Report 'Site layout planning for daylight and sunlight A guide to good practice' by Paul Littlefair. This document is most widely accepted by planning authorities as the means by which to judge the acceptability of a scheme.
- 2.2 In an urban location, frequently site constraints and the proximity of neighbouring buildings mean that some windows or rooms will fall short of the guideline figures. However, the BRE guidelines are not mandatory, and they explicitly state that the numerical target values should be interpreted flexibly. While local planning authorities will consider the acceptability of a proposed scheme in relation to BRE guidance, consideration will be given to the context within which a scheme is located, and daylight and sunlight will be one of a number of planning considerations.
- 2.3 In relation to the properties surrounding a site, usually the local planning authority will only be concerned with the impact to main habitable accommodation (i.e. living rooms, bedrooms and kitchens) within residential properties.



3 Methodology

- 3.1 To quantify the effects of the proposed scheme we have constructed a three dimensional computer model of the site and relevant neighbouring properties. We have then undertaken technical analysis to measure the light received by neighbouring properties both before and after the Proposed Scheme is constructed.
- 3.2 To determine whether a neighbouring existing building may be adversely affected, the initial test provided by the BRE is to establish if any part of the proposal subtends an angle of more than 25° from the lowest window serving the existing building. If this is the case then there may be an adverse effect, and more detailed calculations are required to quantify the extent of any impact.
- 3.3 The BRE guidelines provide two principal measures of daylight for assessing the impact on properties neighbouring a site, namely Vertical Sky Component (VSC) and No-Sky Line (NSL). They also detail a third measure of daylight which is primarily used for assessing amenity within proposed accommodation, namely Average Daylight Factor (ADF).
- 3.4 In terms of sunlight we examine the BRE Annual Probable Sunlight Hours (APSH).
- 3.5 These measures of daylight and sunlight are discussed in the following paragraphs -

Diffuse Daylight

- 3.6 **Vertical Sky Component (VSC)** VSC is a measure of the direct skylight reaching a point from an overcast sky. It is the ratio of the illuminance at a point on a given vertical plane to the illuminance at a point on a horizontal plane due to an unobstructed sky.
- 3.7 For existing buildings, the BRE guideline is based on the loss of VSC at a point at the centre of a window, on the outer plane of the wall.
- 3.8 The BRE guidelines state that if the VSC at the centre of a window is less than 27%, and it is less than 0.8 times its former value (i.e. the proportional reduction is greater than 20%), then the reduction in skylight will be noticeable, and the existing building may be adversely affected.
- 3.9 **No-Sky Line (NSL)** NSL is a measure of the distribution of daylight within a room. It maps out the region within a room where light can penetrate directly from the sky, and therefore accounts for the size of and number of windows by simple geometry.
- 3.10 The BRE suggest that the area of the working plane within a room that can receive direct skylight should not be reduced to less than 0.8 times its former value (i.e. the proportional reduction in area should not be greater than 20%).



- 3.11 Average Daylight Factor (ADF) ADF is a measure of the overall amount of diffuse daylight within a room. It is the average of the daylight factors across the working plane within a room. This equates to the ratio of the average illuminance across the working plane, to the illuminance due to an unobstructed sky.
- 3.12 In addition to accounting for external obstructions, the ADF accounts for the number of windows and their size in relation to the size of the room, the window transmittance and the reflectance of the internal walls, floor and ceiling.
- 3.13 The ADF is detailed in Appendix C of the BRE Report. This provides guidance for acceptable ADF values in the presence of supplementary electric lighting, depending on the room use. These are 1.0% for a bedroom, 1.5% for a living room and 2.0% for a kitchen. With regard to combined Living/Kitchen/Dining Rooms (LKDs), while the presence of the kitchen area means that strictly the target ADF value is 2.0%, generally planners will consider the 1.5% target for a living room acceptable as this is the principal use.

Sunlight

- 3.14 Annual Probable Sunlight Hours (APSH) In relation to sunlight, the BRE recommends that the APSH received at a given window in the proposed case should be at least 25% of the total available, including at least 5% in winter.
- 3.15 Where the proposed values fall short of these, and the absolute loss is greater than 4%, then the proposed values should not be less than 0.8 times their previous value in each period (i.e. the proportional reductions should not be greater than 20%).
- 3.16 The BRE guidelines state that '...all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90 degrees of due south. Kitchens and bedrooms are less important, although care should be taken not to block out too much sun'.
- 3.17 The APSH figures are calculated for each window, and where a room is served by more than one window the contribution of each is accounted for in the overall figures for the room. The acceptability criteria are applied to overall room based figures.

Overshadowing

- 3.18 Section 3.3 of the BRE guidelines describes the method of assessment of the availability of sunlight within garden/amenity spaces. This relates to the proportion of shading on March 21st.
- 3.19 The BRE criteria for gardens or amenity areas are as follows, 'It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity space should receive at least two hours of sunlight on 21 March. If as a result of a new development an existing garden or amenity space does not meet the above, and the area which can receive two hours of sunlight on 21 march is less than 0.8 times its former value, then the loss of amenity is likely to be noticeable.'



4 Sources of Information

LRM Survey Service - 2D Survey (received 07/06/21)

Avonmouth House, 6 Avonmouth Street, SE1 6NX -

Topographical Survey.dwg

Stitch Architects - Proposed Scheme 3D Model (received 07/09/21)

210907-AvonmouthModel.skp

21235-STCH-XX-ZZ-DR-A-0200-0203.pdf 21235-STCH-SK-50-Geolocation.pdf

Proposed Scheme 2D Data (received 09/09/21) 21235-STCH-XX-02-DR-A-0103-Level 02.dwg 21235-STCH-XX-ZZ-DR-A-0300-Proposed building -

Section AA.dwg

21235-STCH-XX-ZZ-DR-A-0201-Proposed building -

East elevation.dwg



5 Standard Survey Limitations

- 5.1 Our understanding of the existing site and surrounding properties was established from the survey information, and site photographs.
- 5.2 In areas where elevational survey on the neighbouring properties was not available, we have made reasonable estimates as to window positions and size with reference to site photography and aerial imagery available online.
- 5.3 Where floor plan information could not be obtained, reasonable assumptions have been made as to the internal configuration of the rooms behind the fenestration. Unless the building form dictates otherwise, residential rooms have generally been assumed to be 4.2 m deep or half the depth of the building.
- In calculating ADF values to rooms with the Proposed Scheme, with reference to Appendix C of the BRE Report, a maintenance factor of 8 % (appropriate for urban residential properties) has been allowed. Light internal finishes within the planning consented developments surrounding the site give the following reflectance values: floors 0.4 (light wood or cream carpet), ceilings 0.85 (white paint), internal walls 0.81 (pale cream paint).



6 The Site



Drawing Number: P2747/03- 3D View -Existing Building

- 6.1 The site is located in the London Borough of Southwark.
- Our understanding of the site location and existing building can be seen within drawings P2747/01-03 that can be found within Appendix 1.



7 The Proposed Scheme



Drawing Number: P2747/09 – 3D View – Proposed Scheme

7.1 Our understanding of the Proposed Scheme is illustrated in drawings P2747/07-09 contained within Appendix 1.



8 Appropriate Daylight Targets

- 8.1 The BRE daylight and sunlight guidance was established in relation to a sub-urban environment.
- 8.2 As such, the default nationwide BRE numerical criteria are based on 25 degree development angles, which are frequently inappropriate, and indeed unachievable, in urban areas.
- 8.3 This is openly acknowledged by the BRE, and in its introduction, the BRE guide itself urges that the guidelines be interpreted flexibly:
- 8.4 "The advice given here is not mandatory......Although it gives numerical guidelines these should be interpreted flexibly......For example in an historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable...."
- 8.5 This is also acknowledged in the The Ministry of Housing Communities & Local Government National Planning Policy Framework where it states at paragraph 123.c:
- "local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."
- 8.7 Given the modest massing that currently occupies the site, existing light levels reaching the neighbouring properties from over the site are extremely good. It is therefore likely that any scheme that optimises the full development potential of the site will result in some proportional reductions that are in excess of default BRE guidance.
- 8.8 It is therefore important to consider the retained levels of amenity and whether they are commensurate with those for an urban location.
- 8.9 Appendix F of the BRE guidelines provides advice on setting alternative targets for access to daylight and sunlight. In relation to the default targets it says; "These values are purely advisory and different targets may be used ... for example, in a mews in a historic city centre, a typical obstruction angle might be close to 40 degrees. This would correspond to a VSC of 18%, which could be used as a target.'
- 8.10 In many urban areas, development angles of 40 degrees, or more, are common and a VSC of 18% has been a reasonable and accepted level of daylight in many desirable urban areas for well over a century.



- 8.11 In recent years the need to make best use of available land means that the redevelopment of previously comparatively low rise, low density sites has required an increase in density, with corresponding increases in typical development angles and reductions in daylight. In many recent developments, therefore, angles of greater than 40 degrees are not uncommon.
- 8.12 Indeed, in relation to this site and the immediate surrounding area, the recent construction of the new building at 87 Newington Causeway, to the south-west of the site, will have had a significant effect on Telford House. VSC values reaching the portion of Telford House located opposite 87 Newington Causeway are now in the region of 15%-16% (for example, see the existing VSC values for windows W22/100 & W23/100 in the table of results contained within Appendix 3). VSC values to the windows located below the external access desks are significantly below this level (circa 4% at ground floor level).
- 8.13 Accordingly, we consider VSC values in the region of 15% appropriate for the site location, and therefore that this level of daylight should be used as an alternative target.
- 8.14 Such targets apply to unfettered plain facades. The presence of balconies and external walkways can dramatically reduce VSC values at windows neighbouring a site, and for this reason, the BRE guidelines imply that the VSC figures under balconies should not be used to judge the acceptability of proposed massing.
- 8.15 Where balconies or walkways are present, we therefore present two sets of VSC figures, one with these obstructions in place, and one with their effect removed from the calculations.



9 The Surrounding Properties

- 9.1 The following surrounding properties contain residential accommodation and have been considered due to their proximity to the development site.
 - Telford House
 - Stephenson House
 - 57-61 Newington Causeway (Balppa House)
 - 2 Avonmouth Street
- 9.2 The locations of the above properties are shown in the drawings within Appendix 1.
- 9.3 The locations of the windows that have been assessed are shown in attached drawings P2747/WM/01-05 contained within Appendix 2.
- 9.4 Detailed figures for each window/room assessed can be found in Appendix 3. The results of the assessments are summarised below.

Telford House

- 9.5 This property is located to the south of the site.
- 9.6 The potentially affected rooms are a mixture of bedrooms and kitchens. There are also site facing WC and entranceway windows, however these have been discounted from the assessment as these are not main habitable space.
- 9.7 It is important to note that the main living rooms within these flats are located on the opposite side of the block, and as such will be unaffected by the Proposed Scheme.

Daylight -

- 9.8 Reductions to all windows and rooms located in the north-west facing elevation fully accord with BRE VSC and NSL guidance.
- 9.9 While there will be some noticeable reductions to windows and rooms in the north elevation that directly faces the site, retained levels of daylight remain very good for the urban location.
- 9.10 Discounting the effects of the walkways, as per BRE guidance, all the north facing windows (W1/100-W11/100, W1/101-W11/101 etc.) will retain VSC values upwards of circa 24%.
- 9.11 This is significantly more that the appropriate target of 15% discussed in Section 8 above.
- 9.12 Overall, we therefore consider the effects on the property to be acceptable.



Sunlight

9.13 As the site is located to the north of the property, sunlight is not an issue.

Stephenson House

- 9.14 These flats are located to the south of the site.
- 9.15 As with Telford House, the potentially affected rooms are a mixture of bedrooms and kitchens. There are also site facing WC and entranceway windows, however these have been discounted from the assessment as they are not main habitable space.
- 9.16 It is important to note that the main living rooms within these flats are located on the opposite side of the block, and as such will be unaffected by the Proposed Scheme.

Daylight -

- 9.17 While there will be some proportional reductions in VSC that exceed the guideline 20%, all of these windows are all located behind access decks, meaning that they receive lower levels of daylight in the existing situation. The largest absolute reduction in VSC is 4.6% to 1st floor window W1/121, This is a small absolute level of light loss, and therefore the overall level impact can be considered minor.
- 9.18 Furthermore, removing the effects of the access decks as per BRE guidance, proportional reductions to all but 2 windows would be less than 20% (i.e. not noticeable), and retained VSC levels would generally be upwards of 18-19% (i.e., compare favourably with the appropriate target of 15% as discussed in Section 8).
- 9.19 The overall effects on daylight amenity to the property are therefore minor. This is supported by the NSL analysis, which shows that the effects are in full accordance with BRE guidance.

Sunlight

14-

9.20 As the site is located to the north of the property, sunlight is not an issue.

57-61 Newington Causeway (Balppa House)

- 9.21 These flats are located to the south of the site.
- 9.22 The site facing windows are located to the rear of the property. The primary windows serving the main living accommodation within the block face onto Avonmouth Street and Newington Causeway, and as such will be unaffected by the redevelopment of the site.
- 9.23 We have assessed the effects on 7 rooms that are served by 7 site facing windows. Three of these rooms are dual aspect, with another window located on the opposite side of the property.

Daylight -

- 9.24 Due to the constrained location of the windows to the rear of the property, existing light levels reaching them are relatively low, meaning that even a small reduction in VSC can result in a larger proportional reduction.
- 9.25 The figures show that proportional reductions in VSC to 2 of the 7 site-facing windows assessed (W1/263 & W1/264) are less than 20%, and are therefore in accordance with BRE guidance.
- 9.26 Two further windows (W1/261, W1/262) experience proportional reductions 20.5% and 22.1% respectively. These reductions are only marginally in excess of the guideline 20%, and the absolute losses of 1.2% and 1.9% are very minor. Furthermore, the rooms that these windows serve are both bedrooms, and daylight to bedrooms in less important than that to living rooms.
- 9.27 The remaining 3 site-facing windows assessed (W2/261, W2/262 & W2/263) would experience proportional reduction of 49.0%, 41.7% and 27.1% respectively. However, the absolute reductions in VSC are relatively small.
- 9.28 Furthermore, estate agent particulars show that the 2nd floor room (R2/262) served by W2/262 is an open plan living/kitchen/dining room, with its main window located on the opposite site of the property (and thus totally unaffected). We assume that this arrangement is repeated at 1st and 3rd floors (rooms R2/261 & R2/263).
- 9.29 The overall effects on daylight to these rooms will not be material. This is confirmed by the ADF analysis which shows that in each case overall levels of daylight within the room will not be reduced by more than 6.8%. The NSL figures also show minimal reductions.
- 9.30 Indeed, NSL reductions to all rooms within the property fully accord with BRE guidance.
- 9.31 Overall, we conclude that there will not be a material effect on the daylight amenity to this property.

Sunlight -

- 9.32 Each of the 3 potentially affected living/kitchen/dining rooms (R2/261, R2/262 & R2/263), and also room R2/264, will retain very good overall levels of sunlight (at least 28% of APSH, compared to the default BRE target of 25%).
- 9.33 While reductions to these room are not fully compliant with guidance, this is due to small reductions in winter sunlight. However, this is not unusual in an urban location for example, in midwinter the sun's maximum elevation is around 15 degrees above the horizon, and this is lower than a typical urban skyline.



- 9.34 The remaining 3 rooms are all bedrooms, and sunlight to bedrooms is considered less important by the BRE. Room R1/263 retains 18% of APSH; although this is below the BRE guideline target of 25%, it remains a good level of sunlight for an urban location. Room R1/262 experiences an absolute reduction in APSH of 5%, this is only 1% more than the BRE threshold of 4%. Reductions to bedroom R1/261 fully accord with guidance.
- 9.35 Overall, we consider there will not be a material effect on the sunlight amenity to this property.

2 Avonmouth Street

- 9.36 This property is located to the north of the site.
- 9.37 We have assessed 10 windows serving 6 rooms within this property.

Daylight -

- 9.38 Reductions in VSC to all but one of the windows assessed are small and in full accordance with BRE guidance.
- 9.39 Window W1/281 experiences a proportional reduction of 28.3%, which is marginally in excess of the guideline 20%. The retained VSC to this window of 23.6% represents a very good level of daylight for an urban location. Furthermore, this window is located in the flank wall of the property and as such it is unlikely that is serves main habitable accommodation.
- 9.40 Considering NSL, reductions to all rooms are small and in full accordance with BRE guidance.
- 9.41 The proposal will not have a material effect on the daylight amenity to this property.

Sunlight -

- 9.42 Reduction is sunlight to all but one window are in full accordance with BRE guidance. Window W1/282 experiences a reduction in winter sunlight that is in excess of guidance, but this is not unusual in an urban location. For example, in midwinter the sun's maximum elevation is around 15 degrees above the horizon, and this is lower than a typical urban skyline. The window retains 30% of total APSH, which is a very good overall level of sunlight.
- 9.43 The proposal will not have a material effect on the sunlight amenity to this property.



10 Overshadowing

- 10.1 In relation to overshadowing, the effects that the proposal will have on Newington Gardens to the east of the site has been considered.
- 10.2 To assess the effects of the proposal, we have undertaken 'Time in Sun' analyses. The results of these assessments are shown on the drawings contained within Appendix 4.
- 10.3 Drawing P2747/TIS/03 shows that the proposal will have a negligible effect on sunlight amenity on March 21st. There will be no change in the area that can receive at least 2 hours of sunlight, with over 99% of the area being able to do so.
- 10.4 Drawing P2747/TIS/04 illustrates the effects of the proposal on June 21st. While there would be some overshadowing in the late afternoon/evening (when the sun is lower in the sky to the west), overall amenity will remain excellent 90% of the area will continue to be able to receive at least 10 hours of sunlight.
- 10.5 The proposal very comfortably accords with BRE overshadowing guidance.



11 Internal Daylight Study

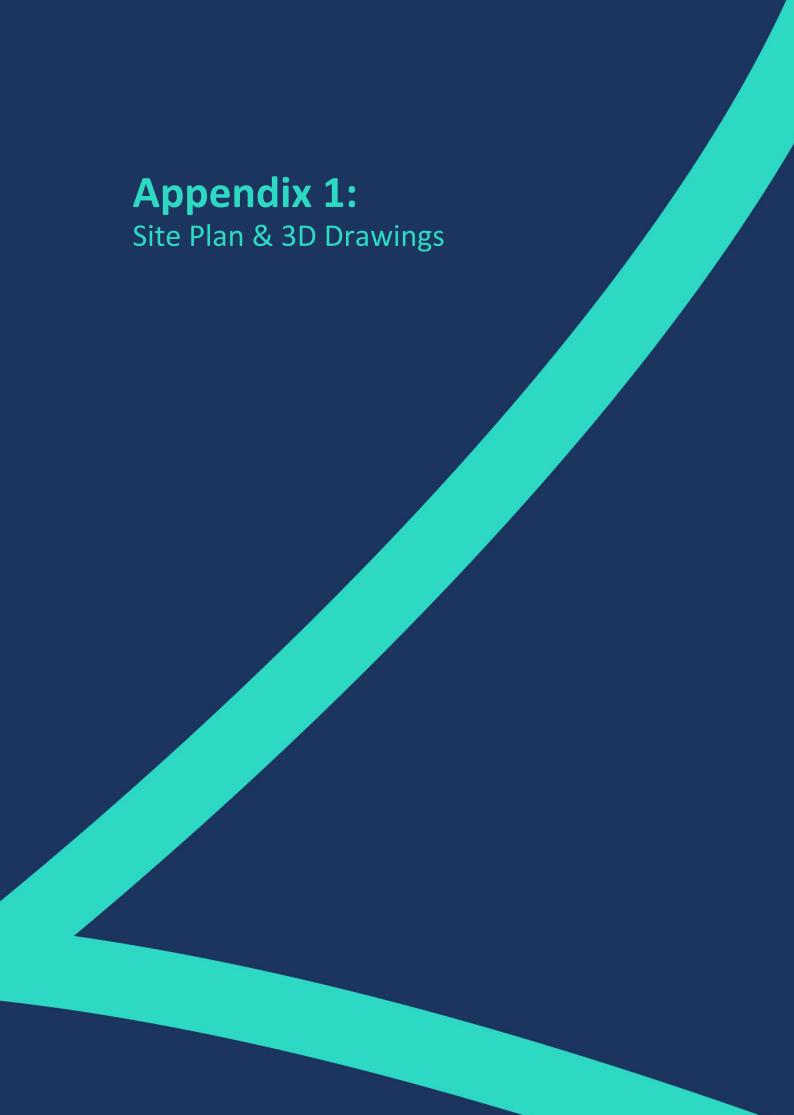
- 11.1 To assess daylight amenity within the proposed student accommodation we have calculated the ADF for each habitable room on the Level 2 (the lowest level containing residential accommodation). Naturally, daylight levels will improve going up the building.
- 11.2 We have undertaken the assessment notionally removing the circulation space outside the bathrooms to the rear of the bedrooms from the calculations, just assessing the main living spaces.
- 11.3 Drawing P2747/INT/02 contained within Appendix 5 shows the internal arrangements and associated ADF values.
- 11.4 All the bedrooms will achieve ADF values upwards of 1.7%, which is comfortably in excess of the 1.0% target for a bedroom.
- 11.5 Similarly, all the communal kitchen areas will achieve ADF values of over double the BRE target of 2.0% for a kitchen.
- 11.6 The only room that is below guidance is Studio R7/1002, which still achieves an ADF of 1.0%, the target for a bedroom. The equivalent room on level 03 would achieve an ADF of 1.9% as it has improved access to skylight over 63-67 Newington Causeway to the north.
- 11.7 Daylight amenity within the proposed accommodation will therefore be very good.

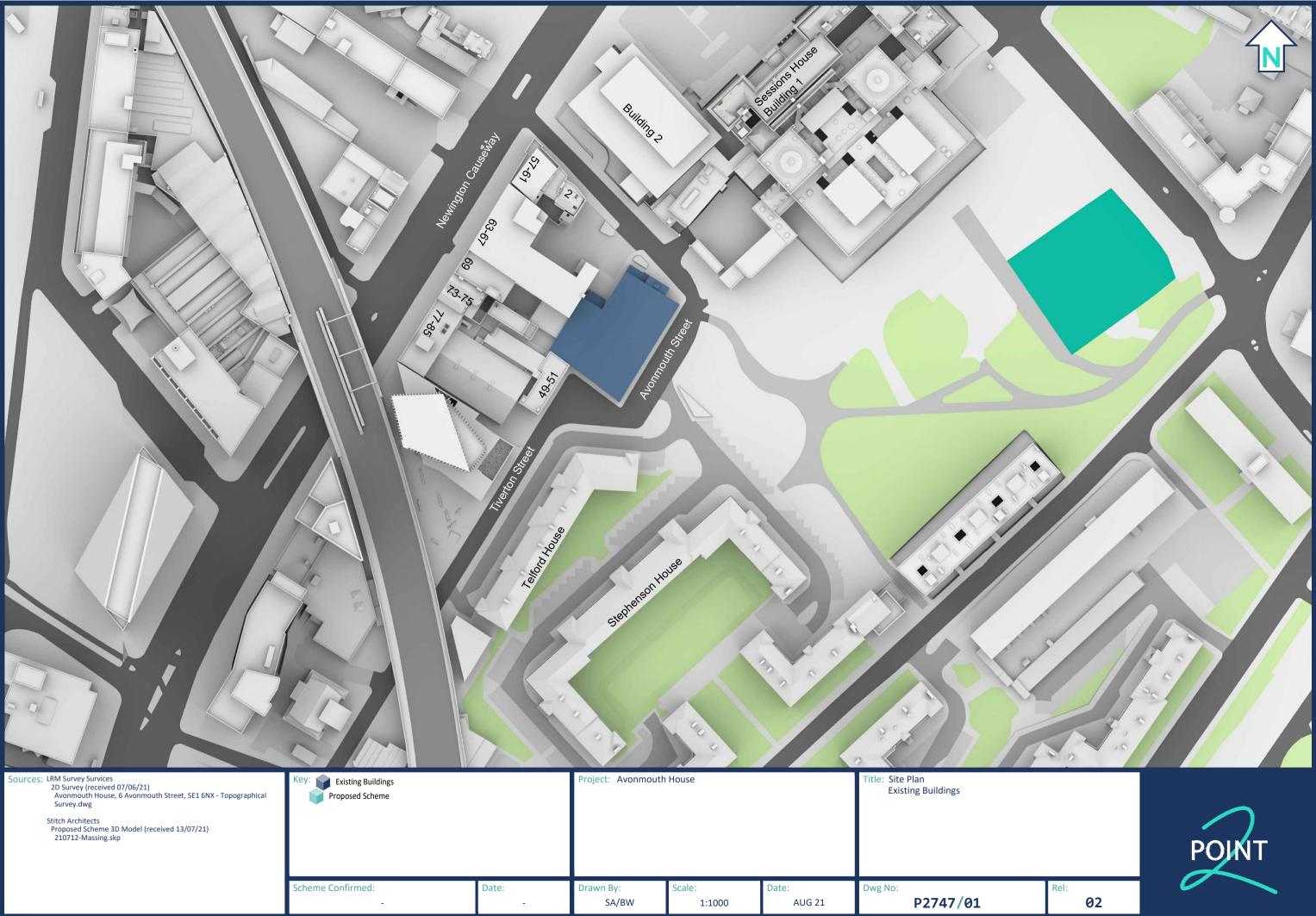


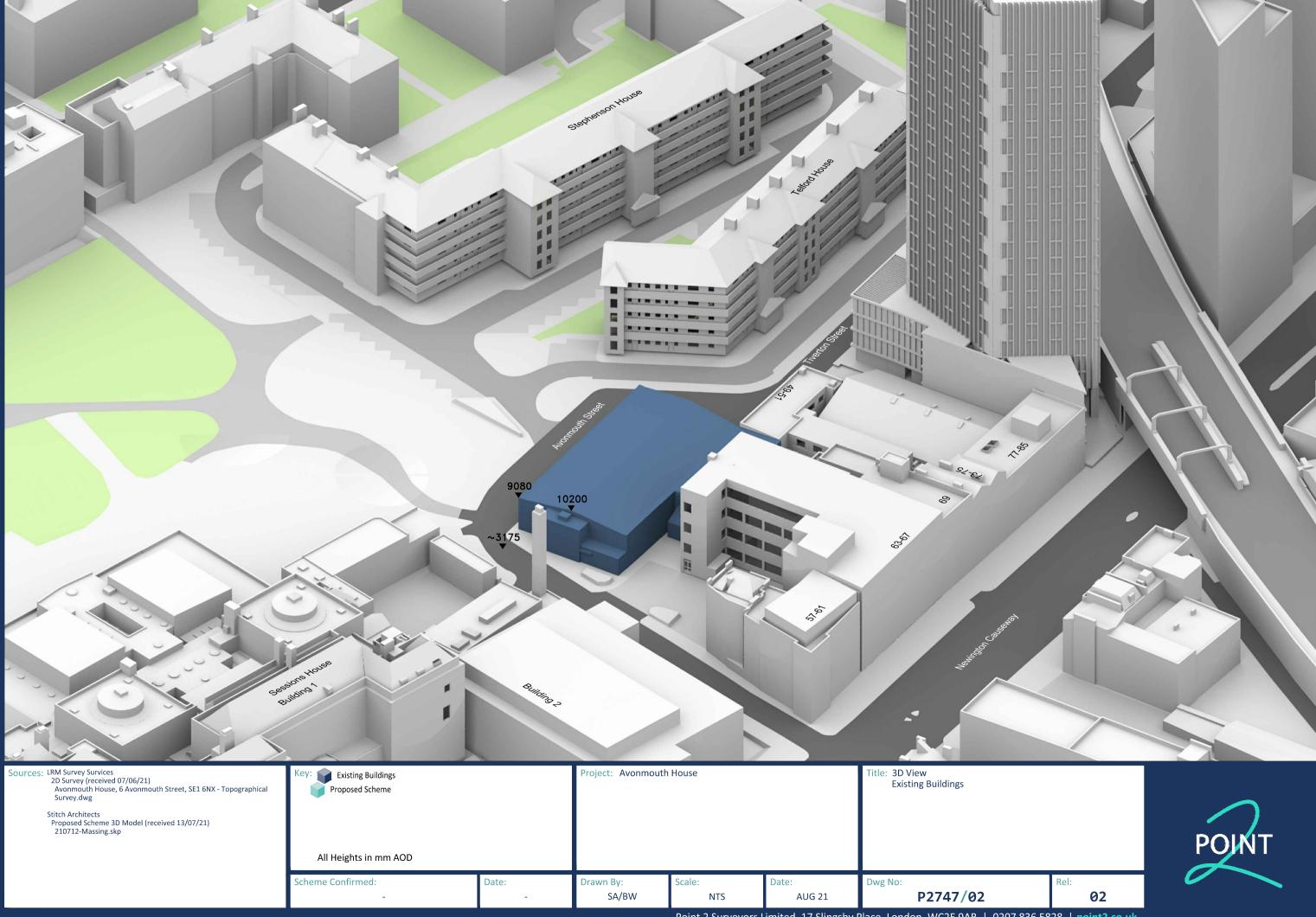
12 Conclusions

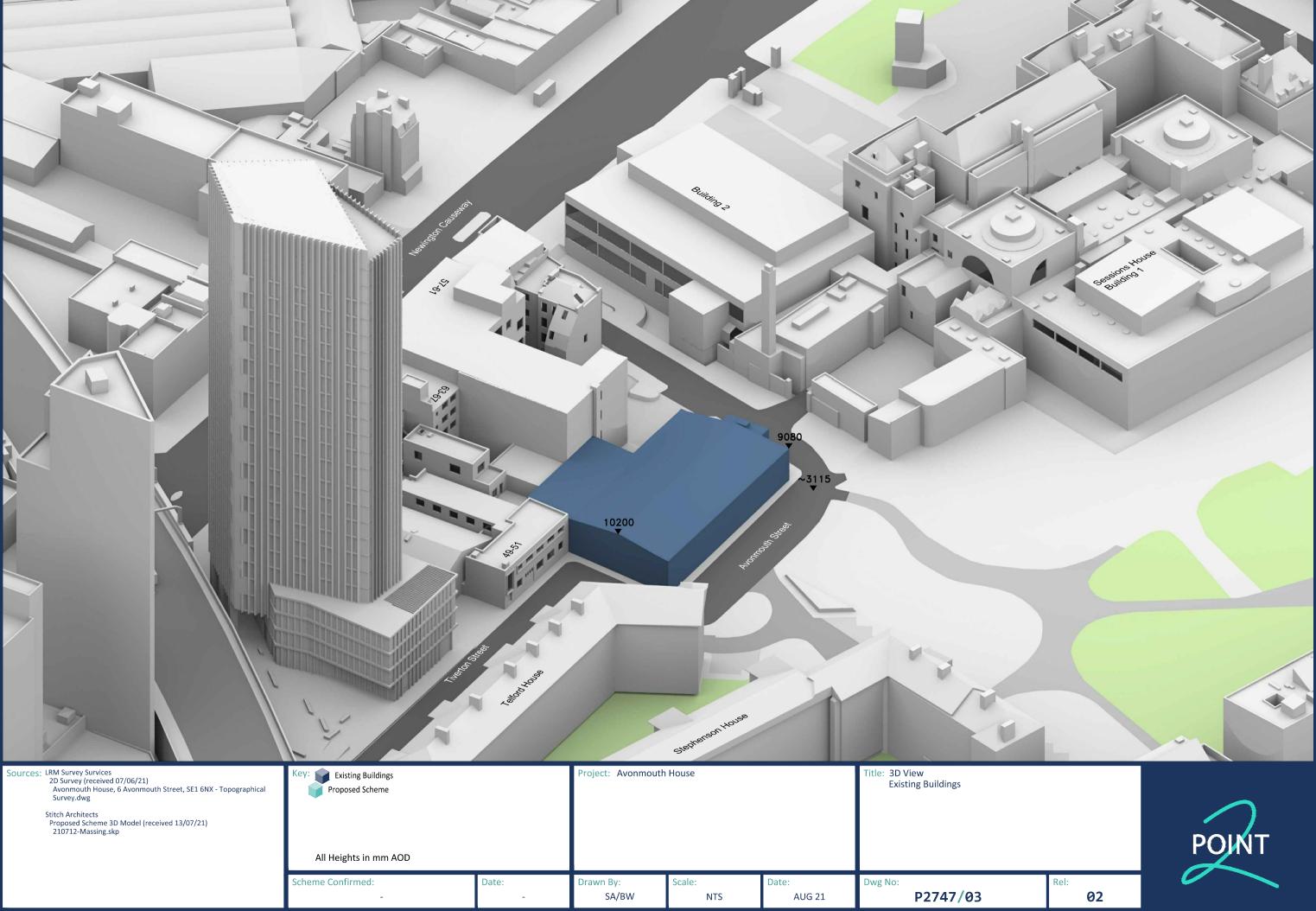
- 12.1 We have considered the effects of the Proposed Scheme on the properties neighbouring the site in relation to the BRE guidelines on daylight and sunlight.
- 12.2 The report has also considered the provision of daylight amenity within the proposed residential accommodation, and the overshadowing effects on Newington Gardens.
- 12.3 In relation to the daylight and sunlight effects on neighbouring residential properties, while there will inevitably be some noticeable reductions as the existing site massing is modest, overall, we consider the effects to be acceptable. Retained levels of amenity are generally good and compare favourably with those appropriate for the urban location.
- 12.4 Daylight amenity within the scheme will be very good, and the level of compliance with BRE targets is excellent for a high density scheme such as this.
- 12.5 In relation to overshadowing, Newington Gardens will retain excellent levels of sunlight amenity after development.
- 12.6 We therefore conclude that the effects of the Proposed Scheme in relation daylight, sunlight and overshadowing are acceptable.

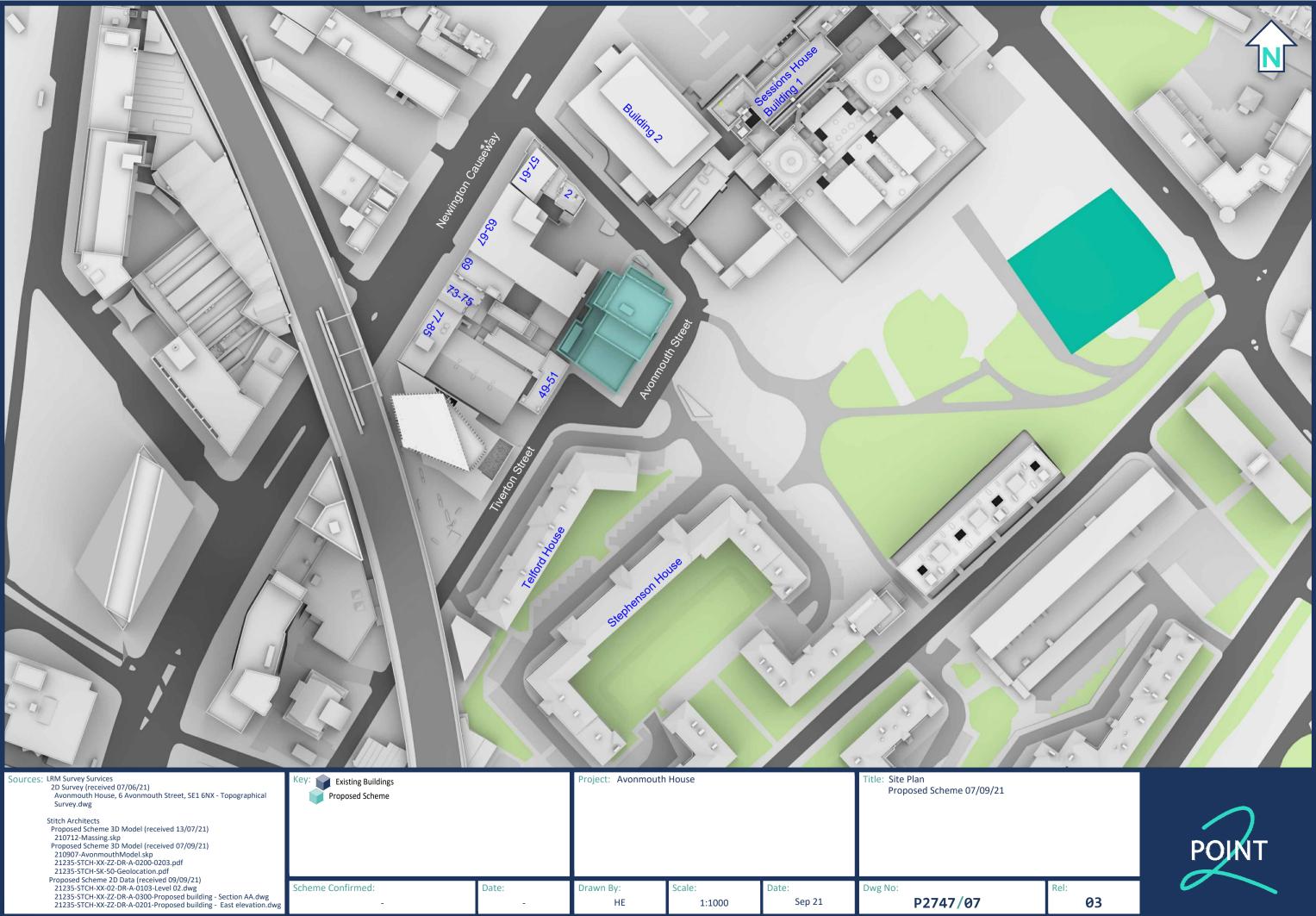




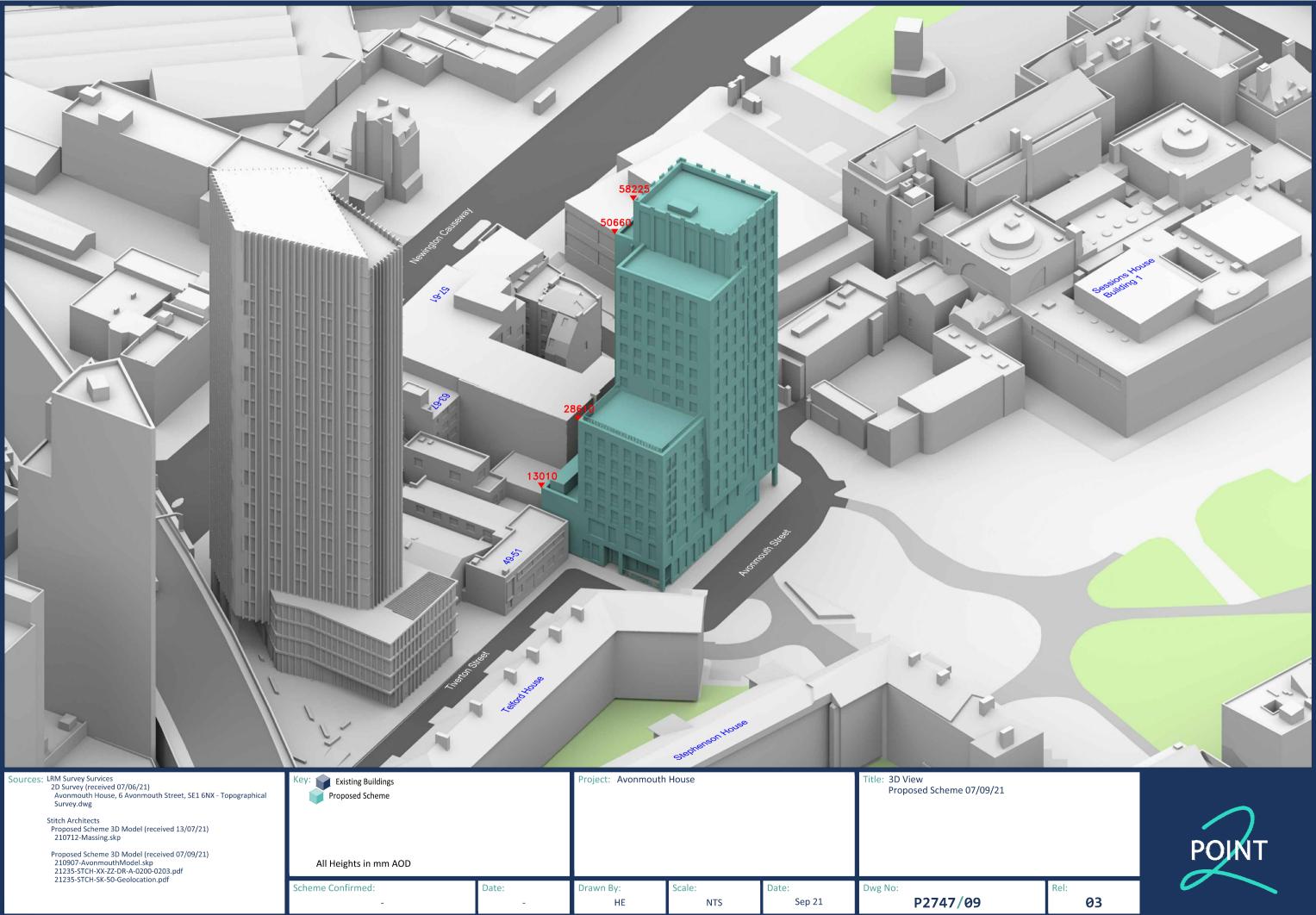












Point 2 Surveyors Limited, 17 Slingsby Place, London, WC2E 9AB | 0207 836 5828 | point2.co.uk