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Crown Street Phase 3, Manchester Plots E1, E2, C7 & C8 External Lighting Strategy

QA

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Section 1 - Introduction

This report has been prepared in support of the planning application for the development of the Crown street Phase 3 Mixed Use Scheme located in central Manchester.

The proposed development includes the formation of 4no. mixed use towers set around a landscaped, public realm central courtyard.

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.

A fully detailed lighting design will be carried out for the plot prior to project commencement including 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 consumption and also ensure that lighting levels are maintained for an extended period by use of luminaires with a long lifespans.

Section 2 – Site Constraints and Requirements

The development site is located with Silvercroft Street to the North, Melbourne Street to the South, and Owen Street to the East. The recently completed Deansgate Square residential development lies to the East of the plot on the opposite side of Owen Street.

Great Jackson Street runs approximately North – South between each pair of towers crossing the central courtyard and will require illumination to meet highways adoptable standards.



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

- Provide safe access for pedestrians, cyclists and vehicles.
- Ensure appropriate illumination is maintained for operation of CCTV.
- Highlight building entry points, illumination of the loading bay and drop off points.
- Provide safe access to the below ground carpark.
- Provide illumination to Great Jackson Street public highway to adoptable standards.
- Provide subtle illumination of natural and Architectural features.

The designed lighting schemes will help promote residents, staff and visitors feeling of safety & security whilst assisting with direction finding around the buildings and public realm areas.

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 requirement for the project.

The lighting design will also take into account 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 or Dialux) 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
▪ Colonnade	15 lux	0.4
▪ Building Entrances	30 lux	-
▪ Courtyard Footpaths	5 lux	0.4
▪ Great Jackson Street	15 lux*	0.4*

*Road usage classification and exact lighting levels for Great Jackson Street as it crosses the site will be agreed with Manchester Highway Services.

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 by the use of 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.

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

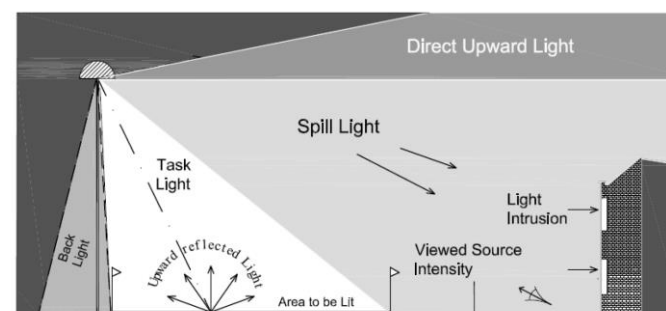


Fig 1 – Sources of intrusive Light

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 detailed design stage; however it is anticipated that the scheme will include the following main components.

Pedestrian Walkways and Courtyard

The inclusion of low/mid-level architectural bollards and recessed downlights will allow use of lower output LED light sources which can be directed onto the walkways and minimise glare. This will be subject to achieving satisfactory facial illumination for recognition as stipulated by the Crime Impact Statement.

Light spill from the semi enclosed colonnade will contribute to the overall Courtyard lighting levels and will reduce the requirement for lighting with the central section of the courtyard.

Service / Access Roads

Decorative lighting columns equipped with zero upward light optics to efficiently provide illumination for cyclists and vehicles accessing service areas and the carpark ramps, also adding visual interest and minimise obtrusive spill light.

External Public Areas

Concealed LED linear strips recessed within fixed seating bases and handrails to add visual interest and provide localised lighting to amenity spaces. Ground recessed uplights will be provided to highlight tress and topiary. Illumination around the lawn areas will be achieved via square section LED columns

Colonnade

LED uplighting will be integrated within the colonnades to illuminate the vertical columns and roof profile providing diffused illumination of the walkways at night.

Building Entrances

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

Great Jackson Street

The section of Great Jackson Street which crosses the site will be illuminated with LED lighting columns of a specification which meets Highways adoptable

standards. Additional columns will be provided to achieve enhanced lighting levels as required for road crossings and conflict points. The lighting columns will utilise zero upward light spill to minimise glare to neighbouring residences.

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. The external lighting scheme will be arranged in individually connected 'zones' to allow separate control of each area (roadway, footpath, public realm, landscaping etc). 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.

There will also be local task lighting provided manually controlled to provide enhanced lighting levels for deliveries and servicing.

Lighting to Great Jackson Street will be automatically controlled to switch off during daylight hours via photocells integrated into the column heads as required to meet adoptable standards.

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 ambiance of the public realm areas thereby encouraging use and helping maintain a feeling of security for the residents at night.