

Kier Property Reading Gateway



Retail Unit D External Lighting Design Report

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1.0 INTRODUCTION

JDP have been commissioned by Kier Property to design the external lighting for the car park areas and access roads around the proposed retail development at Reading Gateway and this report covers the extent of car park lighting in the areas surrounding Retail Unit D .

This report forms a non-material amendment (NMA) to the stand-alone Unit D planning permission (reference 162257) for the building to be moved 1.7m away from the A33 with the associated amendments to the external car park lighting. As part of the NMA application we would wish to seek approval of details required under 68 (External Lighting – Ecology) and 70 (External Lighting details - road side, pedestrian routes) of the original planning permission, which will enable us to align the Unit D consent with the main planning permission.

2.0 RELEVANT PLANNING CONDITIONS

Condition 68

68. Prior to commencement of the relevant part within the Detailed Element, a report detailing the external lighting scheme and how this will not adversely impact upon wildlife shall be submitted to and approved in writing by the local planning authority.

The report shall include the following figures and appendices:

- A layout plan with beam orientation
- A schedule of equipment
- Measures to avoid glare
- An isolux contour map showing light spillage to 1 lux both vertically and horizontally and areas identified as being of importance for commuting and foraging bats.

The approved lighting plan shall thereafter be implemented as agreed. Reason: To ensure that wildlife is not adversely affected by the proposed development in line with Core Strategy Policy CS36.

Condition 70

70. None of the units hereby approved within the Detailed Element shall be occupied until details of external lighting of the site (road side lighting, pedestrian routes and communal areas) have been submitted to and approved in writing by the Local Planning Authority and the lighting implemented in accordance with the approved details.

The external lighting shall then be maintained as approved.

Reason: In the interests of pedestrian safety and the convenience of future residents in accordance with Core Strategy Policy CS7 and Sites and Detailed Policies document Policy DM4 & DM12

3.0 PROPOSED EXTERNAL LIGHTING SCHEME DESIGN

In designing the proposed external lighting scheme, a number of different factors were taken into account. Primarily the lighting scheme has been designed to meet the recommendation of BS 5489-1 2013 Code of Practice for the Design of Road Lighting – Part 1: Lighting of Roads and Public Amenity Areas. This document makes recommendations for illumination levels, uniformity values and glare control.

The lighting has been designed to achieve an average lighting level of 20 lux across the car park and access road areas, with an overall uniformity ratio of 25%.

In addition to the recommendations given within the above standard, the following publications were referred to in order to try and minimise the impact on local wildlife in general and bats in particular:

The Royal Commission on Environmental Pollution – Artificial Light in the Environment
Bat Conservation Trust – Artificial Lighting and Wildlife – Interim Guidance: Recommendations to Help Minimise the Impact Artificial Lighting

The general guidance taken from the above documentation relating to minimizing the impact of artificial lighting on wildlife, together with the response included within the design for the scheme is indicated below:

- **Minimise the spread of light** to at, or near horizontal and ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. – *The luminaires proposed for the scheme have zero upward light output and excellent control of downward light distribution.*
- **Consider the height of lighting columns.** It should be noted that a lower mounting height is not always better. A lower mounting height can create more light spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. - *Column height has been selected to maximise efficiency of the scheme.*
- **Consider no lighting solutions where possible** such as white lining, good signage and LED cats eyes. - *Only the areas that actually require lighting have been lit.*
- **Limit the times that lights are on to provide some dark periods.** - *New lighting will be provided with both photocell and time-clock control, although hours of operation will need to consider the needs of tenants on the site as well as security and safety.*
- **Use narrow spectrum light sources** to lower the range of species affected by lighting. - *All light sources will be of the same colour temperature. All external luminaires will be LED type sources to limit the spectrum of light introduced to 4000 kelvin (white).*
- **Use light sources that emit minimal ultra-violet light** – *LED sources have been selected with minimal or zero ultra-violet output.*
- **Lights should peak higher than 550 nm** - *The LEDs have a good CRI in excess of 70 and their peak output is above 550 nm with the colour output selected.*
- **Avoid white and blue wavelengths of the light spectrum** to reduce insect attraction and where white light sources are required in order to manage the blue short wave length content they should be of a warm / neutral colour temperature <4,200 kelvin. – *The lights have been specified with a colour temperature of 4000 kelvin.*

Light sources selected are LED with a colour temperature of 4000 kelvin. This is to try and maximise efficiency whilst providing good colour rendering and meeting the recommendations for minimizing impact on wildlife.

Luminaires are to be mounted on 6 metre columns as this was generally felt to be the most appropriate height for the site in terms of achieving the most efficient layout and considering light spillage and on-going access for maintenance.

The lighting design has tried to ensure that light is only distributed towards roadways and footpaths with minimal light falling on any soft planted areas within the development.

4.0 PROPOSED LUMINAIRES

Details of the luminaires proposed for the development are indicated below:

4.1 Schedule of External Luminaires

	PRODUCT NAME/ DESCRIPTION	MANUFACTURER	PHOTOGRAPH
X1	30 x 2 Watt LED roadway lighting Luminaire with variable optical distribution and 4000k colour temperature and integral photocell controller mounted on a 6 metre black tubular steel column. Ref: Kirium 2	DW Windsor Centre Pindar Road Hoddesdon Herts EN11 0DX Tel: 01992 474600	
X2	2 x 30 x 2 Watt LED roadway lighting Luminaire with variable optical distribution and 4000k colour temperature and integral photocell controller mounted on a double headed 6 metre black tubular steel column. Ref: Kirium 2	DW Windsor Centre Pindar Road Hoddesdon Herts EN11 0DX Tel: 01992 474600	

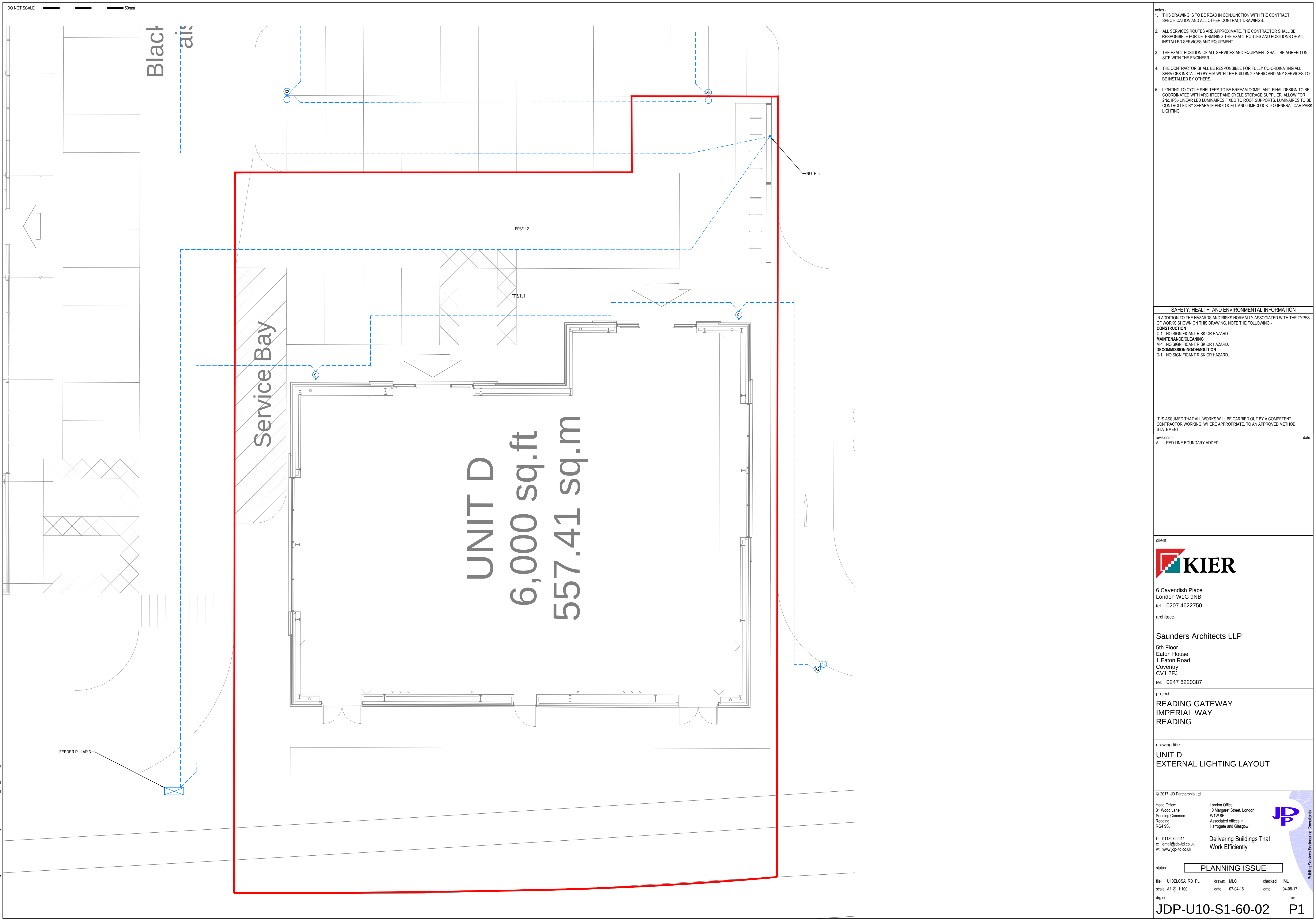
5.0 CONCLUSION

In conclusion, we have tried to provide an external lighting design that is both efficient, controllable and which achieves a good level of illumination to the site to meet recommendations provided in BS 5489 Part 1, whilst also considering the likely impact on wildlife and to meet matters raised within the Planning Conditions.

6.0 APPENDICES

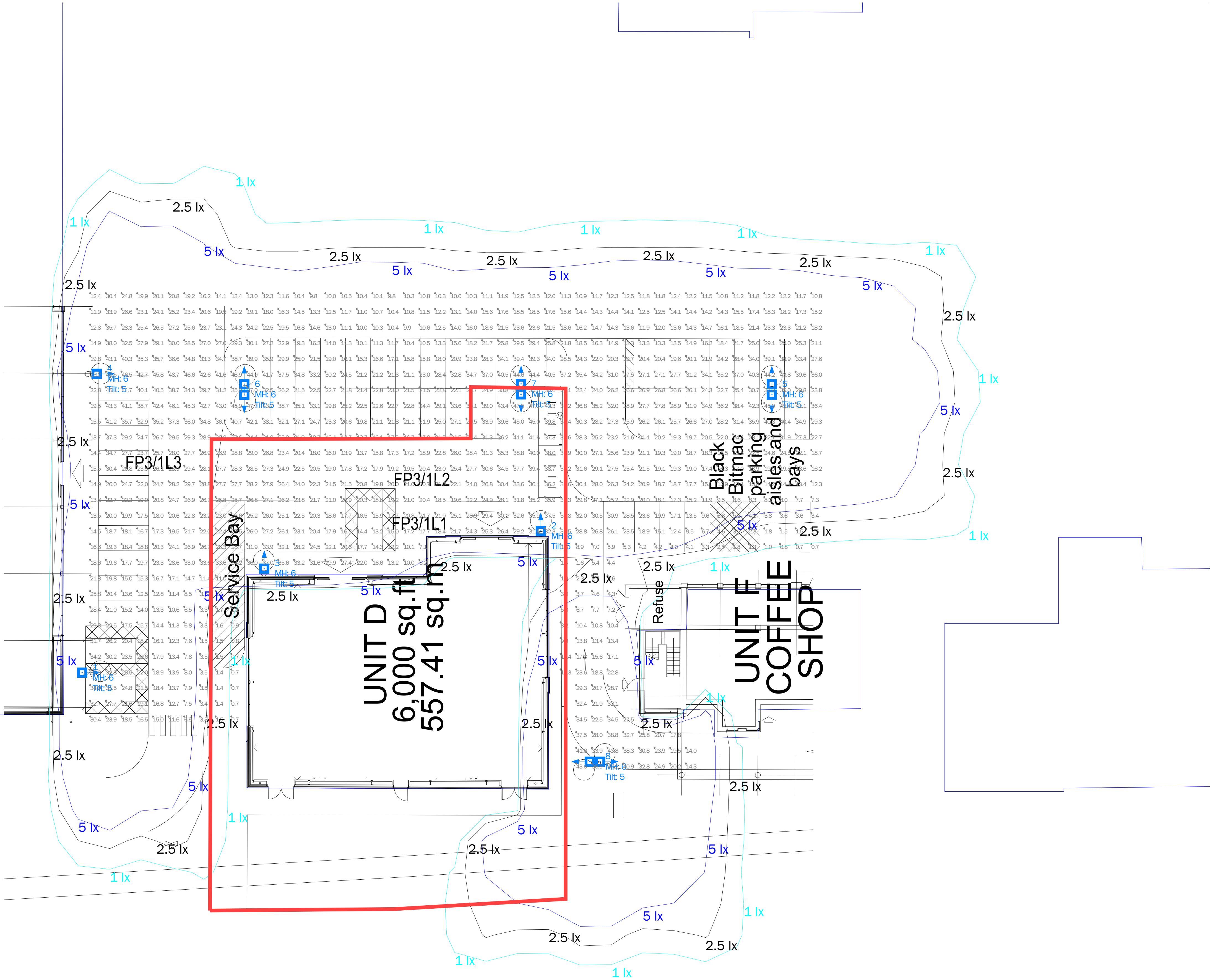
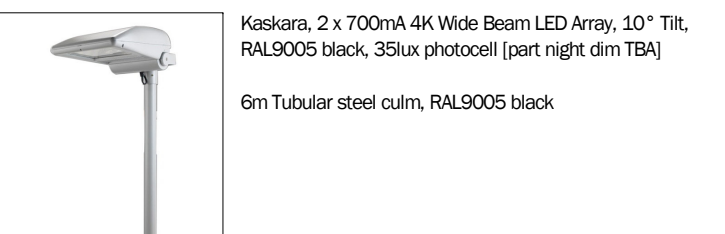
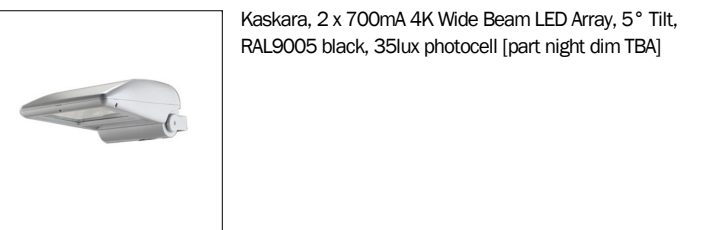
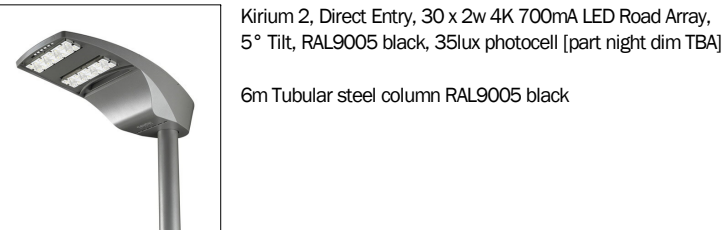
Appendix 1	Unit D - Proposed External Lighting Drawing
Appendix 2	Unit D – Isolux Contour Map

J:\U10\10.0 Drawings\10.2 Master Drawings\Site\U10\ELCSA_RD_PL.dwg, 04/08/2017 11:41:32



Luminaire Schedule				Description	Lumens	Wattage	S/P Ratio	Total MF
Symbol	Qty	Label	Arrangement					
	4	K2 NW RD 700mA	SINGLE					
	4	X2 K2 NW RD 700mA	BACK-BACK	Twirl, Kirium 2, Side Entry, 30 x 2w 4K 700mA LED Road Array, 5° Tilt, 6m TLS	7580	67	1.50	0.748

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Min/Avg
Retail Parking Area	Illuminance	Lux	22.37	48.7	0.7	0.03



Lighting Classes:	
This scheme has been designed to: BS5489 - 1:2013 Lighting requirements for outdoor car parks, Table 5 Heavy Traffic (schools, churches, major sports facilities). 20.0 lux Maintained average Illuminance (Eav) 25% Minimum overall uniformity ratio (Uo)	This scheme has been designed to: CIBSE Guide LG6 Part 4.4 Vehicle Parks Surface Car Parks Ground (public) 20 lux Maintained (average) Illuminance

D	30/06/17	Based on revised client CAD DWG
C	07/12/16	Columns Revised / Relocated
B	01/12/16	Based on revised client CAD DWG
A	31/03/16	Based on client CAD DWG
Issue:	Date:	Description:

CDM Statement:
Please note that this proposed lighting scheme is a lighting solution that has been designed with information provided by the client. The solution does not include site, installation engineering and risk assessment considerations.



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Project:
Reading Gateway

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Project Management:	Simon Tibble	Lighting Design:	Michael Walker

All measurements in metres and lux.
Do not scale from this drawing. Product images are indicative.

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