



Where
buildings
come alive

University of Huddersfield

MSC (Multi Storey Carpark)

260161

External Lighting Report

Document Revision History			Ref	260161-CPW-XX-00-RP-E-221001		
Rev	Author	Verification By	Date	Suitability	Comments / Status	
P01	KR	VS	10/07/2026	S3	DRAFT ISSUE	
P02	KR	VS	17/07/2026	S3	FOR PLANNING	
P02	KR	VS	15/10/2026	S3	FOR PLANNING	

Birmingham | Nottingham | Huntingdon | Leeds | Bristol | Leicester | London | Manchester | Derby | Poland | India

www.cpwp.com

©2026 Couch Perry Wilkes
Couch Perry Wilkes shall not be liable in whole or part for any use of this document beyond such purpose(s) as the same was originally prepared or provided nor shall Couch Perry Wilkes be liable for any misinterpretation as to such intended purpose(s).

Sustainability
at our core.

External Lighting Report



1.0	Introduction	3
2.0	Lighting Design Brief	3
3.0	Product Types	4
4.0	Illumination Levels	5
5.0	ILP Guidance Notes for the Reduction of Obtrusive Light, 2021	6
6.0	Comparison to ILP Guidance Notes for the Reduction of Obtrusive Light, 2021	6
7.0	Observer Reference Points	7
8.0	Lighting Levels	7
9.0	Crown House	8
10.0	Controls	9
11.0	Summary	10

External Lighting Report



1.0 Introduction

This report details the proposed lighting design and associated products for use at the new MSC (Multi Storey Carpark) development at the University of Huddersfield (hereafter referred to as the "Site"). This design, calculations and report has been put together in order to support the planning application for these works. It is noted that the next stage of the car park design, including the lighting, will be developed by a specialist contractor.

The site is currently a parcel of undeveloped land. It is situated north of the main University campus and would serve to replace the current, temporary Southgate Car Park just north of the site. The proposed development includes the construction of a nine level, multistorey car park and associated pedestrian paths and access roads, as well as the relocation of the existing sprinkler tank to a new service yard area. One of the pedestrian routes will become a key thoroughfare into this area of the University's campus.

The site is surrounded by large existing buildings, some of which form part of the University's estate. To the northwest is the Daphne Steele building and the Emily Siddon building to the north. The east and south are bordered by Old Leeds Road and other commercial properties. Crown House sits on the west boundary of the site and is currently unused. It is noted that there are proposals to redevelop this building into student residences or rented accommodation, so obtrusive light levels here have also been tested in this external lighting assessment. Mitigation measures have been put in place to reduce the potential for nuisance light spill as much as possible and this is detailed in further sections of this report.

The closest existing, residential properties sit much further south at the Kirkgate Residences, along the main Southgate road. The proposed lighting design has taken these receptors into account and is sensitive and compliant with the principles set out within the ILP (Institute of Lighting Professionals) Guidance Note 1, The Reduction of Obtrusive Light, minimising nuisance light to these student residences.

This report should be read in conjunction with the included CPW external lighting drawings:

260161-CPW-XX-00-DR-E-221001 – Ground Floor

260161-CPW-XX-01-DR-E-221002 – First Floor

260161-CPW-XX-02-DR-E-221003 – Second – Ninth Floor

2.0 Lighting Design Brief

The proposed new development will contain a new multistorey car park, external service yard and associated pedestrian pathways and access roads, including a pedestrian route that will be a main thoroughfare into the University's campus.

To tie in with existing external lighting columns on the neighbouring Daphne Steele site to the north, the ground level column luminaires will be visually matched in the same style and target the same illuminance level. This lux level of 45 lux and 0.35 Uo (uniformity) has been specified by the client.

The lighting scheme has been designed to create a well-lit environment that feels safe and welcoming. Wall mounted luminaires are used at car park entrances and to pedestrian zones. A different style of wall mounted luminaire is used in the external service yard. The predominant light source to the car parking zones is a linear luminaire that will be surface mounted to the ceiling for higher light levels and uniformity.

For this project, it is proposed that the ground level lighting to the pedestrian perimeter and access zones will be controlled via photocells and DALI drivers, as per existing lighting in adjacent areas, to ensure that the lighting will be energised at low ambient light levels and will remain on throughout the night until sunrise. As this is a public car park with proposed 24/7 operation, there is no opportunity to switch off ground level luminaires around the car park, as they will be needed for the safety and security of the public. The service yard lighting will be controlled by local PIR (presence detection), as this will only need to be switched on when estates personnel require access. The lighting inside the car park will have a separate, new, wired, DALI-2 control system to allow more detailed commissioning and ensure lighting is dimmed down when not needed. Further details of this are included later in this report.

Calculations have been made to assess the horizontal and vertical illuminance produced by the lighting design, as well as light pollution intensities on various grid planes around the site to minimise the light trespass towards existing residential stakeholders and over the site boundary. Obtrusive light calculations have been carried out to ensure the lighting design is within the parameters set out in the GN01 ILP Guidance Note 1 the Reduction of Obtrusive Light (2021) for an E4 environmental zone.

The external lighting concept design has been developed with reference to:

- BS EN 12464-1 (2021) Indoor Work Places
- BS EN 12464-2 (2024) Outdoor Work Places
- BS EN 13201-1 (2014) Road Lighting
- BS EN 13201-2 (2015) Road Lighting
- BS 5489-1 (2020) Design of Road Lighting
- ILP GN01 Guidance Note for the Reduction of Obtrusive Light (2021)

External Lighting Report



3.0 Product Types

A range of luminaires have been used across the site to fulfil various purposes.

Post top luminaires from DW Windsor have been used to illuminate the road and pedestrian pathways, as this is the same style that has been used on connecting areas of the campus that border this site.

For the general lighting inside the car park, a surface mounted, linear batten has been used. This provides a high level of illuminance and uniformity to the task areas where users have to manoeuvre their cars and avoid collisions.

A wall-bracket mounted luminaire has been added to the external service yard to provide safe lighting for pedestrian movement in this zone.

A surface mounted luminaire from Thorn has been used for perimeter pathways, steps, pedestrian ramps and entry/exit points in the car park.

The luminaires are briefly described below.



EX1
Manufacturer: DW Windsor
Product: Sephora Halo
Output: 41.5W, 6330lm
Optic: A1, wide road optic
Colour Temperature: 3000K
Mounting Type: Column
Mounting Height: 6m



EX2
Manufacturer: DW Windsor
Product: Sephora Halo
Output: 97.9W, 14630lm
Optic: C3, area optic
Colour Temperature: 3000K
Mounting Type: Column
Mounting Height: 6m



EX3
Manufacturer: Thorn
Product: Aquaforce Pro
Output: 48W, 6373lm
Optic: Symmetric
Colour Temperature: 3000K
Mounting Type: Column
Mounting Height: Level 00 = 4.0m
Level 01-09 = 2.7m
To be supplied with integral emergency battery as required for use as an emergency luminaire



EX4
Manufacturer: DW Windsor
Product: Kirium Pro S Mini
Output: 16W, 2754lm
Optic: C2, area optic
Colour Temperature: 3000K
Mounting Type: Wall bracket/column
Mounting Height: 4m



EX5
Manufacturer: Thorn
Product: Piazza 3
Output: 13W, 1652lm
Optic: Asymmetric
Colour Temperature: 3000K
Mounting Type: Surface wall
Mounting Height: 2.5m
To be supplied with integral emergency battery as required for use as an emergency luminaire

External Lighting Report



4.0 Illumination Levels

In accordance with the standards and guidance listed in Section 2.0, the required illumination levels are given in the table below.

Area	Maintained Illuminance (Lux)	Uniformity
Vehicle Entrance Zone/Ramp (internal)	300	0.4
Parking Zones (internal)	150	0.4
Traffic Lanes (internal)	75	0.4
Steps/Pedestrian Ramps (external)	20	0.4
Service Yard (external)	5*	0.25*
Main Pedestrian Routes (external)	45**	0.35**
Other Pedestrian Routes (external)	5	0.2
Vehicle Access Road (external)	10	0.4

* This is based on currently known details of this area and provides levels for safe pedestrian movement only. It is assumed that if maintenance works are to be carried out during hours of darkness, portable task lighting will be used.

** This lux level has been specified by the client and applied to the main pedestrian routes to match existing lux levels in areas that connect to the site.

The table below presents the pre- and post-curfew illumination levels achieved in the proposed design, with all luminaires at all levels on at 100% output. Many of these results show higher lux and uniformity levels that required, however in reality these may drop as the lighting control strategy should mean that not all luminaires will be on at full power all at once, plus the physical presence of cars will block some of the light spread. The proposed DALI-2 lighting control system will mean that during commissioning, luminaires can be dimmed as needed, if lighting levels are still exceeding requirements. Dimming the luminaires down will also further reduce obtrusive light and the total energy consumption of the lighting scheme.

Area	Maintained Illuminance (Lux)	Uniformity
00 - Ground Floor		
00 – Vehicle Entrance Area	330.36	0.63
00 – External Car Park Entrance	73.39	0.44
00 – External Main Pedestrian Route	56.32	0.42
00 – Internal Parking	160.97	0.57
00 – Service Yard Access North	31.27	0.28
00 – Service Yard Access South	23.03	0.17
00 – External Pedestrian Ramp 1	85.69	0.81
00 – External Pedestrian Ramp 2	30.63	0.92
00 – Service Yard	32.97	0.42
00 – Service Yard Steps	53.06	0.61

Area	Maintained Illuminance (Lux)	Uniformity
00 - Ground Floor		
00 – External Side Pedestrian Access	36.06	0.35
00 – External Pedestrian Steps 1	57.78	0.75
00 – External Pedestrian Steps 2	60.09	0.69
00 – Car Park Traffic Lane Ramp	163.54	0.66
00 – Car Park Traffic Lanes	103.71	0.56
00 – External Vehicle Access Road	48.68	0.46
01 - First Floor		
01 – Parking Central	197.74	0.60
01 – Parking Left	198.77	0.49
01 – Parking Right	193.81	0.41
01 – Traffic Lanes	114.18	0.50
02-09 - Second to Ninth Floor		
02 – Parking Central	208.39	0.49
02 – Parking Left	199.34	0.43
02 – Parking Right	209.72	0.48
02 – Traffic Lanes	142.72	0.41

The proposed design and therefore illumination levels for the second floor and above are identical so have not been repeated in these results tables.

5.0 ILP Guidance Notes for the Reduction of Obtrusive Light, 2021

In accordance with the Institute of Lighting Professionals (ILP) ‘Guidance Notes for the Reduction of Obtrusive Light, (2021)’. The development has been classed with having an environmental zone of E4.

Zone	Surrounding	Examples
E0:	Protected – Dark	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1:	Natural - Dark	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc
E2:	Rural – Low district brightness	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3:	Suburban – Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4:	Urban - High district brightness areas	Town/city centres with high levels of night-time activity

Having an environmental zone of E4 indicated that the design shall need to comply with the table below:

Environmental Zone	Sky Glow (Max %)	Light Trespass (into windows) Ev (Lux)		Source Intensity I (cd)		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L
E0:	0	n/a	n/a	0	0	<0.1
E1:	0	2	<0.1	2500	0	<0.1
E2:	2.5	5	1	7500	500	5
E3:	5	10	2	10000	1000	10
E4:	15	25	5	25000	2500	25

- ULR** Upward light ratio of the installation is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.
- EV** Vertical illuminance in lux and is measured flat on the glazing at the centre of the window.
- I** Light intensity in Cd.
- L** Luminance in Cd/m².
- Curfew** Time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of lighting applied by the local authority. If not stated—23:00h is suggested.

6.0 Comparison to ILP Guidance Notes for the Reduction of Obtrusive Light, 2021

Obtrusive lighting calculations have been undertaken on the closest, existing residential areas and the following values have been obtained, which demonstrate compliance with pre- and post- curfew criteria in the ILP guidance table for an E4 environmental zone. The pre- and post- curfew calculation results in this table are with all lighting at all levels on at 100% output to show a worst-case scenario.

An additional result has been provided which uses a calculation scenario that has been set up to represent the controls strategy from Section 10 and likely nighttime usage of the car park. This reflects that although the car park is currently planned to be in 24-hour operation, there will be fewer visitors during the night and maintenance work is unlikely, meaning most of the car park lighting will be dimmed right down or switched off. As such, this “Nighttime usage” result is calculated with all service yard lighting switched off and all car park luminaires dimmed to 10%. In this scenario, all results also meet the ILP recommended criteria for an E4 environmental zone.

	E4 Maximum	Kirkgate Residences
Sky Glow ULR Max %	15%	7.3%
Light Intrusion (into windows) Ev Lux		
Pre-curfew	25	2.0
Post-curfew	5	2.0
Nighttime usage	5	0.3
Luminaire Intensity I (candelas)		
Pre-curfew	25000	548
Post-curfew	2500	548
Nighttime usage	2500	154

These calculations were carried out on the reference points outlined in Section 7.0.

External Lighting Report



7.0 Observer Reference Points

The below image displays the location of the site and its surroundings. The closest, existing, residential area is identified below to the south.



- Approximate site boundary
- Observer reference point – Kirkgate Residences

8.0 Lighting Levels

The proposed lighting layouts and calculation results are shown on CPW drawing numbers:

- 260161-CPW-XX-00-DR-E-221001 (Ground Floor)
- 260161-CPW-XX-01-DR-E-221002 (First Floor)
- 260161-CPW-XX-02-DR-E-221003 (Second – Ninth Floor)

A targeted light level of 150 lux average and a uniformity of 0.40 has been proposed for the parking areas and 75 lux and a uniformity of 0.25 for the traffic lanes. The ground level vehicle entrance area has a higher illuminance target of 300 lux, to reduce contrast with daylight levels outside. This is in accordance with BS EN 12464-1 (2021). For steps and pedestrian ramps, 20 lux average and a uniformity of 0.40 have been targeted. Other pedestrian areas including the service yard have a target of 5 lux and a uniformity of 0.25. These are in reference to levels set out in BS EN 12464-2 (2024). The lighting level for the service yard provides enough light for safe pedestrian movement only. It is assumed that if any out of hours maintenance works are required during hours of darkness, portable task lighting will be provided. The main pedestrian routes have used a higher 45 lux and 0.35 uniformity target specified by the client. This has been incorporated into the design to provide continuity between these pedestrian areas and those on the neighbouring site at the Daphne Steele building.

Many of the lux levels presented in this report and on the associated drawings show results that are higher than these targets. However, the calculations have been run with all lighting on all levels on at 100% output to provide a worst-case scenario for the light spill. In reality, the lighting control strategy should mean that not all luminaires are on at full power all at once, so these light levels will reduce. The proposed, new, DALI-2 lighting control system to the car park building will allow commissioning of the luminaires so they can be dimmed down as required if the target lux levels are still exceeded. This will also help to further reduce obtrusive light and the energy consumption of the lighting.

Obtrusive light calculations have been carried out to existing residences with all luminaires on all levels at 100% output to show a worst-case scenario for the light spill. These calculations demonstrate compliance with the GN01 ILP Guidance for the Reduction of Obtrusive Light (2021) for an E4 environmental zone, as outlined in Section 6.0 and 7.0.

Although not included in the external lighting impact assessment, lux level calculations for the interior areas of the car park such as the staircores, bike stores and plant spaces have also been carried out and lighting layouts shown on CPW drawings. Levels provided to circulation, stairs and bike stores are 100 lux and 0.4 uniformity. Interior plant rooms are 200lx (calculated to a vertical task area) and 0.4 uniformity, both in line with BS EN 12464-1 (2021).

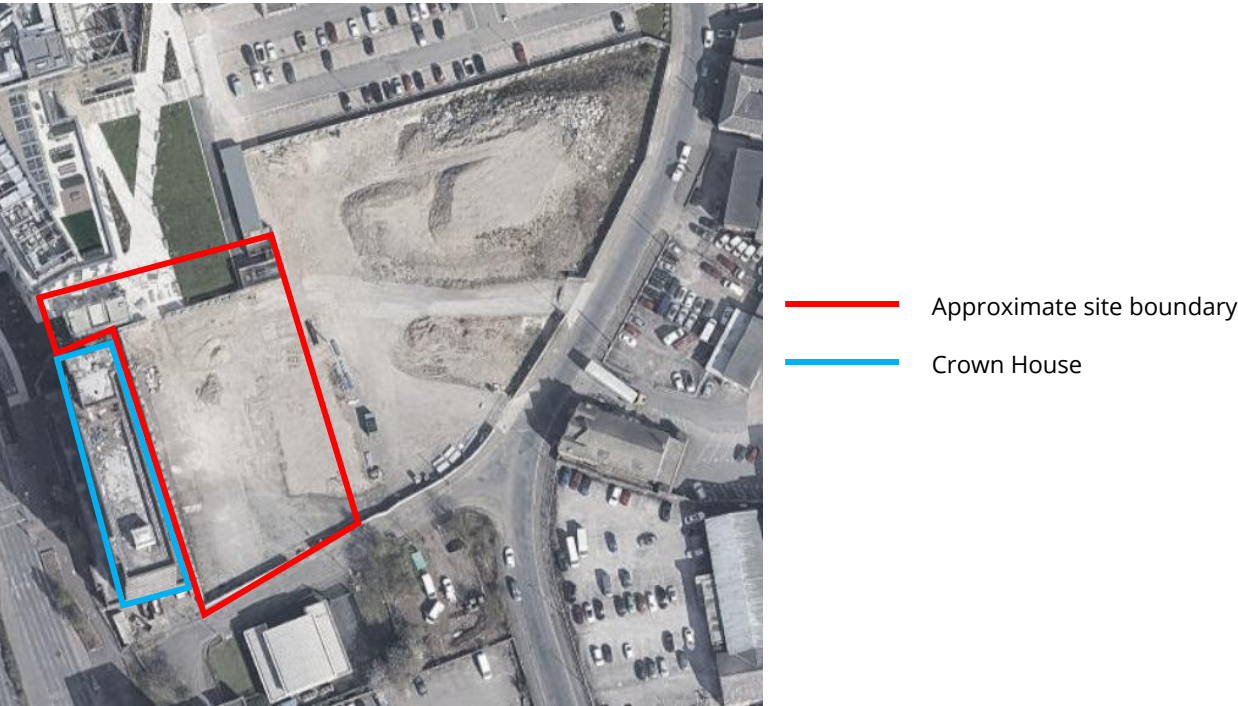
These lighting levels are baseline targets which meet the minimum levels within current, relevant lighting standards and guides as listed in Section 2.0. Across all elements of the design, care has been taken to ensure compliance with these documents.

External Lighting Report



9.0 Crown House

Crown House is a University-owned building that sits on the west boundary of the Site. It is currently unused, however there are planning applications and proposals underway already to redevelop it into student residences and/or rented accommodation. As such, the University want to ensure that the proposed lighting design to the new multistorey car park as part of this project is sensitive to any future residents of Crown House.



Due to the proximity of Crown House to the Site boundary, with the car park and its luminaires in full-time use, there is likely to be a high level of spill light reaching the Crown House façade from the new car park building. Although current ILP guidance does not require official assessment of light spill to *future* residential developments, plans to convert the building are already underway, so calculations have been undertaken to show the vertical lux and candela results are within the range permitted for an E4 environmental zone. Although it is realistic to expect that any future residents at Crown House would use window coverings such as blinds and curtains, it will be crucial to employ an effective lighting controls strategy (as detailed in Section 10), to reduce post-curfew nuisance light to an acceptable level. The proposed, new, DALI-2 lighting control system will allow detailed commissioning of all luminaires to ensure they can be dimmed or switched off when not in use.

The additional obtrusive light calculations have been carried out to Crown House, and the table (right) compares the calculated results with the ILP guidance table for an E4 environmental zone.

The pre-curfew results are calculated with all luminaires on at 100% output, to provide a worst-case scenario for the light intrusion. The table shows that sky glow, light intrusion and intensity results to Crown House are within the accepted range. In reality, these levels would be reduced as the controls strategy should mean that it is unlikely all lighting will be on at full power all at once.

The post-curfew results use a calculation scenario that has been set up to represent the controls strategy from Section 10 and likely nighttime usage of the car park. This reflects that although the car park is currently planned to be in 24-hour operation, there will be fewer visitors during the night and maintenance work is unlikely, meaning most of the car park lighting will be dimmed right down or switched off. As such, the post-curfew results are calculated with all service yard lighting switched off and all car park luminaires dimmed to 10%. In this scenario, all results also meet the ILP recommended criteria for an E4 environmental zone.

	E4 Maximum	Crown House
Sky Glow ULR Max %	15%	7.3%
Light Intrusion (into windows) Ev Lux		
Pre-curfew	25	24.9
Post-curfew	5	2.5
Luminaire Intensity I (candelas)		
Pre-curfew	25000	1011
Post-curfew	2500	166

In order to provide more accurate calculation results, additional architectural detail has been modelled in CPW's calculations, using the latest available information from the architect. The vertical "fins" shown in the image below have been added to the 3D model within the lighting calculation software, as these will help to block light and reduce the light spill towards Crown House. These have been added at one metre spacings, protrude approximately 600mm from the building and run from 3m above ground level to the top of the building. Solid walls have also been modelled to surround the ground floor of the car park, the service yard and the staircores, as shown in the image, which will block all light spill. If any of these details change throughout the design process at the next stages, the external lighting assessment will need to be revisited.



External Lighting Report



10.0 Controls

It is good practice to reduce obtrusive light levels with mitigation measures such as a detailed control strategy, to reduce nighttime light pollution and sky glow. Employing an effective controls strategy also ensures that lighting is only on as and when needed, reducing energy consumption and costs for the Client.

As such, this section provides further detail on the controls strategies proposed for various areas of the site, in order to reduce light pollution and energy usage as much as possible.

External Pedestrian Zones

As fitted information received for the existing external lighting to the Daphne Steele building shows that column luminaires were supplied with DALI drivers and integral photocells. New lighting to this site will be supplied with the same DALI control to allow integration into the existing lighting control system, for streamlined control of the connecting external areas. Where possible, luminaires will be supplied with integral photocells too.

Continuation of the existing strategy will ensure that the lighting will be energised at low ambient light levels and remain on through the night until sunrise. As this is a public car park with 24/7 operation, there is no opportunity to dim or switch off any of this lighting as it will be required for the safety and security of the public.

Multistorey Car Park (Internal)

Lighting to the interior of the multistorey car park will use a new, separate, intelligent, lighting control system based on the **Helvar Imagine** lighting control platform, utilising **DALI-2** compliant devices throughout.

The system shall provide individual luminaire control, occupancy-based operation, scheduling, monitoring and fault reporting for all car park lighting, including emergency luminaires.

The lighting control system shall comprise:

- Helvar Imagine server and software.
- Helvar DALI-2 routers.
- DALI-2 compliant LED drivers.
- DALI-2 occupancy and light level sensors.
- Emergency lighting interfaces (where applicable).
- Network infrastructure connecting all routers via Ethernet.

Each floor of the car park shall be divided into logical lighting zones to optimise occupancy detection and minimise unnecessary energy consumption. Suggested zones based on the current, typical, proposed layout are north staircore, north parking zone, south staircore and south parking zone. Controls will include PIR presence detection and photocells to ensure lighting is only on when the car park is in use and ambient light levels are low. Although the car park's proposed usage is 24 hours, it is likely there will be fewer occupants after a curfew of 23:00, so settings are changed after this time.

The proposed settings are outlined below:

Normal Operating Hours:

During normal operating hours (typically 06:00–23:00):

- Ground level lighting to the car park interior will remain on at 100% output.
- Occupied zones shall operate at 100% output.
- When movement is detected, adjacent zones will also be brought to an intermediate level of 50% output to improve user comfort and perceived safety.

- Following expiry of the occupancy timeout with no further movement detected, luminaires shall dim smoothly to a configurable standby level.
- The default standby level shall be 20% output.
- Fade times shall be adjustable and initially set to approximately 10 seconds.

This arrangement provides energy savings while maintaining safe background illumination.

Night-Time Schedule:

A night schedule shall automatically activate at 23:00 hours.

During the scheduled night period (23:00–06:00):

- Ground level lighting to the car park interior will remain on at 100% output.
- Occupied lighting levels shall remain at 100% when movement is detected.
- When movement is detected, adjacent zones will also be brought to an intermediate level of 50% output to improve user comfort and perceived safety.
- Following the occupancy timeout, lighting shall dim to a lower, night-time standby level.
- The default night-time standby level shall be 10% output.
- Lighting shall remain at this reduced standby level until occupancy is again detected or until the scheduled daytime mode resumes.

All schedule times and lighting levels shall be fully configurable within the Helvar Imagine software without requiring changes to the control hardware.

Service Yard

Lighting to the external service yard area will be controlled by the same, new, DALI-2 lighting control system as the car park building. When access is required, lighting will be switched on manually via DALI-enabled switch. Lighting should be manually switched off as personnel leave the area. As a backup, to ensure lighting to this zone does not get accidentally left on for long periods of time, the lighting will also be controlled via photocell. This will mean that lighting is automatically switched off at sunrise, overriding the switch when required. This will ensure if lighting is switched on manually and accidentally left on overnight, it will always be switched off at sunrise and remain off until it is next switched on upon access to the area.

Use of this zone will be sporadic, by estates personnel only and closed to the public, so it is likely that all lighting to this area will be switched off most of the time.

The final settings are to be agreed with the client and controls to be detailed further at the next stage.

External Lighting Report



11.0 Summary

The scheme has been developed to provide an energy efficient and good quality lighting design to serve the new multistorey car park, service yard, associated pedestrian routes and access roads, providing safe and practical light levels as required and using different luminaire types for different zones.

This scheme has also been developed to ensure that any potential impact on the nearby residential areas is minimised. The scheme shows that the illuminance spillage towards the nearest, existing, residential properties to the development are within the parameters of environmental zone E4, as per ILP GN01 for the Reduction of Obtrusive Light (2021). A controls strategy has been outlined that is a key mitigation technique and should ensure that nuisance light towards the proposed future development at the neighbouring Crown House is also minimised and in line with the parameters of an E4 environmental zone.

The lighting scheme is based around a low pollution, low energy and low maintenance strategy. Considerations were also given to high quality products which have excellent optics, with varying controls strategies dependent on the area of the site.

Alternative luminaires may develop and be introduced into the market during the detailed design stage, however the design philosophy outlined in this report should be retained and implemented into the finalised design.



Where
buildings
come alive

+44 (0) 121 709 6600

Interface 100
Arleston Way, Solihull
B90 4LH

birmingham@cpwp.com
www.cpwp.com

CPW & couchperrywilkes are trading styles of:

- Couch Perry & Wilkes LLP (Registered Number: OC317478)
- Couch Perry & Wilkes Environmental LLP (Registered Number: OC366464)
- Couch Perry Wilkes East Midlands LLP (Registered Number: OC373814)
- Couch Perry & Wilkes (Acoustics) Limited (Registered Number: 13392985)
- C.P.W. Services Limited (Registered Number: 01554095)
- Couchperrywilkes Support Limited (Registered Number: 10249381)

All are registered in England & Wales. Registered Office: Interface 100, Arleston Way, Solihull, B90 4LH