



DESIGN ENGINEER SUSTAIN

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Cornbrook

Manchester

External Lighting Strategy

QA

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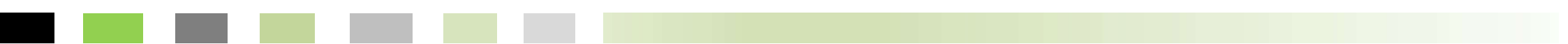
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Section 3 – Design Criteria

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.
- BS12464 – Lighting of workplaces (where applicable).
- Crime Impact Statement specific requirements for the project.

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	0.4
▪ Building Entrances	50 lux	0.4
▪ Car Park	20 lux	0.4

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.

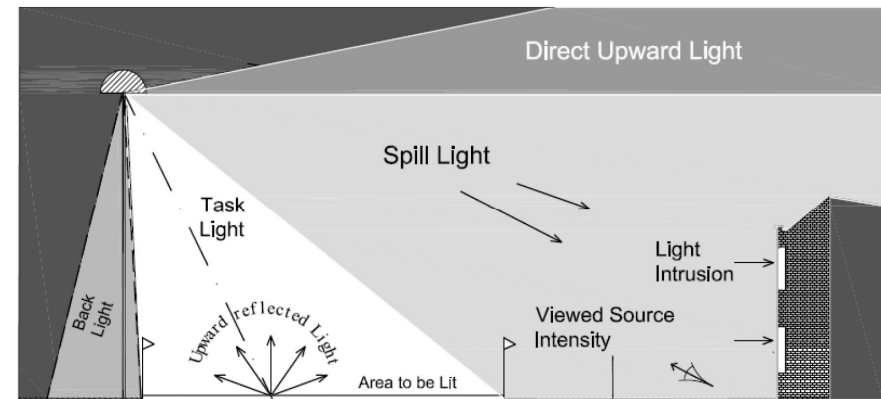


Fig 1 – Sources of intrusive Light

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

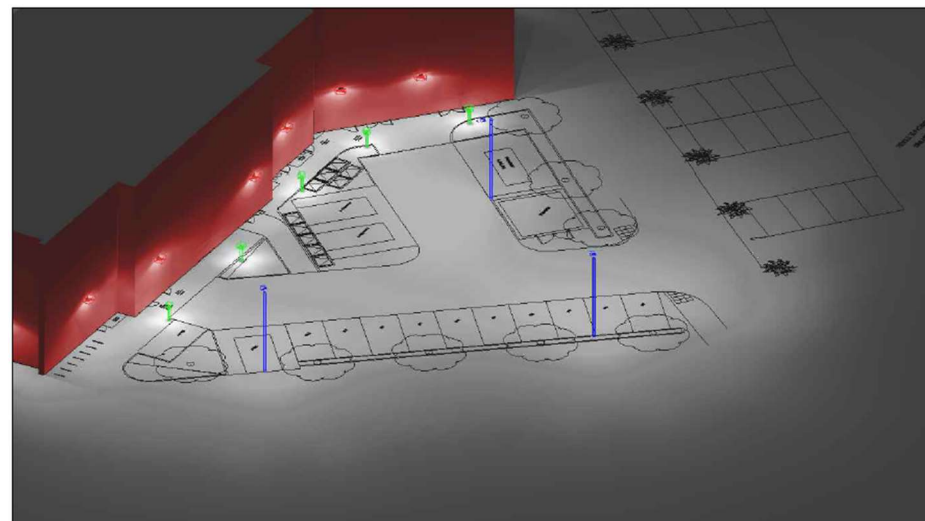
The inclusion of architectural wall mounted bulkheads and bollard luminaires will allow use of lower output LED light sources which can be directed onto the walkways area. This will be subject to achieving satisfactory facial illumination for recognition as stipulated by the Crime Impact Statement.

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.

Car Park Area

The use of LED column mounted floodlights equipped with roadway optics to efficiently provide illumination for car park area & entrance road.



Section 6 – Lighting Controls

Control of the external lighting systems will be automatic by means of electronic programmable 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.

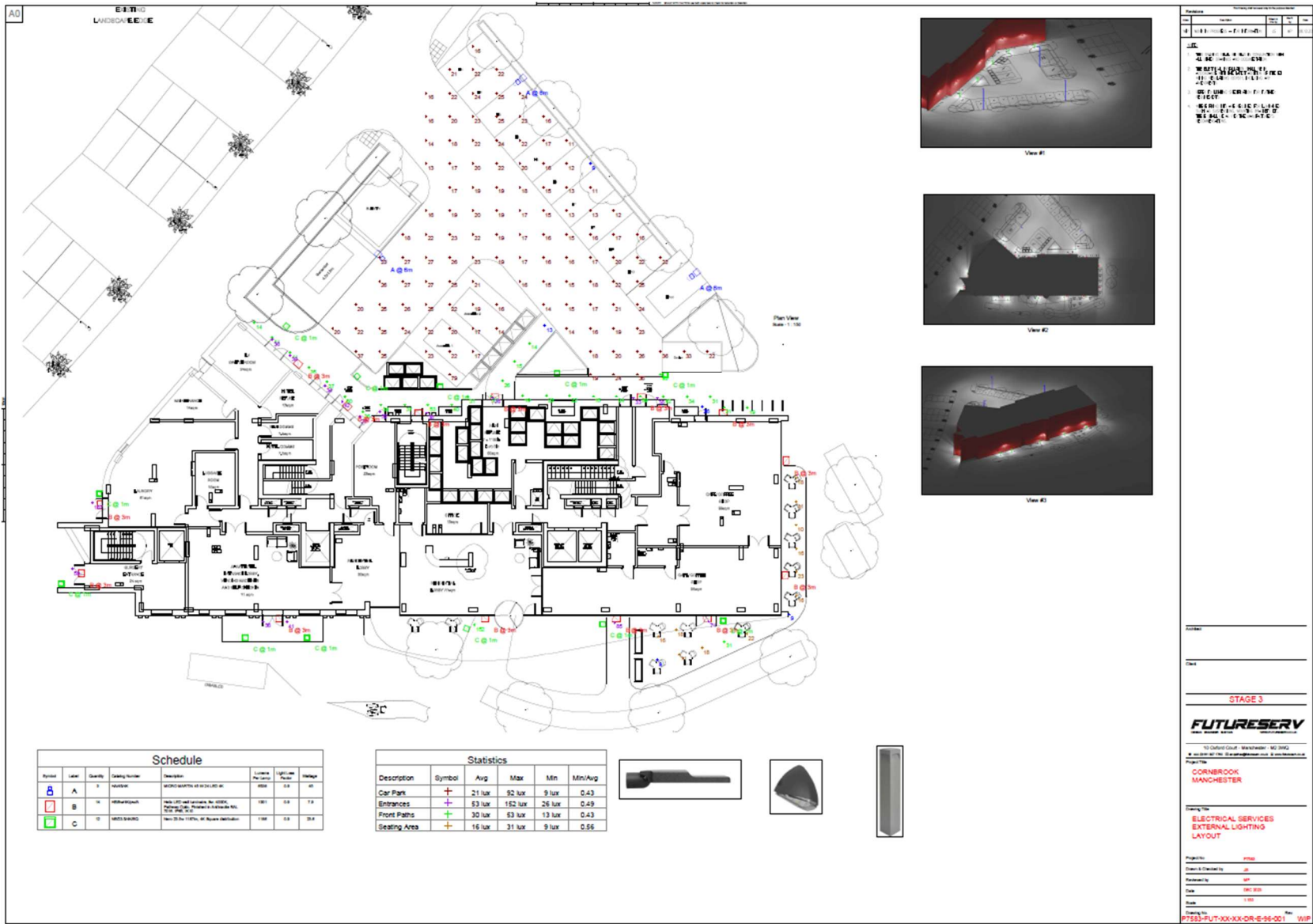
Section 7 – Conclusions

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 nighttime 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 external lighting design will be developed in conjunction with the requirements of the crime impact statement, any areas not well overlooked will be lit to a high standard.

Appendix A – Initial External Lighting Design



Luminaire Schedule & Statistics

Schedule							
Symbol	Label	Quantity	Catalog Number	Description	Lumens Per Lamp	Light Loss Factor	Wattage
	A	3	HA/45/4K	MICRO MARTIN 45 W 24 LED 4K W/ 6M POLE	6538	0.9	45
	B	14	HE/8w/4K/pw/A	Helix LED wall luminaire, 8w. 4000K, Pathway Optic. Finished in Anthracite RAL 7016. IP65, IK10	1001	0.9	7.9
	C	12	NE/23.5/4K/SQ	Nero 23.5w 1187lm, 4K Square distribution	1186	0.9	23.6

Statistics					
Description	Symbol	Avg	Max	Min	Min/Avg
Car Park		21 lux	92 lux	9 lux	0.43
Entrances		53 lux	152 lux	26 lux	0.49
Front Paths		30 lux	53 lux	13 lux	0.43
Seating Area		16 lux	31 lux	9 lux	0.56

Proposed External Lighting Products

External Bollards



Wall mounted



Car Park Lighting



3D Luminance Views

