



DESIGN ENGINEER SUSTAIN

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33-41 Cheetham Hill Road

Manchester

External Lighting Strategy

QA

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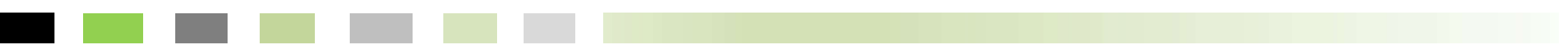
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Section 1 - Introduction

This report has been prepared in support of the planning application for the development of Cheetham Hill BTR Scheme located on 33-41 Cheetham Road in Manchester.

The proposed development includes the formation of 23 storeys comprising residential apartments with external service road/footpaths to the perimeter of the building.

This report outlines the 'high level' principles which will be adopted when developing the detailed external lighting design to ensure that the effects of lighting are controlled in line with best practice and to minimise light pollution.

An initial and indicative lighting design has been produced to show the intent. A fully detailed lighting design will be carried out for the plot prior to project commencement to include layout drawing(s), luminaire specifications, control philosophy and calculated lux levels with obtrusive light study.

The overall lighting philosophy for the development is to achieve a good level of artificial lighting to ensure a safe environment for residents, visitors and staff whilst also minimising light spill & light pollution to the nearby existing developments.

The detailed lighting design will be developed and coordinated with the landscaping design to achieve a visually attractive and interesting environment, complimenting the sites natural and architectural features.

The use of high efficiency LED luminaires with automatic control systems will minimise energy usage and also ensure that lighting levels can be maintained over an extended period by use of luminaires with a long useful lifespan.

Section 2 – Site Constraints and Requirements

The development site is located with Carnarvon Street to the North, Gibson Place to the West and Cheetham Hill Road to the east.



Figure 1 - Ground Floor Site Plan Showing Buildings Location (Source; Hawkins Brown Architectural Ground Floor Plan)

The main objectives for providing external lighting to the development site are:

- Provide safe access for the pedestrians and cyclists.
- Ensure appropriate illumination is maintained for operation of CCTV.
- Highlight building entry points, illumination of the drop off points.
- Illuminate areas that are not overlooked in line with the requirements of the Crime Impact Statement

The designed lighting scheme will help promote residents, staff and visitors feeling of safety & security whilst assisting with direction finding around the building.

Section 3 – Design Criteria

The external lighting solutions to all areas of the plot will be designed in accordance with the following key design standards and follow industry best practice.

- SLL Code for lighting
- CIBSE LG6 - Lighting Guide 06 : The Exterior Environment.
- GN01 – Guidance Note For The Reduction of Obtrusive Lighting.
- BS5489 – Road lighting (Where applicable).
- BS12464 – Lighting of workplaces (where applicable).
- Crime Impact Statement specific requirements for the project (sections 3.3 & 4.7).

The lighting design will also consider any recommendations of the Ecological Appraisal and measures required to protect bats and other wildlife.

Design Lighting Levels

A summary of target lighting levels is included below following the design criteria standards. During the detailed design stage, the use of industry standard modelling and simulation software (Relux) will be utilised to calculate resulting lux levels and spill light surrounding the site prior to installation.

	<i>Illuminance</i>	<i>Uniformity</i>
▪ Service Roads/Footpaths	10 lux	0.25
▪ Building Entrances	30 lux	-

Section 4 – Light Pollution & Control of Obtrusive Light.

Selection of all exterior luminaires and light sources will be made to minimise both light spill to adjacent residential areas and in particular, control of upward light to properties overlooking the site as defined by ILP for Category E3 areas.

This will be achieved using lower output fittings appropriately spaced to avoid excessive upward reflected light/glare. Careful selection of luminaire optics will be carried out to ensure light distribution is directed to the ground.

For the areas of the site which are adjacent to the public highway, luminaires will be positioned to avoid causing unnecessary glare to drivers and cyclists.

External lighting must be provided to pedestrian routes within the development in accordance with BS 5489. Lighting should be taken from a variety of sources and levels will be provided a greater level of coverage and avoid shadows/pooling.

Fittings should produce 'white' light, as opposed to yellow/orange light. LED lighting will be used.

Dusk 'til dawn lights, operated by photoelectric cell/daylight sensor, will be installed to all external doors.

Lighting levels will be in accordance with the stated design standards and best practice ensuring that areas are not unnecessarily over-illuminated.

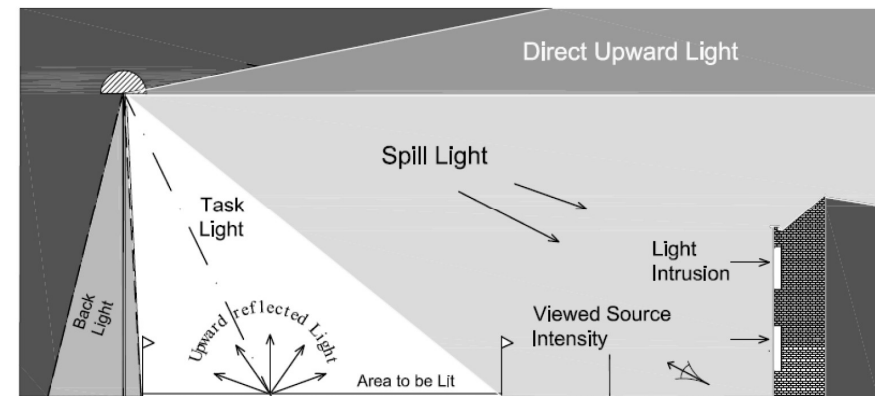


Fig 1 – Sources of intrusive Light

Section 5 – Lighting Components

The use of colour matched, high efficiency LED light sources will be employed across key external areas of the site to help achieve a high quality, visually interesting environment.

The exact lighting solutions and layouts will be established during the detail design stage; however, it is anticipated that the scheme will include the following main components.

Pedestrian Walkways

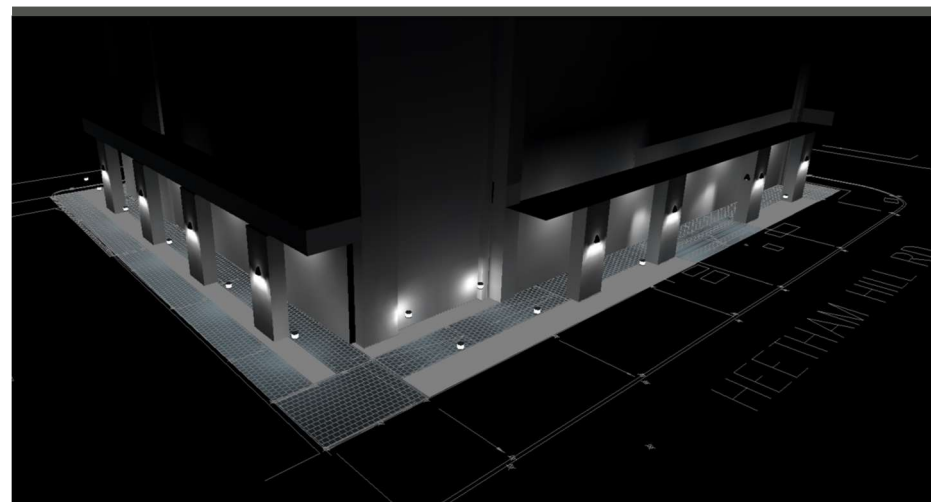
The inclusion of architectural wall mounted bulkheads and bollard luminaires will allow use of lower output LED light sources which can be directed onto the walkways area. This will be subject to achieving satisfactory facial illumination for recognition as stipulated by the Crime Impact Statement.

Building Entrances

The use of architectural wall mounted luminaires will be used to clearly highlight building entrances and provide emergency lighting to facilitate safe egress during power outages.

Service / Access Roads

The use of LED wall mounted bulkheads equipped with pathway optics to efficiently provide illumination for Pedestrians and vehicles accessing service area/road.



Section 6 – Lighting Controls

Control of the external lighting systems will be automatic by means of electronic programable timeclocks and photocells which will ensure that artificial lighting remains operational only when necessary, during the hours of darkness and in keeping with curfew limits as noted in ILE guidance.

The external lighting scheme will be arranged in individually connected 'zones' to allow separate control of each section of wall lighting. This will allow areas which are not intended to be in use during the night to be either switched off or for lighting levels to be reduced saving energy and further reducing obtrusive light.

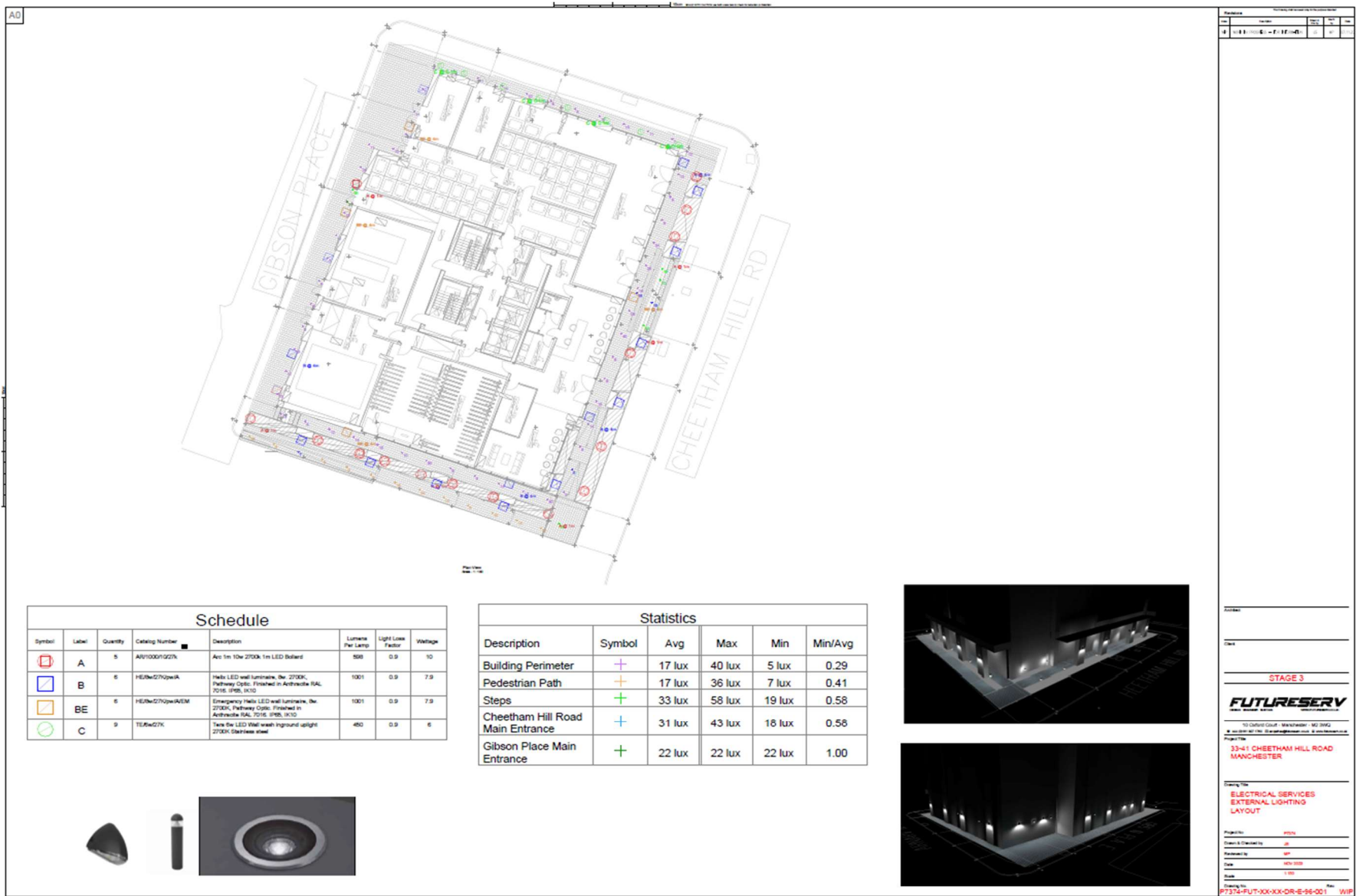
Section 7 – Conclusions

A well designed, energy efficient external lighting scheme will help provide and maintain safe access for residents and visitors to the development during the evenings and during night time hours.

Careful selection, control and positioning of luminaires will ensure that the effects of obtrusive spill light is minimised to both the development and to neighbouring properties.

Inclusion of elements of feature lighting will help enhance the ambience of the public realm areas thereby encouraging use and helping maintain a feeling of security for the residents at night. The Southern elevation and rear area of the building, where it is not well overlooked and the cycle store is located, will be well illuminated to a high standard (particularly at ground floor) through the external lighting design to allow the bicycle store to be safely used by residents and reduce the potential for antisocial and criminal behaviour in line with the Crime Impact Statement.

Appendix A – Initial External Lighting Design



Luminaire Schedule & Statistics

Schedule							
Symbol	Label	Quantity	Catalog Number	Description	Lumens Per Lamp	Light Loss Factor	Wattage
	A	5	AR/1000/10/27k	Arc 1m 10w 2700k 1m LED Bollard	598	0.9	10
	B	6	HE/8w/27K/pw/A	Helix LED wall luminaire, 8w. 2700K, Pathway Optic. Finished in Anthracite RAL 7016. IP65, IK10	1001	0.9	7.9
	BE	6	HE/8w/27K/pw/A/EM	Emergency Helix LED wall luminaire, 8w. 2700K, Pathway Optic. Finished in Anthracite RAL 7016. IP65, IK10	1001	0.9	7.9
	C	9	TE/6w/27K	Tera 6w LED Wall wash inground uplight 2700K Stainless steel	450	0.9	6

Statistics					
Description	Symbol	Avg	Max	Min	Min/Avg
Building Perimeter		17 lux	40 lux	5 lux	0.29
Pedestrian Path		17 lux	36 lux	7 lux	0.41
Steps		33 lux	58 lux	19 lux	0.58
Cheetham Hill Road Main Entrance		31 lux	43 lux	18 lux	0.58
Gibson Place Main Entrance		22 lux	22 lux	22 lux	1.00

Proposed External Lighting Products

External Bollards



Wall mounted



Wall Washed Luminaire



3D Luminance Views

