

Mount Pleasant Phase 2

Phoenix Place

London

LIGHTING IMPACT ASSESSMENT



17th February 2021

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1 General

Caldwell Consulting have been commissioned to undertake an external lighting impact assessment for a new residential and Wellness Centre development, which will be located between Phoenix Place and Gough street, London.

This external lighting assessment shall be a desk top exercise, to establish the baseline conditions of the external façade and landscape lighting proposal and its impact to the surrounding environment.

This document shall provide an outline lighting proposal and strategy, including a schedule of anticipated luminaires for the façade and landscape lighting.

Development details are as follows.

- Client:
Taylor Wimpey Central London
- Location:
Located between Phoenix Place and Gough street, London. Redevelopment of the old Royal Mail sorting office at Mount Pleasant.
- Proposed Development:
The proposed development shall be the construction of 131 apartments, Commercial unit and a Wellness Centre that will contain a gym and swimming pool.



‘CGI sketch of proposed development at Mount Pleasant’

2 Purpose of this Report

This Report shall provide in accordance with government policy an assessment of the potential effects, external façade and landscape lighting shall have on the local environment, including obtrusive light that may arise from the Lighting Strategy for the proposed development.

The Lighting Assessment will:

- Identify potential existing obtrusive light within and around the application Site,
- Establish the minimum construction and operational lighting required to safely and securely construct and operate the proposed development,
- Describe potential effects on sensitive receptors as a result of obtrusive light from the proposed development,
- Set out details of the lighting strategy which includes measures to minimise obtrusive light both during construction and following completion

2.1 Guidance

2.1.1 Obtrusive Light

Guidance on obtrusive light is set out within the following guidance and good practice documents.

- The Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light
- ILP Professional Lighting Guide 04: Guidance on Undertaking Environmental Lighting Impact Assessments
- Commission Internationale De L'Eclairage (CIE) 150
- CIE 126 Guidelines for Minimising Sky Glow
- The research paper "Clean neighbourhoods and environment bill Act 2005"
- Society of light and lighting (SLL) – Lighting Guide LG6 – The Exterior Environment (2016)
- Society of light and lighting (SLL) – Lighting Guide LG18 – Lighting for Licensed Premises (2018)
- Requirements of proposed CCTV operator
- Environmental considerations for exterior lighting – Chartered Institute of Building Services Engineers (CIBSE)

2.2 Ecological

Guidance on obtrusive light in relation to Bats as issued by the Bat Conservation Trust is listed below;

- Bat Conservation Trust – Bats and Lighting in the UK
- Statement on the Impact and Design of Artificial Light on Bats

Matters relating to local ecology will be addressed by a suitably qualified Ecologist who will undertake any necessary surveys, recording, monitoring and producing a report as necessary to inform, advise and closely liaise with the Developer, Site Manager, Engineers etc. as required.

3 Methodology

This section provides an outline of methods and procedures undertaken in producing the lighting assessment including how the baseline lighting conditions were determined and the assessment process undertaken.

3.1 Baseline Conditions

3.1.1 Desk Based Information

A desktop and site review of the Application Site and surrounding area has been undertaken to identify potential light sensitive receptors and to establish the appropriate ILP Environmental Zone classification for the Application Site as defined by the ILP's Guidance Notes for Obtrusive Light.

The following sources of publicly available information were reviewed:

- Google aerial photography
- Google Street View
- Waterman Ecological appraisal

3.2 Sensitive Receptors

Sensitive receptors within and immediately around the Application Site have been identified and detailed later in this report.

3.3 ILP Environmental Zone

The ILP have established Environmental Zones for exterior lighting based on the existing external ambient lighting levels in the area, see table below.

The ILP Environmental Zone classification for the Application Site has been determined based on professional judgement.

The ILP Environmental Zone classification determines the obtrusive light limitations for exterior lighting installations for that area.

Environmental Zone Classifications, ILP 2011	Surrounding	Lighting Environment	Examples
Environmental Zone			
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc.
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
<u>E4</u>	<u>Urban</u>	<u>High district brightness</u>	<u>Town/city centres with high levels of night- time activity</u>

3.4 Assessment

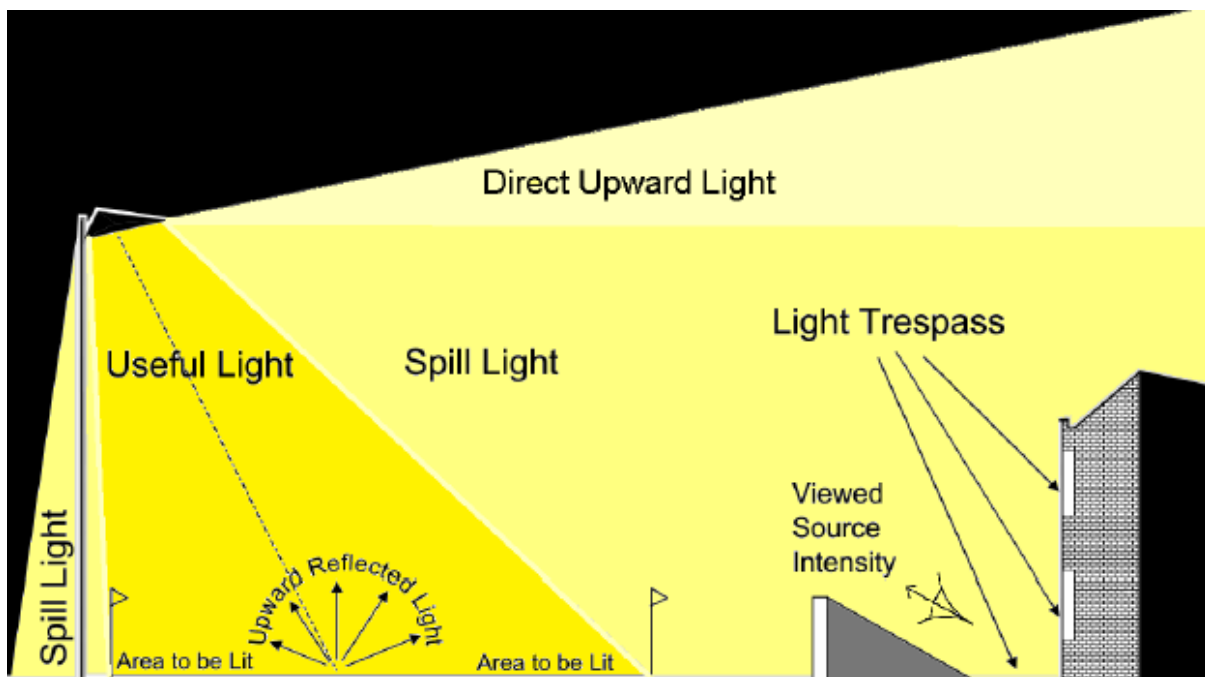
An assessment has been completed to establish the possible effects of obtrusive light that may arise from the proposed development.

This includes the consideration of potential adverse effects of the following three components of obtrusive light:-

Sky glow, the brightening of the night sky above areas with large amounts of artificial light which may be reflected from illuminated surfaces or come from direct upward lighting installations.

Glare, the brightness of a light source which is uncomfortable when viewed against a dark background. This is mostly experienced when light sources are not covered by a shield or directed by a suitable lens/reflector set up.

Light intrusion, when light affects areas beyond the boundary of the area which is to be lit. This is also known as 'spill' or 'trespass' and may cause nuisance or disturbance to sensitive receptors.



Diagrammatic Representation of Types of Obtrusive Light (ILP)

As the proposed lighting design has been determined for the development, Caldwell Consulting was able to create simulated illumination calculations (Sample provided later within this document and remainder issued separately) in order to review and ensure that lighting illumination levels and glare from the proposed design will not significantly impact on sky glow, glare, light intrusion.

The Lighting Strategy has been developed to meet the specified limitations of the relevant ILP Environmental Zone E4.

4 Existing Conditions

4.1 The Application Site and Surroundings

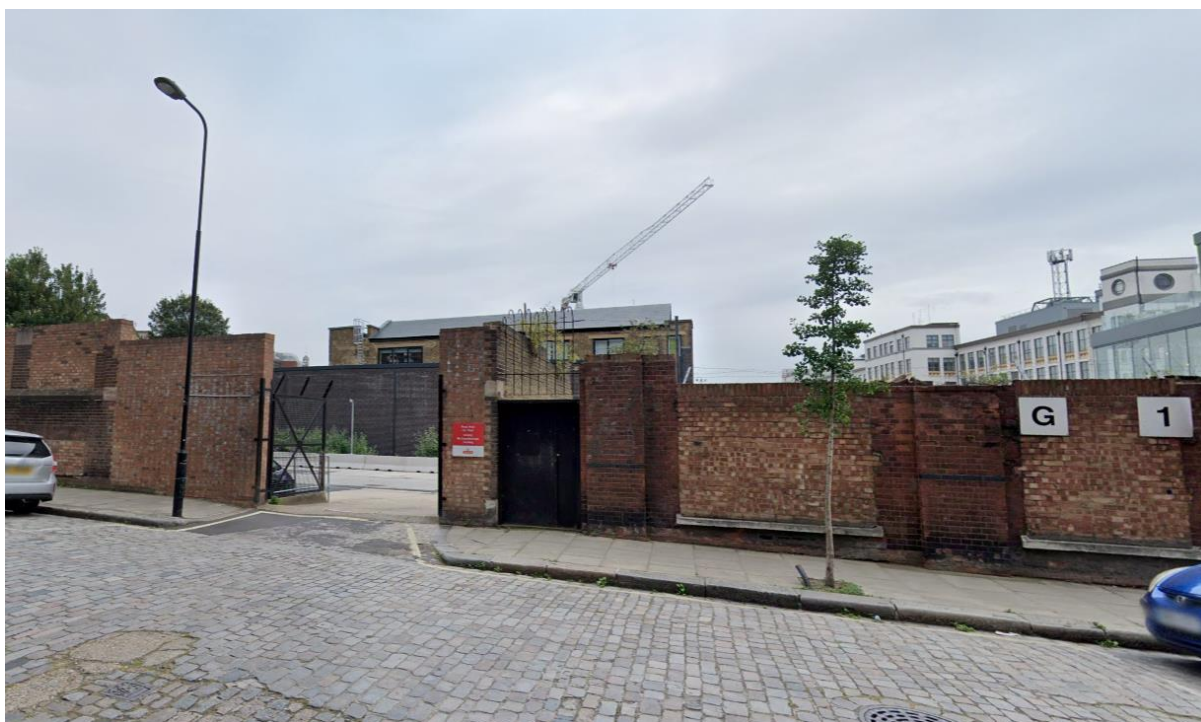
4.1.1 The Application Site

The Application Site was originally the existing Royal Mail Sorting Office at Mount Pleasant, Clerkenwell, London.

The Site is located within the administrative boundaries of both the London Borough of Islington (LBI) and London Borough of Camden (LBC).



Figure 4.1.1.1 Existing Royal Mail Carpark via Phoenix Place - 'Google Street View'



The development will vary in height ranging from four to eleven storeys. There are existing sources of external lighting in close proximity to the proposed site, these include footway, carpark and landscape lighting, comprising of street lighting located on both Phoenix Place and Cough Street as well as carparking for the Royal Mail Central London Delivery Office.

The Application Site is currently accessed from both Phoenix Place and Cough Street, it is proposed that Vehicle access to the development shall only be available from Phoenix Place however pedestrian access shall be available from both streets.

This aerial map shows a section of the City of London. A red outline highlights a specific area in the center-right, near the Taylor Wimpey Central London site. The map includes labels for various streets such as Wren St, Green Yard, Gray's Inn Rd, and Phoenix Pl. Numerous landmarks and businesses are identified, including St. Andrew's Gardens, The Calthorpe Arms, Costa Coffee, The Postal Museum, and the Taylor Wimpey Central London site. The map also shows a large parking lot with many red cars on the right side.

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Sensitive Receptors

Existing sensitive receptors have been identified in the assessment of the Application Site and surrounding area and are detailed below;

- SR1 Occupants of the neighbouring business,
- SR2 Occupants within local resident properties,
- SR3 Motorists, cyclists and pedestrians using both Phoenix Place and Gough Street adjacent to the Application site.

The receptor groups are defined in order to identify their sensitivity in relation to the proposed site. This is dependent upon:

1. Their contrast in relation to the site and resulting sightlines,
2. The duration of the view of the proposed works or site,
3. Their interest in the visual environment,

The sensitivity of the receptor groups have been defined as:

Receptor Sensitivity

Sensitivity	Definition
Critical	The duration of their view is continuous, dusk till dawn, <ul style="list-style-type: none">• or their interest in the visual environment is critical.• or their activity requires excellent viewing conditions (For example train drivers).• or their juxtaposition to the site provides excellent sightlines.
High	The duration of their view is prolonged; dusk till dawn, <ul style="list-style-type: none">• or their interest in the visual environment is high.• or their juxtaposition to the site provides good sightlines.
Moderate	The duration of their view is moderate; day and evening, <ul style="list-style-type: none">• or their interest in the visual environment is low.• or their juxtaposition to the site provides moderate sightlines.
Low	The duration of their view is low; transient, <ul style="list-style-type: none">• or their interest in the visual environment is low.• or their juxtaposition to the site provides poor sightlines.

Each of the sensitive receptors has been assessed in relation to the potential effects of the development external lighting strategy. Different receptor groups are affected to a greater or lesser extent dependant on their sensitivity and their distance that they vary from the site. Below summarises the receptor anticipated sensitivity

- SR1 Occupants of the neighbouring business - Moderate sensitivity
- SR2 Occupants within local resident properties - Moderate sensitivity
- SR3 Motorists, cyclists and pedestrians using both Phoenix Place and Gough Street adjacent to the Application site - Moderate sensitivity.

Ecology

Appropriate measures will be taken to protect and retain existing trees and the spinney as far as is reasonably practicable during the construction works.

4.2 ILP Environmental Zone

The Application Site and its surroundings have been identified as an urban setting; it has therefore been categorised as ILP Environmental Zone E4 as set out in ILP Guidance Notes for the Reduction of Obtrusive Light GN01.

5 Lighting Requirements and Strategy

5.1 Construction Lighting

As the construction works necessary will be limited to the confines of the site for the construction of the development, temporary construction lighting will be directed into the site and will be extinguished outside working hours other than that required for security.

During the construction, work during darkness is most likely to occur during the winter months when daylight hours are short therefore artificial lighting will be required during standard working hours. Working hours are likely to be limited to between 07.00 to 18.00.

Task specific lighting to maintain safety may be required and will be variable according to weather conditions, programme and the particular tasks being undertaken.

Lighting will also be present from construction vehicles and plant which often deploy flashing lights and strobes when operating.

5.2 Operational Lighting

Lighting Requirements

Operational lighting is required to permit safe movement of staff and visitors to the development and security lighting for the development.

General external circulation around the development will largely remain as is.

Lighting Strategy

Design Objectives

The key design objective for the Lighting Strategy is for feature and functional lighting to be installed within the boundary landscape of the development.

The completed development design intend shall be for a mixture of luminaires ranging from bollard lighting and inground uplighters that are intended for illuminating the landscape walkways around the development and fittings such as tree uplighters and recessed linear fixtures for featuring the planting.

All external luminaires will be controlled via a light sensitive photo-cell and time switch to provide automatic switching as required at agreed times, typically dusk and dawn as well as providing a facility to switch off/on between agreed times during the hours of darkness.

- Externally wall mounted luminaires will be selected and carefully positioned to ensure that limitations set for obtrusive lighting for ILP Environmental Zone E4 is not impinged upon i.e. should a curfew time be required as part of the planning conditions automatic controls will be designed into the lighting installation to ensure any such condition is met.
- External lighting will be limited to avoid over lighting the premises in relation to the general area brightness.
- Light intrusion into neighbouring areas of the application Site will be limited using luminaires with good optics providing sharp cut-off angles.

- Localised low level lighting will be mounted on the wall of the premises and the luminaires will have a form of lighting control as required to reduce light overspill as far as is reasonably practicable.
- Access/egress doors will have external lighting immediately in the area of the door to comply with external threshold lighting illumination levels for both general and emergency lighting.
- The external façade feature lighting shall be carefully specified to reduce unwanted upward light spillage.

Care has been taken as part of the design process to minimise any upward waste light by the proper application of suitably directional luminaires and if necessary, the installation of light controlling attachments.

Design Objective

Where reasonably practicable, lighting shall be directed away and/or controlled from all of the sensitive receptors so as to minimise/prevent obtrusive light, glare or intrusion, adversely affecting them.


Minimising Light Break-Out




Generally light break-out from the development will be controlled by the use of curtains, screens, blinds etc., with the exception of a small portion of the ground floor comprising the Main Entrance.




Proposed luminaire schedule



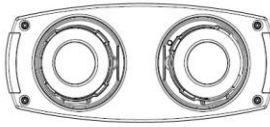
The proposed external luminaire schedule will primarily comprise of the following,

- In-ground uplighter with asymmetric distribution,
- In-Ground spike fixture with Polished reflector,
- Architectural Bollards,
- Recessed anti-glare linear fixtures,
- Downward wall light fixtures,
- External façade mounted wall lights with emergency back-up at final exits

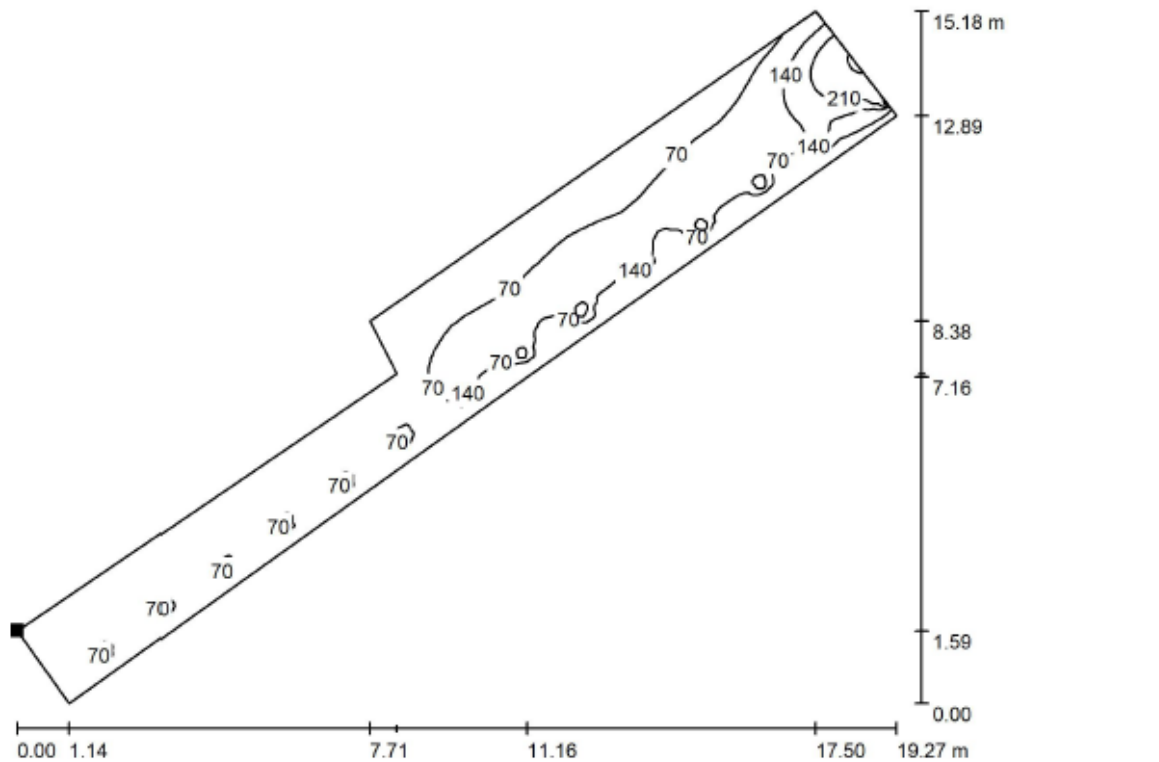
REF	LAMP	DESCRIPTION	PRODUCT	IMAGE
EX1	3W, 240lm, 3000K (TBC), LED	Marin grade 316 stainless steel in-ground uplighter with asymmetric distribution, IP68 Rated Colour Temp: 3000K, CRI >85, Efficacy: 80lm/W	Orlight ORLLM88-1-SS	EXTERNAL LANDSCAPE 

EX2	3W, 235lm, 3000K (TBC), LED	Marine grade 316 stainless steel in-ground spike fixture with polished reflector 15 degree beam Colour Temp: 3000K CRI: >80 Efficacy 78lm/w IP65 Rated	Orlight ORLLM66	EXTERNAL LANDSCAPE 
EX3	28W, 1300lm, 3000K (TBC), LED	LED Architectural bollard, extruded aluminium with a powder coated finish. Driver integral to fixture. Colour Temp: 3000K 1M height CRI: >85 Efficacy: 47lm/w IP65 Rated	Orlight ORLLUNAR	EXTERNAL LANDSCAPE 
EX4	24V, 3000K	Marine Grade 316 stainless steel recessed linear fixture, Integrated CREE XPE LED chipset, anti-glare recess with 115 degree light distribution. IP67 Rated Colour Temp: 3000K	Orlight LUNGO	EXTERNAL LANDSCAPE 
EX5	20W, 1054lm, 3000K, LED	Stainless Steel, Solid State Chipset with	Orlight LUCIA-350	EXTERNAL LANDSCAPE

		<p>downward light emission with wide beam distribution wall light fixture.</p> <p>Finish: Polished Stainless Steel Power:20w IP54 Rated</p>		
EX6	3W, 240lm, 3000K, LED	<p>Miniature recessed fixture complete with integral CREE LED package and 30 degree beam option. Marine Grade 316 Stainless Steel with construction rated to IP68 & Eye-Lid design for asymmetric light emission. Product footprint of 44mm diameter ensures versatile application.</p>	<p>Orlight</p> <p>ORLLM44-1-SS</p>	<p>EXTERNAL LANDSCAPE</p> 
VE	14W, 1008lm (220lm emergency), 4000k, LED	<p>KOLO IP65 HOOD – Surface mounted IP65 LED circular luminaire with covered top diffuser to limit and control upward light. Black</p> <p>Colour Temp: 4000k Power 14W 3hr maintained Emergency IP65 Rated</p>	<p>Whitecroft</p> <p>KOLO IP65 HOOD</p>	<p>External Entrances</p> 

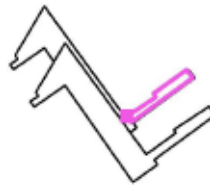
SE	24W, 1790lm (244lm emergency), 4000K, LED	Wall mounted LED luminaire for building perimeter applications. Black polycarbonate body with UV stabilised prismatic polycarbonate diffuser producing a wide, forward throw lighting distribution. High quality fixed output or DALI driver and LED module. 3hr non-maintained Emergency IP65 Rated IP65 Rated Efficacy: 74 lm/cw	Whitecroft Centurion L65	<p>Amenty Spaces</p> 
EX7	BeamLite II Wide 800 800 lm	IP65 LED 3 HR Non-Maintained High flux Luminaire with Configuration of two directional LED Lamp heads. Locking mechanism of light head preventing accidental change of light heat configuration	Eaton Beam LiteII Wide 800	<p>BeamLite II</p>  <p>Dimensions in mm</p> 

Exterior Scene 1 / Narrow walkway / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 138

Position of surface in external scene:
Marked point:
(-0.218 m, 17.390 m, 0.001 m)

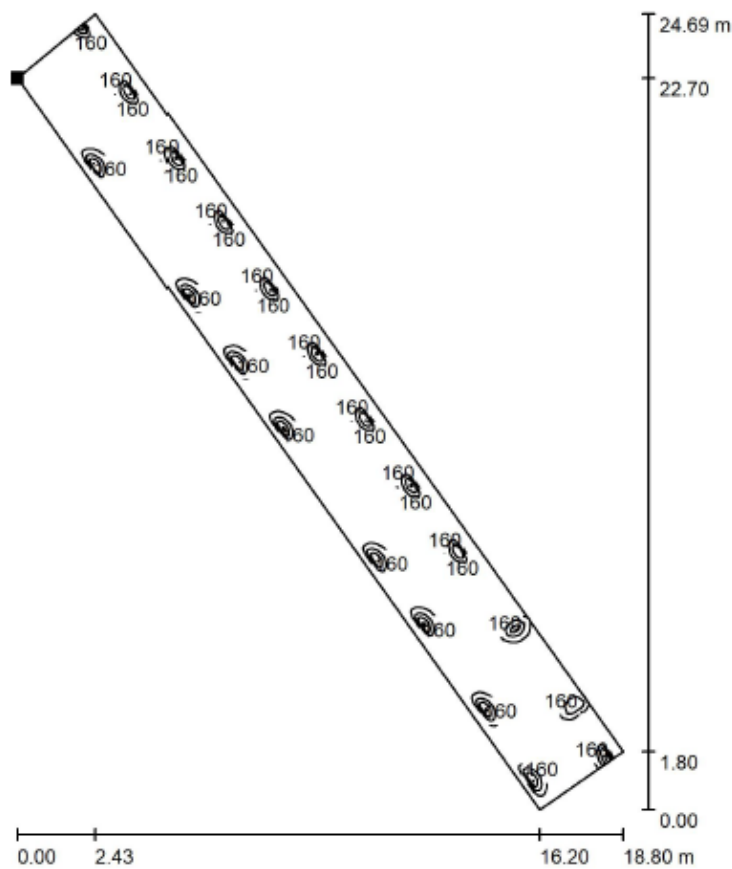


Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
59	0.17	328	0.003	0.001

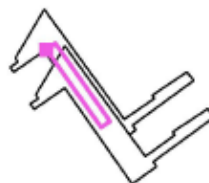
'Image above indicates illumination levels using the DIALux facility to provide an indication of the illumination levels, average illumination level and uniformity, the calculation area indicated is for the Narrow Walkway taken you from Phoenix Place to Ground level Block D'

Exterior Scene 1 / Long walkway with trees / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 194

Position of surface in external scene:
Marked point:
(-23.900 m, 37.600 m, 0.001 m)



Grid: 128 x 64 Points

E_{av} [lx]
70

E_{min} [lx]
0.56

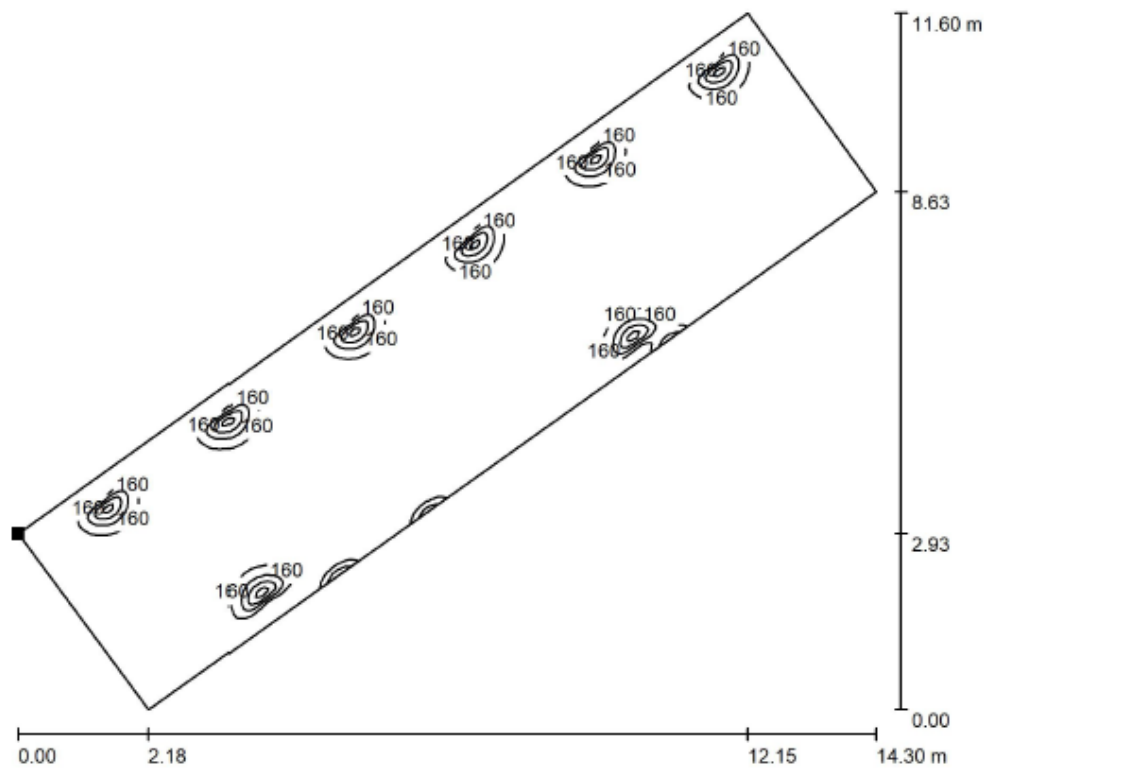
E_{max} [lx]
780

$u0$
0.008

E_{min} / E_{max}
0.001

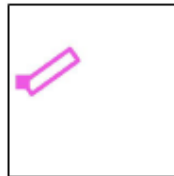
'Image above indicates illumination levels using the DIALux facility to provide an indication of the illumination levels, average illumination level and uniformity, the calculation area indicated is for the Narrow Walkway to the rear of Block D'

Exterior Scene 2 / Podium long walkway / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 103

Position of surface in external scene:
Marked point:
(-16.300 m, -6.300 m, 0.001 m)



Grid: 128 x 64 Points

E_{av} [lx]
52

E_{min} [lx]
0.40

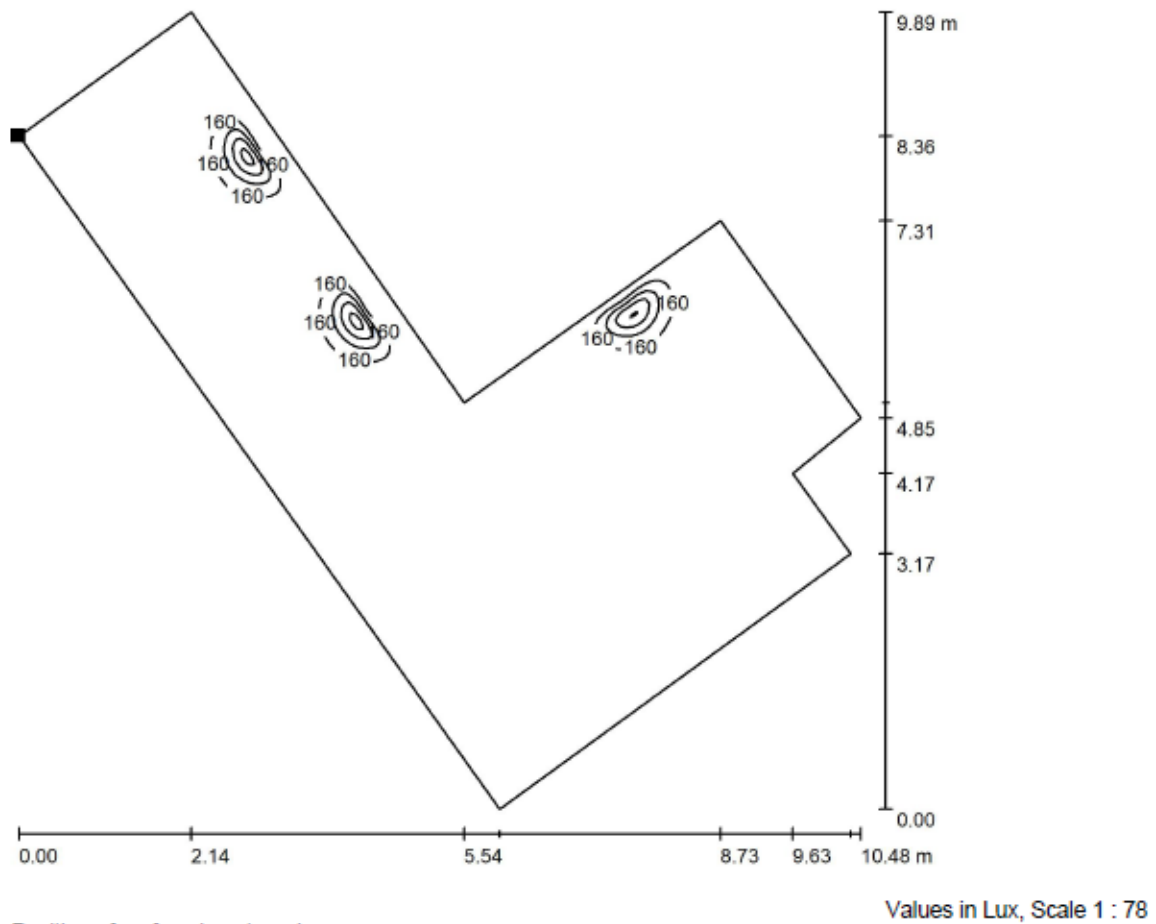
E_{max} [lx]
792

$u0$
0.008

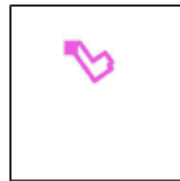
E_{min} / E_{max}
0.001

'Image above indicates illumination levels using the DIALux facility to provide an indication of the illumination levels, average illumination level and uniformity, the calculation area indicated is for the long walkway to the Podium area'

Exterior Scene 2 / Podium Block C Entrance / Isolines (E, Perpendicular)



Position of surface in external scene:
Marked point:
(-4.543 m, 2.964 m, 0.001 m)

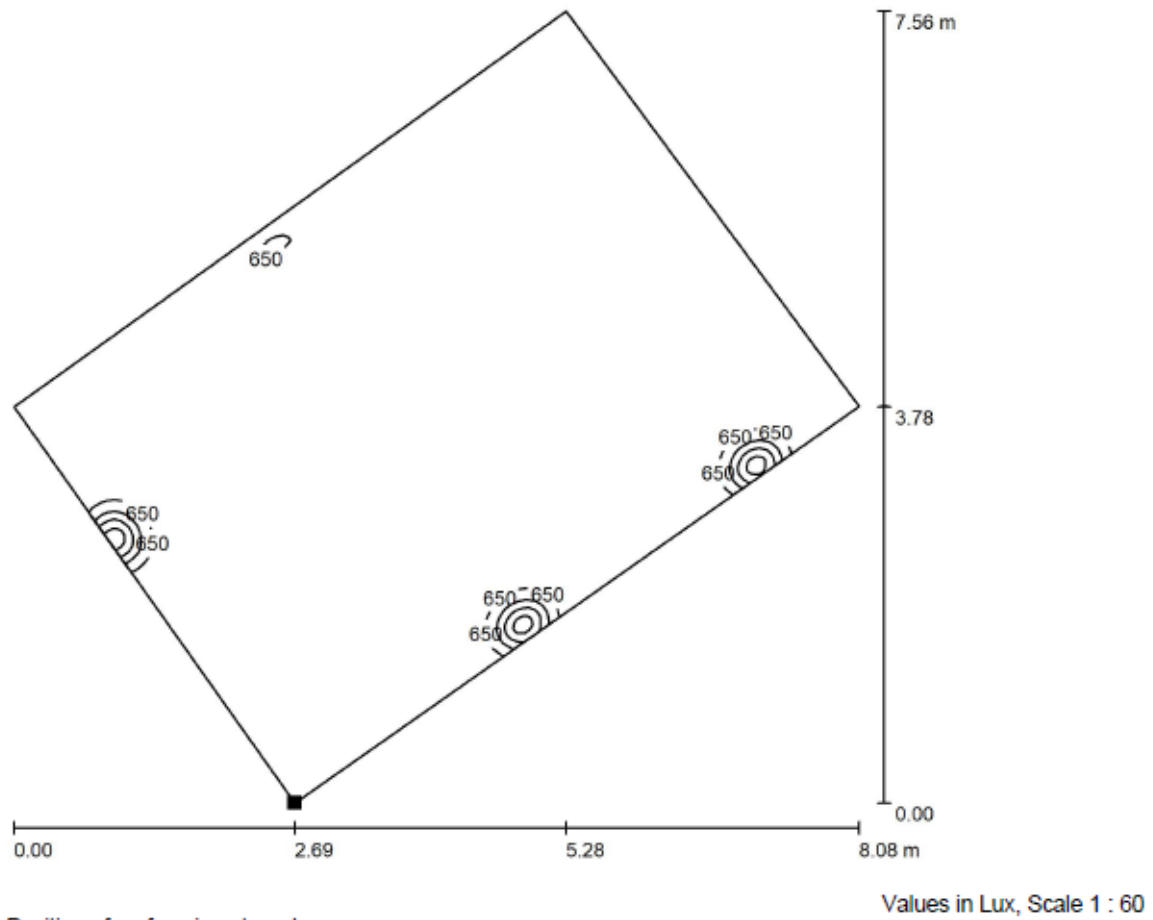


Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
27	0.12	765	0.004	0.000

'Image above indicates illumination levels using the DIALux facility to provide an indication of the illumination levels, average illumination level and uniformity, the calculation area indicated is for the walkway to the Podium area to the podium entrance at Block C'

Exterior Scene 2 / Garden Area Close to Block B / Isolines (E, Perpendicular)



Grid: 128 x 128 Points

E_{av} [lx]
69

E_{min} [lx]
0.49

E_{max} [lx]
3076

$u0$
0.007

E_{min} / E_{max}
0.000

'Image above indicates illumination levels using the DIALux facility to provide an indication of the illumination levels, average illumination level and uniformity, the calculation area indicated is for the Garden Area to the Podium level adjacent to entrance at Block B'

6 Potential Effects and Mitigation

6.1 Introduction

This section assesses the potential effects of construction phase lighting, the operational phase lighting strategy proposed for the development and on the sensitive receptors.

It sets out measures to mitigate any potential effects from construction lighting identified, and measures to mitigate any potential effects from operational lighting.

6.2 Construction Lighting

Generally, construction lighting tends to lead to more obtrusive lighting than operational lighting because of its temporary nature, and the type of lighting equipment used.

For ease of deployment and use, construction lighting tends to be mobile, and focus on providing the widest coverage of light from the fewest possible units in order to minimise time spent maintaining and installing the equipment. This, along with the fact that it is often poorly directed or installed, can result in temporary effects of glare, light intrusion and sky glow if good practice measures are not employed.

6.3 Operational Lighting

6.3.1 Existing Local Business and residential properties

Existing local businesses in close proximity to the application Site have been identified in the likes of Royal Mail and residents located on Calthorpe Street.

Based on the review of the existing site, the lighting strategy proposed and the specification methods for control of feature façade and landscape lighting, the opinion would be that there shall be minor / moderate increase in sky glow discernible as the proposed new lighting will have limited upward light which will be highly unlikely to contribute to any concerning obtrusive light in the form of sky glow.

6.4 Motorists, Cyclists and Pedestrians

Phoenix Place and Gough Street run adjacent to the Application Site and is used by motorists, cyclists and pedestrians and these users can be sensitive to glare effects from obtrusive light.

Effects of obtrusive light from the proposed development on motorists, cyclists, and pedestrians are therefore considered to be negligible.

6.5 Ecological Receptors

On review of Watermans Ecological appraisal, consideration of their results and evaluations been taken into consideration. The proposed new landscape lighting will have limited upward light which will be highly unlikely to contribute to any concerning obtrusive light in the form of sky glow.

Measures as noted previously within this report have also been incorporated within the Lighting Strategy to avoid and/or reduce the potential effects. It is anticipated that the measures included within the lighting design will ensure there are moderate effects of obtrusive light in the form of sky glow.

6.6 Mitigation Measures

6.6.1 Construction

General design objectives that will be used to ensure that obtrusive light associated with construction of the proposed development does not adversely affect any receptors identified earlier are summarised below:

- Use appropriately designed luminaires for the task at hand, use louvres and shields to prevent undesirable light break-out
- Lighting will be directed so it does not intrude or spill outside of the immediate working area, lighting will also be directed away from all of the sensitive receptors
- Preference will be given to several, lower lighting units rather than tall, wide beam lighting units to illuminate large areas to limit light intrusion, glare and sky glow
- Lighting illumination levels will be reduced, or lighting will be switched off when not required for working/safety purposes, security lighting will be kept at the minimum level required for visual and security protection.

6.6.2 Operation

The general design principles that have been incorporated into the Lighting Strategy in order to mitigate adverse effects of obtrusive light have included:

- Orientation - luminaires will be angled so that no light is released above the horizontal. This will be achieved by careful consideration and selection of suitable luminaires, positioned at a height that is great enough to allow light to be directed downwards
- Placement - lighting will, as far as is reasonably practicable, be located away from sensitive receptors
- Reflectance - any high intensity lighting, LED sources proposed, will be installed onto buildings and directed to the area where the light is required, rather than facing a building façade which may be reflective and result in sky glow. Building mounted luminaires will be kept to an operational minimum
- The Lighting Strategy will meet any pre-curfew limitations of ILP Environmental Zone E4

7 Conclusion

The lighting assessment has identified the baseline conditions of the current Application Site including details of buildings/structures and potential sources of existing artificial lighting.

In the context of the existing lighting conditions, it established that the Application Site and its surroundings can be categorised within ILP Environmental Zone E4.

Potential sensitive receptors that may be affected by obtrusive light have been identified and include existing residents, visitors/guests and staff of the development, ecological receptors, users of roads, pavements and lanes.

Due to the design principles incorporated into the external lighting strategy and site survey of the surrounding environment, noting existing lighting installation within the adjacent carparks, street lighting on Phoenix Place and Gough Street and existing lighting at the adjacent Royal Mail Central London Centre. It would be of the opinion that lighting overspill, glare and sky shall have a moderate/minimal adverse impact.

On the basis of this assessment, illumination calculations undertaken and recorded, and the incorporation of the recommendations set out within this report, as well as compliance with any planning conditions including curfews (if applicable), it is considered that obtrusive lighting from the proposed lighting strategy will pose the following significance and therefore acceptable.

Potential Effect	Nature of Effect (Permanent / Temporary)	Significance (Major/ Moderate/ Minor)	Mitigation / Enhancement Measures
Construction			
Increase in Sky Glow, Site aura and light presence to local residences	Temporary	Moderate / Minor Adverse	Minise Site glow and use of anti-glare barriers
Increase in light "Glare" to local residences	Temporary	Moderate / Minor Adverse	Minise Site glow and use of anti-glare barriers
Increase in light "Glare" to local roads	Temporary	Moderate / Minor Adverse	Minise Site glow and use of anti-glare barriers
Temporary Visual intrusion of the Construction processes to local residences	Temporary	Moderate / Minor Adverse	Minise Site glow and use of anti-glare barriers
Completed development			
Increase in Sky glow, Site aura and light presence to local residences	Permanent	Moderate / Minor Adverse	Specification of dark sky compliant luminaires and avoid over lighting
Increase in light "Glare" to local residences	Permanent	Moderate / Minor Adverse	Specification of dark sky compliant luminaires and avoid over lighting
Increase in light "Glare" to drivers on local roads	Permanent	Moderate / Minor Adverse	Specification of dark sky compliant luminaires and avoid over lighting
Cumulative effects to site			
Increase in sky glow, site aura, light presence and glare	Permanent	Moderate / Minor Adverse	Specification of dark sky compliant luminaires and avoid over lighting. Use of efficient lighting with controlled light distribution