SYNTEGRA CONSULTING

135-149 Shaftesbury Avenue

London

WC2H 8AH

2018/0037/L: Ecology Statement of Support for Appeal

October 2020

Ref: 17-3621

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Revision	-	*2*	*3*
Date	19/03/2020	20/10/2020	02/11/2020
Prepared by	P. Holden (on behalf of Syntegra Consulting Ltd)	P.Holden	P.Holden
Checked by	S. Prior		
Authorised by	P. Holden MSc MCIEEM	P.Holden	P.Holden

Note

The advice which we have prepared and provided within this report is in accordance with the CIEEM Code of Professional Conduct. We confirm that the opinions expressed are our true and professional opinions. Opinions and information provided in the report are based on Syntegra Group Ltd using reasonable skill, care and diligence in the preparation of the same in compliance with the CIEEM Code of Professional Conduct.

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The conclusions and recommendations contained in this report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by SC has not been independently verified by SC, unless otherwise stated in the report.

The methodology adopted and the sources of information used by SC in providing its services are outlined in this report. The work described in this report was undertaken in **2020** and is based on the conditions encountered and the information available during the said period of time. The scope of this report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

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1 EXECUTIVE SUMMARY

Syntegra Group was commissioned by the agent, Asserson, on behalf of the client, Capitalstart Limited, to conduct review The Phoenix Garden Rule 6 Statement of Case and to assist with the appeal against Camden Council's decision to refuse an application for redevelopment of the site.

Syntegra Consulting was commissioned by Capital Start Limited, to conduct a Preliminary Ecological Assessment Survey at 135-149 Shaftesbury Avenue, Holborn, London, WC2H 9AH. The PEA Survey was undertaken on the 1st November 2017.

The site consists of a detached building, set within a hard-standing ground with offsite boundary trees.

The results of the PEA determined the site to be of lower ecological value with no signs of nesting birds or potential for roosting bats.

Since production of the report, the applicant has proceeded with planning and the application was refused on the grounds that: '*The proposed rooftop extension, by reason of the proposed height, mass, detailed design and materials would compromise the form, architectural character and historic interest of the host listed building, and in combination with the change of its main use to a hotel, would result in less than substantial harm to the significance of the host listed building and nearby surrounding Seven Dials and Denmark Street Conservation Areas, contrary to Policy D2 (Heritage) of the Camden Local Plan 2017'.*

Although, the decision for refusal is not on the grounds of ecology, consultation has received a statement of case by The Phoenix Garden. Syntegra Group has reviewed the statement of case and has addressed the concerns raised by The Phoenix Garden.

2 ECOLOGIST INFORMATION

2.1. Patricia Holden has over fifteen years of experience as a practicing ecologist and specialises in ecology surveys, management plans, and impact assessments. Patricia has experience of undertaking habitat, BREEAM assessments and protected species surveys including: Preliminary Ecological Appraisals/Extended Phase 1 Habitat Surveys, bats, great crested newts, reptiles, badgers, barn owls, and water vole. She has worked on numerous small to large scale mitigation projects for newts, reptiles, badgers and bats. Examples include undertaking of surveys for Highgate and Newton Community Centre, and a range of cemetery development sites for CDS Group across South and Central England. Patricia is a full member of the Chartered Institute of Ecology and Environmental Management.

2.2. The evidence which I have prepared and provide for these appeal references APP/X5210/W/19/3243781 and APP/X5210/Y/19/3243782 (in this proof of evidence, written statement or report) is true and has been prepared and is given in accordance with the guidance of my professional institution and I confirm that the opinions expressed are my true and professional opinions.

3 LOCAL PLAN

3.1. In line with in line with Policy 7.19: Biodiversity and Access to Nature of The London Plan (2016), '*Development Proposals should: wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity and prioritise assisting in achieving targets in biodiversity action plans (BAPs).* In line with Local Policy A3: Biodiversity of The Camden Local Plan 2017, '*The Council will protect and enhance sites of nature conservation and biodiversity. We will: a. designate and protect nature conservation sites and safeguard protected and priority habitats and species; b. grant permission for development unless it would directly or indirectly result in the loss or harm to a designated nature conservation site or adversely affect the status or population of priority habitats and species; c. seek the protection of other features with nature conservation value, including gardens, wherever possible; d. assess developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed; e. secure improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor; f. seek to improve opportunities to experience nature, in particular where such opportunities are lacking; g. require the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species; h. secure management plans, where appropriate, to ensure that nature conservation objectives are met; and i. work with The Royal Parks, The City of London Corporation, the London Wildlife Trust, friends of park groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden'.*

3.2. The site has low potential for use by nesting sites for local birds, negligible potential for use by roosting bats, low to no potential for use by foraging and traversing bats, low to no potential for use for use by foraging and breeding invertebrates, no potential for hedgehogs, and no potential for reptiles. In line with both Policy 7.19 of the London Plan and Camden Local Plan Policy A3, the application site must ensure retainment and enhancements for local biodiversity. As the proposed site has little to no ecological value, any onsite enhancement will ensure a net gain for biodiversity. Recommended enhancements include placement of up to ten swift bricks within the upper floors, away from lighting, windows and best placed on either the northern or eastern walls. Use of a green roof (biodiverse) was recommended in the PEA Report and it is still recommended within the roof spaces of the Lift Overruns. <u>These recommended enhancement measures would ensure a net gain and would also meet the aims of biodiversity policies in both the London Plan and Camden Local Plan.</u>

3.3. The site is situated within 10 metres of The Phoenix Gardens, CaL04, a SINC of Local Importance. Sites of Importance for Nature Conservation (SINC) are recognised by The Greater London Authority and Councils as sites that are considered to hold important features for wildlife and are categorised in the following ranking order: SINC of Metropolitan Importance, SINC of Borough Importance (I and II) and SINC of Local Importance.

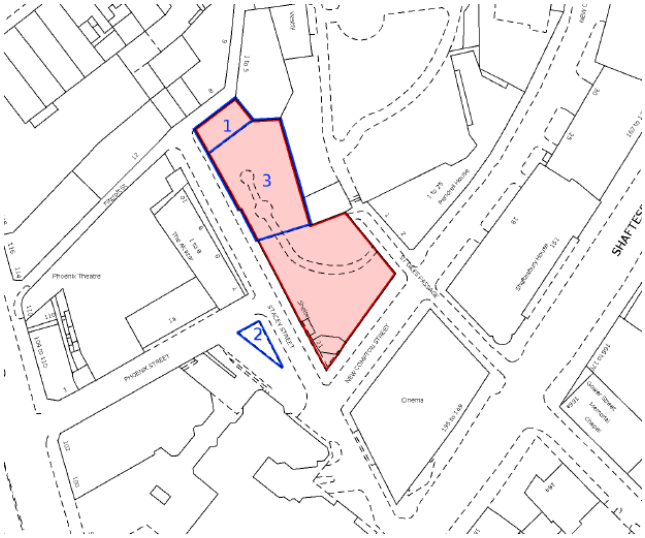


Figure 1: Location of Phoenix Gardens, Denoted by Pink, OS Map Provided by Agent

3.4. Given the development proposals and distances between the site it is considered that the proposals will have potential impacts on the non-statutory designated site without precautionary measures in place. It is recommended that pollution prevention measures from GOV.UK (2016) are in place during and post construction to prevent any potential indirect impacts from the site. Overshadowing impacts will be discussed further within the assessment section of the report.

4 STATEMENT OF CASE

4.1. The statement of case submitted by The Phoenix Gardens raised the issue of overshadowing. They have stated, ' *The 'Daylight and Sunlight Assessment' provided as evidence by the Appellant on 04/01/2018, shows a 15% reduction in Sun on Ground (SOG) hours to The Phoenix Garden, on March 21st- the Spring Equinox, if the proposed refurbishments were undertaken. Through this evidence, it was argued by Point 2 Surveyors Ltd, on behalf of the Appellant, that this would not cause significant impact to The Phoenix Garden's amenities as over 50% of the garden would receive over 2 hours of direct sunlight.*

4.2. Phoenix Gardens have also expressed concerns on the limiting SOG on the regular bee species that utilise the gardens, '*We argue, however, that the most significant impact of the reduction in SOG hours will be to the invertebrates that inhabit the garden. This has a great implication to our aims and objectives as a charity and, furthermore, to the habitat in the locality'*

4.3. The charity also present concerns over the increased building height and their green/brown roof, '*The recently constructed community building was designed to provide both rooftop propagation area and brown-roof habitat to increase biodiversity. With the present elevation of the Odeon these facilities receive adequate sunlight and have worked as planned. With the proposed increase of 10 metres in height the building will be completely overshadowed except for a brief window in high summer and this will be detrimental to our plans'.*

5 ASSESSMENT

5.1. As an ecologist, I can only draw conclusions from the data provided within The Daylight and Sunlight Assessment produced by POINT 2 SURVEYORS (2017). The report has run simulations and calculations to determine the overall impacts from the proposed development.

5.2. The BRE guidelines (Littlefair, 2011) state that *"Site layout planning for daylight and sunlight"* provide sunlight availability criteria for open spaces. In particular it gives guidance for calculating any areas of open space that may be in permanent shadow on 21st March. *It is suggested that, for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March. If as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".*

5.3. Drawing P1232/S/05 within the Daylight and Sunlight Assessment demonstrates the percentage surface-area of neighbouring amenity space can receive at least 2 hours of direct sunlight on the March 21st in the existing condition and with the Proposed Development in place. Phoenix Garden will receive at least two hours of sunlight to over 50% of its area and therefore would meet the recommendations of the BRE guidelines. As these simulations are generated by architectural drawings/measurements, it is of the ecologists opinion that it is nonbiased. The March 21st models show that the majority of the existing shading within the latter of the day is caused by other buildings and not as a direct impact caused by the proposed development itself, bar 9am-12pm which does show a change in shadowing conditions as a result of the proposed building, with the most notable change seen between 9-10am. Referring to the figures below, blue denotes shadowing direct by the building, pink by the existing building, and grey denotes existing adjacent buildings shadowing.

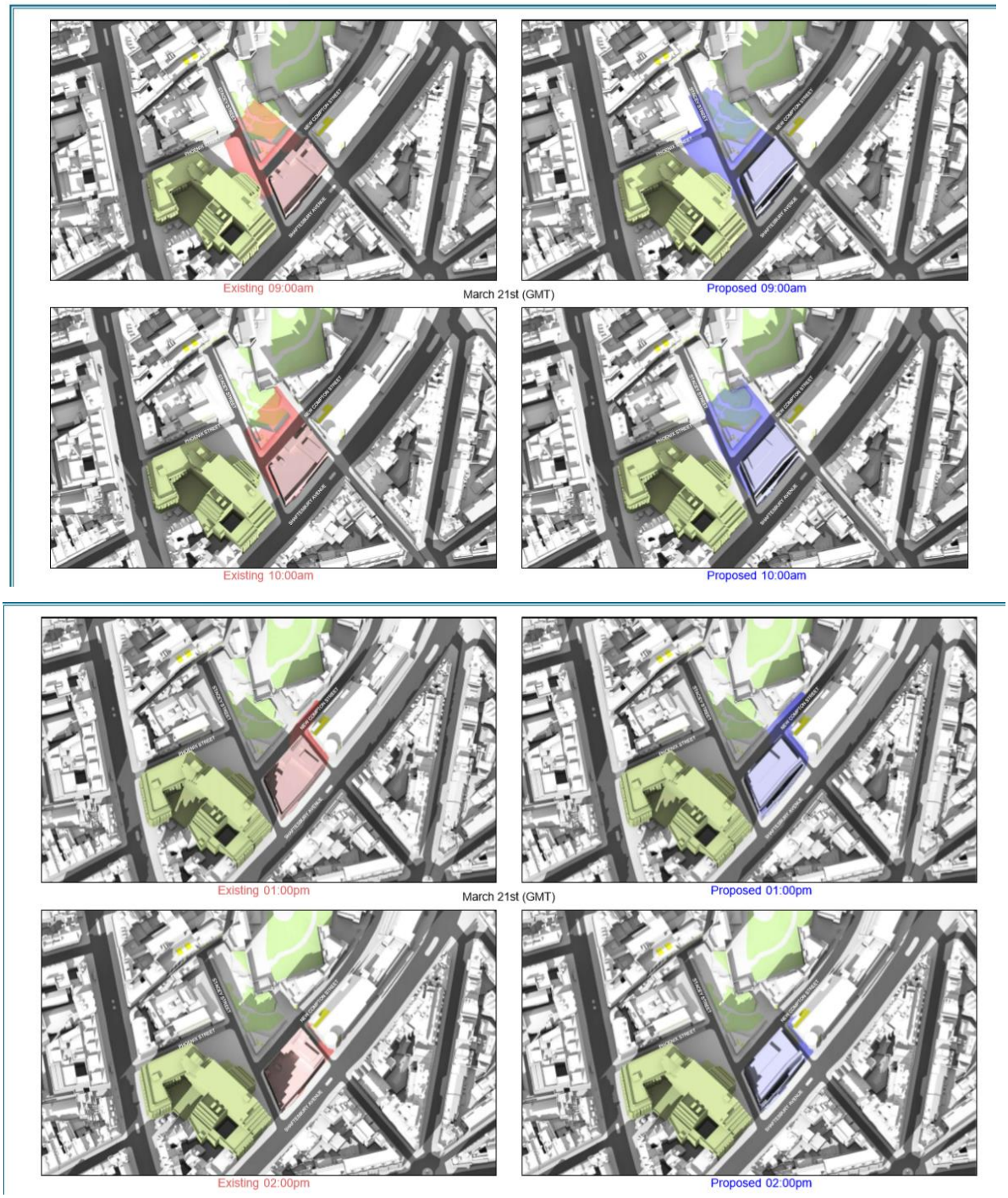
Existing 07:00am

Proposed 07:00am

March 21st (GMT)

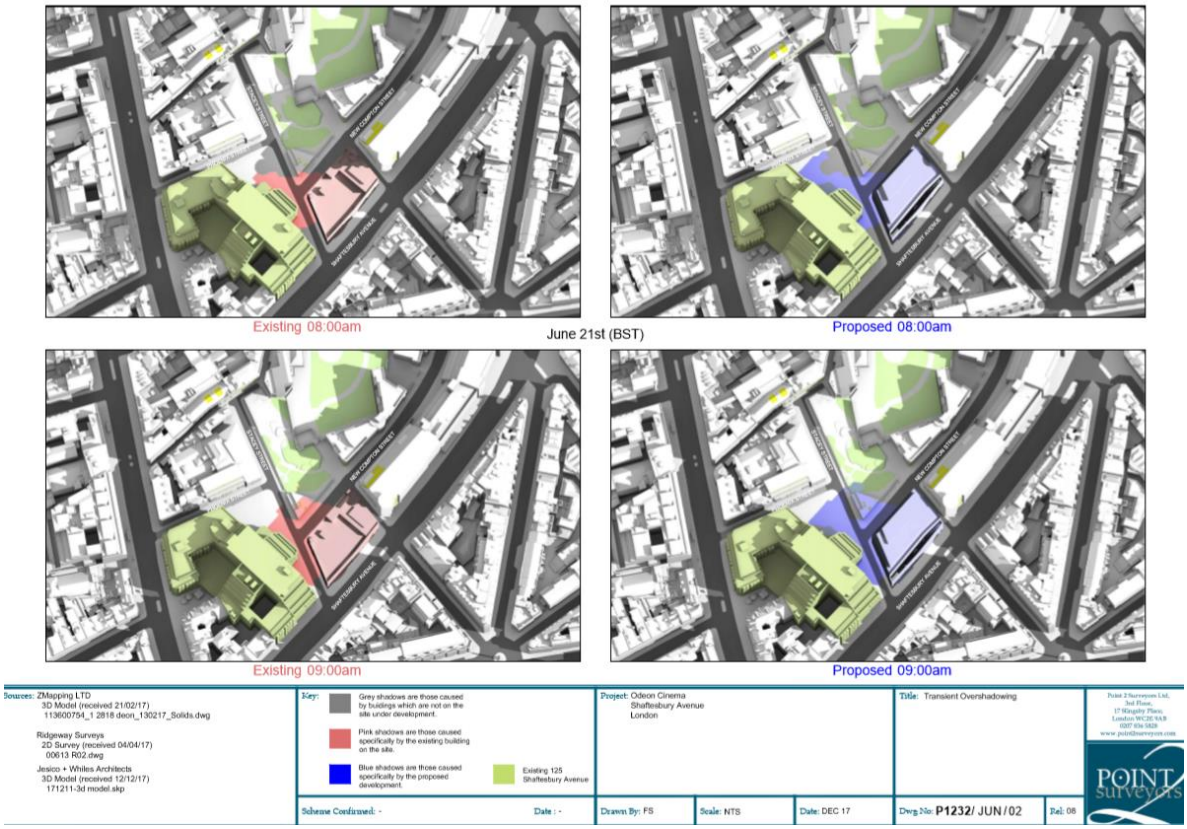
Existing 08:00am

Proposed 08:00am



5.4. Further assessment during June 21st show that the Phoenix Garden would retain excellent SOG levels with nearly 100% of its area receiving two hours of sunlight with the proposed scheme in place. Furthermore the simulations show that the green and brown roof will have no shadowing by the proposed development during June but rather the majority of shadowing of the green/brown roof is a direct result of 125 Shaftesbury Avenue, as seen in the figures below, blue denotes shadowing direct by the building, pink by the existing building, and grey denotes existing adjacent buildings shadowing.


Existing 02:00pm
June 21st (BST)
Proposed 02:00pm
Existing 03:00pm
Proposed 03:00pm
Sources: ZMapping LTD
3D Model (received 21/02/17)
113600754_1 2818 deon_130217_Solids.dwg
Ridgeway Surveys
2D Survey (received 04/04/17)
00613 R02.dwg
Jesico + Whiles Architects
3D Model (received 12/12/17)
171211-3d model.skp
Key:
Grey shadows are those caused by buildings which are not on the site under development.
Pink shadows are those caused specifically by the existing building on the site.
Blue shadows are those caused specifically by the proposed development.
Existing 125 Shaftesbury Avenue
Project: Odeon Cinema
Shaftesbury Avenue
London
Title: Transient Overshadowing
Scheme Confirmed: -
Date : -
Drawn By: FS
Scale: NTS
Date: DEC 17
Dwg No: P1232/ JUN / 05
Rel: 08
POINT 2 surveyors


Existing 08:00am
June 21st (BST)
Proposed 08:00am
Existing 09:00am
Proposed 09:00am
Sources: ZMapping LTD
3D Model (received 21/02/17)
113600754_1 2818 deon_130217_Solids.dwg
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Existing 125 Shaftesbury Avenue
Project: Odeon Cinema
Shaftesbury Avenue
London
Title: Transient Overshadowing
Scheme Confirmed: -
Date : -
Drawn By: FS
Scale: NTS
Date: DEC 17
Dwg No: P1232/ JUN / 02
Rel: 08
POINT 2 surveyors

5.5. It was recommended that further calculations were undertaken to determine the natural light for plant growth within the gardens and green roof. These calculations were deemed necessary to determine if the proposed development would in fact infringe on the gardens green/brown roof and established gardens growth. In particular, a focus on plant species specific for use by the notable bee species identified using the gardens by The Phoenix Gardens was recommended.

5.6. Detailed modelling and overshadowing work have been carried out (refer to Syntegra Group Overshadowing Report, Appendix I) focusing on lighting levels within set parcels. The calculations within the report conclude that the proposed development will have minimal impacts upon the rooftop garden. The rooftop garden will receive direct sunlight for more than 4 hours during the months of April to August and more than 7 hours during May to July. Of the other parcels, the modelling has shown only one section A3 (Gingko and Tulip Tree) will have an adverse impact during March. The modelling has shown that this parcel will receive direct sunlight for more than 5 hours during April to August and more than 7 hours during May to July. The tulip tree will have partial or full sun during the spring to summer months and considered acceptable for this species. The Gingko tree is a variety that requires full sun, and the modelling has shown that tree under the proposals will only have one-hour reduction in sunlight and therefore unlikely to have significant impacts upon this tree.

5.6. Whereas specific studies looking into the sunlight levels required for success of bee species have not been found when carrying out desktop research by the ecologist, looking into the life history of the known bee species can help determine any impacts from the proposed development.

5.7. The tawny mining bee create their nest cavities along south-facing embankments with sparse or short vegetation, including managed lawns. Looking at the current shadowing model in March 21 compared to the proposed during March shows that the existing building layouts (including adjacent offsite buildings) have significant overshadowing within the southern section of the site during the morning and the afternoon timings has a significant amount of shadowing from the existing building layout. As a result of these current conditions, it is likely that the onsite conditions do not meet the breeding requirements for this species during the spring season. Masonry bee species have similar microclimatic requirements for successful nesting, so unlikely that grounds provide suitability for use. It is likely that the majority of use by the observed species on site are foraging. Based on the updated Overshadowing Report modelling, the changes from the proposed development are unlikely to impact on the extant plants growth rates and therefore unlikely to result in changes in foraging behaviour by the listed bee species by The Phoenix Gardens.

6 CONCLUSION

6.1. The results of the PEA determined the site to be of lower ecological value with no signs of nesting birds or potential for roosting bats.

6.2. Through the planning application, Phoenix Gardens raised a statement of case in objection to the proposed development on the grounds of the impact of the overshadowing from the proposed build, causing a change in SOG and impacts to native bees utilising the gardens.

6.3. The Daylight and Sunlight Assessment produced by POINT 2 SURVEYORS (2017), has determined that the proposed development will be in line with BRE guidelines as the percentage surface-area of neighbouring amenity space can receive at least 2 hours of direct sunlight on the March 21st. Phoenix Garden will receive at least two hours of sunlight to over 50% of its area.

6.4. To ensure no indirect or direct impacts to the SINC, further modelling and calculations have been undertaken to determine the natural light for plant growth within the gardens and green roof. The further calculations have shown that there will be a likely negligible impact on the rooftop garden, and no significant impacts elsewhere in the garden.

6.5. The modelling shows that the current level of shadows on site from the existing layout of both the building and adjacent buildings shows shadowing levels on the 21st March during the morning and afternoons would likely deter use of the site by nesting bees and it is likely that the gardens are favourable for use by foraging invertebrates. The updated modelling levels are in line with the accepted guidelines, and it is considered unlikely that the proposed development will cause an impact to the gardens and the invertebrate species inhabiting the gardens.

References:

Camden Borough Council. 2018. Camden Planning Guidance: Biodiversity.

Camden Borough Council. 2017. Camden Local Plan.

Department for Communities and Local Government (2019). National Planning Policy Framework. www.communities.gov.uk

Greater London Authority. 2016. The London Plan.

Littlefair, P. 2011. Site Layout Planning for Daylight and Sunlight: A guide to good practice. 2nd Edition.

MAGIC. Multi-Agency Geographic Information for the Countryside. https://magic.defra.gov.uk/

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Syntegra Group. 2020. Overshadowing Report for 135-149 Shaftesbury Avenue.

SYNTEGRA
CONSULTING

Overshadowing Report

135-149 Shaftesbury Avenue, London WC2H 8AH

October 2020

Ref: 17-3621

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Revision	*Initial*	*Rev A*	*Rev B*	*Rev C*
Date	07/10/2020			
Prepared by	Y. Choi			
Checked by	S. Lee			
Authorised by	U. Uzair			

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1 EXECUTIVE SUMMARY

This report demonstrates the impact of the proposed development on the surrounding amenity areas/gardens.

The results of the assessment show that in terms of:

Overshadowing, only one amenity at **the Phoenix Garden** will be impacted by the proposed development. However, as shown in the simulation on 21st June (summer month) when the garden is more likely to be used by the occupants, at least half of the amenity area receives direct sunlight more than 8 hours**,** with the proposed development. Therefore, the loss of light on the amenities will not be greatly noticeable to the occupants.

On balance, it can be concluded that the proposed development is not expected to cause any significant impact to sunlight access for **the Phoenix Garden.**

2 INTRODUCTION

This report has been prepared to support the planning application for the proposed development at **135-149 Shaftesbury Avenue, London WC2H 8AH**. The proposed scheme involves the comprehensive refurbishment of the existing Grade II listed building and the provision of a new two storey roof extension and new basement level, providing a new four-screen cinema (Class D2) and spa (sui generis) at basement levels, a restaurant/bar (Class A3/A4) at ground floor level, a 94-bed hotel (Class C1) at part ground and first to sixth floors and associated terrace and bar (Class A4) at roof level, together with associated public realm and highways improvements.

The report assesses the daylight, sunlight and overshadowing effect of the proposed development on the surrounding buildings. The assessment is undertaken in accordance with ***"BRE 209 Digest: Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice".***

The existing & proposed drawings (in AutoCAD format) of the project were provided by **Asserson** on the **2nd September 2020** and have been used in preparing this report.

No.	Document Name	Format	Received Date
1	2818-JW-002-P01	dwg	02-09-2020
2	2818-JW-011-P01	dwg	02-09-2020
3	2818-JW-012-P01	dwg	02-09-2020
4	2818-JW-013-P01	dwg	02-09-2020
5	2818-JW-014-P01	dwg	02-09-2020
6	2818-JW-015-P01	dwg	02-09-2020
7	2818-JW-016-P01	dwg	02-09-2020
8	2818-JW-017-P01	dwg	02-09-2020
9	2818-JW-018-P01	dwg	02-09-2020
10	2818-JW-019-P01	dwg	02-09-2020
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35	00613 R02	dwg	02-09-2020
36	113600754_1 2818 deon_130217_Mesh	dwg	02-09-2020
37	113600754_1 2818 deon_130217_Solids	dwg	02-09-2020

Table 1 Document list used for assessment

The study has been undertaken by constructing a 3D IES model of the existing site, the proposed site and the surrounding buildings. This model analyses the daylight, sunlight and overshadowing impact of the new development on the affected buildings. All images used in this report are technical 3D models created using 2D AutoCAD Drawings (floor plans, sections and elevations) and is not 3D visualisation images.

3 PLANNING POLICY

Where the proposed development has the potential to negatively impact the existing levels of daylight or sunlight on neighbouring properties, a daylight and sunlight assessment must accompany the planning application.

The daylight and sunlight assessment includes the necessary information to meet the criteria outlined in Building Research Establishment report **BRE 209: Site layout planning for daylight and sunlight (Second Edition 2011)**

It is important to note that the BRE report stresses that the document is provided for guidance purposes only and it is not intended to be interpreted as a strict and rigid set of rules. It also recommends that it may be appropriate to adopt a flexible approach and alternative target values in dealing with *"special circumstances"* 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".* This is amplified by the following extracts from the introduction (p1, para. 6) and Section 2.2:

"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 designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design". (p1, para. 1.6)

"In special circumstances the Developer or Planning Authority may wish to use different target values". (p1, para. 1.6)

"Note that numerical values given here are purely advisory. Different criteria may be used, based upon the requirements for daylight in an area viewed against other site layout constraints. Another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light". (p7 para. 2.2.3)

The examples given in the report can be applied to any part of the country: suburban, urban and rural areas. The inflexible application of the target values given in the report may make reaching the BRE criteria difficult in a tight, urban environment where there is unlikely to be the same expectation of daylight and sunlight amenity as in a suburban or rural environment.

4 ASSESSMENT METHODOLOGY

4.1 General

When assessing any potential effects on the surrounding properties, the BRE guidelines suggest that only those windows that have a reasonable expectation of daylight or sunlight need be assessed. In particular the BRE guidelines at paragraph 2.2.2 state:

"The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed. The guidelines may also be applied to any existing non-domestic buildings where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops and some offices."

Further to the above statement, it is considered that the vast majority of commercial properties do not have a reasonable expectation of daylight or sunlight. This is because they are generally designed to rely on electric lighting rather than natural daylight or sunlight.

This report assesses and focuses the potential impact of the proposed development in relation to overshadowing on the surrounding amenity at **Phoenix Garden**. Specifically, it takes into consideration the possible effect and influence that the new development would have on the amenity area. **Nine zones of the amenity area (A1-A9)** have been assessed for overshadowing impacts. The location of the assessed gardens can be found in appendix 7.4.2 for this report.

The IES Virtual Environment modelling software utilised for the compilation of this report has been accredited by CIBSE and acknowledged by the BRE as a suitable software tool for undertaking daylight, sunlight and overshadowing assessments in accordance with the BRE Good Practice guidelines. The specific IES software modules utilised for this assessment are the following:

- ModelIT: enables you to create a 3D "Virtual Environment" model without CAD data, or alternatively allows you to create a 3D model from 2D CAD data. Interfaces with AutoCAD and Google Sketchup.

- Radiance: is a detailed 3D simulation tool designed to predict daylight and electric light levels, and the appearance of a space prior to construction. Vertical Sky Components (VSC) and Average Daylight Factors (ADF) can be simulated using Radiance.

- SunCast: produces visual, graphical and numerical information that can be used to explain to colleagues, clients and planning authorities how the sun impacts on and inside the building, and on the site.

If a property is considered to have a reasonable expectation of daylight or sunlight the following methodology to assess the impacts has been used.

4.2 BRE 209: "Site layout planning for daylight and sunlight"

This section provides a brief description of the calculating methods for the daylight, sunlight and overshadowing to gardens and open spaces criteria presented in BRE Digest 209.

4.2.1 Overshadowing to gardens and open spaces

The BRE guidelines *"Site layout planning for daylight and sunlight"* provide sunlight availability criteria for open spaces. In particular it gives guidance for calculating any areas of open space that may be in permanent shadow on 21st March.

In summary the BRE document states:

"It is suggested that, for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March. If as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".

For this assessment the IES "Virtual Environment" SunCast software package has been used. A 3D model of the proposed and surrounding buildings was first modelled and the sunlight-tracking feature within the software used to view the shadow results. The study illustrated the extent of the shadow on one key date:

- March 21 (Spring Equinox)

4.2.2 Criteria for assessing daylight, sunlight and overshadowing effects

The table 2 is a summary of the criteria to assess daylight, sunlight and overshadowing impacts as per the BRE 209 guidance. Based on that, Syntegra classifies the magnitude of effect according to the ratio.

Magnitude of effect	Criteria		
Beneficial	An improvement ratio > 1.3 of the baseline value		
Negligible	**Daylight** A VSC of 27% or above in the proposed scenario with adequate daylight distribution Or A reduction ratio <1.0 and ≥ 0.8 of the baseline value	**Sunlight** An APSH of 25%, of which 5% are in the winter months Or A reduction ratio <1.0 and ≥ 0.8 of the baseline value	**Overshadowing** 50% of any amenity areas receiving at least 2 hours of direct sunlight on 21st March Or A reduction ratio <1.0 and ≥ 0.8 of the baseline value
Minor adverse	A reduction ratio <0.8 and ≥ 0.7 of the baseline value		
Moderate adverse	A reduction ratio <0.7 and ≥ 0.6 of the baseline value		
Major adverse	A reduction ratio <0.6 of the baseline value		

Table 2 Criteria for assessing daylight, sunlight and overshadowing effects

5 ASSESSMENT

5.1 Overshadowing

The following results represent the overshadowing impacts of the proposed development. As identified from the AutoCAD drawings and/or site plan**, the existing garden area at Phoenix Gardens is divided by nine zones for calculation**. In accordance with the BRE guidelines, overshadowing has been assessed during times of the day where the sun's altitude is above 10° (from 7:30am to 5:00pm).

"It is suggested that, for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March. If as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".

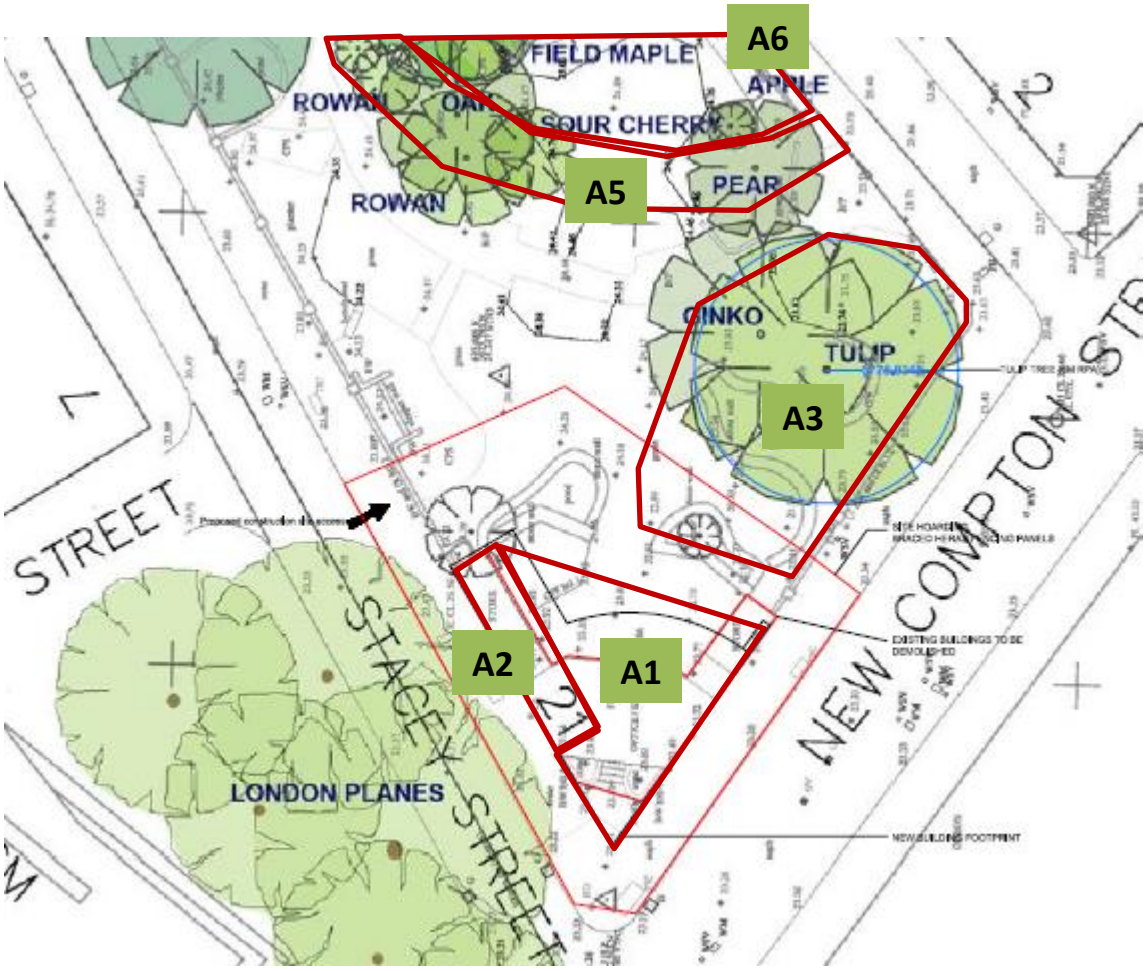
The detailed results are presented in section 7.6 in the appendix, and the pictures showing the overshadowing impact are indicated in section 7.7 of the Appendix.

A summary of results is displayed in the table below. Location of the assessed amenity areas can be found in section 7.4 of this report.

Overshadowing assessment from 7.30am to 5.00pm % of area receiving sunlight on 21st March				
Amenity area	**Existing (%)**	**Proposed (%)**	**Ratio**	**Result**
A1 – Phoenix Gardens – Rooftop	14.19	11.28	0.80	Negligible
A2 – Phoenix Gardens - Rooftop	11.94	11.14	0.93	Negligible
A3 – Phoenix Gardens - Garden	15.16	10.53	0.69	Moderate adverse
A4 – Phoenix Gardens - Garden	35.84	26.61	0.74	Negligible (3 Hours)
A5 – Phoenix Gardens - Garden	42.63	33.08	0.78	Negligible (4 Hours)
A6 – Phoenix Gardens - Garden	48.29	38.84	0.80	Negligible
A7 – Phoenix Gardens - Garden	38.16	29.45	0.77	Negligible (4 Hours)
A8 – Phoenix Gardens - Garden	47.14	46.47	0.99	Negligible
A9 – Phoenix Gardens - Garden	43.54	42.70	0.98	Negligible

Table 3 Overshadowing results

As shown in the table above, only one existing amenity area will be impacted by the proposed development.



Assessed area with the tree survey drawing (Source: Application No. 2014/7285/P)

The amount of sun	Required sunlight hours
Full Sun	6 + hours
Partial Sun	4 – 6 hours
Partial Shade	1.5 – 4 hours
Full Shade	Less than 1.5 hours

Table 4 Required sun exposure hours for trees

The table above shows the magnitude of required sunlight hours for trees. The required sunlight hours for each tree in Phoenix Gardens are based on tree information from The Royal Horticultural Society and Deepdale Trees (Websites: Rhs.org.uk, deepdale-trees.co.uk).

A1 – Phoenix Gardens – Rooftop

The rooftop of the Phoenix Garden Community Centre has inhabiting Bee species.

According to the Statement of Case (Appeal References: APP/X5210/W/19/3243781 & APP/X5210/Y/19/3243782), the appellant Phoenix Garden argues as below.

"The garden is a patchwork of shade and sun through the year as a result of the neighbouring buildings and we manage the garden to maximise on the areas of sunlight to provide habitat. The New Compton Street Southern end of the garden, the area to the front of the garden building, sees sun return to the garden in March and this powers the return of insect activity in Spring. These areas are key in the garden to provide the warm sunlit conditions at ground level necessary for many invertebrate species. These conditions are not available elsewhere in the garden due to tree cover and building shade."

With the proposed development, at least half of the amenity area never receives direct sunlight on 21st March as shown below. However, at least half of the amenity area only receives direct sunlight for one hour at 12:00 pm on 21st March with the existing condition. Under this circumstance, it is not surprising to see proposed values under the target, where the existing levels of sunlight are already poor and do not meet the BRE criteria. Therefore, any changes in the skyline will adversely impact this amenity. Also, the ratio between existing and proposed values on 21st March is 0.8, which is acceptable range according to the BRE guideline.

Time (March)	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Existing (%)	0.00	0.00	0.00	3.40	37.30	50.20	0.00	18.40	44.30	0.00	16.70	0.00
Proposed (%)	0.00	0.00	0.00	0.00	11.40	44.60	0.00	18.40	44.30	0.00	16.70	0.00

The results are expressed as a percentage of area receiving direct sunlight on the 21st March

Another simulation has been carried out on 21st June (summer month) when the garden is more likely to be used by the occupants. With the proposed development, at least half of the amenity area receives direct sunlight from **11:00am to 17:00pm** (7 hours) **on 21st June, month in which the amenity would be most used by occupants**, as shown below. Also, the ratio between existing and proposed values on 21st June is more than 0.8 (0.83). Therefore, the changes will not be greatly noticeable to the occupants.

Time (June)	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Existing (%)	0.00	18.00	56.30	83.70	85.10	84.70	84.60	83.30	81.10	78.10	74.50	0.70
Proposed (%)	0.00	0.00	4.80	32.40	85.10	84.70	84.60	83.30	81.10	78.10	74.50	0.70

The results are expressed as a percentage of area receiving direct sunlight on the 21st June

As shown in below table, at least half of the A1 will receive the direct sunlight more than 4 hours from April to August and more than 7 hours in summer months (May to July). Therefore, the rooftop bee's habitat area will be laid in partial shade or full sun from spring to summer, which would not be harmful to grow plants for bees.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Proposed (Hour)	0	1	0	4	7	7	7	4	1	0	0	0

The results are expressed as hours at least half of the amenity area receiving direct sunlight with the proposed scheme

A3 – Phoenix Gardens – Garden

Key plants
Tulip: Full sun or part shade
Ginko: Full sun

With the proposed development, at least half of the amenity area never receives direct sunlight on 21st March as shown below. However, at least half of the amenity area only receives direct sunlight for one hour at 12:00 pm on 21st March with the existing condition. Under this circumstance, it is not surprising to see proposed values under the target, where the existing levels of sunlight are already poor and do not meet the BRE criteria. Therefore, any changes in the skyline will adversely impact this amenity.

Time (March)	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Existing (%)	0.00	0.00	4.90	0.00	1.30	65.60	43.90	40.90	6.20	19.10	0.00	0.00
Proposed (%)	0.00	0.00	4.90	0.00	0.00	11.30	43.90	40.90	6.20	19.10	0.00	0.00

The results are expressed as a percentage of area receiving direct sunlight on the 21st March

Another simulation has been carried out on 21st June (summer month) when the garden is more likely to be used by the occupants. With the proposed development, at least half of the amenity area receives direct sunlight from **11:00am to 18:00pm** (8 hours) **on 21st June, month in which the amenity would be most used by occupants**, as shown below. Also, the ratio between existing and proposed values on 21st June is more than 0.8 (0.94). Therefore, the changes will not be greatly noticeable to the occupants.

Time (June)	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Existing (%)	0.00	0.00	21.50	75.50	95.30	95.40	95.90	95.50	95.10	95.40	95.70	54.60
Proposed (%)	0.00	0.00	12.20	36.70	93.00	95.40	95.90	95.50	95.10	95.40	95.70	54.60

The results are expressed as a percentage of area receiving direct sunlight on the 21st June

As shown in below table, at least half of the A3 will receive the direct sunlight more than 5 hours from April to August and more than 7 hours in summer months (May to July). Therefore, the A3 will be laid in partial shade or full sun from spring to summer, which would be acceptable for Tulip trees. Although Ginko tree requires full sun, only one hour reduction of sunlight would not be greatly impact to the trees.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Proposed (Hour)	0	0	0	5	7	8	7	5	2	0	0	0

The results are expressed as hours at least half of the amenity area receiving direct sunlight with the proposed scheme

A5 – Phoenix Gardens - Garden

Key plants
Pear: Full sun
Rowan: Full sun or partial shade

With the proposed development, at least half of the amenity area receives direct sunlight from 11:00am to 14:00pm (4 hours) on 21st March as shown below. Therefore, the slight loss in sunlight for the amenity A5 is not considered of concern as at least half of its area will receive at least two hours of sunlight on 21st March and will provide adequate levels of sunlight.

Time	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Proposed (%)	0.00	0.00	5.00	8.40	**53.50**	**100.00**	**89.10**	**77.20**	31.70	32.00	0.00	0.00

As shown in below table, at least half of the A5 will receive the direct sunlight more than 4 hours from March to September and more than 10 hours in summer months (May to July). Therefore, the A5 will be laid in partial shade in early spring and autumn but full sun in summer, which would be acceptable for Rowan and Pear trees. Also, there is no change between existing and proposed values in May to July.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Proposed (Hour)	0	0	**4**	**6**	**10**	**10**	**10**	**6**	**4**	0	0	0

The results are expressed as hours at least half of the amenity area receiving direct sunlight with the proposed scheme

A6 – Phoenix Gardens - Garden

Key plants
Sour cherry: Full sun
Apple: Full sun or partial shade depending on the variety
Field maple: Full sun or partial shade
Oak: Full sun or partial shade

As shown in below table, at least half of the A6 will receive the direct sunlight more than 5 hours from March to September and more than 10 hours in summer months (May to July). Therefore, the A6 will be laid in partial shade in early spring and autumn but full sun in summer, which would be acceptable for the trees in A6. Also, there is no change between existing and proposed values in May to July.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Proposed (Hour)	0	1	**5**	**8**	**10**	**10**	**10**	**8**	**5**	0	0	0

The results are expressed as hours at least half of the amenity area receiving direct sunlight with the proposed scheme

The slight loss in sunlight for amenity areas is not considered to be a concern as at least half of its area will receive at least two hours of sunlight on 21st March or have a ratio existing/proposed more than 0.8 and will provide adequate levels of sunlight.

It should be noted that the values provided in the BRE 209 are for guidance purposes only.

6 CONCLUSION

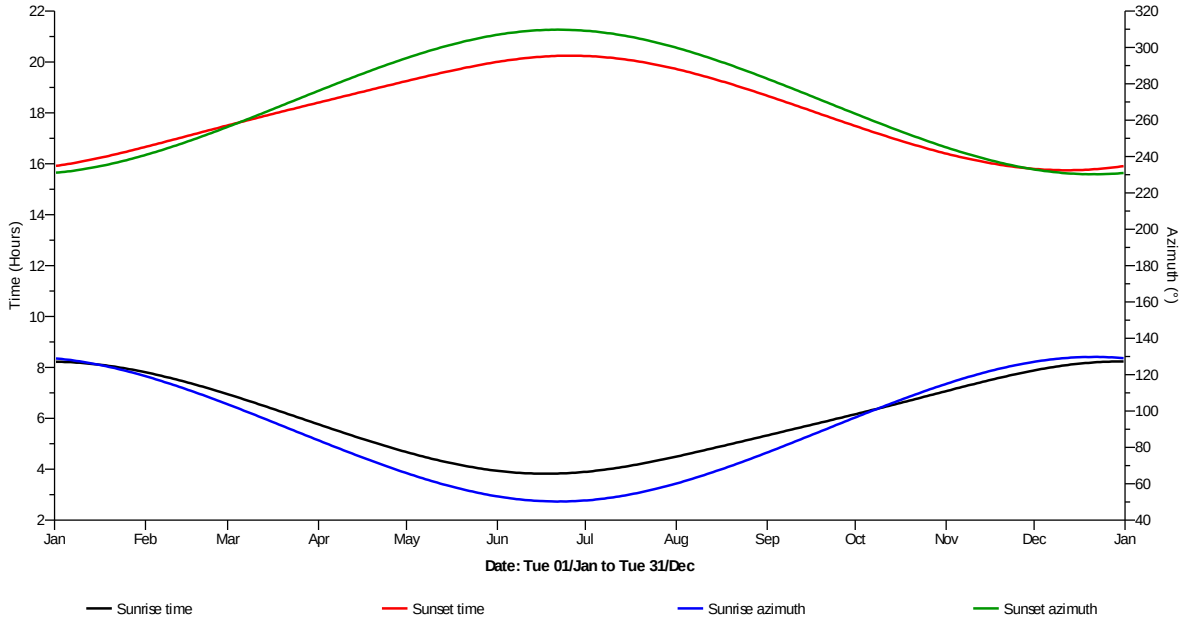
6.1 Overshadowing

This report demonstrates that only one amenity at **the Phoenix Garden** will be impacted by the proposed development. However, as shown in the simulation on 21st June (summer month) when the garden is more likely to be used by the occupants, at least half of the amenity area receives direct sunlight more than 8 hours**,** with the proposed development. Therefore, the loss of light on the amenities will not be greatly noticeable to the occupants.

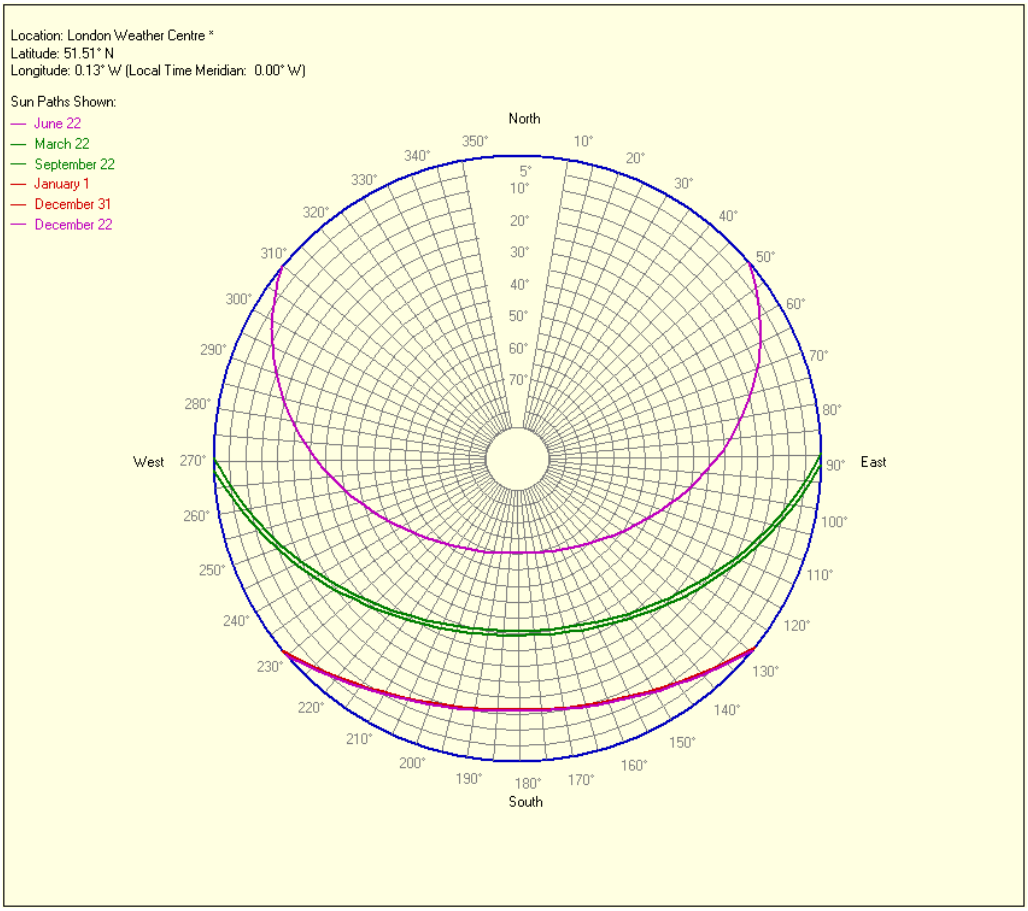
On balance, it can be concluded that the proposed development is not expected to cause any significant impact to sunlight access for **the Phoenix Garden.**

7 APPENDIX

7.1 Sunrise and sunset time

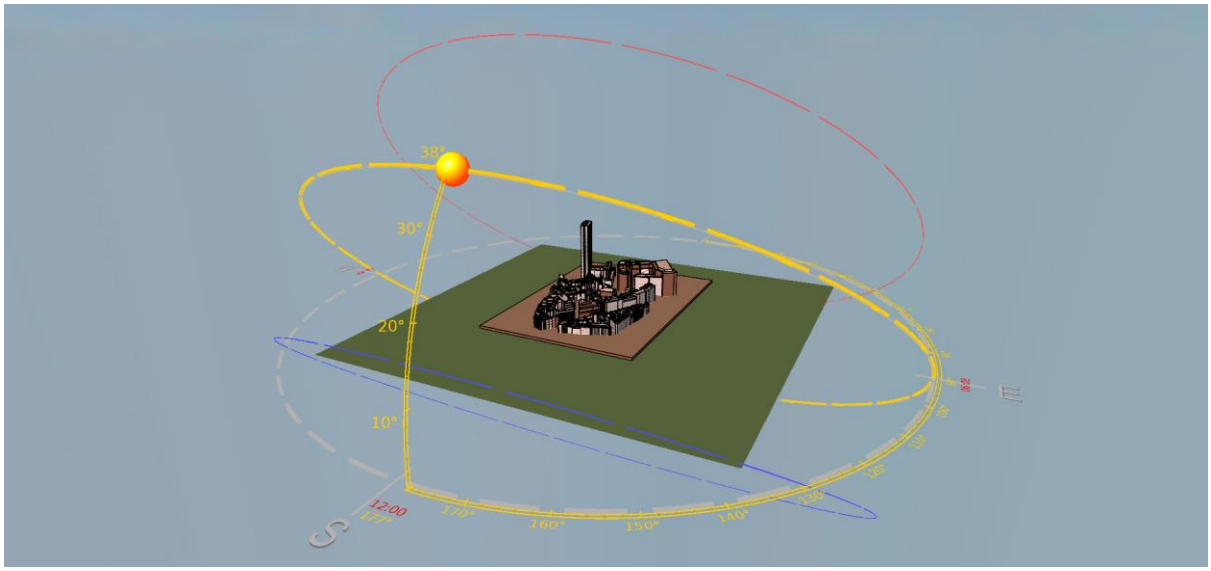


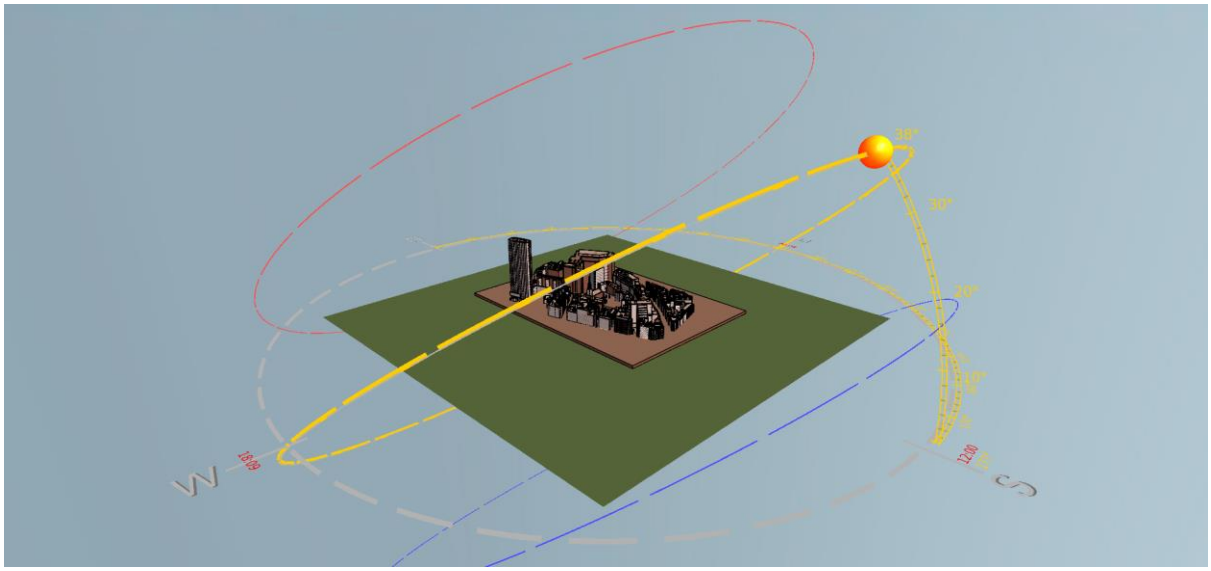
7.2 Sun path



7.3 Suntrace

- The red line represents the sun's path during June.
- The yellow line represents the sun's path during March/September.
- The blue line represents the sun's path during December.

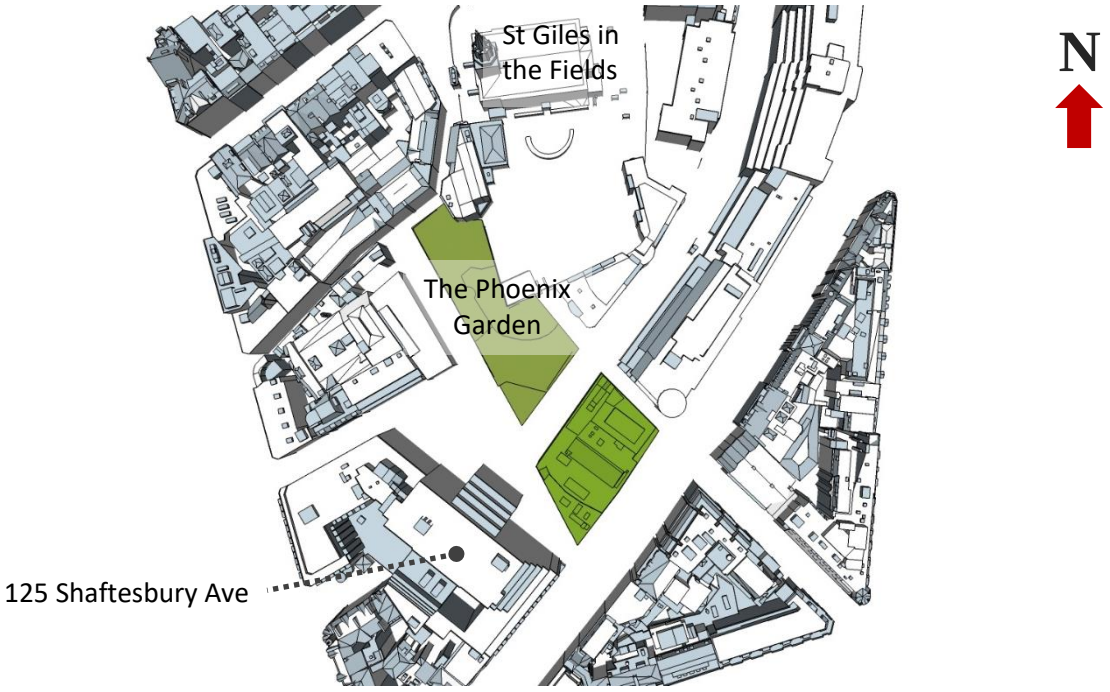




7.4 Site plan and location

Location	135-149 Shaftesbury Avenue, London WC2H 8AH
Latitude (°)	51.51 N
Longitude (°)	0.13 W

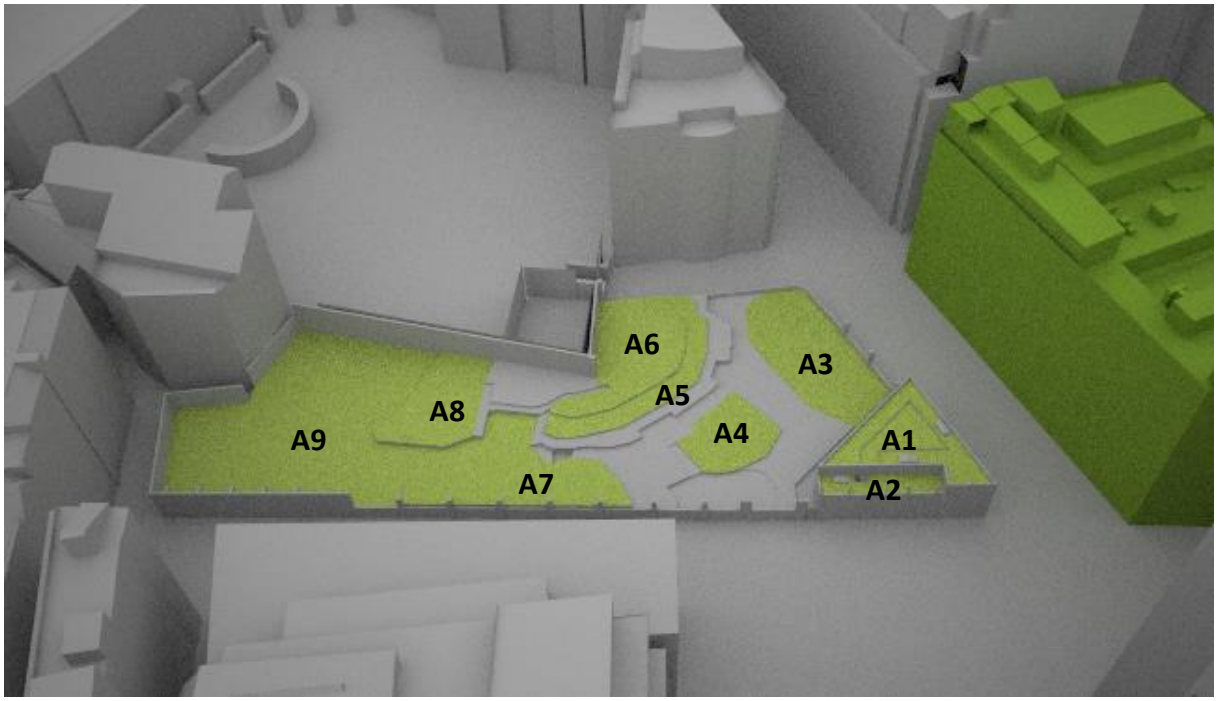
7.4.1 Site Plans



Existing site layout

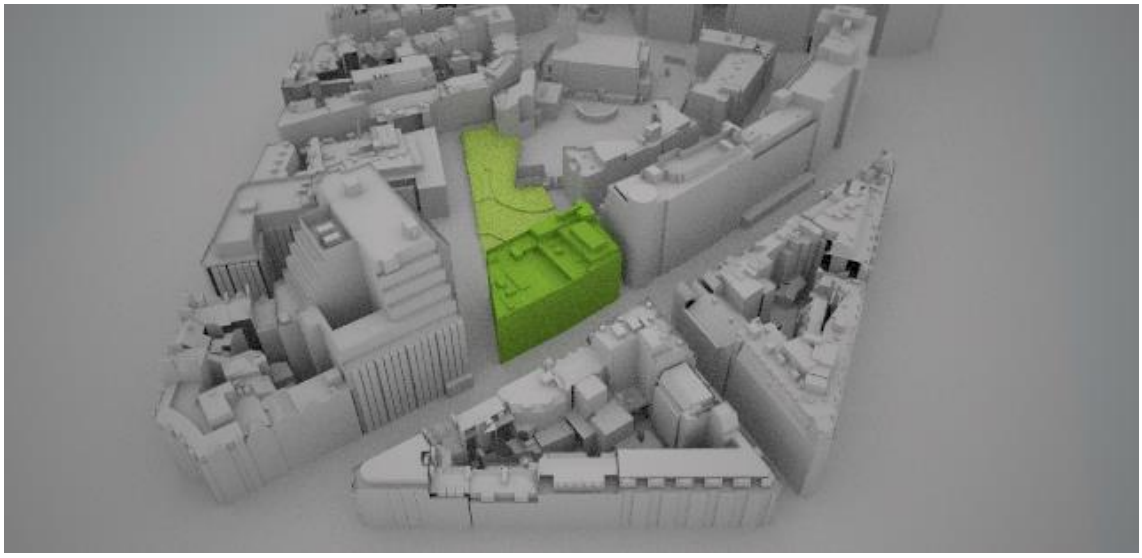
Proposed site layout

7.4.2 Location of Assessed Surfaces and Amenities



Phoenix Gardens

7.5 Model images



Existing image

Proposed image

7.6 Overshadowing results (21st March)

The results are expressed as a percentage of area receiving direct sunlight on 21st March.

A1 – Phoenix Gardens – Rooftop

Existing:

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	20.70	0.00	0.00	0.00	5.20	0.00				
Feb					0.00	0.00	0.00	13.00	0.00	0.00	0.00	61.30	0.00	0.00			
Mar				**0.00**	**0.00**	**0.00**	**3.40**	**37.30**	**50.20**	**0.00**	**18.40**	**44.30**	**0.00**	**16.70**	**0.00**		
Apr		0.00	0.00	0.00	0.00	10.30	51.70	82.20	81.70	55.20	75.50	43.80	16.20	62.60	0.00		
May		0.00	0.00	0.00	8.80	42.00	82.90	84.30	83.90	83.80	82.50	80.00	76.70	72.10	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	18.00	56.30	83.70	85.10	84.70	84.60	83.30	81.10	78.10	74.50	0.70	0.00	0.00
Jul		0.00	0.00	0.00	6.50	34.70	81.00	84.50	84.00	83.90	82.90	80.60	77.40	73.20	0.00	0.00	
Aug			0.00	0.00	0.00	8.20	49.30	82.30	81.70	61.10	70.60	42.70	19.00	62.90	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	9.30	55.20	37.80	0.00	51.60	14.70	0.00	10.50			
Oct				0.00	0.00	0.00	0.00	33.80	0.00	0.00	0.00	2.70	0.00				
Nov					0.00	0.00	0.60	0.00	0.00	0.00	0.60	28.80					
Dec						0.00	0.00	10.60	0.00	0.00	0.00	1.00					

Proposed:

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	20.40	0.00	0.00	0.00	5.20	0.00				
Feb					0.00	0.00	0.00	12.80	0.00	0.00	0.00	61.30	0.00	0.00			
Mar				**0.00**	**0.00**	**0.00**	**0.00**	**11.40**	**44.60**	**0.00**	**18.40**	**44.30**	**0.00**	**16.70**	**0.00**		
Apr		0.00	0.00	0.00	0.00	0.00	0.10	40.50	81.70	55.20	75.50	43.80	16.20	62.60	0.00		
May		0.00	0.00	0.00	0.00	0.30	22.30	83.70	83.90	83.80	82.50	80.00	76.70	72.10	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	4.80	32.40	85.10	84.70	84.60	83.30	81.10	78.10	74.50	0.70	0.00	0.00
Jul		0.00	0.00	0.00	0.00	0.00	17.70	76.60	84.00	83.90	82.90	80.60	77.40	73.20	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	35.60	81.70	61.10	70.60	42.70	19.00	62.90	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	31.80	37.60	0.00	51.60	14.70	0.00	10.50			
Oct				0.00	0.00	0.00	0.00	33.50	0.00	0.00	19.60	2.70	0.00				
Nov					0.00	0.00	0.50	0.00	0.00	0.00	0.60	28.80					
Dec						0.00	0.00	10.40	0.00	0.00	0.00	1.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
14.19	11.28	0.80

A2 – Phoenix Gardens - Rooftop

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	7.70	0.00	0.00	0.00	7.10	0.00				
Feb					0.00	0.00	0.00	54.90	0.00	0.00	6.10	33.60	0.00	0.00			
Mar				**0.00**	**0.00**	**0.00**	**9.60**	**70.20**	**0.00**	**0.00**	**46.60**	**12.10**	**0.00**	**4.80**	**0.00**		
Apr		0.00	0.00	0.00	0.00	25.00	71.40	81.20	78.40	18.80	71.20	10.90	16.30	41.40	0.00		
May		0.00	0.00	0.00	5.90	51.40	74.30	87.20	84.00	82.70	82.00	77.80	68.70	55.90	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	9.80	50.70	73.30	89.80	86.10	84.80	84.20	80.10	71.40	65.10	0.00	0.00	0.00
Jul		0.00	0.00	0.00	2.70	46.50	71.20	88.40	84.40	83.10	82.20	79.80	69.90	63.10	0.00	0.00	
Aug			0.00	0.00	0.00	22.50	70.10	81.80	78.60	15.30	76.20	10.00	14.50	44.90	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	25.00	69.50	0.00	11.20	63.20	0.00	0.00	2.10			
Oct				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Nov					0.00	0.00	16.10	0.00	0.00	0.00	3.60	0.00					
Dec						0.00	0.00	0.00	0.00	0.00	0.00	0.00					

Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	7.70	0.00	0.00	0.00	7.10	0.00				
Feb					0.00	0.00	0.00	54.90	0.00	0.00	6.10	33.60	0.00	0.00			
Mar				**0.00**	**0.00**	**0.00**	**0.00**	**70.20**	**0.00**	**0.00**	**46.60**	**12.10**	**0.00**	**4.80**	**0.00**		
Apr		0.00	0.00	0.00	0.00	0.00	0.00	80.70	78.40	18.80	71.20	10.90	16.30	41.40	0.00		
May		0.00	0.00	0.00	0.00	0.60	50.20	87.20	84.00	82.70	82.00	77.80	68.70	55.90	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	13.40	63.10	89.80	86.10	84.80	84.10	80.10	71.40	65.10	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	0.00	42.20	88.40	84.40	83.10	82.30	79.80	69.90	63.10	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	79.20	78.60	15.30	76.20	10.00	14.50	44.90	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	69.50	0.00	11.20	63.20	0.00	0.00	2.10			
Oct				0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.90	0.00	0.00				
Nov					0.00	0.00	15.70	0.00	0.00	0.00	3.60	0.00					
Dec						0.00	0.00	0.00	0.00	0.00	0.00	0.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
11.94	11.14	0.93

A3 – Phoenix Gardens - Garden

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	0.90	0.00	0.00	0.00	1.00	0.00	30.50	0.00	23.00			
Mar				**0.00**	**0.00**	**4.90**	**0.00**	**1.30**	**65.60**	**43.90**	**40.90**	**6.20**	**19.10**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	0.00	0.00	7.80	73.50	89.30	88.90	88.50	81.70	85.40	0.10	0.00		
May		0.00	0.00	0.00	0.00	6.90	61.30	93.90	93.90	94.20	93.80	93.20	93.20	74.70	6.90	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	21.50	75.50	95.30	95.40	95.90	95.50	95.10	95.40	95.70	54.60	0.00	0.00
Jul		0.00	0.00	0.00	0.00	2.10	55.60	94.10	94.00	94.30	94.10	93.40	93.40	90.00	28.30	0.00	
Aug			0.00	0.00	0.00	0.00	5.40	70.50	89.40	89.00	88.70	84.20	85.70	3.60	0.00	0.00	
Sep			0.00	0.00	0.00	1.90	0.00	16.00	79.70	22.60	74.10	0.00	51.40	0.00			
Oct				0.00	1.70	0.00	0.00	0.00	0.60	0.00	27.20	0.00	6.60				
Nov					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Dec						0.00	0.00	0.00	0.00	0.00	0.00	0.00					

Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	0.90	0.00	0.00	0.00	1.00	0.00	30.50	0.00	23.00			
Mar				**0.00**	**0.00**	**4.90**	**0.00**	**0.00**	**11.30**	**43.90**	**40.90**	**6.20**	**19.10**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	0.00	0.00	0.00	13.80	89.30	88.90	88.50	81.70	85.40	0.10	0.00		
May		0.00	0.00	0.00	0.00	5.40	14.20	81.60	93.90	94.20	93.80	93.20	93.20	74.70	6.90	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	12.20	36.70	93.00	95.40	95.90	95.50	95.10	95.40	95.70	54.60	0.00	0.00
Jul		0.00	0.00	0.00	0.00	2.70	11.30	73.30	94.00	94.30	94.10	93.40	93.40	90.00	28.30	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	10.20	89.40	89.00	88.70	84.20	85.70	3.60	0.00	0.00	
Sep			0.00	0.00	0.00	1.90	0.00	0.00	37.40	22.60	74.10	0.00	51.40	0.00			
Oct				0.00	1.70	0.00	0.00	0.00	0.00	0.00	27.20	0.00	6.60				
Nov					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Dec						0.00	0.00	0.00	0.00	0.00	0.00	0.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
15.16	10.53	0.69

A4 – Phoenix Gardens - Garden

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	4.20	0.00	0.00	21.10	0.00	0.00				
Feb					0.00	0.00	0.00	24.00	0.00	0.00	75.10	0.00	2.50	13.00			
Mar				**0.00**	**0.00**	**0.00**	**55.60**	**100.00**	**88.60**	**30.50**	**57.90**	**0.00**	**97.50**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	0.00	88.80	100.00	100.00	100.00	100.00	100.00	100.00	57.70	0.00	0.00		
May		0.00	0.00	0.00	55.40	100.00	100.00	100.00	100.00	100.00	100.00	100.00	66.10	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	90.50	100.00	100.00	100.00	100.00	100.00	100.00	100.00	85.90	16.70	0.00	0.00	0.00
Jul		0.00	0.00	0.00	31.80	100.00	100.00	100.00	100.00	100.00	100.00	100.00	79.00	2.00	0.00	0.00	
Aug			0.00	0.00	0.00	84.80	100.00	100.00	100.00	100.00	100.00	100.00	64.20	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	90.10	100.00	53.40	79.70	7.90	0.50	45.40	0.00			
Oct				0.00	0.00	0.00	0.00	61.30	0.00	0.00	9.50	0.00	76.60				
Nov					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Dec						0.00	0.00	0.00	0.00	0.00	12.70	0.00					

Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	4.10	0.00	0.00	21.10	0.00	0.00				
Feb					0.00	0.00	0.00	9.30	0.00	0.00	75.10	0.00	2.50	13.00			
Mar				**0.00**	**0.00**	**0.00**	**0.00**	**44.80**	**88.60**	**30.50**	**57.90**	**0.00**	**97.50**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	0.00	0.00	66.10	100.00	100.00	100.00	100.00	100.00	57.70	0.00	0.00		
May		0.00	0.00	0.00	37.30	90.80	100.00	100.00	100.00	100.00	100.00	100.00	66.10	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	84.90	100.00	100.00	100.00	100.00	100.00	100.00	100.00	85.90	16.70	0.00	0.00	0.00
Jul		0.00	0.00	0.00	28.10	81.30	100.00	100.00	100.00	100.00	100.00	100.00	79.00	2.00	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	61.00	100.00	100.00	100.00	100.00	100.00	64.20	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	84.70	53.40	79.70	7.90	0.50	45.40	0.00			
Oct				0.00	0.00	0.00	0.00	54.70	0.00	0.00	12.80	0.00	76.60				
Nov					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
Dec						0.00	0.00	0.00	0.00	0.00	12.70	0.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
35.84	23.61	0.74

A5 – Phoenix Gardens – Garden

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						2.10	0.00	20.70	0.00	0.00	11.40	0.00	0.00				
Feb					0.00	10.50	5.30	56.20	41.60	0.00	27.80	0.00	12.50	0.00			
Mar				**0.00**	**0.00**	**21.60**	**60.10**	**99.90**	**100.00**	**89.10**	**77.20**	**31.70**	**32.00**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	5.70	72.50	99.60	99.90	100.00	100.00	99.70	99.00	40.10	6.00	0.00		
May		2.10	0.00	2.90	59.80	98.80	99.60	99.90	100.00	100.00	99.60	98.90	97.50	51.20	1.40	0.00	
Jun	0.00	0.00	0.00	13.60	95.00	98.60	99.50	99.90	100.00	100.00	99.60	99.00	97.70	78.10	31.60	0.00	0.00
Jul		0.00	0.00	0.00	54.80	98.60	99.50	99.90	100.00	100.00	99.70	99.10	97.80	59.80	18.90	0.00	
Aug			0.00	0.00	3.80	68.60	99.60	99.90	100.00	100.00	99.70	99.00	45.20	10.10	0.00	0.00	
Sep			0.00	0.00	0.00	40.40	78.80	100.00	100.00	91.80	65.70	36.30	0.00	0.00			
Oct				0.00	2.20	0.00	32.20	80.60	0.00	9.90	17.20	0.00	37.30				
Nov					7.20	0.00	0.00	8.60	0.00	6.20	12.90	0.00					
Dec						0.00	0.00	5.10	0.00	0.00	4.30	0.00					

Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						2.10	0.00	20.50	0.00	0.00	11.40	0.00	0.00				
Feb					0.00	10.50	0.00	10.70	10.40	0.00	27.80	0.00	12.50	0.00			
Mar				**0.00**	**0.00**	**5.00**	**8.40**	**53.50**	**100.00**	**89.10**	**77.20**	**31.70**	**32.00**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	5.70	47.60	97.70	99.90	100.00	100.00	99.70	99.00	40.10	6.00	0.00		
May		2.10	0.00	2.90	59.80	98.80	99.60	99.90	100.00	100.00	99.60	98.90	97.50	51.20	1.40	0.00	
Jun	0.00	0.00	0.00	13.60	95.00	98.60	99.50	99.90	100.00	100.00	99.60	99.00	97.70	78.10	31.60	0.00	0.00
Jul		0.00	0.00	0.00	54.80	98.60	99.50	99.90	100.00	100.00	99.70	99.10	97.80	59.80	18.90	0.00	
Aug			0.00	0.00	3.80	47.60	95.80	99.90	100.00	100.00	99.70	99.00	45.20	10.10	0.00	0.00	
Sep			0.00	0.00	0.00	9.80	22.40	69.80	100.00	91.80	65.70	36.30	0.00	0.00			
Oct				0.00	2.20	0.00	0.00	37.80	0.00	9.90	17.20	0.00	37.30				
Nov					7.20	0.00	0.00	8.50	0.00	6.20	12.90	0.00					
Dec						0.00	0.00	5.00	0.00	0.00	4.30	0.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
42.63	33.08	0.78

A6 – Phoenix Gardens – Garden

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						7.10	0.00	0.50	1.40	0.00	46.70	0.00	0.00				
Feb					0.00	19.90	0.00	70.10	73.20	1.00	55.00	0.00	26.00	0.00			
Mar				**0.00**	**0.00**	**17.90**	**87.40**	**100.00**	**100.00**	**99.90**	**88.60**	**83.40**	**2.30**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	0.90	87.50	100.00	100.00	100.00	99.90	99.80	98.80	76.20	8.00	0.00		
May		10.10	0.00	0.00	74.10	99.90	100.00	100.00	100.00	99.90	99.60	97.20	89.10	66.50	0.30	0.00	
Jun	0.00	0.00	1.80	6.70	69.70	98.20	100.00	100.00	100.00	99.90	99.60	96.90	89.40	78.10	33.40	0.00	0.00
Jul		0.00	0.00	0.00	61.70	98.70	100.00	100.00	100.00	99.90	99.70	98.20	90.60	75.60	11.90	0.00	
Aug			0.00	0.00	0.30	82.80	100.00	100.00	100.00	99.90	99.80	98.90	81.40	14.70	0.00	0.00	
Sep			0.00	0.00	0.00	38.50	100.00	100.00	100.00	97.80	85.00	77.20	0.00	0.00			
Oct				0.00	4.80	0.00	17.20	99.40	27.90	6.70	0.00	0.00	0.90				
Nov					15.90	0.00	0.00	6.50	0.00	2.00	22.90	0.00					
Dec						0.00	0.00	3.60	0.00	0.00	10.80	0.00					

Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						7.10	0.00	0.40	0.00	0.00	46.70	0.00	0.00				
Feb					0.00	19.90	0.00	0.00	55.40	1.00	55.00	0.00	26.00	0.00			
Mar				**0.00**	**0.00**	**11.50**	**1.60**	**78.80**	**100.00**	**99.90**	**88.60**	**83.40**	**2.30**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	0.90	85.40	100.00	100.00	100.00	99.90	99.80	98.80	76.20	8.00	0.00		
May		10.10	0.00	0.00	74.10	99.90	100.00	100.00	100.00	99.90	99.60	97.20	89.10	66.50	0.30	0.00	
Jun	0.00	0.00	1.80	6.70	69.70	98.20	100.00	100.00	100.00	99.90	99.60	96.90	89.40	78.10	33.40	0.00	0.00
Jul		0.00	0.00	0.00	61.70	98.70	100.00	100.00	100.00	99.90	99.70	98.20	90.60	75.60	11.90	0.00	
Aug			0.00	0.00	0.30	81.40	100.00	100.00	100.00	99.90	99.80	98.90	81.40	14.70	0.00	0.00	
Sep			0.00	0.00	0.00	20.20	10.60	99.60	100.00	97.80	85.00	77.20	0.00	0.00			
Oct				0.00	4.80	0.00	0.00	21.80	27.90	6.70	0.00	0.00	0.90				
Nov					15.90	0.00	0.00	6.40	0.00	2.00	22.90	0.00					
Dec						0.00	0.00	3.50	0.00	0.00	10.80	0.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
48.29	38.84	0.80

A7 – Phoenix Gardens – Garden

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	0.00	87.90	96.20	6.00	0.00	0.00	0.00	0.00	0.00			
Mar				**0.00**	**0.00**	**99.90**	**99.80**	**98.30**	**95.00**	**63.90**	**1.00**	**0.00**	**0.00**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	84.60	99.90	99.90	99.10	97.90	97.20	36.00	0.00	0.00	0.00	0.00		
May		0.10	0.00	100.00	100.00	100.00	99.90	99.50	98.50	97.90	89.70	20.70	0.00	0.00	0.00	0.00	
Jun	0.00	0.00	16.30	100.00	100.00	100.00	99.90	99.60	98.80	98.20	97.80	51.10	0.00	0.00	0.00	0.00	0.00
Jul		0.00	9.50	72.90	100.00	100.00	99.90	99.60	98.70	98.00	97.50	34.00	0.00	0.00	0.00	0.00	
Aug			0.00	0.00	79.60	99.90	99.90	99.20	97.90	97.30	42.60	0.00	0.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	99.90	99.70	97.70	91.10	30.20	0.00	0.00	0.00	0.00			
Oct				0.00	0.00	6.30	98.20	0.00	8.40	0.00	0.00	0.00	0.00				
Nov					0.00	0.00	56.90	0.00	0.00	0.00	0.00	0.00					
Dec						0.00	11.50	0.00	0.00	0.00	0.00	0.00					

Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	0.00	0.00	96.20	6.00	0.00	0.00	0.00	0.00	0.00			
Mar				**0.00**	**0.00**	**8.90**	**86.30**	**98.30**	**95.00**	**63.90**	**1.00**	**0.00**	**0.00**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	84.60	99.90	99.90	99.10	97.90	97.20	36.00	0.00	0.00	0.00	0.00		
May		0.10	0.00	100.00	100.00	100.00	99.90	99.50	98.50	97.90	89.70	20.70	0.00	0.00	0.00	0.00	
Jun	0.00	0.00	16.30	100.00	100.00	100.00	99.90	99.60	98.80	98.20	97.80	51.10	0.00	0.00	0.00	0.00	0.00
Jul		0.00	9.50	72.90	100.00	100.00	99.90	99.60	98.70	98.00	97.50	34.00	0.00	0.00	0.00	0.00	
Aug			0.00	0.00	79.60	99.90	99.90	99.20	97.90	97.30	42.60	0.00	0.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	35.80	99.70	97.70	91.10	30.20	0.00	0.00	0.00	0.00			
Oct				0.00	0.00	0.00	34.70	0.00	8.40	0.00	0.00	0.00	0.00				
Nov					0.00	0.00	56.50	0.00	0.00	0.00	0.00	0.00					
Dec						0.00	9.20	0.00	0.00	0.00	0.00	0.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
38.16	29.45	0.77

A8 – Phoenix Gardens – Garden

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	95.80	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	0.00	79.50	95.20	28.70	88.70	0.00	0.00	0.00	0.00			
Mar				**0.00**	**0.00**	**58.80**	**85.30**	**96.40**	**98.90**	**99.10**	**97.70**	**29.50**	**0.00**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	60.90	78.30	89.00	97.30	99.30	99.40	99.50	98.60	39.00	0.00	0.00		
May		0.00	1.90	29.00	69.20	81.60	90.30	97.30	99.50	99.60	99.70	99.90	96.40	49.60	0.00	0.00	
Jun	0.00	0.00	12.60	49.20	70.30	81.70	90.00	96.70	99.60	99.70	99.80	99.90	100.00	74.50	0.50	0.00	0.00
Jul		0.00	0.00	29.30	66.90	80.00	89.10	96.30	99.50	99.60	99.70	99.90	100.00	66.60	0.00	0.00	
Aug			0.00	0.00	59.60	77.50	88.50	96.80	99.30	99.40	99.50	99.70	44.30	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	74.10	88.60	98.80	99.00	99.10	83.00	14.80	0.00	0.00			
Oct				0.00	0.30	4.00	88.10	94.10	63.00	4.30	0.00	0.00	0.00				
Nov					0.00	0.00	0.40	12.70	0.00	0.00	0.00	0.00					
Dec						0.00	0.00	19.90	0.00	0.00	0.00	0.00					

Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	61.10	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	0.00	0.00	91.80	28.70	88.70	0.00	0.00	0.00	0.00			
Mar				**0.00**	**0.00**	**50.70**	**85.30**	**96.40**	**98.90**	**99.10**	**97.70**	**29.50**	**0.00**	**0.00**	**0.00**		
Apr		0.00	0.00	0.00	60.90	78.30	89.00	97.30	99.30	99.40	99.50	98.60	39.00	0.00	0.00		
May		0.00	1.90	29.00	69.20	81.60	90.30	97.30	99.50	99.60	99.70	99.90	96.40	49.60	0.00	0.00	
Jun	0.00	0.00	12.60	49.20	70.30	81.70	90.00	96.70	99.60	99.70	99.80	99.90	100.00	74.50	0.50	0.00	0.00
Jul		0.00	0.00	29.30	66.90	80.00	89.10	96.30	99.50	99.60	99.70	99.90	100.00	66.60	0.00	0.00	
Aug			0.00	0.00	59.60	77.50	88.50	96.80	99.30	99.40	99.50	99.70	44.30	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	69.00	88.60	98.80	99.00	99.10	83.00	14.80	0.00	0.00			
Oct				0.00	0.30	0.00	0.60	94.10	63.00	4.30	0.00	0.00	0.00				
Nov					0.00	0.00	0.00	12.70	0.00	0.00	0.00	0.00					
Dec						0.00	0.00	19.70	0.00	0.00	0.00	0.00					

Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
47.14	46.47	0.99

A9 – Phoenix Gardens – Garden

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	15.10	46.90	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	14.30	82.10	89.90	66.40	37.80	12.10	2.50	0.00	0.00			
Mar				**0.00**	**0.00**	**77.00**	**87.80**	**92.70**	**91.20**	**85.20**	**56.80**	**30.70**	**1.10**	**0.00**	**0.00**		
Apr		0.00	0.00	11.80	72.80	83.70	90.80	94.90	93.60	90.80	83.50	58.00	26.70	0.00	0.00		
May		0.00	29.40	57.10	77.40	86.00	92.00	95.90	95.10	92.70	89.50	77.30	51.60	16.10	0.00	0.00	
Jun	0.00	0.00	37.30	61.40	77.70	86.00	91.90	96.20	95.80	93.70	91.40	83.00	64.00	29.80	0.00	0.00	0.00
Jul		0.00	4.00	53.20	75.80	84.90	91.20	95.70	95.50	93.20	90.60	80.40	57.20	21.10	0.00	0.00	
Aug			0.00	8.40	72.00	83.20	90.50	94.70	93.80	91.00	84.90	60.10	30.30	0.00	0.00	0.00	
Sep			0.00	0.00	7.20	80.70	89.60	93.50	90.30	80.20	51.40	23.10	0.00	0.00			
Oct				0.00	1.60	59.60	87.30	73.50	65.10	20.00	0.60	0.10	0.00				
Nov					0.00	0.00	58.20	6.60	0.00	0.00	0.00	0.00					
Dec						0.00	2.80	12.30	0.00	0.00	0.00	0.00					

Proposed

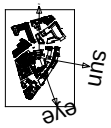
Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	30.60	0.00	0.00	0.00	0.00	0.00				
Feb					0.00	11.30	21.50	89.80	66.40	37.80	12.10	2.50	0.00	0.00			
Mar				**0.00**	**0.00**	**66.90**	**87.80**	**92.70**	**91.20**	**85.20**	**56.80**	**30.70**	**1.10**	**0.00**	**0.00**		
Apr		0.00	0.00	11.80	72.80	83.70	90.80	94.90	93.60	90.80	83.50	58.00	26.70	0.00	0.00		
May		0.00	29.40	57.10	77.40	86.00	92.00	95.90	95.10	92.70	89.50	77.30	51.60	16.10	0.00	0.00	
Jun	0.00	0.00	37.30	61.40	77.70	86.00	91.90	96.20	95.80	93.70	91.40	83.00	64.00	29.80	0.00	0.00	0.00
Jul		0.00	4.00	53.20	75.80	84.90	91.20	95.70	95.50	93.20	90.60	80.40	57.20	21.10	0.00	0.00	
Aug			0.00	8.40	72.00	83.20	90.50	94.70	93.80	91.00	84.90	60.10	30.30	0.00	0.00	0.00	
Sep			0.00	0.00	7.20	73.60	89.60	93.50	90.30	80.20	51.40	23.10	0.00	0.00			
Oct				0.00	1.60	0.00	66.90	73.50	65.10	20.00	0.60	0.10	0.00				
Nov					0.00	0.00	15.50	6.60	0.00	0.00	0.00	0.00					
Dec						0.00	2.50	10.70	0.00	0.00	0.00	0.00					

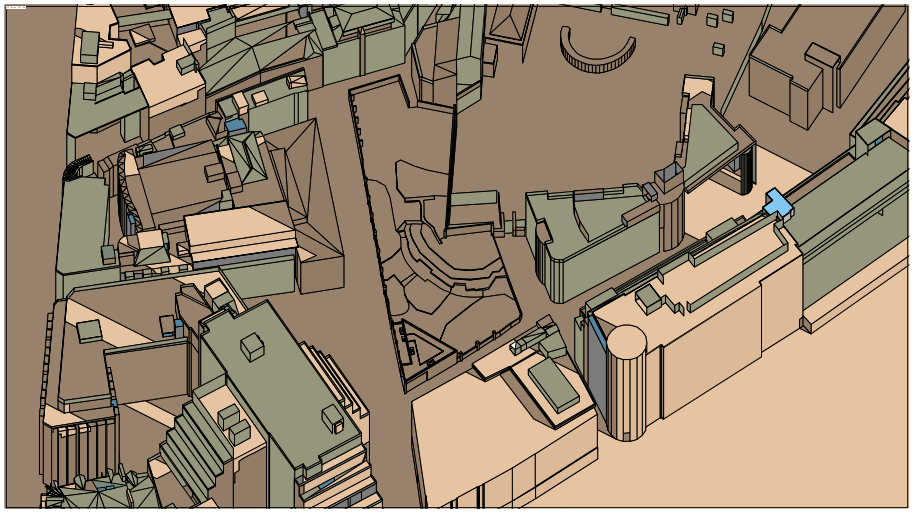
Overshadowing assessment % of the amenity area receiving direct sunlight on 21st March		
Existing	Proposed	Ratio
43.54	42.70	0.98

7.7 SunCast Images

Suncast Image (21 March 07:00)

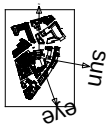
Suncast image:
View time = 21 Mar 07:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 100.24 alt = 8.04
Eye: azi = 160.00 alt = 60.00

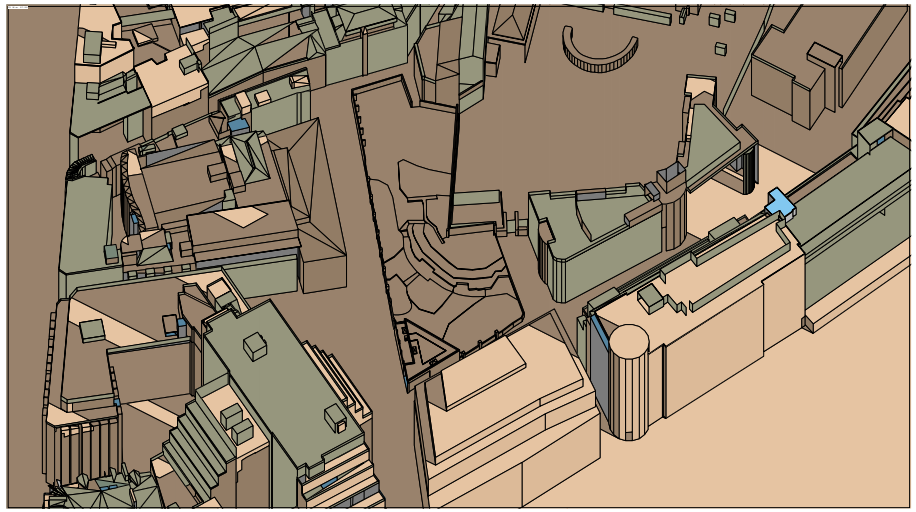




Existing

Suncast image:
View time = 21 Mar 07:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 100.24 alt = 8.04
Eye: azi = 160.00 alt = 60.00

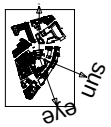


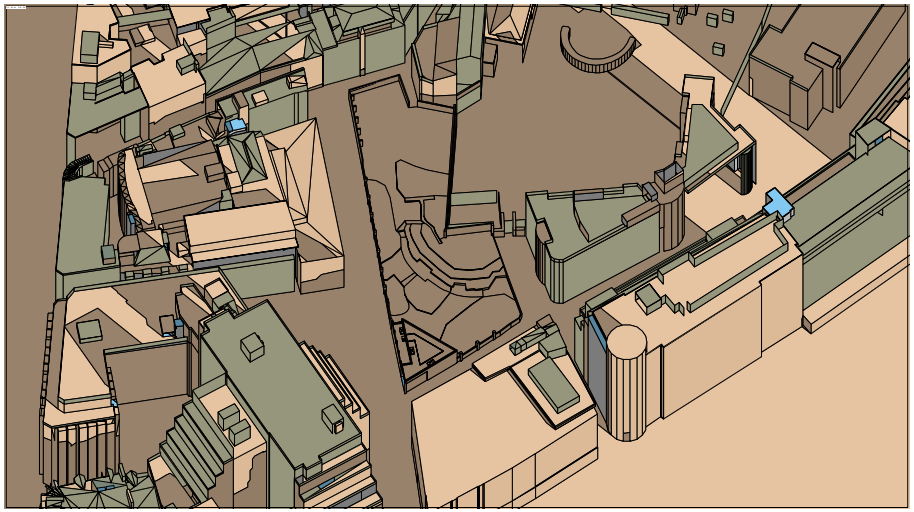


Proposed

Suncast Image (21 March 08:00)

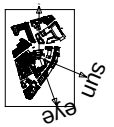
Suncast image:
View time = 21 Mar 08:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 112.59 alt = 16.98
Eye: azi = 160.00 alt = 60.00

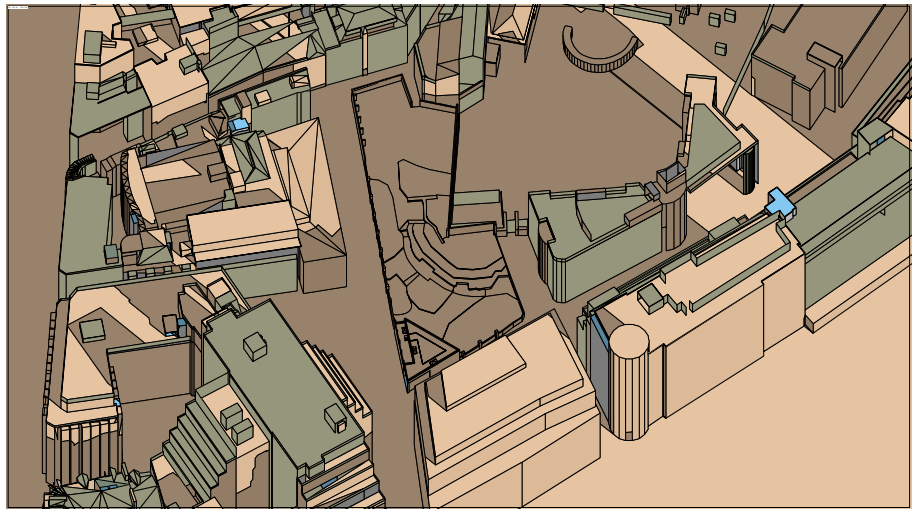




Existing

Suncast image:
View time = 21 Mar 08:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 112.59 alt = 16.98
Eye: azi = 160.00 alt = 60.00

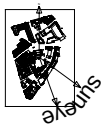


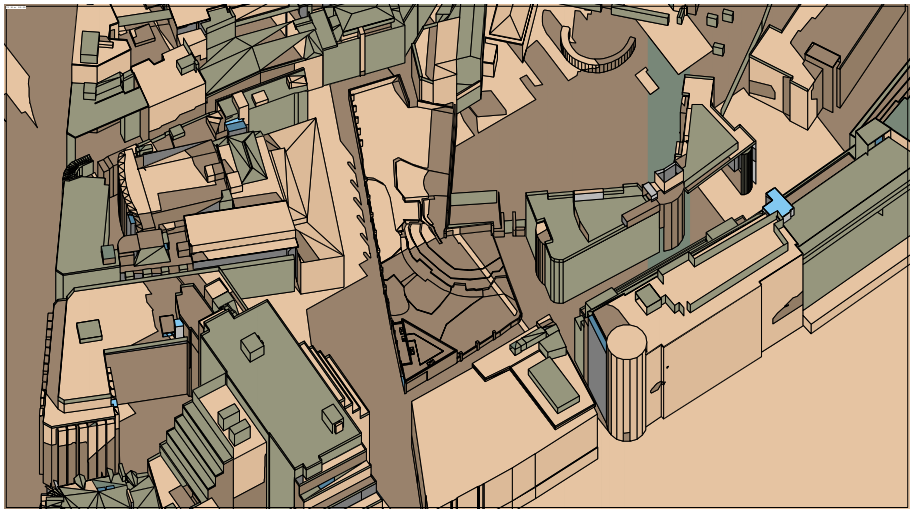


Proposed

Suncast Image (21 March 09:00)

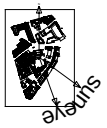
Suncast image:
View time = 21 Mar 09:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 126.12 alt = 25.11
Eye: azi = 160.00 alt = 60.00

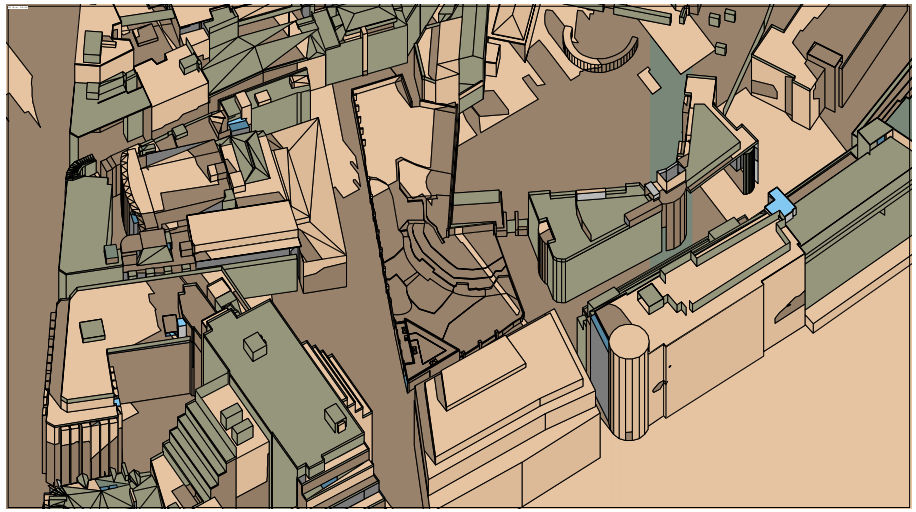




Existing

Suncast image:
View time = 21 Mar 09:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 126.12 alt = 25.11
Eye: azi = 160.00 alt = 60.00

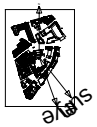


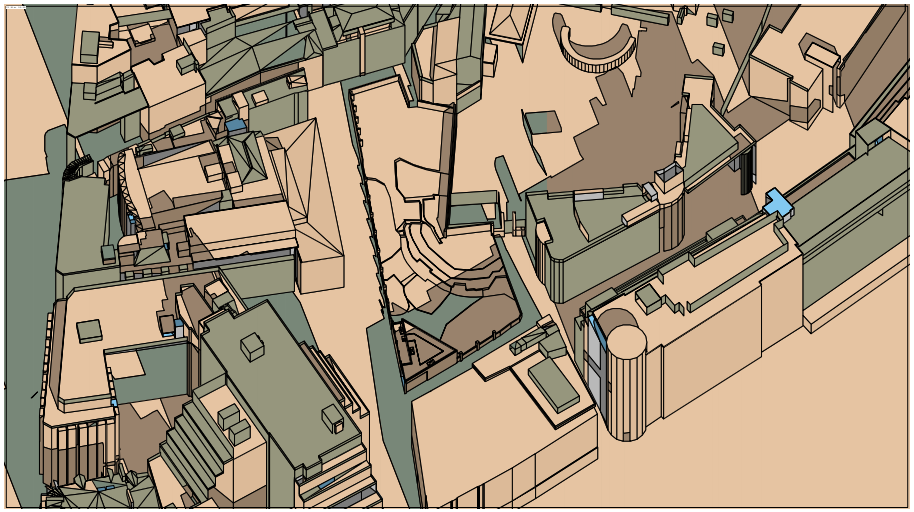


Proposed

Suncase Image (21 March 10:00)

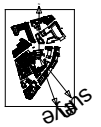
Suncast image:
View time = 21 Mar 10:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 141.39 alt = 31.85
Eye: azi = 160.00 alt = 60.00

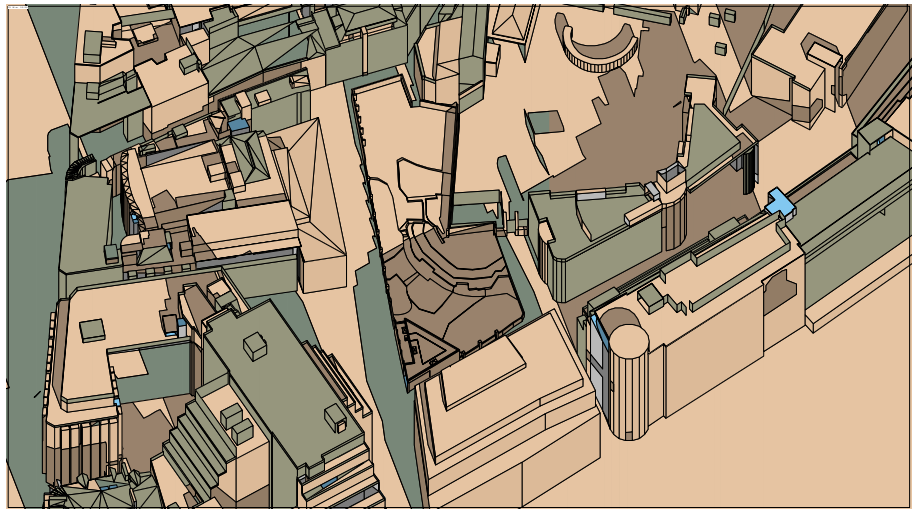




Existing

Suncast image:
View time = 21 Mar 10:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 141.39 alt = 31.85
Eye: azi = 160.00 alt = 60.00

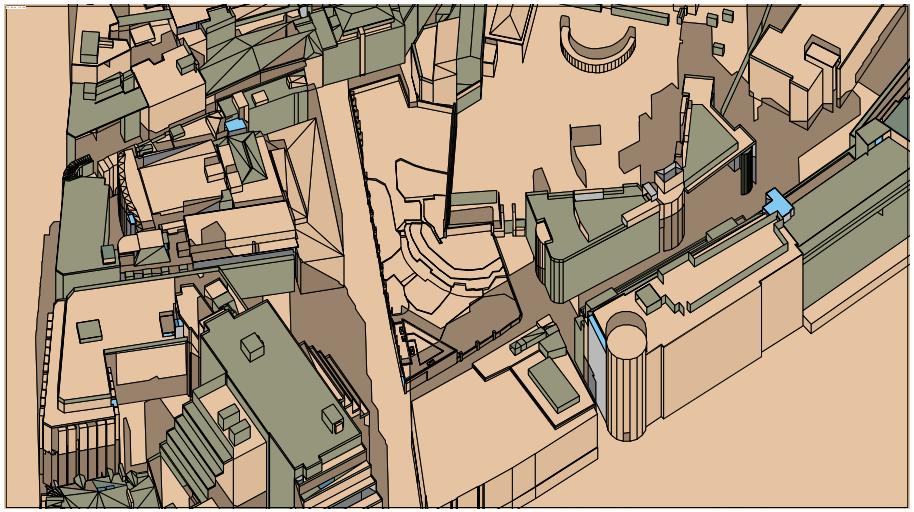




Proposed

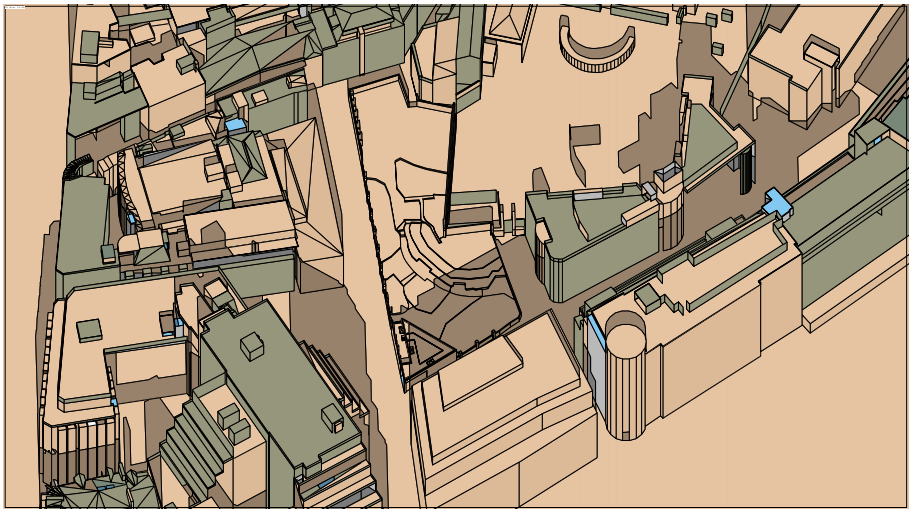
Suncase Image (21 March 11:00)

Suncast image:
View time = 21 Mar 11:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 158.65 alt = 36.52
Eye: azi = 160.00 alt = 60.00



Existing

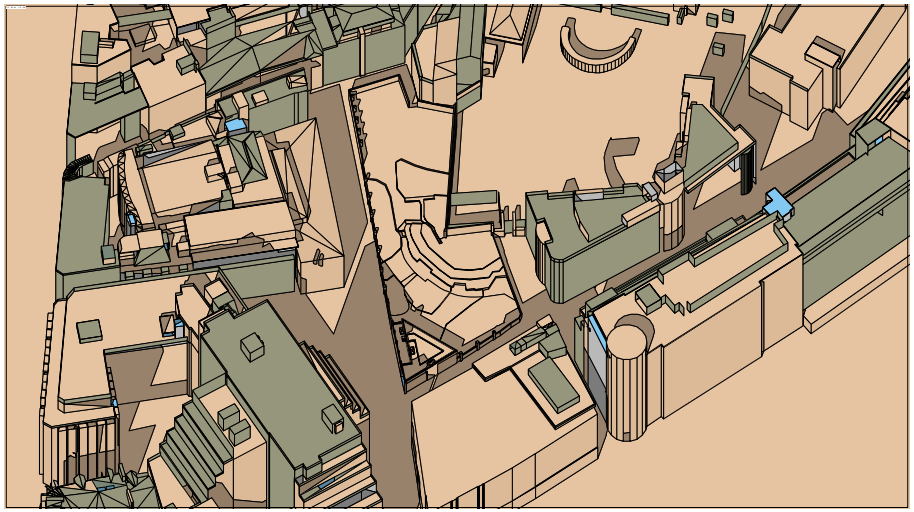
Suncast image:
View time = 21 Mar 11:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 158.65 alt = 36.52
Eye: azi = 160.00 alt = 60.00



Proposed

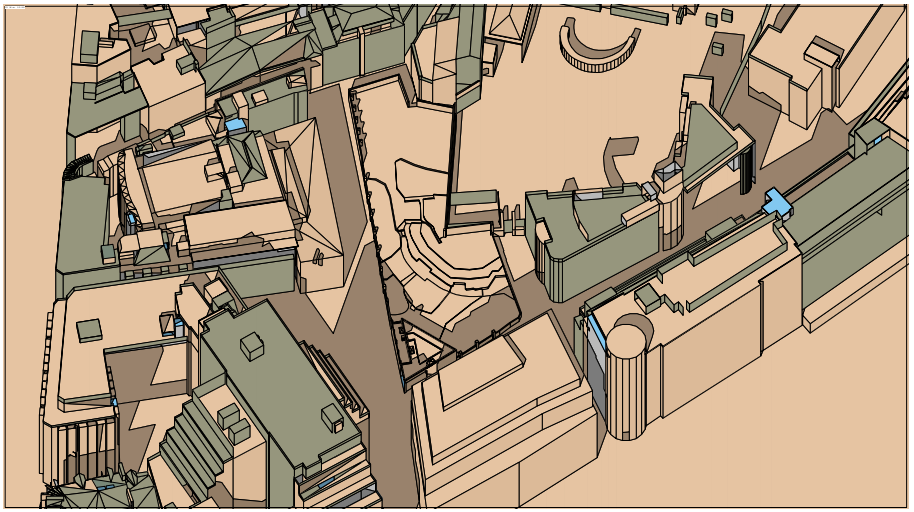
Suncast Image (21 March 12:00)

Suncast image:
View time = 21 Mar 12:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 177.43 alt = 38.46
Eye: azi = 160.00 alt = 60.00



Existing

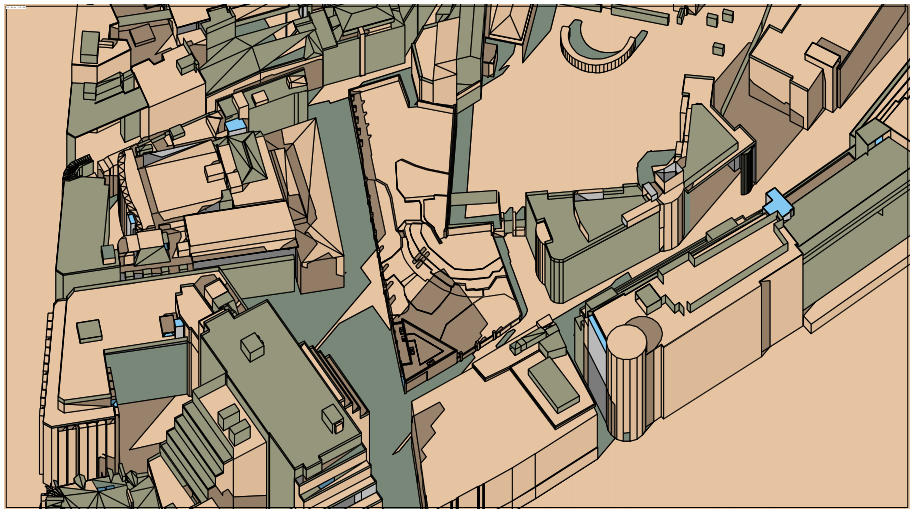
Suncast image:
View time = 21 Mar 12:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 177.43 alt = 38.46
Eye: azi = 160.00 alt = 60.00



Proposed

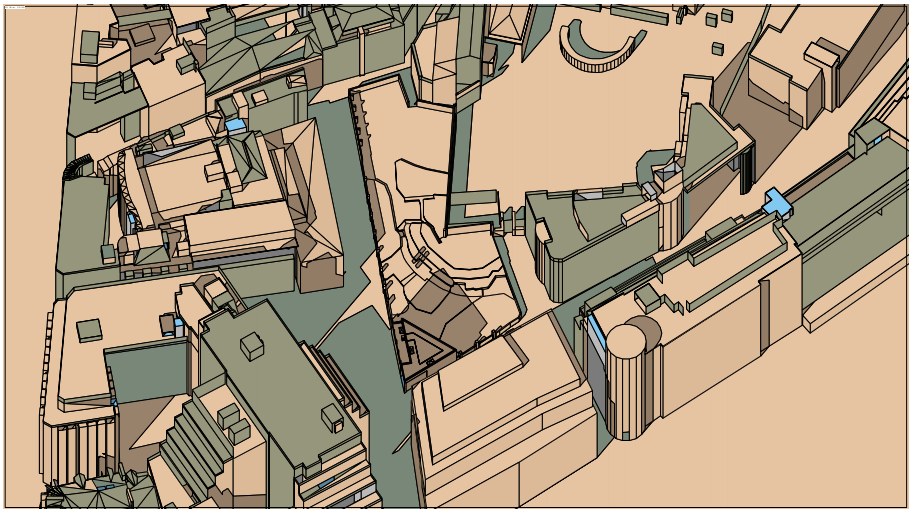
Suncast Image (21 March 13:00)

Suncast image:
View time = 21 Mar 13:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 196.42 alt = 37.33
Eye: azi = 160.00 alt = 60.00



Existing

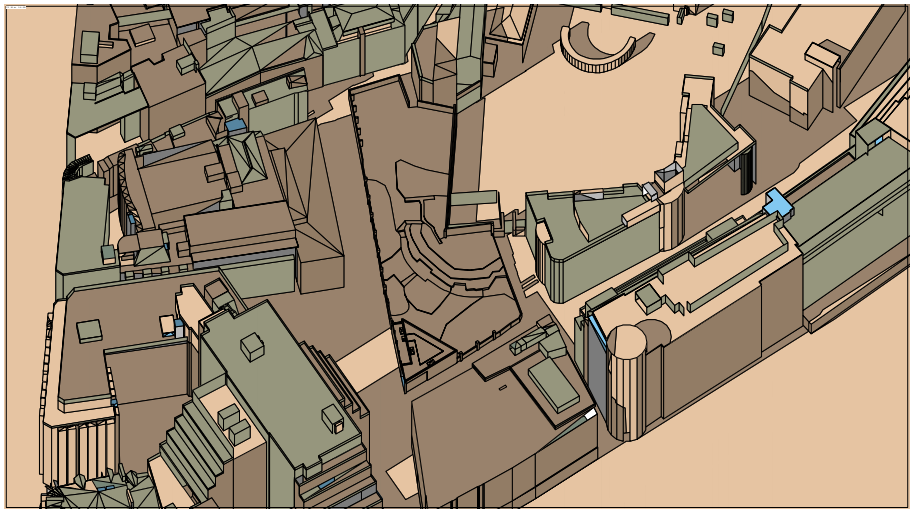
Suncast image:
View time = 21 Mar 13:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 196.42 alt = 37.33
Eye: azi = 160.00 alt = 60.00



Proposed

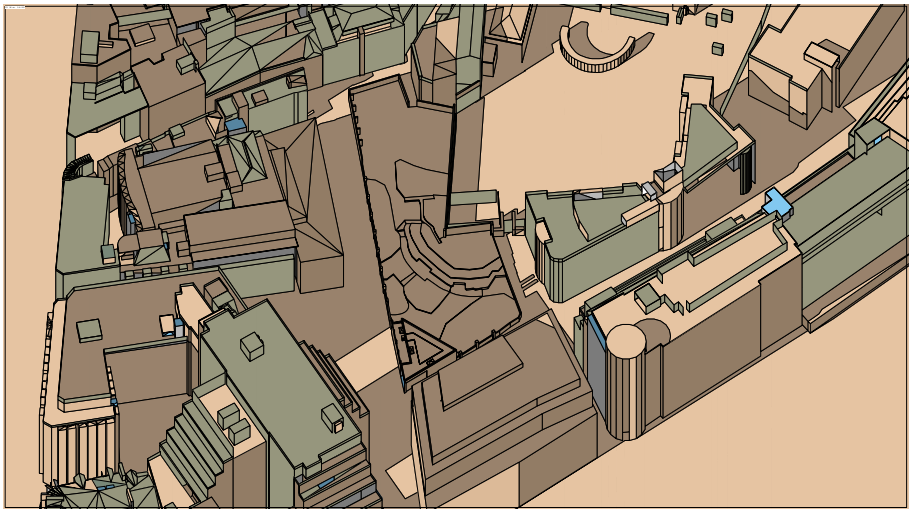
Suncast Images (21 March 14:00)

Suncast image:
View time = 21 Mar 14:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 214.17 alt = 33.34
Eye: azi = 160.00 alt = 60.00



Existing

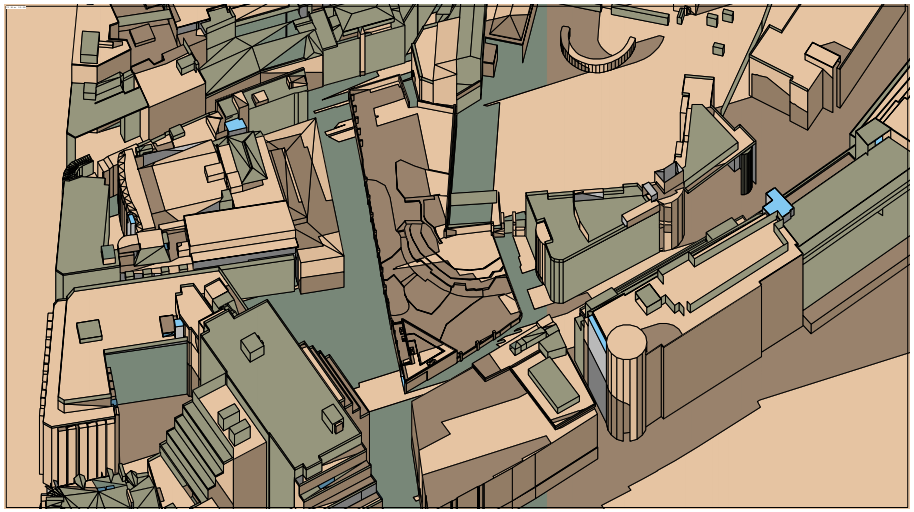
Suncast image:
View time = 21 Mar 14:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 214.17 alt = 33.34
Eye: azi = 160.00 alt = 60.00



Proposed

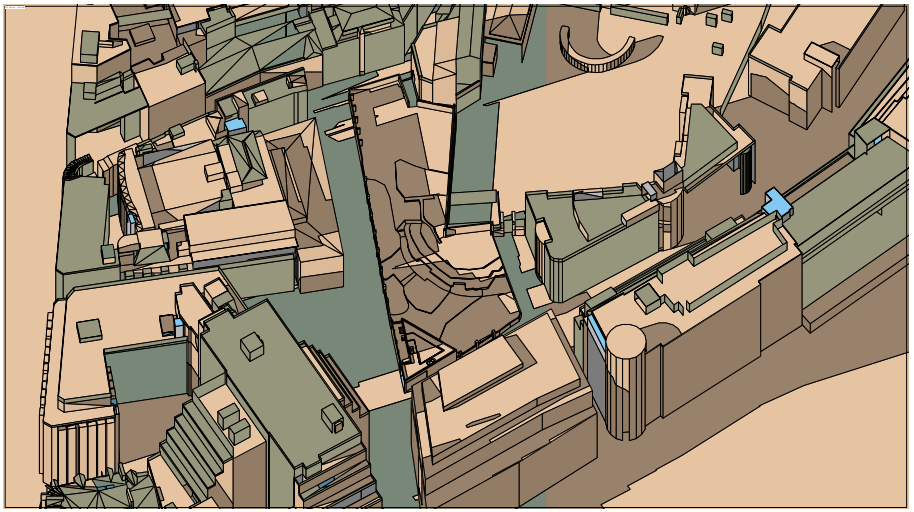
Suncast Images (21 March 15:00)

Suncast image:
View time = 21 Mar 15:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 229.98 alt = 27.08
Eye: azi = 160.00 alt = 60.00



Existing

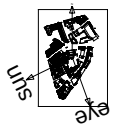
Suncast image:
View time = 21 Mar 15:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 229.98 alt = 27.08
Eye: azi = 160.00 alt = 60.00

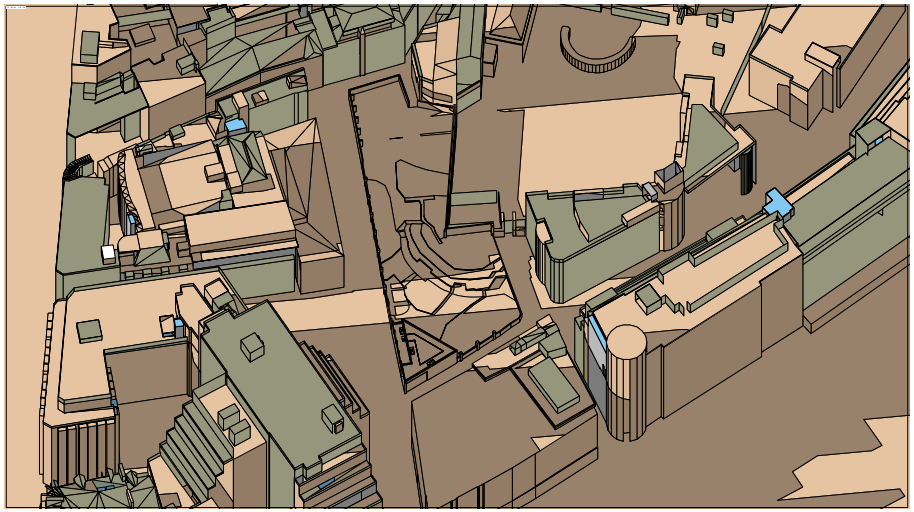


Proposed

Suncast Images (21 March 16:00)

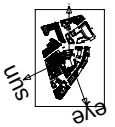
Suncast image:
View time = 21 Mar 16:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 243.92 alt = 19.26
Eye: azi = 160.00 alt = 60.00

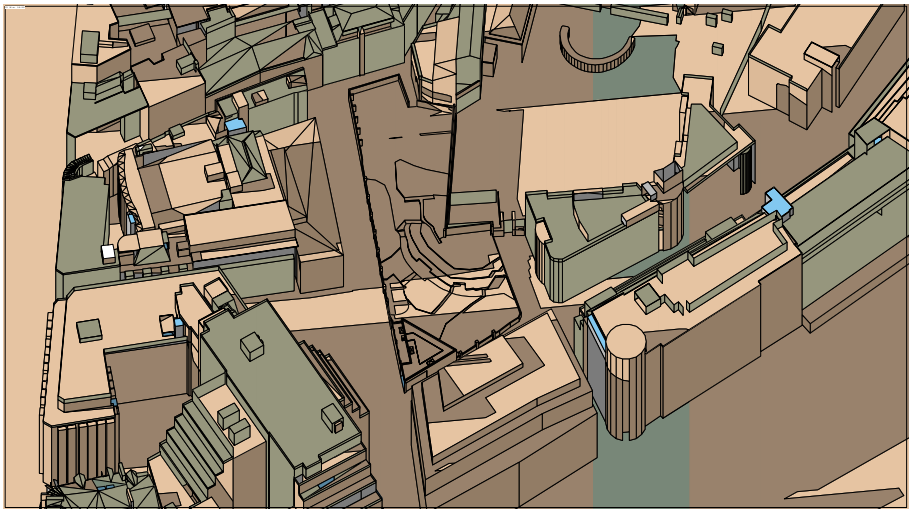




Existing

Suncast image:
View time = 21 Mar 16:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 243.92 alt = 19.26
Eye: azi = 160.00 alt = 60.00

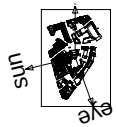


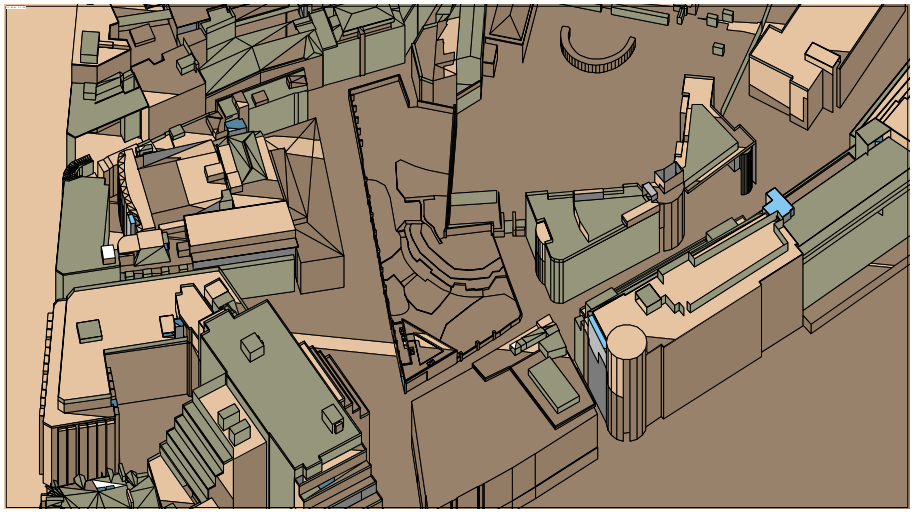


Proposed

Suncast Images (21 March 17:00)

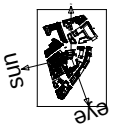
Suncast image:
View time = 21 Mar 17:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 256.53 alt = 10.49
Eye: azi = 160.00 alt = 60.00

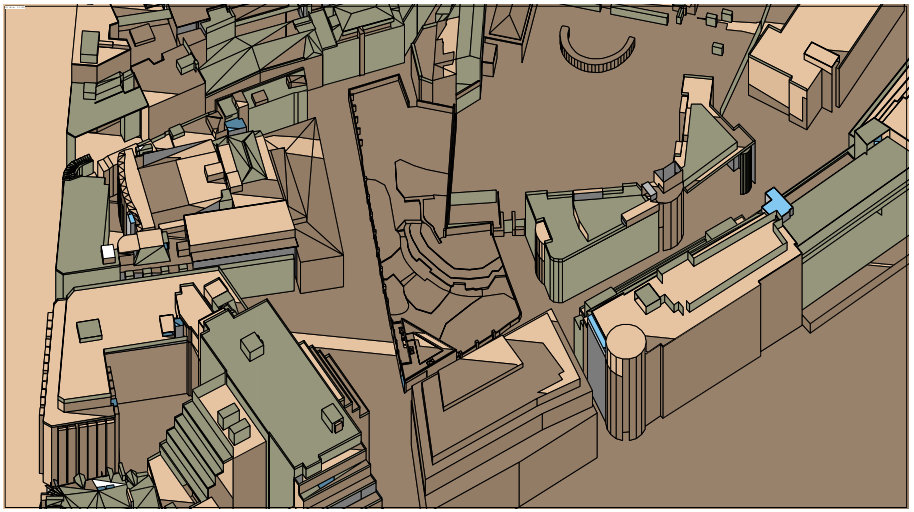




Existing

Suncast image:
View time = 21 Mar 17:00
Site Latitude = 51.51
Longitude diff. = -0.13
Model Bearing = 0.00
Sun: azi = 256.53 alt = 10.49
Eye: azi = 160.00 alt = 60.00





Proposed