



## **Stag Brewery, Mortlake**

### **Daylight, Sunlight, Overshadowing and Light Pollution EIA Report**

For Reselton Properties

February 2018





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### Quality Assurance – Approval Status

This document has been prepared and checked in accordance with  
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS OHSAS 18001:2007)

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## 1. Introduction

This Daylight, Sunlight, Overshadowing and Light Pollution EIA report has been prepared on behalf of Reselton Properties Limited ('the Applicant') in relation to three linked planning applications for the comprehensive redevelopment of the former Stag Brewery site in Mortlake and land at Chalkers Corner ('the Site') within the London Borough of Richmond Upon Thames ('LBRuT').

This report presents the assessment of the likely significant daylight, sunlight, overshadowing and light pollution effects on surrounding sensitive receptors associated with the proposed demolition, alteration, refurbishment and construction works ('the Works'), and once the Development is completed and operational (see below for a definition of the Development). This report comprises the Environmental Statement (ES) Chapter and associated figures and appendices.

### 1.1 Report Context and Approach

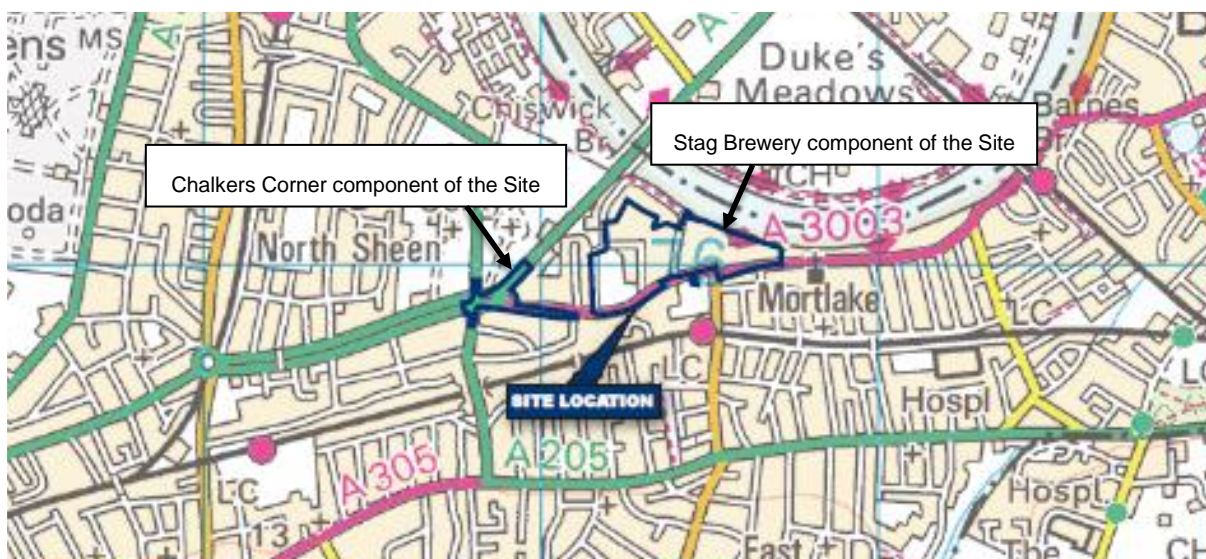
The Development is considered as EIA Development under Schedule 2, Category 10(b) (urban development projects) of the Town and Country Planning (Environmental Impact Assessment) Regulations, 2011 (as amended 2015)<sup>1</sup>.

The ES reports the key findings of the EIA process undertaken for the Development and accompanies all three Planning Applications (as described below). At the request of the LBRuT, standalone reports have been provided, but do not differ from those contained within the ES. Justification as to the scope of the ES is summarised in ES Chapter 2: EIA Methodology. Further information on the description of the existing Site and surrounds, the proposed Development, the Works, alternatives and design evolution, and cumulative effects are provided in the ES.

### 1.2 Site Context and Development Proposals

The location of the Site is shown in Figure 1 below and comprises two components referred to as the 'Stag Brewery component of the Site' and the 'Chalkers Corner component of the Site'.

Figure 1: Site Location



The Stag Brewery component of the Site is bounded by Lower Richmond Road to the south, the river Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High

<sup>1</sup> HMSO (2015) Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended 2015).

Street) to the west. The Stag Brewery component of the Site is bisected by Ship Lane. The Stag Brewery component of the Site currently comprises a mixture of large scale industrial brewing structures, large areas of hardstanding and playing fields. The Chalkers Corner component of the Site comprises highway and associated landscaping referred to as Chalkers Corner junction which includes the junction with the A316 (Clifford Avenue, A3003 (Lower Richmond Road) and A205 (South Circular). Refer to ES Chapter 3: Existing Site and land uses for further information.

The redevelopment will provide homes (including affordable homes), accommodation for an older population, complementary commercial uses, community facilities, a new secondary school alongside new open and green spaces throughout. Associated highway improvements are also proposed, which include works at Chalkers Corner junction. The proposed floorspace of the Development (made up of the three planning applications) is provided in Table 1 below. Refer to ES Chapter 5: The Proposed Development for further information on the Development. The Works would be carried out over a period of approximately 8 years, anticipated to commence in June 2019 and complete in September 2027 (as set out in ES Chapter 6: Development Programme, Demolition, Alteration, Refurbishment and Construction).

Table 1: Proposed Floorspace of the Development

Land Use and Class	Floorspace Area (m <sup>2</sup> )	
	Gross External Area (GEA)	Gross Internal Area (GIA)
Residential (Use Class C3, excluding assisted living)	Up to 84,639 (Up to 667 units)	Up to 75,119 (Up to 667 units)
Office (Use Class B1) (including Site management office)	2,674	2,457
Cinema (Use Class D2)	2,565	2,120
Gym (Use Class D2)	912	740
Flexible Uses - Restaurant / bar / retail / community / boathouse (Use Classes A1 / A2 / A3 / A4 / B1 / D1 / Boathouse)	5,308*	4,664*
Hotel (Use Class C1)	1,858	1,668
Assisted Living (Flexible Use Class C2 / C3)	Up to 16,246	Up to 14,738
Nursing and Care Home (Use Class C2)	Up to 10,293	Up to 9,472
School (Use Class D1)	11,430	9,319
Plant and storage.	Up to 4,536 (+ Plant and storage included in school)	Up to 4,244 (+ 249 included in school)
Car parking spaces.	Up to 708 spaces	Up to 708 spaces
Cycle parking spaces.	Up to 1,611 spaces	Up to 1,611 spaces
Basement residential access / circulation	1,868	1,810
Private amenity space.	Up to 5,912	Not applicable
Public amenity space (including external and internal play space for residents and school play space).	Up to 38,943	Not applicable
Play space (including external and internal play space for residents and school play space).	Up to 14,353	Not applicable

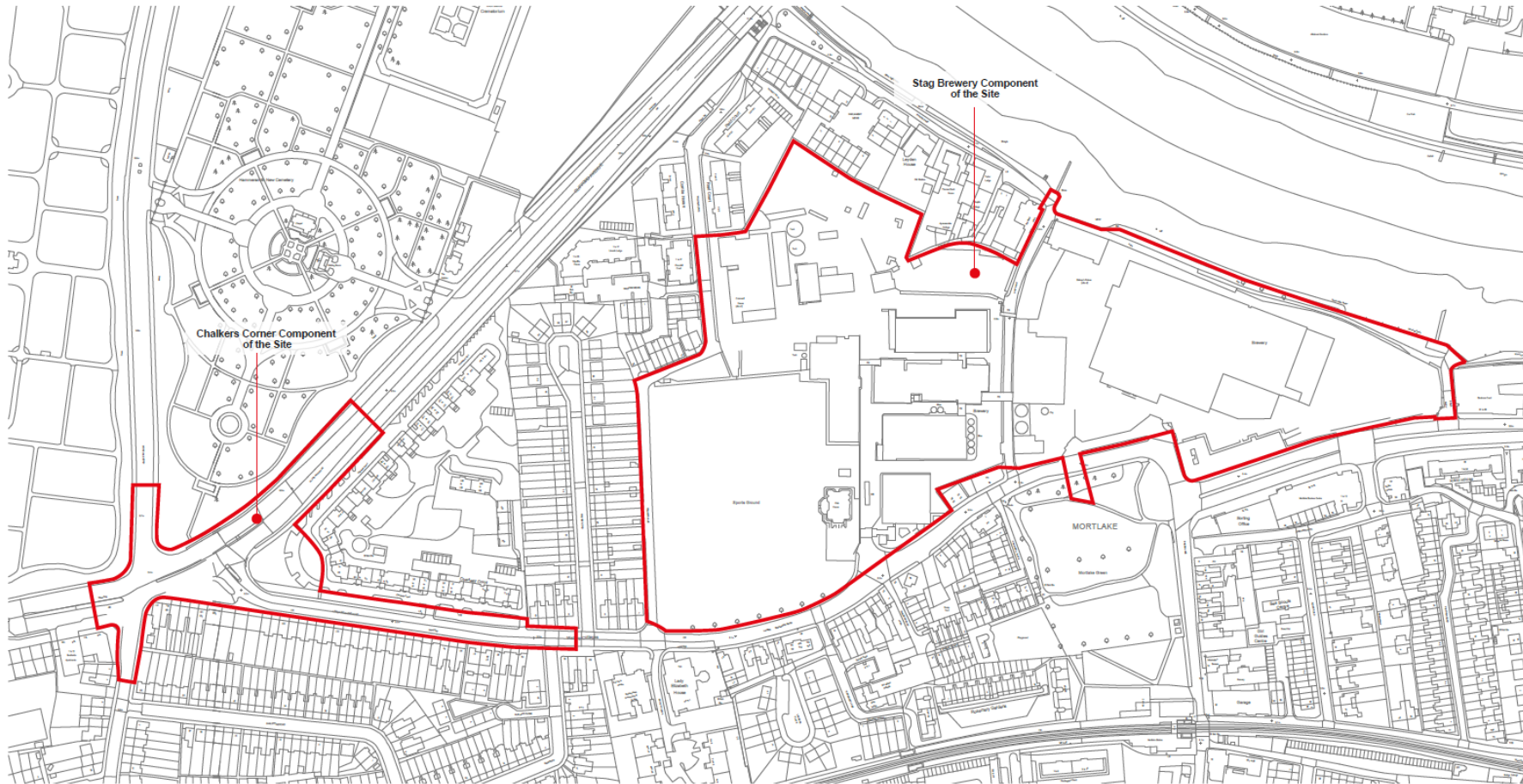
The three planning applications are as follows:

- Application A – hybrid planning application for comprehensive mixed use redevelopment of the Stag Brewery component of the Site consisting of:
  - Land to the east of Ship Lane applied for in detail (referred to as ‘Development Area 1’ throughout); and
  - Land to the west of Ship Lane (excluding the school) applied for in outline detail (referred to as ‘Development Area 2’ throughout).
- Application B – detailed planning application for the school (on land to the west of Ship Lane within the Stag Brewery component of the Site).
- Application C – detailed planning application for highways and landscape works at Chalkers Corner.

The three Planning Applications are separate applications, but will be linked through a S106 agreement to ensure that the Application B (school) land is handed over at an appropriate time and that the Application C (Chalkers Corner) works are carried out at an appropriate stage in conjunction with either Application A or B. For the purposes of assessment, all three Planning applications are therefore considered together as one comprehensive redevelopment proposal. As such, for the purposes of the EIA and ES, the proposals defined by the Planning Applications are collectively referred to as the ‘Development’. Similarly, the collective parcels of land associated with the Planning Applications are referred to as the ‘Site’, as shown on Figure 2.



Figure 2: The Site for the Purposes of the EIA





## 2. Assessment

## 18. Daylight, Sunlight, Overshadowing and Light Pollution

### Introduction

- 18.1 This Chapter, which has been prepared by eb7, presents an assessment of the likely significant effects of the Development on daylight, sunlight, overshadowing and light pollution at sensitive receptors surrounding the Site.
- 18.2 This Chapter provides a description of the methods used in the assessment, followed by a description of the relevant baseline conditions of the Site and surrounding area, together with an assessment of the likely significant effects of the Development during the Works and once the Development is completed and operational. Mitigation measures are identified where appropriate to avoid, reduce or offset adverse effects. Taking account of the mitigation measures, the nature and significance of the likely residual effects of the Development are described.
- 18.3 This Chapter is accompanied by the following appendices presented in **Volume 3**:
- **Appendix 18.1:** Drawings of the Baseline Condition and Development Scenario;
  - **Appendix 18.2:** Detailed Results of the Daylight (VSC, NSC and ADF) and Sunlight (APSH) Analysis;
  - **Appendix 18.3:** Results of the Overshadowing (Sunlight Amenity) Analysis;
  - **Appendix 18.4:** Transient Overshadowing Images; and
  - **Appendix 18.5:** Light Pollution
- 18.4 As agreed during the EIA Scoping Process, internal daylight and sunlight of the residential units within the Development is not considered an EIA issue, as such, this will be presented in a standalone report prepared by eb7, to accompany the planning application.
- 18.5 In addition, due to the location and materials used for the proposed buildings, Solar Glare has been scoped out of the EIA (refer to **Chapter 2: EIA Methodology**).

### Assessment Methodology and Significance Criteria

- 18.1 The technical analysis has been undertaken via the creation of a digital three-dimensional model of the Site and surroundings, based on laser scan measured survey data. Where survey data was not available, building dimensions have been worked out using Ordnance Survey (OS) data and Site photographs. Reasonable assumptions as to the internal configuration of the existing surrounding rooms behind the fenestration were made. A standard 4.27 m deep room was assumed unless the building form dictated otherwise. The use of the rooms behind the fenestration was also assumed from external observation. This is common accepted practice when access is unavailable.
- 18.2 In respect of the assessment of the outline component of the Development, the assessment set out within this Chapter has considered the maximum allowable spatial parameters sought for approval. This would give rise to the greatest massing and so can be considered to reflect a 'worst-case' assessment. That said, based on professional and expert judgement, it is unlikely that the minimum allowable spatial parameters sought for approval would give rise to materially different daylight, sunlight and overshadowing effects, given the minimal difference in scale between the minimum and maximum parameters.
- 18.3 The appendices for this Chapter (**Appendices 18.1 - 18.5**) focus on the Stag Brewery component of the Site (and not the Chalkers Corner component of the Site), this is due to the fact that there would be no built development proposed within or close enough to the Chalkers Corner area to

give rise to significant daylight, sunlight, overshadowing and light pollution effects, as this part of the Development would only comprise highway and landscaping works associated with Chalkers Corner (refer to **Chapter 5: The Proposed Development**). Accordingly, and based on professional and expert judgement, the proposals at the Chalkers Corner component of the Site are unlikely to give rise to any significant daylight, sunlight, overshadowing and light pollution effects. The geographical coverage of these appendices are therefore considered to be appropriate and robust for the purposes of the assessment.

### The Works Assessment Methodology

- 18.4 No technical analysis of the likely significant effects on the surrounding properties and amenity areas during the Works was carried out due to the transient nature of the massing of the Development as construction progresses. However, a qualitative assessment of the likely effects during the Works have been made based on professional judgement.

### Completed Development Assessment Methodology

- 18.5 The Building Research Establishment (BRE) 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice'<sup>1</sup> document provides advice on site layout planning to achieve good sunlighting and daylighting within buildings, and in the open spaces between them (referred to as the BRE guidelines in this report). It is intended to be used in conjunction with the interior daylight recommendations in the British Standard (BS) 8206 Part 2<sup>2</sup> and the Applications Manual Window Design of the Chartered Institute of Building Services Engineers (CIBSE)<sup>3</sup>.
- 18.6 The BRE guidelines are intended for building designers, developers, consultants and planning officials. The advice it gives is not mandatory and should not be used as an instrument of planning policy. It states:
- 18.7 *"Its aim is to help rather than constrain the designer. Although it gives numerical guidelines these should be interpreted flexibly since natural lighting is only one of many factors in the site layout design. In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new Developments are to match the heights and proportions of existing buildings."*
- 18.8 Likely effects (and their significance) on daylight, sunlight and overshadowing are assessed with respect to relevant target criteria as described in further detail below. The 2011 BRE Guidelines do not specifically relate to town centre locations and therefore, a degree of flexibility should be applied when assessing the significance of daylight and sunlight effects in urban locations.

### Daylight

- 18.9 The BRE guidelines provide three different methods for assessing daylight for existing residential accommodation:
- Vertical Sky Component (VSC) method;
  - No Sky Line (NSC); and
  - Average Daylight Factor (ADF).
- 18.10 Each methodology is summarised in the following sections. When reviewing the daylight results for each surrounding property in the first instance the VSC results are considered, looking at the daylight potential at the window face. This is the most basic daylight assessment and is considered in conjunction with the NSC to consider the daylight entering the rooms.

- 18.11 The levels of significance for impact to neighbouring properties is determined through VSC and NSC assessment. The ADF results have been provided as supplementary information only.

#### *Vertical Sky Component (VSC) Method*

- 18.12 VSC is a quantified measurement of the amount of skylight falling on a vertical wall or window. This is the ratio of the direct sky luminance falling on a vertical wall at the reference point for the simultaneous horizontal illuminance under an unobstructed sky. The 'standard overcast sky' is used and the ratio is usually expressed as a percentage. The maximum value is almost 40% for a completely unobstructed vertical wall. The vertical sky component on a window can be related to the average daylight factor in a room, which is one basis for the British Standard (BS) recommendations on interior daylighting.
- 18.13 VSC is calculated by using a sky light indicator or 'Waldram Diagram'. For calculation purposes, trees are ignored unless they form dense continuous belts. In addition, whilst not technically relevant, VSC levels have been included for windows that are not vertical (e.g. skylights) for completeness.

#### *No Sky Line Contour (NSC) Method*

- 18.14 The NSC method is a measure of the distribution of daylight at the 'working plane' within a room. In houses, the 'working plane' means a horizontal 'desktop' plane 0.85 metres (m) in height.
- 18.15 The NSC divides those areas of the working plane in a room which receive direct sky light through the windows from those areas of the working plane which cannot.
- 18.16 If a significant area of the working plane lies beyond the NSC (i.e. it receives no direct sky light), then the distribution of daylight in the room will be poor and supplementary electric lighting may be required.
- 18.17 The effect of daylight distribution in an existing building is found by plotting the NSC in each of the main rooms. For houses, this will include living rooms, dining rooms and kitchens. Bedrooms should also be analysed, although they are considered less important.

#### *Average Daylight Factor (SDF) Method*

- 18.18 The ADF is defined as:
- "...a ratio of total daylight flux incident on a reference area to the total area of the reference area, expressed as a percentage of outdoor luminance on a horizontal plane, due to an unobstructed sky of assumed or known luminance distribution."*
- 18.19 The ADF method of assessment takes into account the diffuse visible transmittance of the glazing to the room in question (i.e. how much light gets through the window glass); the net glazed area of the window in question; the total area of the room surfaces (ceiling, walls, floor and windows); proportion of window located above the working plane and the angle of visible sky reaching the window / windows in question. It also makes allowance for the average reflectance of the internal surfaces of the room and of external obstruction. Reasonable estimations of internal reflectance are used if not known.
- 18.20 It is only the visible sky angle element which is dependent upon external obstruction. It can be directly related both to the obstruction angle and to the VSC on the external window wall.

## Sunlight Assessment

### *Annual Probable Sunlight Hours*

- 18.21 With regard to sunlighting, the same skylight indicator is used for the VSC test at the same reference point to calculate Annual Probable Sunlight Hours (APSH), which is expressed as a percentage.
- 18.22 The BRE guidelines also notes:
- “Access to sunlight should be checked for the main window of each room which faces within 90 degrees (°) of due south”.*
- 18.23 Therefore, any windows facing 90° of due north need not be analysed as they have no expectation of sunlight.

## Overshadowing Assessment

### *Sunlight Amenity Assessment (Sun on the Ground)*

- 18.24 The sunlight amenity assessment calculates the proportion of an outside amenity area which receives at least 2 hours of direct sunlight. This is achieved by plotting a contour of the area which receives at least 2 hours of direct sunlight on the 21<sup>st</sup> March. An amenity space with at least 2 hours of sunlight across the majority of its area can be said to see acceptable levels of direct sun. Amenity areas surrounding the Development with the potential to see increased levels of shadow (those to the north) will be defined and assessed.

### *Transient Overshadowing*

- 18.25 The BRE guidelines suggest that where large buildings are proposed which may affect a number of gardens or open spaces, it is useful and illustrative to plot a shadow plan to show the location of shadows at different times of the day and year. This can be done by using the sun on the ground indicator in reverse. For the purpose of this assessment the overshadowing has been mapped for the following three key dates in the year:
- 21st March (Spring Equinox);
  - 21st June (Summer Solstice); and
  - 21st December (Winter Solstice).
- 18.26 For each of these dates, the overshadowing was calculated at hourly intervals throughout the day from 8.00am to 7.00pm. September 21st (Autumn Equinox) provides the similar overshadowing images as March 21st (Spring Equinox) as the sun follows a similar path at these corresponding times of year.
- 18.27 The indicators are calculated for different latitudes, London being 51.5° north. Clearly, southern orientation is critically important, as are the heights of the Development, existing buildings on Site and surrounding buildings.

## Light Pollution

- 18.28 Light pollution or obtrusive light can be defined as any light emitting from artificial sources into spaces where this light would be unwanted, such as the needless spillage of light into the night sky or spillage of light into the windows of neighbouring residential properties, where this would cause disruption to the sleeping patterns of the occupants.

18.29 Light pollution is a general term which encompasses Sky Glow, Light Trespass, Glare and Building Luminance as described in the Institute of Lighting Professionals (ILP) Guidelines<sup>4</sup>, as follows:

- **Sky Glow** is the brightening of the of the night sky over our towns, cities and countryside. This can be quantified by measuring the Upward Light Ratio (ULR). This is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky. The values suggested in **Table 18.1** are the maximum allowable levels for their respective environmental zones.
- **Light Trespass** is the spilling of light beyond the Site boundary. This is assessed using vertical illuminance in lux (EV) measured flat on the glazing at the centre of the window.
- **Glare** is the uncomfortable brightness of a light source when viewed against a dark background. This applies to each source in the obtrusive direction and is quantified as source intensity (I) (kcd). The values suggested in **Table 18.1** are the maximum allowable levels for their respective environmental zones (pre and post curfew).
- **Building Luminance** can cause an increase in the brightness of the general area. This is measured in Cd/m<sup>2</sup> (L) as an average over the building façade. The values suggested in **Table 18.1** are the maximum allowable pre curfew levels for their respective environmental zones caused only by externally lighting on the building façade.

18.30 The ILP Guidelines suggest that in many cases the target levels for each of the forms of light pollution are not obtainable. Specific cases will be dealt with on a case by case basis and maximum mitigation should be utilised to ensure that the effects are within acceptable limits.

18.31 The ILP Guidelines quantify the levels of sky glow, glare and light trespass seen as acceptable for varying environmental zones:

- E0: UNESCO Starlight Reserves, IDA Dark Sky Parks;
- E1: Intrinsically dark landscapes - National Parks, Areas of Outstanding Natural Beauty, etc;
- E2: Low district brightness areas - Rural, small village, or relatively dark urban locations;
- E3: Medium district brightness areas - Small town centres or urban locations; and
- E4: High district brightness areas - Town/city centres with high levels of night time activity.

18.32 **Table 18.1** sets out light limitations for exterior lighting installations specified in the ILP Guidelines.

Table 18.1: Obtrusive Light Limitations for Exterior Lighting Installations

Environmental Zone	Sky Glow Upward Light Ratio [Max %]	Light Trespass (Into Windows) Vertical Illuminance (Lux) <sup>1</sup>		Source Intensity 1 [kcd] <sup>2</sup>		Building Luminance Average L[cd/m <sup>2</sup> ]
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Pre-curfew
E1	0	2	1 <sup>3</sup>	2.5	0	0
E2	2.5	5	1	7.5	0.5	5
E3	5.0	10	2	10	1.0	10
E4	15.0	25	5	25	2.5	25

Notes:

1 – E<sub>v</sub> = Vertical Illuminance in Lux normal to glazing.

2 – Light Intensity in kilo-candelas.

3 – Acceptable from public road lighting installations only.

Curfew - The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by a LPA. As there is no curfew stated in local planning policy, 23.00hrs has been used as suggested in the ILP guidance.

- 18.33 The Site is considered to fall under Zone E3 as a Medium District Brightness area. By reference to the ILP Guidance, Environmental Zone E3 allows up to 10 lux of light pre-curfew measured vertically upon the face of residential windows surrounding the Development and an 'after curfew' value of 2 lux. This value has therefore been used to assess the light pollution associated with the Development.
- 18.34 A detailed lighting scheme has not been fixed for the Development as a whole at the time the assessment was undertaken and, as such, a qualitative assessment has been provided as is standard practice. This is based on the Provisional Lighting Masterplan put forward by Michael Grubb Studio. Further to this, the sports pitch would be served by floodlights. A final design is not fixed at this stage and two options have been prepared based on either 120 lux or 200 lux and as such, an assessment of light trespass as a result of these floodlights has been provided to ensure that it would be possible to control the light emitted.

### Significance Criteria

- 18.35 The BRE guidelines states the following for use in Environmental Impact Assessments (EIA):

*“The guidance in this book may be used as the basis for environmental impact assessment, where the skylight and sunlight impact of a new Development on its surroundings are taken into account.*

*Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required, or in the amount of sunlight reaching an open space.*

*The assessment of impact would depend on a combination of factors and there is no simple rule of thumb that can be applied.*

*Where the loss of skylight or sunlight fully meets the guidelines in this book, the impact would be **Insignificant** or **minor adverse**. Where the loss of light is well within the guidelines, or only a small number of windows or limited area of open space lose light (within the guidelines), a classification of **Insignificant** is more appropriate. Where the loss of light is only just within the guidelines, and a larger number of windows or open space area are affected, a **minor adverse** impact would be more appropriate, especially if there is a particularly strong requirement for daylight or sunlight in the affected building or open space.*

*Where the loss of skylight or sunlight does not meet the guidelines in this book, the impact is assessed as **minor**, **moderate** or **substantial adverse**. Factors tending towards **minor adverse** impact would include:*

- *Only a small number of windows or limited area or open space are affected;*
- *The loss is only marginally outside the guidelines;*
- *The affected room has other sources of skylight or sunlight;*
- *The affected building or open space only has a low level requirement for skylight or sunlight;*  
*and*
- *There are particular reasons why an alternative, less stringent guidelines should be applied.*

*Factors tending towards a **substantial adverse** impact include:*



- *A large number of windows or large area of open space are affected;*
- *The loss of light is substantially outside the guidelines;*
- *All the windows in a particular property are affected; and*
- *The affected indoor or outdoor spaces have a particularly strong requirement for skylight or sunlight.”*

## Daylight

### VSC Criteria

- 18.36 The BRE guidelines recommend that a window serving a habitable room should be able to benefit from a minimum VSC value of 27%.
- 18.37 In order to be regarded as meeting the VSC criteria once the Development has been constructed, a window should either:
- Retain at least 27% VSC in absolute terms; or
  - Retain at least 80% of its existing VSC value after the Development is constructed.
- 18.38 In special circumstances the developer or Local Planning Authority (LPA) may wish to use different target values. For example, in a historic city centre, or in an area with modern high rise buildings a higher degree of obstruction may be unavoidable if new Developments are to match the height and proportions of existing buildings.
- 18.39 Where a neighbouring window has its light obscured by an overhang, existing levels will be low. As such this can lead to relatively modest developments causing technical breaches of the BRE guidance. In order to allow for this the BRE guidance recommends an additional assessment with balconies removed is undertaken to determine if this is the driver of the impact. Where balconies unfairly constrain daylight, professional judgment may be applied to set a suitable level of significance which deviates from the targets set out below.
- 18.40 Where the results show compliance with the BRE guidelines criteria, the effect is considered to be **Insignificant** since the BRE guidelines indicate that the occupants are unlikely to experience any noticeable change to their daylight amenity levels.
- 18.41 Where there will be a noticeable change, the results have been summarised dependant on how far beyond the suggested targets the reductions from baseline levels will occur. For VSC the ranges of reduction have been set at 20-29.9% (**minor significance**), 30-39.9% (**moderate significance**) and >40% (**major significance** (note, substantial as used in the BRE guidelines has been replaced with major to match the terminology within this ES)).

### NSC Criteria

- 18.42 If, following construction of a new Development, the NSC moves so that the area of the existing room which does receive direct sky light is reduced to less than 0.8 times its former value, then this will be noticeable to the occupants and more of the room will appear poorly lit.
- 18.43 In order to be regarded as meeting the NSC criteria once the Development has been constructed, it should retain at least 80% of its existing NSC value after the Development is constructed.
- 18.44 Where a neighbouring window has its light obscured by an overhang, existing levels will be low. As such this can lead to relatively modest developments causing technical breaches of the BRE guidance. In order to allow for this the BRE guidance recommends an additional assessment with

balconies removed is undertaken to determine if this is the driver of the impact. Where this assessment has been applied it has been described in the description of likely significant effects. impacts. Where balconies unfairly constrain daylight, professional judgment may be applied to set a suitable level of significance which deviates from the targets set out below.

- 18.45 Where the results show compliance with the BRE guidelines criteria, the effect is considered to be **insignificant** since the BRE guidelines indicate that the occupants are unlikely to experience any noticeable change to their daylight amenity levels.
- 18.46 Where there will be a noticeable change, the results have been summarised dependant on how far beyond the suggested targets the reductions from baseline levels will occur. For NSC the ranges of reduction have been split into 20-29.9% (**minor significance**), 30-39.9% (**moderate significance**) and >40% (**major significance**).

#### *ADF Criteria*

- 18.47 The recommended ADF value is dependent upon the use of the room in question. The BRE guidelines suggest a bedroom should have an ADF of 1%, a living room 1.5% and a kitchen 2%. Where room use is unknown an ADF target value of 1.5% (that of a living room) has been assumed. The ADF results are presented as supplementary information and are not used to determine significance of impact.

#### *Sunlight*

- 18.48 The BRE Guidelines states that if a window:
- "...can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months between 21 September and 21 March, then the room should still receive enough sunlight."*
- 18.49 In order to be regarded as meeting APSH criteria once the Development has been constructed, a window should either:
- 18.50 Retain at least 25% total APSH with 5% in the winter months in absolute terms;
- 18.51 Retain at least 80% of its existing total and winter APSH values after the Development is constructed; or
- 18.52 Loss of total absolute annual APSH is less than 4% of total APSH from the existing level.
- 18.53 Where the results show compliance with the BRE Guidance criteria, the effect is considered to be **insignificant** since the BRE Guidelines indicate that the occupants are unlikely to experience any noticeable change to their sunlight amenity levels.

#### *Overshadowing*

- 18.54 It is suggested that for an area to appear adequately sunlit throughout the year, at least half (50%) of any assessment area should see direct sunlight for at least 2 hours on the 21st March (sunlight amenity assessment).
- 18.55 Where the results show compliance with the BRE guidelines criteria, the effect is considered to be **insignificant**. Should the relevant criteria not be achieved, a judgment is made on significance of effect based on the level of loss, retained sunlight levels and the relevant baseline condition.
- 18.56 The BRE guidelines give no criteria for the significance of transitory overshadowing other than to suggest that by establishing the different times of day and year when shadow will be cast over surrounding areas an indication is given as to the significance of the Development's effect. For

this reason the significance of effect is described through the sunlight amenity assessment described above.

#### Light Pollution

- 18.57 Where the results show compliance with the ILP Guidelines, the effect is considered to be of **insignificant**. Should the relevant criteria not be achieved, professional judgment was made on significance of the likely adverse effect based on the level of additional light trespass.

## Baseline Conditions

### Sensitive Receptors

- 18.58 Potentially sensitive receptors (existing nearby residential and relevant educational buildings as well as amenity areas) to the Development are identified in **Table 18.2** and their locations in relation to the Site is shown in **Figure 18.1**. The window maps for the residential properties are shown in within **Appendix 18.1**.

Table 18.2: Potentially Sensitive Receptors

Type of Receptor	Property Address (All floors unless otherwise stated)
Residential properties	Butler House
	Rann House
	31 Vineyard Path
	Vineyard Heights (third floor and above)
	The Tapestry (first floor only)
	3 – 9 Richmond Road (odd numbers only)
	39 – 41 Lower Richmond Road
	43 – 51 Lower Richmond Road
	51a – 55 Lower Richmond Road
	57 – 59 Lower Richmond Road
	61 – 63 Lower Richmond Road
	67 Lower Richmond Road
	Lady Elizabeth House
	2 – 10 Waldeck Road (even numbers only)
	3 – 9 Waldeck Road (odd numbers only)
	1 – 5 Varsity Row
	6 – 7 Varsity Row
	2 – 6 Williams Lane (even numbers only)
	8 – 10 Williams Lane (even numbers only)
	12 – 20 Williams Lane (even numbers only)
22 – 26 Williams Lane (even numbers only)	
1 – 3 Watney Road	
4 – 5 Watney Road	

Type of Receptor	Property Address (All floors unless otherwise stated)
	11 – 13 Watney Road (odd numbers only)
	15 – 21 Watney Road (odd numbers only)
	23 – 29 Watney Road (odd numbers only)
	31 – 37 Watney Road (odd numbers only)
	39 – 45 Watney Road (odd numbers only)
	47 and 49 Watney Road
	51 and 53 Watney Road
	55 and 57 Watney Road
	59 and 61 Watney Road
	63 and 65 Watney Road
	Parliament Mews
	Combe House
	1 – 10 Cromwell Place
	22 Cromwell Place
	Reid Court
	Churchill Court
	17 – 18 Langdon Place
	Tudor Lodge
	The Ship
	Thames Bank Cottage
	Asplin Cottage
	Aynescombe Cottage
	Thames Bank House
	Old Stable
	Leyden House
	Jolly Gardeners (first and second floor only)
Nursery / Daycare	35 Lower Richmond Road
External Amenity Spaces	Gardens serving 11-61 (odd only) Watney Road
	Gardens serving 1-11 Parliament Mews
	Gardens serving Aspin Cottage
	Gardens serving Thames Bank House
	Gardens serving Tudor Lodge
	Thames Tow Path
	Mortlake Green

18.59 The baseline condition has been assessed as the light levels which exist within the building surrounding the Site as they currently stand. **Figure 18.1** shows the buildings included within the baseline scenario assessment.

## Daylight and Sunlight

18.60 **Tables 18.3 to 18.6** summarise the baseline daylight and sunlight results at the relevant receptors identified above. Only Site facing windows with a potential to see a change in light levels have been assessed.

Table 18.3: Baseline Daylight (VSC) Summary

Surrounding Properties	Total Number of Windows	Total number of windows that achieve VSC levels above those suggested in the BRE Guidance	Total number of windows that achieve VSC levels below those suggested in the BRE Guidance
Butler House	63	29	34
Rann House	96	24	72
31 Vineyard Path	30	28	2
Vineyard Heights	149	135	14
The Tapestry	5	3	2
3 – 9 Richmond Road	16	8	8
39 – 41 Lower Richmond Road	5	5	0
43 – 51 Lower Richmond Road	33	33	0
51a – 55 Lower Richmond Road	14	9	5
57 – 59 Lower Richmond Road	8	6	2
61 – 63 Lower Richmond Road	6	6	0
67 Lower Richmond Road	17	10	7
Lady Elizabeth House	50	47	3
2 – 10 Waldeck Road	25	16	9
3 – 9 Waldeck Road	37	19	18
1 – 5 Varsity Row	31	29	2
6 – 7 Varsity Row	10	9	1
2 – 6 Williams Lane	15	15	0
8 – 10 Williams Lane	8	8	0
12 – 20 Williams Lane	21	20	1
22 – 26 Williams Lane	10	9	1
1 – 3 Watney Road	15	12	3
4 – 5 Watney Road	11	8	3
11 – 13 Watney Road	9	9	0
15 – 21 Watney Road	21	21	0
23 – 29 Watney Road	29	27	2
31 – 37 Watney Road	23	21	2
39 – 45 Watney Road	25	25	0
47 and 49 Watney Road	10	10	0
51 and 53 Watney Road	10	10	0

Surrounding Properties	Total Number of Windows	Total number of windows that achieve VSC levels above those suggested in the BRE Guidance	Total number of windows that achieve VSC levels below those suggested in the BRE Guidance
55 and 57 Watney Road	10	10	0
59 and 61 Watney Road	10	10	0
63 and 65 Watney Road	10	10	0
Parliament Mews	78	52	26
Combe House	75	61	14
1 – 10 Cromwell Place	90	80	10
22 Cromwell Place	1	1	0
Reid Court	88	81	7
Churchill Court	83	52	31
17 – 18 Langdon Place	4	2	2
Tudor Lodge	9	8	1
The Ship	9	3	6
Thames Bank Cottage	11	8	3
Asplin Cottage	5	5	0
Aynescombe Cottage	14	11	3
Thames Bank House	28	24	4
Old Stable	23	18	5
Leyden House	20	15	5
Jolly Gardeners	18	17	1
35 Lower Richmond Road	31	12	19

Table 18.4: Baseline Daylight (NSC) Summary

Surrounding Properties	Total Number of Rooms	Total number of rooms above 50% well lit	Total number of rooms below 50% well lit
Butler House	21	19	2
Rann House	48	48	0
31 Vineyard Path	24	24	0
Vineyard Heights	75	75	0
The Tapestry	3	3	0
3 – 9 Richmond Road	8	8	0
39 – 41 Lower Richmond Road	5	5	0
43 – 51 Lower Richmond Road	31	31	0
51a – 55 Lower Richmond Road	11	10	1
57 – 59 Lower Richmond Road	6	6	0

Surrounding Properties	Total Number of Rooms	Total number of rooms above 50% well lit	Total number of rooms below 50% well lit
61 – 63 Lower Richmond Road	6	6	0
67 Lower Richmond Road	7	6	1
Lady Elizabeth House	40	40	0
2 – 10 Waldeck Road	12	12	0
3 – 9 Waldeck Road	29	27	2
1 – 5 Varsity Row	18	18	0
6 – 7 Varsity Row	6	6	0
2 – 6 Williams Lane	9	9	0
8 – 10 Williams Lane	6	6	0
12 – 20 Williams Lane	16	15	1
22 – 26 Williams Lane	9	9	0
1 – 3 Watney Road	11	11	0
4 – 5 Watney Road	7	7	0
11 – 13 Watney Road	7	7	0
15 – 21 Watney Road	15	15	0
23 – 29 Watney Road	15	15	0
31 – 37 Watney Road	15	15	0
39 – 45 Watney Road	17	17	0
47 and 49 Watney Road	6	6	0
51 and 53 Watney Road	6	6	0
55 and 57 Watney Road	6	6	0
59 and 61 Watney Road	6	6	0
63 and 65 Watney Road	6	6	0
Parliament Mews	45	42	3
Combe House	60	60	0
1 – 10 Cromwell Place	73	71	2
22 Cromwell Place	1	1	0
Reid Court	64	64	0
Churchill Court	32	32	0
17 – 18 Langdon Place	4	4	0
Tudor Lodge	5	4	1
The Ship	6	5	1
Thames Bank Cottage	9	9	0
Asplin Cottage	5	5	0
Aynescombe Cottage	6	6	0
Thames Bank House	9	9	0

Surrounding Properties	Total Number of Rooms	Total number of rooms above 50% well lit	Total number of rooms below 50% well lit
Old Stable	8	6	2
Leyden House	9	9	0
Jolly Gardeners	9	9	0
35 Lower Richmond Road	5	4	1

Table 18.5: Baseline Daylight (ADF) Summary

Surrounding Properties	Total Number of rooms	Total number of rooms above BRE suggested targets	Total number of rooms below BRE suggested targets
Butler House	21	12	9
Rann House	48	38	10
31 Vineyard Path	24	21	3
Vineyard Heights	75	45	30
The Tapestry	3	2	1
3 – 9 Richmond Road	8	8	0
39 – 41 Lower Richmond Road	5	5	0
43 – 51 Lower Richmond Road	31	24	7
51a – 55 Lower Richmond Road	11	6	5
57 – 59 Lower Richmond Road	6	6	0
61 – 63 Lower Richmond Road	6	0	6
67 Lower Richmond Road	7	6	1
Lady Elizabeth House	40	27	13
2 – 10 Waldeck Road	12	10	2
3 – 9 Waldeck Road	29	10	19
1 – 5 Varsity Row	18	15	3
6 – 7 Varsity Row	6	4	2
2 – 6 Williams Lane	9	6	3
8 – 10 Williams Lane	6	6	0
12 – 20 Williams Lane	16	15	1
22 – 26 Williams Lane	9	8	1
1 – 3 Watney Road	11	6	5
4 – 5 Watney Road	7	4	3
11 – 13 Watney Road	7	4	3
15 – 21 Watney Road	15	11	4
23 – 29 Watney Road	15	9	6
31 – 37 Watney Road	15	5	10
39 – 45 Watney Road	17	6	11



Surrounding Properties	Total Number of rooms	Total number of rooms above BRE suggested targets	Total number of rooms below BRE suggested targets
47 and 49 Watney Road	6	2	4
51 and 53 Watney Road	6	2	4
55 and 57 Watney Road	6	0	6
59 and 61 Watney Road	6	0	6
63 and 65 Watney Road	6	0	6
Parliament Mews	45	13	32
Combe House	60	14	46
1 – 10 Cromwell Place	73	53	20
22 Cromwell Place	1	0	1
Reid Court	64	46	18
Churchill Court	32	13	19
17 – 18 Langdon Place	4	0	4
Tudor Lodge	5	3	2
The Ship	6	3	3
Thames Bank Cottage	9	2	7
Asplin Cottage	5	0	5
Aynescombe Cottage	6	4	2
Thames Bank House	9	7	2
Old Stable	8	3	5
Leyden House	9	5	4
Jolly Gardeners	9	7	2
35 Lower Richmond Road	5	2	3

Table 18.6: Baseline Sunlight (APSH) Summary

Surrounding Properties	Total Number of windows facing the Site and within 90° of due south	Total number of windows above BRE suggested targets for total and winter APSH	Total number of windows below BRE suggested targets for total and winter APSH
Butler House	28	15	13
Rann House	16	0	16
31 Vineyard Path	0	0	0
Vineyard Heights	46	40	6
The Tapestry	1	1	0
3 – 9 Richmond Road	0	0	0
39 – 41 Lower Richmond Road	0	0	0
43 – 51 Lower Richmond Road	11	11	0

Surrounding Properties	Total Number of windows facing the Site and within 90° of due south	Total number of windows above BRE suggested targets for total and winter APSH	Total number of windows below BRE suggested targets for total and winter APSH
51a – 55 Lower Richmond Road	2	0	2
57 – 59 Lower Richmond Road	1	0	1
61 – 63 Lower Richmond Road	0	0	0
67 Lower Richmond Road	6	4	2
Lady Elizabeth House	6	6	0
2 – 10 Waldeck Road	10	10	0
3 – 9 Waldeck Road	17	17	0
1 – 5 Varsity Row	24	24	0
6 – 7 Varsity Row	10	10	0
2 – 6 Williams Lane	0	0	0
8 – 10 Williams Lane	8	8	0
12 – 20 Williams Lane	20	20	0
22 – 26 Williams Lane	10	10	0
1 – 3 Watney Road	2	0	2
4 – 5 Watney Road	1	0	1
11 – 13 Watney Road	0	0	0
15 – 21 Watney Road	0	0	0
23 – 29 Watney Road	3	3	0
31 – 37 Watney Road	0	0	0
39 – 45 Watney Road	0	0	0
47 and 49 Watney Road	0	0	0
51 and 53 Watney Road	0	0	0
55 and 57 Watney Road	0	0	0
59 and 61 Watney Road	0	0	0
63 and 65 Watney Road	0	0	0
Parliament Mews	54	49	5
Combe House	3	3	0
1 – 10 Cromwell Place	52	50	2
22 Cromwell Place	1	1	0
Reid Court	44	44	0
Churchill Court	20	16	4
17 – 18 Langdon Place	0	0	0
Tudor Lodge	9	9	0
The Ship	9	8	1
Thames Bank Cottage	8	7	1

Surrounding Properties	Total Number of windows facing the Site and within 90° of due south	Total number of windows above BRE suggested targets for total and winter APSH	Total number of windows below BRE suggested targets for total and winter APSH
Asplin Cottage	3	3	0
Aynescombe Cottage	4	4	0
Thames Bank House	16	15	1
Old Stable	19	19	0
Leyden House	16	16	0
Jolly Gardeners	7	7	0
35 Lower Richmond Road	17	11	6

- 18.61 A number of neighbouring properties under the existing baseline scenario enjoy a relatively open outlook and as such enjoy good light levels. These levels are typical of suburban locations and this should be considered when applying the BRE criteria.
- 18.62 In the baseline condition a small number of windows surrounding the Site fall below the BRE suggested VSC levels of 27%. These instances are where the low levels are primarily driven by overhanging / recessed balconies and amenity spaces which serve to self-limit both daylight and sunlight to the window face below. The following properties have windows with low existing levels of daylight as the results of the overhanging / recessed amenity spaces:
- Butler House;
  - Rann House; and
  - Churchill Court.
- 18.63 The APSH results indicate that some of the surrounding properties will have low existing levels of direct sunlight, below those suggested in the BRE guidelines. Given the suburban nature of the Site, these results are not unusual.

### Overshadowing

- 18.64 The results of the sunlight amenity assessment has shown that 21 of the 40 existing areas surrounding the Site receive direct sunlight for two hours or more on the 21<sup>st</sup> March across more than 50% of its area, which is the recommended level suggested in the BRE guidance. These areas include the Thames Tow Path, Mortlake Green and various gardens serving neighbouring residential properties.
- 18.65 The other areas all fall below the targets due to the density and orientation of the spaces and these spaces can be identified within the drawings within **Appendix 18.3** as follows:
- 11 Watney Road;
  - 17 Watney Road;
  - 19 Watney Road;
  - 21 Watney Road;
  - 25 Watney Road;
  - 29 Watney Road;
  - 31 Watney Road;

- 33 Watney Road;
- 37 Watney Road;
- 41 Watney Road;
- 43 Watney Road;
- 45 Watney Road;
- 51 Watney Road;
- 10 Parliament Mews;
- 11 Parliament Mews;
- 6 Parliament Mews;
- 7 Parliament Mews;
- 8 Parliament Mews; and
- 9 Parliament Mews.

### Transient Overshadowing

- 18.66 The transient shadow images for three key points throughout the year are set out within **Appendix 18.4** and commented on below.
- 18.67 A review of the transient shadow drawings shows that the existing buildings on-Site cause little additional shadow to the surrounding amenity areas identified in the current condition in March and June. The only area that is overshadowed by the existing buildings on Site at these times of the year is the element of the Thames Tow path to the north east of the Stag Brewery component of the Site. This area sees a level of shadow throughout the day on these dates.

### Light Pollution

- 18.68 It is not possible to measure the Sky Glow caused by the lighting on the Site in the baseline condition as the light emitted from all sources is not known. However, a review of the fittings indicates the majority are downward facing and as such it is considered that sky glow would be within suggested levels. Similarly, there is currently no lighting on Site that would cause adverse effects with regard to Building Luminance or Glare.
- 18.69 In order to ascertain the vertical illuminance levels at neighbouring residential properties in the current condition, a night time Site visit was undertaken and light levels measured with a light meter. This Site visit was undertaken at 9pm on the 30<sup>th</sup> October 2017. This is pre curfew (11pm) in the hours of darkness. It should be noted that best efforts were made to take readings that occurred as a result of fixed lighting on and surrounding the Site. Notwithstanding this, due to the level of traffic on Lower Richmond Road and Mortlake High Street, car headlights may have caused increased readings. Readings were taken as close to surrounding residential properties as possible, although without gaining access it was not possible to obtain readings at the window face. The results can be found in **Appendix 18.5**. They show that the pre-curfew light levels are generally below 5 Lux apart from along Lower Richmond Road and Mortlake High Street where levels increase up to 30 Lux, primarily as a result of street lighting and the headlights of passing traffic.
- 18.70 It should be noted that the sports pitch on Site is not currently artificially lit.

## Likely Significant Effects

### The Works

#### Demolition Effects

- 18.71 The level of effect in relation to daylight, sunlight and overshadowing to the surrounding properties would vary throughout the Work, depending on the level of obstruction caused. There would be a slight temporary improvement in levels of daylight and sunlight after the buildings and structures on the Site are demolished. The likely effects to daylight, sunlight and overshadowing would be generally **local, short to medium term** and of **minor to moderate beneficial** significance at the closest sensitive receptors but would be **insignificant** at those sensitive receptors at a greater distance from the Stag Brewery component of the Site.
- 18.72 Lighting used during the Works would accord with the ILP Guidance so as not to cause a nuisance to nearby receptors. The likely effect is therefore considered to be **insignificant**.

#### Construction Effects

- 18.73 The construction of the new buildings on the Site would have a gradual effect upon the levels of daylight, sunlight and overshadowing to residential properties and amenity spaces surrounding the Site as the massing of the proposed buildings increases over time as construction progresses. The effects upon light spillage and light pollution would not occur until the external pedestrian lighting and internal lighting was commissioned and activated after construction. The likely effects that are perceptible as the superstructure progresses would be similar, albeit lesser, to those of the completed Development. Therefore, reference should be made to the assessments of the completed Development below.
- 18.74 During the construction phase, a number of tall cranes would be present on-Site; however their size and temporary presence would lead to generally imperceptible effects to local reductions in daylight and sunlight. The likely effect of construction cranes on daylight, sunlight and overshadowing levels is considered to be **insignificant**.

## Completed Development

### Daylight to Existing Surrounding Properties

- 18.75 The assessed scenario is shown in **Appendix 18.1**. The detailed results can be found within **Appendix 18.2**. **Tables 18.7 to 18.11** below summarise the daylight and sunlight effects of the Development on existing nearby residential properties.
- 18.76 Properties with windows that do not have a direct line of sight to the Development or are at a significant distance from the Site have not been included within this assessment. In some cases where buildings are a significant distance from the Site, only windows which would see the greatest loss have been assessed to present a worst case. Should these windows see a minor adverse or insignificant effect it can be said that other windows within the building would see an effect that is the same or less.

*Daylight*

Table 18.7: Completed Development – VSC in relation to the BRE Guidance

Existing Property	Total Number of Windows	Total number of windows that achieve VSC levels in excess of 27% or a reduction of less than 20% from the baseline level	Total number of windows that see VSC reductions suggested as noticeable in the BRE Guidance			Total
			20%-29.9% reduction	30% - 39.9% reduction	>40% reduction	
Butler House	63	52	3	3	5	11
Rann House	96	74	8	10	4	22
31 Vineyard Path	30	26	3	1	0	4
Vineyard Heights	149	149	0	0	0	0
The Tapestry	5	5	0	0	0	0
3 – 9 Richmond Road	16	16	0	0	0	0
39 – 41 Lower Richmond Road	5	5	0	0	0	0
43 – 51 Lower Richmond Road	33	33	0	0	0	0
51a – 55 Lower Richmond Road	14	14	0	0	0	0
57 – 59 Lower Richmond Road	8	8	0	0	0	0
61 – 63 Lower Richmond Road	6	6	0	0	0	0
67 Lower Richmond Road	17	17	0	0	0	0
Lady Elizabeth House	50	50	0	0	0	0
2 – 10 Waldeck Road	25	25	0	0	0	0
3 – 9 Waldeck Road	37	37	0	0	0	0
1 – 5 Varsity Row	31	31	0	0	0	0
6 – 7 Varsity Row	10	10	0	0	0	0
2 – 6 Williams Lane	15	5	1	9	0	10
8 – 10 Williams Lane	8	8	0	0	0	0
12 – 20 Williams Lane	21	21	0	0	0	0
22 – 26 Williams Lane (even numbers only)	10	10	0	0	0	0
1 – 3 Watney Road	15	15	0	0	0	0

Existing Property	Total Number of Windows	Total number of windows that achieve VSC levels in excess of 27% or a reduction of less than 20% from the baseline level	Total number of windows that see VSC reductions suggested as noticeable in the BRE Guidance			
			20%-29.9% reduction	30% - 39.9% reduction	>40% reduction	Total
4 – 5 Watney Road	11	11	0	0	0	0
11 – 13 Watney Road	9	9	0	0	0	0
15 – 21 Watney Road	21	21	0	0	0	0
23 – 29 Watney Road	29	29	0	0	0	0
31 – 37 Watney Road	23	23	0	0	0	0
39 – 45 Watney Road	25	25	0	0	0	0
47 and 49 Watney Road	10	10	0	0	0	0
51 and 53 Watney Road	10	10	0	0	0	0
55 and 57 Watney Road	10	10	0	0	0	0
59 and 61 Watney Road	10	10	0	0	0	0
63 and 65 Watney Road	10	10	0	0	0	0
Parliament Mews	78	78	0	0	0	0
Combe House	75	75	0	0	0	0
1 – 10 Cromwell Place	90	90	0	0	0	0
22 Cromwell Place	1	1	0	0	0	0
Reid Court	88	84	4	0	0	4
Churchill Court	83	64	10	5	4	19
17 – 18 Langdon Place	4	4	0	0	0	0
Tudor Lodge	9	9	0	0	0	0
The Ship	9	9	0	0	0	0
Thames Bank Cottage	11	11	0	0	0	0
Asplin Cottage	5	5	0	0	0	0
Aynescombe Cottage	13	12	1	0	0	1

Existing Property	Total Number of Windows	Total number of windows that achieve VSC levels in excess of 27% or a reduction of less than 20% from the baseline level	Total number of windows that see VSC reductions suggested as noticeable in the BRE Guidance			
			20%-29.9% reduction	30% - 39.9% reduction	>40% reduction	Total
Thames Bank House	28	28	0	0	0	0
Old Stable	23	23	0	0	0	0
Leyden House	20	20	0	0	0	0
Jolly Gardeners	18	10	0	4	4	8
35 Lower Richmond Road	31	31	0	0	0	0

Table 18.8: Completed Development – NSC in relation to the BRE Guidelines

Existing Property	Total Number of rooms	Total number of rooms that see a reduction of less than 20% baseline level in NSC	Total number of windows that see NSC reductions suggested as noticeable in the BRE Guidance			
			20%-29.9% reduction	30% - 39.9% reduction	>40% reduction	Total
Butler House	21	21	0	0	0	0
Rann House	48	48	0	0	0	0
31 Vineyard Path	24	19	2	3	0	5
Vineyard Heights	75	75	0	0	0	0
The Tapestry	3	3	0	0	0	0
3 – 9 Richmond Road	8	8	0	0	0	0
39 – 41 Lower Richmond Road	5	5	0	0	0	0
43 – 51 Lower Richmond Road	31	31	0	0	0	0
51a – 55 Lower Richmond Road	11	11	0	0	0	0
57 – 59 Lower Richmond Road	6	6	0	0	0	0
61 – 63 Lower Richmond Road	6	6	0	0	0	0
67 Lower Richmond Road	7	7	0	0	0	0
Lady Elizabeth House	40	40	0	0	0	0
2 – 10 Waldeck Road	12	12	0	0	0	0



Existing Property	Total Number of rooms	Total number of rooms that see a reduction of less than 20% baseline level in NSC	Total number of windows that see NSC reductions suggested as noticeable in the BRE Guidance			
			20%-29.9% reduction	30% - 39.9% reduction	>40% reduction	Total
3 – 9 Waldeck Road	29	29	0	0	0	0
1 – 5 Varsity Row	18	18	0	0	0	0
6 – 7 Varsity Row	6	6	0	0	0	0
2 – 6 Williams Lane	9	3	1	2	3	6
8 – 10 Williams Lane	6	6	0	0	0	0
12 – 20 Williams Lane	16	16	0	0	0	0
22 – 26 Williams Lane	9	9	0	0	0	0
1 – 3 Watney Road	11	11	0	0	0	0
4 – 5 Watney Road	7	7	0	0	0	0
11 – 13 Watney Road	7	7	0	0	0	0
15 – 21 Watney Road	15	15	0	0	0	0
23 – 29 Watney Road	15	15	0	0	0	0
31 – 37 Watney Road (odd numbers only)	15	15	0	0	0	0
39 – 45 Watney Road (odd numbers only)	17	17	0	0	0	0
47 and 49 Watney Road	6	6	0	0	0	0
51 and 53 Watney Road	6	6	0	0	0	0
55 and 57 Watney Road	6	6	0	0	0	0
59 and 61 Watney Road	6	6	0	0	0	0
63 and 65 Watney Road	6	6	0	0	0	0
Parliament Mews	45	45	0	0	0	0
Combe House	60	60	0	0	0	0
1 – 10 Cromwell Place	73	73	0	0	0	0
22 Cromwell Place	1	1	0	0	0	0

Existing Property	Total Number of rooms	Total number of rooms that see a reduction of less than 20% baseline level in NSC	Total number of windows that see NSC reductions suggested as noticeable in the BRE Guidance			
			20%-29.9% reduction	30% - 39.9% reduction	>40% reduction	Total
Reid Court	64	64	0	0	0	0
Churchill Court	32	27	2	2	1	5
17 – 18 Langdon Place	4	4	0	0	0	0
Tudor Lodge	5	5	0	0	0	0
The Ship	6	6	0	0	0	0
Thames Bank Cottage	9	9	0	0	0	0
Asplin Cottage	5	5	0	0	0	0
Aynescombe Cottage	6	6	0	0	0	0
Thames Bank House	9	9	0	0	0	0
Old Stable	8	8	0	0	0	0
Leyden House	9	9	0	0	0	0
Jolly Gardeners	9	9	0	0	0	0
35 Lower Richmond Road	5	5	0	0	0	0

Table 18.9: Completed Development – ADF in relation to the BRE Guidelines

Surrounding Properties	>2%	1.5-1.99%	1-1.49%	0.5-0.99%	<0.49%	Total number of rooms	Total number of rooms above suggested levels for use	Total number of rooms below suggested levels for use
Butler House	9	0	2	6	4	21	11	10
Rann House	7	17	5	19	0	48	29	19
31 Vineyard Path	6	11	5	2	0	24	17	7
Vineyard Heights	32	13	25	1	4	75	45	30
The Tapestry	0	2	1	0	0	3	2	1
3 – 9 Richmond Road	4	0	4	0	0	8	8	0
39 – 41 Lower Richmond Road	1	4	0	0	0	5	5	0
43 – 51 Lower Richmond Road	13	11	5	2	0	31	24	7

Surrounding Properties	>2%	1.5-1.99%	1-1.49%	0.5-0.99%	<0.49%	Total number of rooms	Total number of rooms above suggested levels for use	Total number of rooms below suggested levels for use
51a – 55 Lower Richmond Road	4	2	4	0	1	11	6	5
57 – 59 Lower Richmond Road	4	1	1	0	0	6	6	0
61 – 63 Lower Richmond Road	0	0	6	0	0	6	0	6
67 Lower Richmond Road	4	2	0	0	1	7	6	1
Lady Elizabeth House	4	12	22	2	0	40	27	13
2 – 10 Waldeck Road	5	2	4	1	0	12	10	2
3 – 9 Waldeck Road	7	3	11	7	1	29	10	19
1 – 5 Varsity Row	7	6	2	3	0	18	15	3
6 – 7 Varsity Row	2	2	0	2	0	6	4	2
2 – 6 Williams Lane	0	6	0	2	0	9	6	3
8 – 10 Williams Lane	4	0	2	0	0	6	6	0
12 – 20 Williams Lane	10	0	5	0	1	16	15	1
22 – 26 Williams Lane	3	5	0	1	0	9	8	1
1 – 3 Watney Road	0	6	3	2	0	11	6	5
4 – 5 Watney Road	3	1	1	2	0	7	4	3
11 – 13 Watney Road	2	2	1	1	1	7	4	3
15 – 21 Watney Road	0	11	0	4	0	15	11	4
23 – 29 Watney Road	4	4	5	2	0	15	8	7
31 – 37 Watney Road	3	2	9	0	1	15	5	10
39 – 45 Watney Road	5	1	11	0	0	17	6	11
47 and 49 Watney Road	0	2	3	1	0	6	2	4

Surrounding Properties	>2%	1.5-1.99%	1-1.49%	0.5-0.99%	<0.49%	Total number of rooms	Total number of rooms above suggested levels for use	Total number of rooms below suggested levels for use
51 and 53 Watney Road	0	2	3	1	0	6	2	4
55 and 57 Watney Road	0	1	4	1	0	6	0	6
59 and 61 Watney Road	0	0	4	2	0	6	0	6
63 and 65 Watney Road	0	0	4	2	0	6	0	6
Parliament Mews	2	4	20	11	8	45	13	32
Combe House	2	9	37	0	12	60	11	50
1 – 10 Cromwell Place	29	17	15	8	4	73	57	16
22 Cromwell Place	0	0	0	1	0	1	0	1
Reid Court	18	18	27	1	0	64	36	28
Churchill Court	7	6	8	11	0	32	11	21
17 – 18 Langdon Place	0	0	4	0	0	4	0	4
Tudor Lodge	2	1	1	1	0	5	3	2
The Ship	1	2	2	0	1	6	3	3
Thames Bank Cottage	1	1	2	5	0	9	2	7
Asplin Cottage	0	0	2	3	0	5	0	5
Aynescombe Cottage	2	1	2	1	0	6	5	1
Thames Bank House	6	2	0	1	0	9	8	1
Old Stable	3	0	1	3	1	8	3	5
Leyden House	3	2	2	2	0	9	5	4
Jolly Gardeners	3	2	3	1	0	9	5	4
35 Lower Richmond Road	3	0	1	1	0	5	3	2

18.77 The VSC and NSC results indicate that the following properties would not see a noticeable effect in terms of daylight potential at the window face:

- Vineyard Heights
- The Tapestry;
- 3 – 9 Richmond Road;
- 39 - 41 Lower Richmond Road;

- 43 – 51 Lower Richmond Road;
- 51a – 55 Lower Richmond Road;
- 57 – 59 Lower Richmond Road;
- 61 – 63 Lower Richmond Road;
- 67 Lower Richmond Road;
- Lady Elizabeth House;
- 2 – 10 Waldeck Road;
- 3 – 9 Waldeck Road;
- 1 – 5 Varsity Row;
- 6 – 7 Varsity Row;
- 8 – 10 Williams Lane;
- 12 – 20 Williams Lane;
- 22 – 26 Williams Lane;
- 1 – 3 Watney Road;
- 4 – 5 Watney Road;
- 11 – 13 Watney Road;
- 15 – 21 Watney Road;
- 23 – 29 Watney Road;
- 31 – 37 Watney Road;
- 39 – 45 Watney Road;
- 47 and 49 Watney Road;
- 51 and 53 Watney Road;
- 55 and 57 Watney Road;
- 59 and 61 Watney Road;
- 63 and 65 Watney Road;
- Parliament Mews;
- Combe House;
- 1 – 10 Cromwell Place;
- 22 Cromwell Place;
- 17 – 18 Langdon Place;
- Tudor Lodge;
- The Ship;
- Thames Bank Cottage;
- Asplin Cottage;
- Thames Bank House;
- Old Stable;
- Leyden House; and
- 35 Lower Richmond Road.

18.78 It can therefore be said that the effect of the Development on the daylight to these properties would be **insignificant** and no further detailed discussion of the daylight levels is required.

#### *Butler House*

18.79 The VSC results suggest that with the Development in place, 52 (83%) of the 63 windows assessed within Butler House would see no noticeable change in the daylight received at the window face. Of the remaining windows, 3 would see minor reductions, 3 moderate and 2 major reductions in VSC. These windows are all overhung by balconies, thus self-limiting light to the windows below. In addition, all but 1 window serve rooms that are also served by additional windows that do not experience any noticeable change to their VSC. The remaining window serves a single aspect bedroom which is considered to be less sensitive compared to main living spaces.

18.80 Floor layouts have been obtained as such, these have been applied for the NSC assessment. The results of the NSC assessment have shown that all rooms assessed would experience no noticeable alteration in daylight.

18.81 With the vast majority of rooms assessed being served by at least one window with an insignificant effect by reference to VSC, with the remaining room being an isolated bedroom, coupled with the full compliance in NSC, the likely effect to daylight with the Development in place is considered to be of **long-term, local** and of **minor adverse** significance.

#### *Rann House*

18.82 The VSC results suggest that with the Development in place, 74 (77%) of the 96 windows assessed within Rann House would see no noticeable change in the daylight received at the window face. Of the remaining windows, 8 would see minor reductions, 10 moderate and 4 substantial reductions in VSC. These windows all sit behind recessed balconies and as such, are currently limited in direct daylight levels and sensitive to changes in massing on the Site. The results show that where similar windows are not recessed, the window would see no noticeable change in daylight levels, thus indicating that these significant effects are primarily driven by the neighbouring buildings design.

18.83 The results of the NSC assessment have shown that all rooms assessed would experience no noticeable alteration in daylight.

18.84 The overall likely effect daylight with the Development in place is considered to be of **long-term, local** and of **minor to moderate adverse** significance.

#### *31 Vineyard Path*

18.85 The VSC results suggest that with the Development in place, 26 (87%) of the 30 windows assessed within 31 Vineyard Path would see no noticeable change in the daylight received at the window face. The remaining 4 windows would experience minor adverse reductions.

18.86 The minor reduction in daylight are driven by the high daylight levels in the baseline condition, which is proven by the good retained levels of retained VSC to these windows with the majority of windows achieving at least 22%, with all windows achieving at least 16% VSC.

18.87 The results of the NSC assessment have shown that 24 (86%) of the 28 rooms assessed would experience no noticeable alteration in daylight. Of the remaining rooms, 1 would see minor reductions and 3 rooms show moderate adverse reductions. As with VSC, high daylight levels in the baseline condition leave this buildings open to relatively high proportional reductions.

18.88 The effect to daylight with the Development in place is considered to be of **long-term, local** and of **minor significance**.

*2 – 6 Williams Lane*

18.89 The VSC results suggest that with the Development in place, 12 (80%) of the 15 windows assessed within 2 – 6 Williams Lane would see no noticeable change in the daylight received at the window face. Of the remaining windows, 1 would see minor reductions and 9 would see moderate adverse reductions.

18.90 The reductions in daylight are driven by the high daylight levels in the baseline condition, which is proven by the good retained levels of retained VSC to these windows of at least 19.8% VSC.

18.91 The results of the NSC assessment have shown that 3 (33%) of the 9 rooms assessed would experience no noticeable alteration in daylight. Of the remaining rooms, 1 would experience minor reductions, 2 would see moderate adverse reductions and 3 would see major adverse impacts. As with VSC, high daylight levels in the baseline condition leave this buildings open to relatively high proportional reductions.

18.92 The likely effect to daylight with the Development in place is considered to be of **long-term, local** and of **moderate adverse** significance.

18.93 It should be noted the elements of the Development in proximity to this receptor have been submitted in outline and assessed at their maximum extents thus presenting the worst case position.

*Reid Court*

18.94 The VSC results suggest that with the Development in place, 84 (95%) of the 88 windows assessed within Reid Court would see no noticeable change in the daylight received at the window face. The remaining windows would experience minor adverse reduction.

18.95 The minor reduction in daylight are between 20.1-24.6%, marginally above the 20% level where changes may be noticeable. It should be noted the elements of the Development in proximity to this receptor have been submitted in outline and assessed at their maximum extents thus presenting the worst case position.

18.96 The results of the NSC assessment have shown that all rooms assessed would experience no noticeable alteration in daylight.

18.97 The likely effect to daylight with the Development in place is considered to be of **long-term, local** and of **minor adverse** significance

*Churchill Court*

18.98 The VSC results suggest that with the Development in place, 64 (77%) of the 83 windows assessed within Churchill Court would see no noticeable change in the daylight received at the window face. Of the remaining windows, 10 would see minor reductions, 5 moderate and 4 major reductions in VSC.

18.99 Of these windows, 15 are overhung by balconies, thus self-limiting light to the windows below. The remaining 4 windows serve two rooms and show minor reductions in VSC levels.

18.100 The results of the NSC assessment have shown that 27 (84%) of the 32 rooms would see no noticeable alteration in daylight. Of the remaining rooms, 2 would see minor reductions, 2 would

see moderate reductions and 1 major reductions. These rooms are all overhung by balconies and as such self-limited in terms of daylighting.

- 18.101 Given the nature of the VSC and NSC impacts, together with the effects of self-limiting balconies, the overall likely effect to daylight with the Development in place is considered to be of **long-term, local** and of **moderate adverse** significance.
- 18.102 It should be noted the elements of the Development in proximity to this receptor have been submitted in outline and assessed at their maximum extents thus presenting the worst case position.

#### *Aynescombe Cottage*

- 18.103 The VSC results suggest that with the Development in place, 12 (92%) of the 13 windows assessed within Aynescombe Cottage would see no noticeable change in the daylight received at the window face. The remaining window would experience minor adverse reduction.
- 18.104 The minor reduction in daylight are of 20.2%, marginally above the 20% level where changes may be noticeable. This window also serves a room where is served by additional windows that do not experience any noticeable change to their VSC.
- 18.105 The results of the NSC assessment have shown that all rooms assessed would experience no noticeable alteration in daylight.
- 18.106 The likely effect to daylight with the Development in place is considered to be of **long-term, local** and of **minor adverse** significance.

#### *Jolly Gardeners*

- 18.107 This Public House includes an element of residential accommodation and as it is not clear where the accommodation is situated, the results for all windows and rooms on the first and second floors have been included for completeness.
- 18.108 The VSC results suggest that with the Development in place, 10 (55%) of the 18 windows assessed within Jolly Gardeners would see no noticeable change in the daylight received at the window face. Of the remaining windows, 3 would see minor reductions, 2 moderate and 3 major reductions.
- 18.109 The results show that 4 of these windows serve dual aspect rooms with an additional window which would see no noticeable reduction in VSC levels. The remaining 4 windows show retained levels of at least 16% VSC.
- 18.110 The results of the NSC assessment have shown that all rooms assessed would experience no noticeable alteration in daylight.
- 18.111 The elements of the Development in proximity to this receptor have been submitted in outline and assessed at their maximum extents thus presenting the worst case position.
- 18.112 The overall likely effect to daylight with the Development in place is considered to be of **long-term, local** and of **minor to moderate adverse** significance.



## Sunlight to Existing Surrounding Properties

Table 18.10: Completed Development – APSH in relation to the BRE Guidelines

Surrounding Properties	Total Number of windows facing the Site and within 90° of due south	Total number of windows above BRE suggested targets for total and winter APSH	Total number of windows below BRE suggested targets for total and winter APSH
Butler House	28	28	0
Rann House	16	16	0
31 Vineyard Path	0	0	0
Vineyard Heights	46	46	0
The Tapestry	1	1	0
3 – 9 Richmond Road	0	0	0
39 – 41 Lower Richmond Road	0	0	0
43 – 51 Lower Richmond Road	11	11	0
51a – 55 Lower Richmond Road	2	2	0
57 – 59 Lower Richmond Road	1	1	0
61 – 63 Lower Richmond Road	0	0	0
67 Lower Richmond Road	6	6	0
Lady Elizabeth House	6	6	0
2 – 10 Waldeck Road	10	10	0
3 – 9 Waldeck Road	17	17	0
1 – 5 Varsity Row	24	24	0
6 – 7 Varsity Row	10	10	0
2 – 6 Williams Lane	0	0	0
8 – 10 Williams Lane	8	8	0
12 – 20 Williams Lane	20	20	0
22 – 26 Williams Lane	10	10	0
1 – 3 Watney Road	2	2	0
4 – 5 Watney Road	1	1	0
11 – 13 Watney Road	0	0	0
15 – 21 Watney Road	0	0	0
23 – 29 Watney Road	3	3	0
31 – 37 Watney Road	0	0	0
39 – 45 Watney Road	0	0	0
47 and 49 Watney Road	0	0	0
51 and 53 Watney Road	0	0	0
55 and 57 Watney Road	0	0	0
59 and 61 Watney Road	0	0	0
63 and 65 Watney Road	0	0	0

Surrounding Properties	Total Number of windows facing the Site and within 90° of due south	Total number of windows above BRE suggested targets for total and winter APSH	Total number of windows below BRE suggested targets for total and winter APSH
Parliament Mews	54	54	0
Combe House	3	3	0
1 – 10 Cromwell Place	52	52	0
22 Cromwell Place	1	1	0
Reid Court	44	44	0
Churchill Court	20	19	1
17 – 18 Langdon Place	0	0	0
Tudor Lodge	9	9	0
The Ship	9	9	0
Thames Bank Cottage	8	8	0
Asplin Cottage	3	3	0
Aynescombe Cottage	4	4	0
Thames Bank House	16	16	0
Old Stable	19	19	0
Leyden House	16	16	0
Jolly Gardeners	7	7	0
35 Lower Richmond Road	17	17	0

18.113 The APSH results in **Table 18.10** indicate that all the windows orientated towards 90° of due south serving main living spaces would not see a noticeable effect in terms of sunlight potential.

18.114 The results of the APSH assessment for Churchill Court have shown a single bedroom would experience deviations from the targets. The impacted room is likely to serve a bedroom (based on external observation) and as such is considered to be an isolated deviation to a room without a significant sunlight requirement.

18.115 Given the high levels of overall compliance to main living spaces, it can therefore be said that the effect of the Development on the sunlight to these properties would be **insignificant** and no further detailed discussion of the sunlight levels is required.

### Overshadowing to Existing Amenity Spaces Surrounding the Site

#### *Sunlight Amenity (Sun on Ground)*

##### *Surrounding Amenity Areas*

18.116 The results of the sunlight amenity assessment has shown that all amenity areas surrounding the Site would experience direct sunlight across more than 50% of their area for 2 hours or more on the 21<sup>st</sup> of March or see a reduction of less than 20% from the existing level. The effect of the Development on surrounding amenity areas is considered to be **insignificant**.

### *Proposed Amenity Areas*

- 18.117 As part of the Development there would be newly created external amenity spaces relevant for assessment. The Development has been designed to allow suitable light penetration to amenity areas where possible. The assessment has shown that 14 of the 20 amenity areas would experience direct sunlight across more than 50% of their area for 2 hours or more on the 21<sup>st</sup> of March. As such, six areas would not achieve the target and these areas are identified as amenity areas 5, 6, 8, and 10 within the detailed element of the Stag Brewery component of the Development (East of Ship Lane), and 2P2, 5P2 within the outline element of the Stag Brewery component of the Site (West of Ship Lane) as shown **Appendix 18.3**
- 18.118 The results for proposed amenity areas 5, 10 and 5P2 of the Development show levels just below the 50% target, with at least c.42% of the area achieving 2 hours of direct sunlight. In addition to undertaking an assessment to show the areas that achieve 2 hours of sunlight, a graded assessment showing the areas that achieve between 0 – 2 hours of sunlight has been provided in **Appendix 18.3**. The results show that whilst these areas may not achieve 2 hours of direct sunlight, at least half of each of these areas would receive a level of direct sunlight on the 21<sup>st</sup> March.
- 18.119 The remaining three amenity areas, being 6 and 8 (within the detailed element of the Development) and 2P2 within the outline element of the scheme show levels of 37.1%, 9.3% and 40.4% respectively. As mentioned above, a graded study has also been undertaken. The results show that approximately half of the areas with sunlight below 2 hours would achieve at least 1 hour. Whilst these results indicate deviations from the suggested targets, the areas would achieve partial sunlight which would benefit the future occupiers.
- 18.120 With only a small number of areas showing deviations from the suggested targets, and the majority of amenity spaces meeting the suggested targets, the effect of the Development to the internal amenity areas would be **insignificant to long-term, local** and of **minor to moderate adverse** significance.

### *Transient Overshadowing*

- 18.121 The transient shadow images for three key points throughout the year are located within **Appendix 18.4**.
- 21<sup>st</sup> March*
- 18.122 As would be expected with an increase in massing, the Development would cause additional shadowing in the early morning to the gardens to the west of the Stag Brewery component of the Site, however the additional shading passes by 9 am.
- 18.123 Later in the day, the Development does cause some shadow to the Thames Tow Path, however, it should be noted that the existing buildings on Site already cause a level of overshadowing in the afternoon. The buildings within the Stag Brewery component of the Development (East of Ship Lane) have been designed to have gaps facing onto the Thames Tow Path in order to allow a good level of direct sunlight to penetrate. As such levels of overshadowing would be less than in the baseline condition at specific times during the day.
- 18.124 Additional assessments have been provided in appendix 18.4 for 21<sup>st</sup> June when the shadows cast would be at their shortest and 21<sup>st</sup> December, when the shadows cast will be at their longest.

## Light Pollution

- 18.125 As is usual at the planning stage, a final and fixed lighting scheme has not been developed for the Development. There is however a provisional lighting scheme in place produced by Michael Grubb Studio. As the provisional lighting scheme is not fixed, a qualitative review of light pollution has been provided for the majority of the Site. The only area that has been assessed quantitatively is the area surrounding the sports pitch as this includes floodlighting in order to stratify the requirements of this use. Two options have been assessed for the sports pitch, Class III FA standard and Class II. It should be noted that the lighting strategy for this area, as with the remainder of the Development, has not been fixed and this assessment simply shows that it would be possible to light the area for use without causing an adverse impact on the neighbours. The provisional lighting scheme has been designed to meet the recommendations of the ILP guidelines. The key receptors were identified as the residential accommodation and ecological receptors along the River Thames.
- 18.126 In the development of the provisional lighting scheme, full consideration has been given to the sensitive receptors described above. The primary ecological consideration is the river bank along the River Thames. The provisional lighting scheme primarily lights this area with recessed wall luminaires within the river wall facing away from the river and towards the Site to light this area. These would not result in light trespass to the river or river bank.
- 18.127 External light fittings have not been located in proximity to surrounding residential receptors in order to avoid issues relating to light trespass. Mortlake High Street and Lower Richmond Road are currently sufficiently lit by street lighting and as such it is not proposed to add significant additional lighting to these areas.
- 18.128 The provisional lighting scheme for the sports pitch is proposed to provide a facility to FA Class III standard (120 lux / 0.6 Uo) or Class II (200 lux / 0.6 Uo)
- 18.129 This schemes both include 8 No 15m columns, as these are needed to provide the correct levels of uniformity. This height means the lights would not be tilted beyond what is considered good practice and the required light uniformity values are achieved across the pitch.
- 18.130 The fitting suggested are Philips Lighting 'OptiVision' floodlights. These floodlights include internal louvres that are used to control light trespass to neighbouring residential properties, ensuring that the maximum value at neighbouring receptors is below what is an acceptable level for E3 Environment Zone (pre-curfew - 10 lux and post curfew 2 lux) for both schemes. This ground level light spill grid can be seen in drawing 2201 – LP2 and 2201 – LP3 respectively within **Appendix 18.5** which shows the light levels in lux mapped onto the pitch and surrounding area. The light spill on the façades for the FA class III scheme (120 Lux) are shown in drawings 2201 - LP4 (houses to the west) and 2201 – LP5 (houses to the north west. The light spill on the façades for the Class II scheme (200 Lux) are shown in drawings 2201 – LP6 (houses to the west) and 2201 – LP7 (houses to the north west. The assessment of vertical illuminance to the windows at the rear of the properties across Williams Lane shows that levels as a result of the flood lights would not exceed 1.13 Lux when in use (shown in drawings 2201-LP3 and 2201-LP4 within **Appendix 18.5**).
- 18.131 In addition to light trespass, Luminaire Intensity (glare) has been considered as is recommended for floodlights. This assessment considers 3 assessment points located at the windows at the residential properties across Williams Lane. In each case the Luminaire intensity would not exceed 1,000 lumens. This is well below the suggested 10,000 Lumens suggested as the maximum pre curfew levels.

- 18.132 Finally, it should be noted that the simulations do not include for any obstacles, such as the proposed landscaping around the perimeter of the pitch. As such, this analysis presents a worst case scenario and light trespass would reduce further should the proposed landscaping be included.
- 18.133 The provisional lighting scheme has been designed in order to ensure that the ILP guidelines are met. The overall likely effect to light trespass and luminaire intensity as a result of the provisional lighting scheme is considered to be **insignificant**.

## Mitigation Measures and Likely Residual Effects

### The Works

#### Demolition Effects

- 18.134 As existing buildings are demolished, some temporary improvements to daylight, sunlight and overshadowing are predicted at the closest residential receptors to the Site. No adverse effects are predicted during demolition activities. Therefore, mitigation measures are not required and the likely residual effect would remain insignificant to generally **local, long-term** and of **minor to moderate beneficial**.
- 18.135 Nevertheless, the main contractor and sub-contractors would adhere to a Construction Environmental Management Plan (CEMP) to help minimise environmental effects arising from demolition works. For example, the CEMP would recommend that the use of portable external lighting be used in such a way so as to avoid the trespass of light into neighbouring properties and into the night sky. Furthermore, lighting used during the Works would accord with the ILP Guidance so as not to cause a nuisance to nearby receptor. The likely residual effect from light pollution during the Works would therefore remain **insignificant**.

#### Construction Works

- 18.136 Worst case construction effects are considered to be directly comparable to the effects of the completed Development. As such, reference should be made to the sections below.
- 18.137 However, the likely residual effect of construction cranes on daylight, sunlight and overshadowing levels would remain **insignificant**.

### Completed Development

#### Daylight and Sunlight

- 18.138 As would be expected with a Development of this scale, there are isolated significant effects to the neighbouring residential properties. In this case the Development replaces relatively low rise buildings and as such the proportional reduction of daylight, on which significance is based, is large to the residential receptors nearest to the Site. The number of properties that experience significant effects with the Development in place is low and the majority of effects are to windows that are placed beneath overhanging balconies, which inhibit levels of daylight.
- 18.139 Once the Development is completed, the likely effects on daylight for residential properties in the vicinity of the Site would range from being insignificant for the majority of the residential properties to long-term, local, adverse and of minor significance on Butler House, and Aynescombe Cottage and minor to moderate significance for Rann House 2 to 6 Williams Lane, Churchill Court, and Jolly Gardeners. The minor to moderate adverse effects are generally isolated or driven by self-

light limiting overhangs. Furthermore, the effects of outline massing considers the ‘worst case’ scenario and as the scheme evolves the impacts are likely to lessen. Accordingly, no mitigation measures are considered necessary. The likely residual effects in relation to daylight would be **insignificant to long-term, local, adverse** and of **minor to moderate** significance.

18.140 Once the Development is completed, the effects on sunlight for residential receptors in the vicinity of the Site are **insignificant**.

#### Overshadowing

18.141 Once the Development is completed, the likely residual effects on overshadowing to existing surrounding amenity areas would remain **insignificant**.

18.142 Once the Development is completed, the likely effects on overshadowing to the proposed amenity areas within the Development would range from being insignificant to long-term, local, adverse and of moderate significance. The moderate adverse effects are generally isolated to a small number of areas within the Development. Accordingly, no mitigation measures are considered necessary. The likely residual effects in relation to overshadowing would be **insignificant to long-term, local, adverse** and of **moderate** significance.

18.143 Furthermore, in respect of the outline component of the Development, it has been identified that the proposed amenity areas 2P2 and 5P2 may not achieve 2 hours of direct sunlight. However, with this element of the Development being assessed at its maximum extents, there would be scope to improve these levels through detailed design. As such the likely residual effects to the proposed amenity areas within the outline component of the Development have the potential to be **insignificant to long-term, local, adverse** and of **minor** significance. However, this would need to be verified through further assessment at the reserved matters stage.

#### Light Pollution

18.144 The provisional lighting scheme has been designed to the ILP guidelines and would have **insignificant** residual effects, as such no mitigation has been suggested.

### Summary

**Table 18.11** summaries the likely significant effects, mitigation measures, and likely residual effects identified within this Chapter.

Table 18.11: Summary of Likely Significant Effects, Mitigation Measures and Likely Residual Effects

Description of Effect	Likely Significant Effect	Mitigation Measures	Likely Residual Effect
<b>The Works</b>			
<i>Demolition of existing buildings on-Site.</i>			
Daylight, sunlight and overshadowing to surrounding receptors.	<b>Local, short to medium-term</b> and of <b>minor to moderate beneficial</b> .	None required.	<b>Local, short to medium-term</b> and of <b>minor to moderate beneficial</b> .
Light Pollution	<b>Insignificant</b> .	None required.	<b>Insignificant</b> .
<i>Construction of proposed buildings</i>			

Description of Effect	Likely Significant Effect	Mitigation Measures	Likely Residual Effect
	<p><b>Insignificant.</b></p> <p><b>Local, long-term, adverse</b> and of <b>minor significance</b> (Butler House, Aynescombe Cottage).</p> <p><b>Local, long-term, adverse</b> and of <b>minor to moderate significance</b> (Rann House, 2 to 6 Williams Lane, Churchill Court and Jolly Gardeners).</p>	Not applicable.	<p><b>Insignificant.</b></p> <p><b>Local, long-term, adverse</b> and of <b>minor significance</b> (Butler House, , Aynescombe Cottage).</p> <p><b>Local, long-term, adverse</b> and of <b>minor to moderate significance</b> (Rann House, 2 to 6 Williams Lane, Churchill Court and Jolly Gardeners).</p>
Sunlight to surrounding receptors.	<b>Insignificant.</b>	None required.	<b>Insignificant.</b>
Overshadowing (Surrounding amenity areas).	<b>Insignificant.</b>	None required.	<b>Insignificant.</b>
Light Pollution.	<b>Insignificant.</b>	None required.	<b>Insignificant.</b>
<b>Completed Development</b>			
Daylight to surrounding receptors	<p><b>Insignificant.</b></p> <p><b>Local, long-term, adverse</b> and of <b>minor significance</b> (Butler House, Aynescombe Cottage).</p> <p><b>Local, long-term, adverse</b> and of <b>minor to moderate significance</b> (Rann House, 2 to 6 Williams Lane, Churchill Court and Jolly Gardeners).</p>	Not applicable.	<p><b>Insignificant.</b></p> <p><b>Local, long-term, adverse</b> and of <b>minor significance</b> (Butler House, , Aynescombe Cottage).</p> <p><b>Local, long-term, adverse</b> and of <b>minor to moderate significance</b> (Rann House, 2 to 6 Williams Lane, Churchill Court and Jolly Gardeners).</p>
Sunlight to surrounding receptors	<b>Insignificant.</b>	None required.	<b>Insignificant.</b>
Overshadowing (surrounding amenity areas).	<b>Insignificant.</b>	None required.	<b>Insignificant.</b>
Overshadowing (proposed amenity areas).	<b>Insignificant to local, long-term, adverse</b> and of <b>moderate significance</b>	None required. Detailed design during reserved matters application may result in reduced maximum extents. Effects to be verified through further testing at the reserved matters stage.	<p><b>Insignificant to local, long-term, adverse</b> and of <b>moderate significance.</b></p> <p>Potentially reduced to <b>insignificant to minor adverse significance</b> for the proposed amenity areas within the outline component of the Development</p>
Light Pollution.	<b>Insignificant.</b>	None required.	<b>Insignificant.</b>

## References

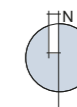
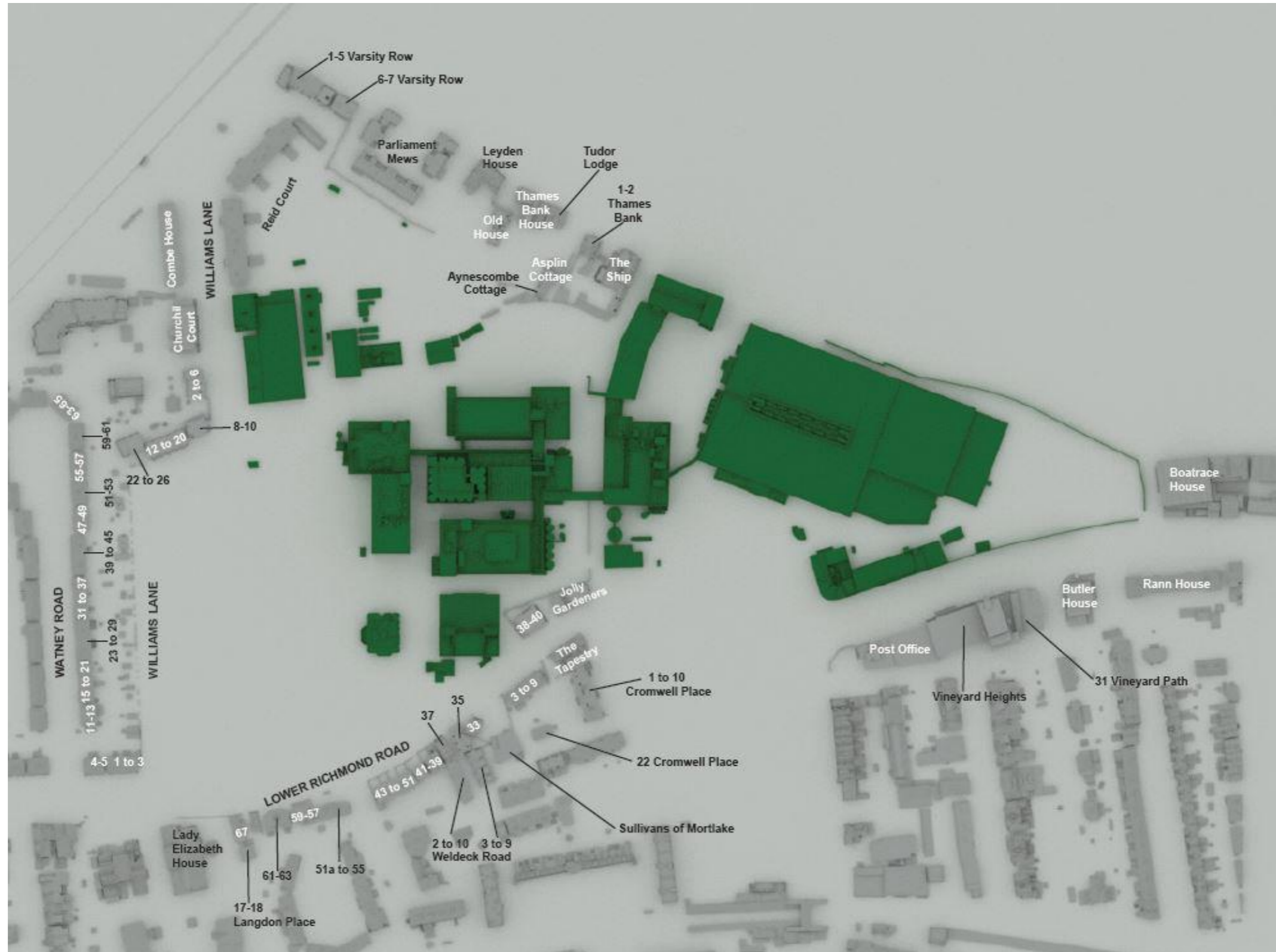
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- 1 Building Research Establishment (BRE) (2011): 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice
- 2 British Standard (BS) 8206 Part 2 (2008): Lighting for Buildings
- 3 Applications Manual Window Design of the Chartered Institute of Building Services Engineers (CIBSE) (1999).
- 4 Institute of Lighting Practitioners: Guidance Notes for the Reduction of Obtrusive Light, 2011





## FIGURES



Project Details	WIE10667-101: Stag Brewery, Mortlake
Figure Title	Figure 18.1: Potentially Sensitive Daylight, Sunlight and Overshadowing Receptors
Figure Ref	WIE10667-101_GR_ES_18.1A
Date	2018
File Location	\\s-inc\wiel\projects\wie10667\101\graphics\es\issued figures



## APPENDICES

### Appendices

The Former Stag Brewery, Mortlake

Document Reference: WIE10667-101-R.10.10.1.1-DSO



**A. Appendix 18.1: Drawings of the Baseline Condition and Development Scenario**

**APPENDIX 18.1**  
**DRAWINGS OF THE BASELINE CONDITION AND DEVELOPMENT**  
**SCENARIO**



## Appendix 18.1

**Drawings of the Baseline Condition and Development Scenario**

Sources of information

SQUIRE & PARTNERS  
 3DView-{3D-kh}.dwg  
 Received 04/01/18

APR SERVICES  
 Topographical Survey.pdf  
 Received 22/09/16

CLOUD 10  
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 Stag Brewery West end 22-09-16 Pt1.dwg  
 Stag Brewery West end 23-09-16.dwg  
 The Ship PH.dwg  
 Jolly Gardeners.dwg  
 Received 11/10/16

EB7 Ltd  
 Site Photographs  
 Ordnance Survey



Project The Stag Brewery  
 SW14 7ET  
 London

Title Existing Condition  
 Plan View

Drawn YH Checked --

Date 29/01/2018 Rel no. 08

Drawing no. 2201-01

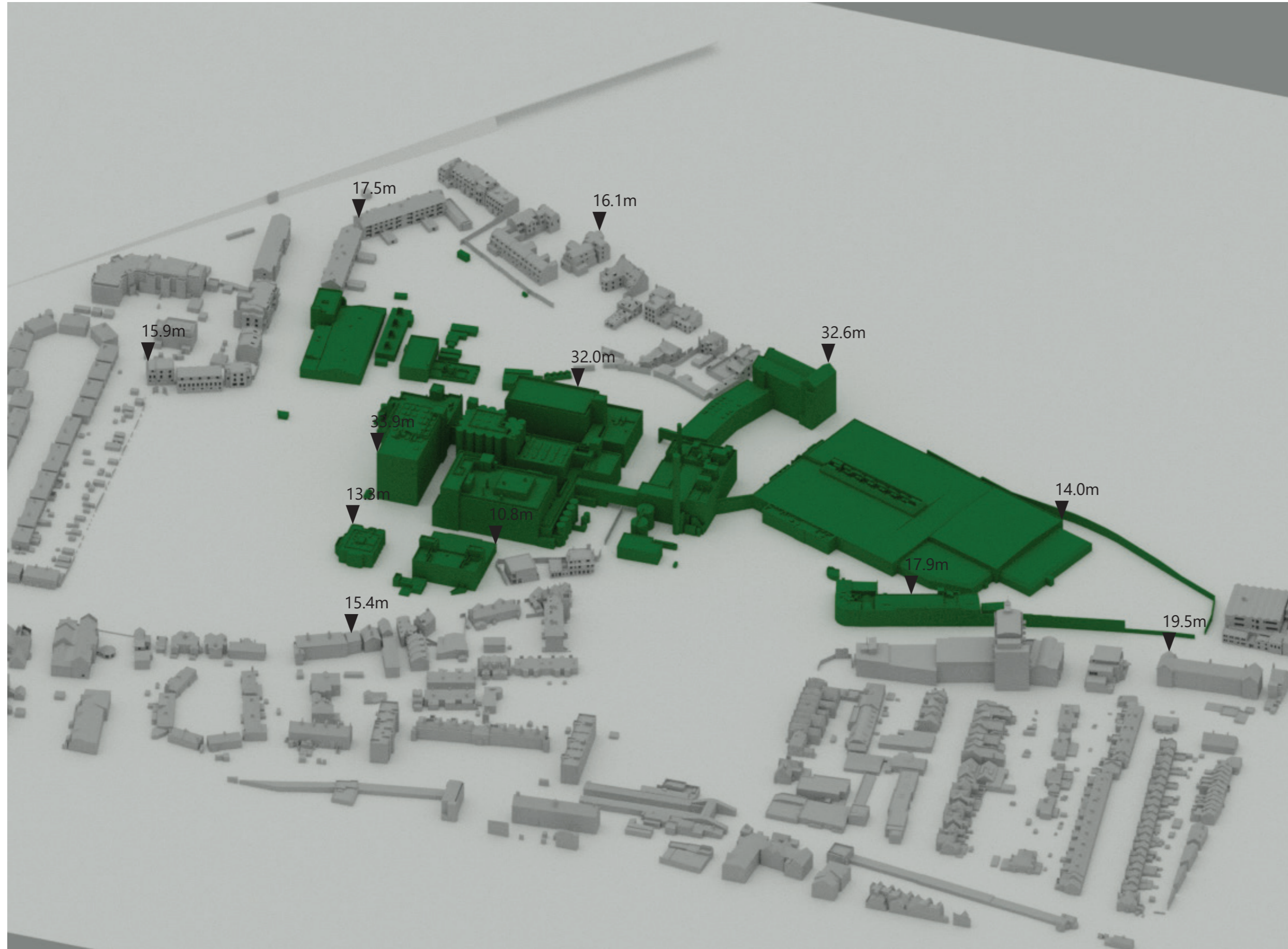
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Topographical Survey.pdf  
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Stag Brewery West end 23-09-16.dwg  
The Ship PH.dwg  
Jolly Gardeners.dwg  
Received 11/10/16

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Site Photographs  
Ordnance Survey



Project The Stag Brewery  
SW14 7ET  
London

Title Existing Condition  
3D View

Drawn YH Checked --

Date 29/01/2018 Rel no. 08

Drawing no. 2201-02



Sources of information

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APR SERVICES  
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 The Ship PH.dwg  
 Jolly Gardeners.dwg  
 Received 11/10/16

EB7 Ltd  
 Site Photographs  
 Ordnance Survey



NORTH



Project The Stag Brewery  
 SW14 7ET  
 London

Title Proposed Development  
 Plan View

Drawn YH Checked --

Date 29/01/2018 Rel no. 08

Drawing no. 2201-03

Sources of information

SQUIRE & PARTNERS  
3DView-{3D-kh}.dwg  
Received 04/01/18

APR SERVICES  
Topographical Survey.pdf  
Received 22/09/16

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The Ship PH.dwg  
Jolly Gardeners.dwg  
Received 11/10/16

EB7 Ltd  
Site Photographs  
Ordnance Survey



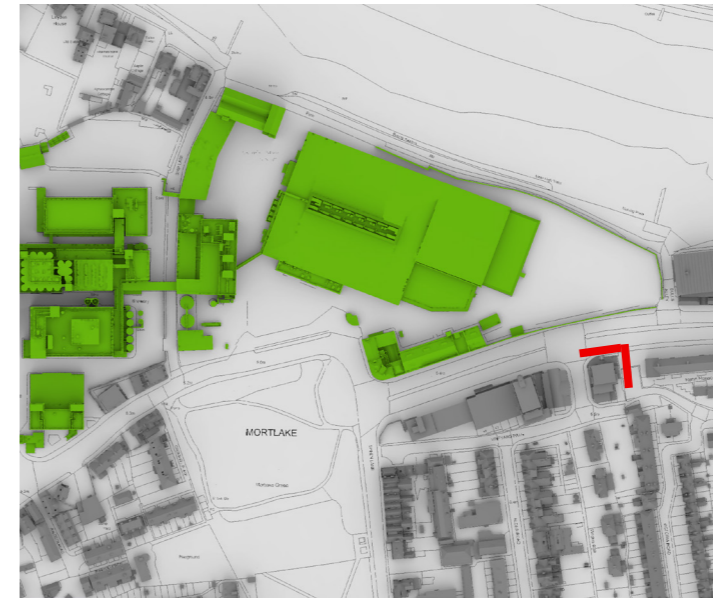
Project The Stag Brewery  
SW14 7ET  
London

Title Proposed Development  
3D View

Drawn YH Checked --

Date 29/01/2018 Rel no. 08

Drawing no. 2201-04



Sources of information

**SQUIRE & PARTNERS**

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**APR SERVICES**

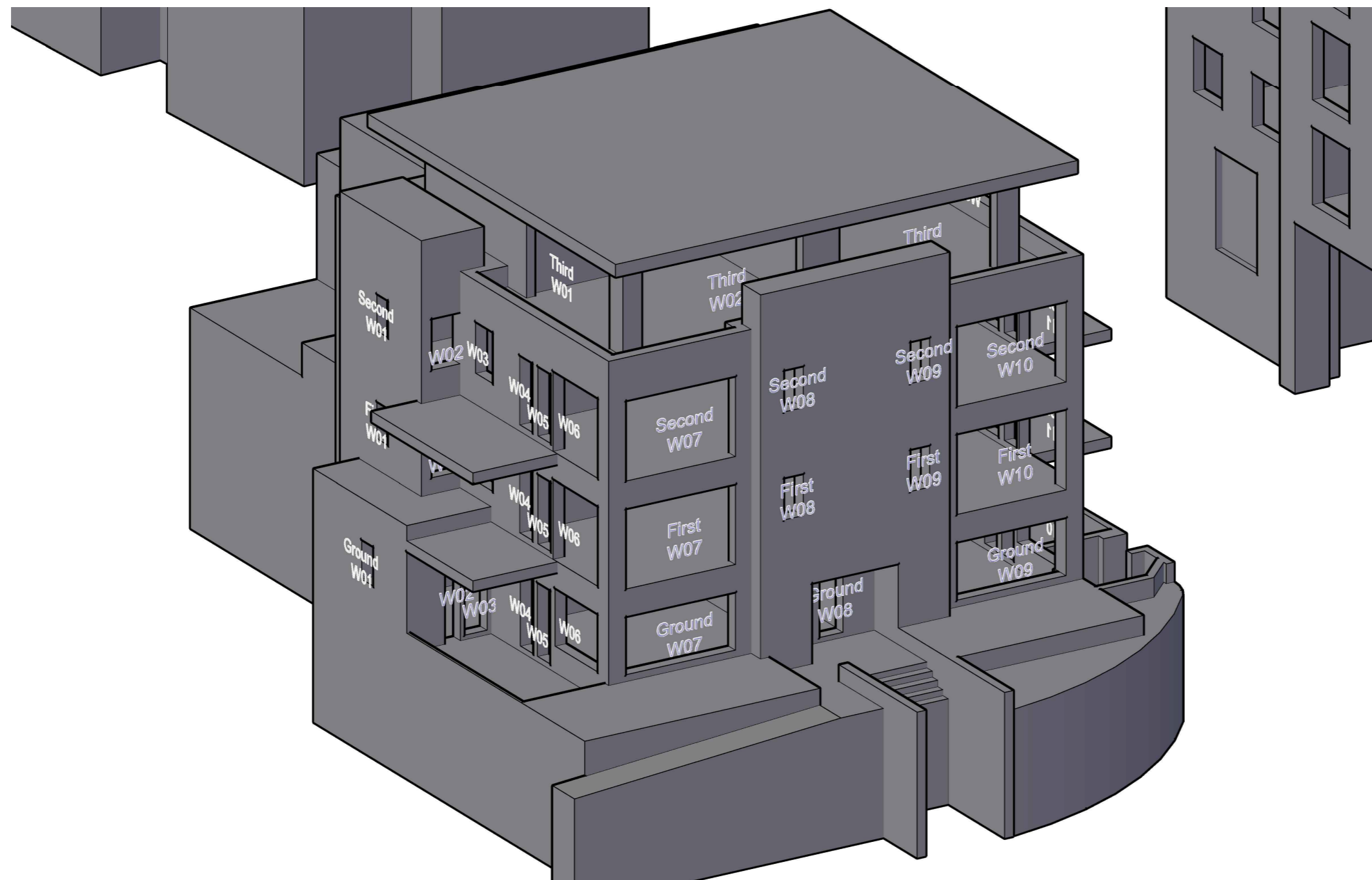
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 Stag Brewery West end 23-09-16.dwg  
 The Ship PH.dwg  
 Jolly Gardeners.dwg  
 Received 11/10/16

**EB7 Ltd**

Site Photographs  
 Ordnance Survey



Project The Stag Brewery  
 SW14 7ET  
 London

Title Butler House  
 Window Map

Drawn AA Checked --

Date 29/01/2018 Rel no. 07

Drawing no. 2201-WM01