

PROPOSED LIDL FOODSTORE

MONKS CROSS, YORK

EXTERNAL LIGHTING DESIGN STATEMENT

Client:

Lidl Great Britain Ltd






Issue/revision	Issue 1	Issue 2	Issue 3	Issue 4
Remarks	Issued for Planning Approval.			
Date	16-11-2023			
Prepared by	S. Ogden			
Signature				
Checked by	N. Philips			
Signature				
Authorised by	S. Ogden			
Signature				
Project number	22/4004			

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1.00 EXECUTIVE SUMMARY

This document has been prepared to summarise the design philosophy for the external lighting proposals, which will be incorporated at the proposed Lidl foodstore at Monks Cross, York.

The store has been developed to meet the design requirements, that Lidl wish to meet in constructing their car parks and include the following principles:

- Common designs, materials, and branding for all stores.
- Energy efficient with reduced carbon emissions.
- Use of sustainable materials.
- Repeatable design, simpler and cheaper to construct and operate.
- Customer friendly.
- Colleague friendly.
- Disabled friendly.

This report and associated documents demonstrate how the external lighting design has been prepared, comprising of the following elements and key design principles, whilst minimising the impact on local adjoining properties:

Amenity Lighting

Amenity lighting has been provided around the building at key locations to enable the safe transit of pedestrian and vehicular traffic where required.

This document should be read in conjunction with the lighting plan and isolux plot contained within Appendix A of this lighting statement.

2.00 DESIGN PHILOSOPHY

The external lighting scheme will be provided in accordance with the following:

BS5489-1 (2020). Design of road lighting. Part 1: Lighting of roads and public amenity areas [Code of Practice

BS EN 12464-2:(2014). Light and lighting - Lighting of workplaces. Part 2: Outdoor workplaces

CIBSE Lighting Guide 6. The exterior environment

Lidl BBS 2020.1 Electrical Services Corporate Specification.

In accordance with the requirements of the ILP Guidance notes.

BS5266-1:2016 Emergency lighting – Part 1: Code of practice for the emergency lighting of premises.

The external lighting scheme has been developed to provide a safe and secure car park for customer and colleagues.

The design and layout of the car park lighting system will comply with 'Dark Skies' criteria limiting upward lighting component.

Luminaire selections have been made in accordance with ILP guidance notes for Environmental Zone E3, taking account of local residential properties.

The car park lighting is designed to achieve 15 lux average illumination with 25% uniformity.

The lighting design incorporates the use of Philips LumiStreet lanterns with a mixture of high efficiency optics, specifically forward throw and asymmetric, to control the spill light around the site boundary to the best possible limitation, whilst achieving the required illumination levels within the site boundary. All lanterns are installed fixed horizontal with zero tilt on 6m columns. All lanterns are aimed towards the inside of the site with none aimed out from the site. The LumiStreet lanterns have zero upward light and therefore there will be no sky-glow from the installation.

The entrance canopy utilises a Philips LuxSpace recessed downlight to achieve an illuminance of 100 lux at 1m from the ground.

Wall mounted Philips Pacific LED Gen 4 luminaires provide general and emergency lighting to the perimeter of the building.

The LED luminaires emit a white light which is preferred by CCTV operators and is perceived to provide a more secure environment for customers and colleagues.

All areas of external lighting will be automatically time and photocell controlled, via the store building management system and suitably zoned to conserve energy use.

This report shall be read in conjunction with the isolux plots, which detail the illumination levels achieved.

3.00 LIGHT POLLUTION

The ILP Guidance note is the requirement for the reduction of obtrusive light. The external lighting to the car park has been designed to prevent upward light pollution and spill light to neighbouring areas.

This shall be achieved by:

- Utilising lower wattage and more energy efficient LED luminaires

- Localising luminaire light distribution optics

- Selecting luminaires with no upward light ratio (ULR)

- Careful consideration and placement of luminaires to avoid spillage into surrounding areas

The lighting proposals section of this report details the luminaire selections and specifications to achieve the guidance requirements. The lighting plan within Appendix A to this document detail the results of the design and show compliance with the guidance referenced above.

4.00 LIGHTING PROPOSALS

The external lighting scheme will be provided in accordance with the following:

BS5489-1 (2020). Design of road lighting. Part 1: Lighting of roads and public amenity areas [Code of Practice

BS EN 12464-2:(2014). Light and lighting - Lighting of workplaces. Part 2: Outdoor workplaces

CIBSE Lighting Guide 6. The exterior environment

Lidl BBS 2020.1 Electrical Services Corporate Specification.

In accordance with the requirements of the ILP Guidance notes.

BS5266-1:2016 Emergency lighting – Part 1: Code of practice for the emergency lighting of premises.

Care has been taken when selecting luminaires, to ensure the luminaires will greatly reduce light and glare to and around site boundaries.

Best lighting practice is also in evidence to achieve the criteria outlined in The Institution of Lighting Professionals: Guidance Notes for the Reduction of Obtrusive Light, 2011, covering Environmental Zones E0 to E4.

Luminaires have been selected that have no ULR. These have been strategically placed such that the design solution meets the criteria of environmental Zone E3, Lighting Environment classification of Suburban, Medium District Brightness, as the table below.

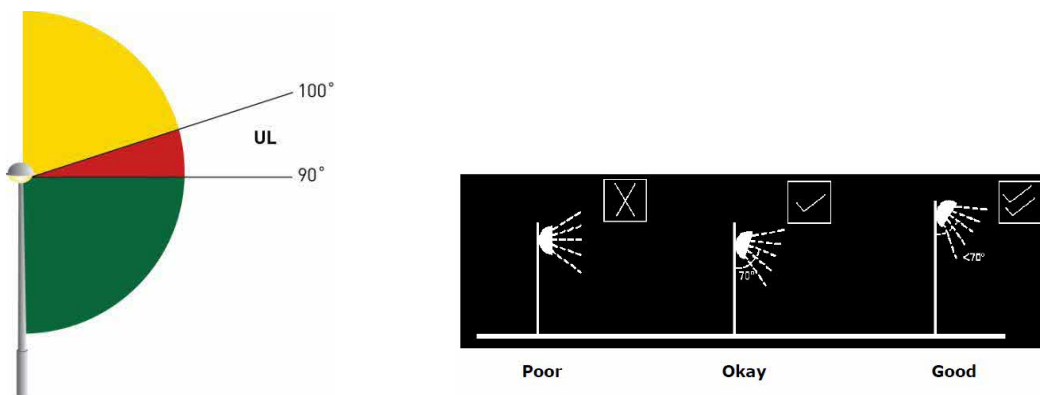
Table 1 – Environmental Zones			
Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

Table 2 – Obtrusive Light Limitations for Exterior Lighting Installations – General Observers

Environment al Zone	Sky Glow ULR [Max %] ⁽¹⁾	Light Intrusion (into Windows) E _v [lux] ⁽²⁾		Luminaire Intensity I [candelas] ⁽³⁾		Building Luminance Pre-curfew ⁽⁴⁾
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m ²]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

4.01.1 PHILIPS – LUMISTREET

The Lumistreet luminaire, having a ULR of 0% eliminates the upward spread of light near to and above the horizontal. The most sensitive/critical zones for minimising sky glow are those between 90 and 100 degrees as shown below and referred to as the lower, upward lighting zone (UL).



Mounting these luminaires on 6m columns generates the maximum column spacing and reduces the number of lighting points. Each luminaire has several LED chips complete with polycarbonate lens that directs light downwards and generates no backward light thus drastically reducing spill light.



The total lighting solution has been carefully generated to ensure the immediate environment has been protected. The illumination that would normally be free flowing from site boundaries has been restricted. Careful consideration has also been taken to ensure no loss of amenity due to glare through shielding of the LED chips choice of luminaires and efficient mounting heights.

4.01.2 PHILIPS – LUXSPACE

The under-canopy luminaire is the Philips LuxSpace. This luminaire is very efficient meeting the energy requirements, also producing light @ 4000K to complement the LumiStreet lantern in the car park.



4.01.3 PHILIPS – PACIFIC GEN 4

The building mounted lighting comprises of Philips Pacific Gen 4 LED luminaires, which are fixed to the building at 3.25m from finished floor level.



The luminaire is suitable for mounting externally whilst achieving compliance with the Sky Glow ULOR max as indicated within table 2 above.

The building mounted luminaires will be tilted down at 5 degrees to achieve the desired illumination requirement; the remaining luminaires will be angle at 5 degrees.

5.00 VISUAL IMPACT

Columns and luminaires will be so positioned to reduce lighting spill into neighbouring areas but located to provide a safe environment, for both costumers and staff who will use the car park. Average lighting levels are below the higher level allowed for car parking areas and shall be set as close to 15lux average at 25% uniformity as possible. Through the consideration and placement of columns, against illumination levels and features in and around the proposed car park, the scheme will have limited visual impact to the existing environment.

6.00 LIGHTING CONTROLS

The high efficiency car lighting will be controlled by the store building management system, under dictates of the car park lighting time schedule and outside light sensor.

The car park lighting proposals and controls aim to minimise operational energy, whilst maximising the energy saving potential.

7.00 CONCLUSION

The external lighting design for the proposed car park clearly shows Lidl's commitment to delivering high quality engineered projects, that are sustainable and energy efficient.

All systems will be designed in compliance with ILP Zone 3, relevant BE EN's, CIBSE guidelines and Part L of the Building Regulations.

LIDL MONKS CROSS, YORK

EXTERNAL LIGHTING DESIGN STATEMENT



APPENDIX A: SIGNIFY D-540356_CALC_LIDL MONKS CROSS YORK

LiAS Design Notes

This preliminary design is produced by the Lighting Application Specialist (LiAS) team of Signify UK based on information supplied by the Customer for the purpose of identifying suitable products and costing the proposal. This design cannot be used for Construction, as this design does not purport to eliminate health and safety risks as a CDM Regulation risk assessment has not been undertaken.

Depending on the level of information received, a number of assumptions may have been applied in order to create an indicative lighting proposal and costing model, according to lighting industry guidelines and incorporating industry best practice methods. These assumptions are documented below and will require confirmation by the Principle Designer (which is not Signify UK) during the detailed design phase.

Project Specific Assumptions

- Lighting levels in accordance with the Lidl specification. With medium use car parking (10 lux average min 25% UO) as per BS5489 standards.
- “Signify has not undertaken any emergency lighting calculations. Luminaires marked as emergency fittings are for indicative purposes only. It is the responsibility of the Principle Designer to ensure emergency lighting calculations are performed and that all emergency evacuation routes are lit to a suitable standard.”

Generic Assumptions (unless specifically informed differently)

- Preliminary Design proposals produced by the Signify LiAS Team are not to be used for installation purposes. It is the responsibility of the Principle Designer and/or Principle Contractor to ensure all Installation and Maintenance can be done in a safe manner, carried out by competent persons, based on their agreed Risk Assessments and Method Statements.
- The Luminaire Maintenance Factors have been based on 6-year cleaning intervals within an E3/E4 Environmental Zone and it is assumed that lamp/luminaire failures will be replaced on a 'spot replacement'.
- Energy consumptions have been based on the luminaire/s having Constant Light Output (CLO) enabled and the quoted wattage/s are the average over 100,000 hours (without dimming).
- The design calculations produced by Signify do not account for the effect obstructions, such as trees, will cause.
- Signify has not been provided with utility plans showing Buried, Above Ground or Overhead utilities. Therefore, all column/luminaire locations are indicative and are subject to review/verification by the Principle Designer.
- Unless stated otherwise, Signify has not visited site. Therefore, all column/luminaire locations are indicative and are subject to an onsite verification arranged/performed by the Principle Designer.
- Signify has not produced any Private Cable Network electrical calculations or reviewed the DNO network to confirm power supplies to the proposed lighting.
- Signify has not performed any asset condition testing and therefore assumes that any existing lighting columns/wall mounted brackets are structurally capable of supporting the weight & windage of the proposed luminaire/s. This must be verified by the Principle Designer before installation works commence.
- Unless stated otherwise, Signify is not supplying the new lighting columns (including brackets etc) and therefore it is the responsibility of the Principle Designers to confirm that all proposed equipment is suitable for the intended locations (e.g. raise & lower, ground condition, foundation type, saline environment, etc).
- Unless stated otherwise, luminaires will be supplied in their standard colour.

Luminaire Schedule



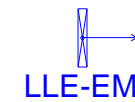
LL-A
lamp(s): LL-A
candela file 'LL-A 4.9klm.Idt'
1 lamp(s) per luminaire, 4900 initial lumens per lamp
Maintenance Factor = 0.760
Outreach (from mounting axis to photometric center)= 400 mm
tilt angle= 5 deg
mounting height= 6 m
number locations= 6, number luminaires= 6



LL-A
lamp(s): LL-A
2 luminaires per location, candela file 'LL-A 4.9klm.Idt'
1 lamp(s) per luminaire, 4900 initial lumens per lamp
Maintenance Factor = 0.760
Outreach (from mounting axis to photometric center)= 900 mm
tilt angle= 5 deg
mounting height= 6 m
number locations= 5, number luminaires= 10



LL-C
lamp(s): LL-C
2 luminaires per location, candela file 'LL-C 7.5klm.Idt'
1 lamp(s) per luminaire, 7500 initial lumens per lamp
Maintenance Factor = 0.760
Outreach (from mounting axis to photometric center)= 900 mm
tilt angle= 5 deg
mounting height= 6 m
number locations= 4, number luminaires= 8



LL-E EM
lamp(s): LL-E EM
candela file 'LL-E EM.Idt'
1 lamp(s) per luminaire, 4200 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
tilt angle= 10 deg
mounting height= 3.25 m
number locations= 17, number luminaires= 17



LL-E
lamp(s): LL-E
ballast: -
candela file 'LL-E.ies'
1 lamp(s) per luminaire, 4200 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
tilt angle= 10 deg
mounting height= 3.25 m
number locations= 8, number luminaires= 8



LL-Canopy
lamp(s): LL-Canopy
candela file 'LL-CANOPY.Idt'
1 lamp(s) per luminaire, 2100 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
mounting height= 3.25 m
number locations= 1, number luminaires= 1



LL-Canopy
lamp(s): LL-Canopy
candela file 'LL-CANOPY.Idt'
1 lamp(s) per luminaire, 2100 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
mounting height= 3.25 m
number locations= 15, number luminaires= 15

Philips Lighting Contacts

Richard Fortune, Key Account Manager - +44 (0) 7787 004900
Richard.Fortune@signify.com



Lighting Proposal Terms and Conditions of Use

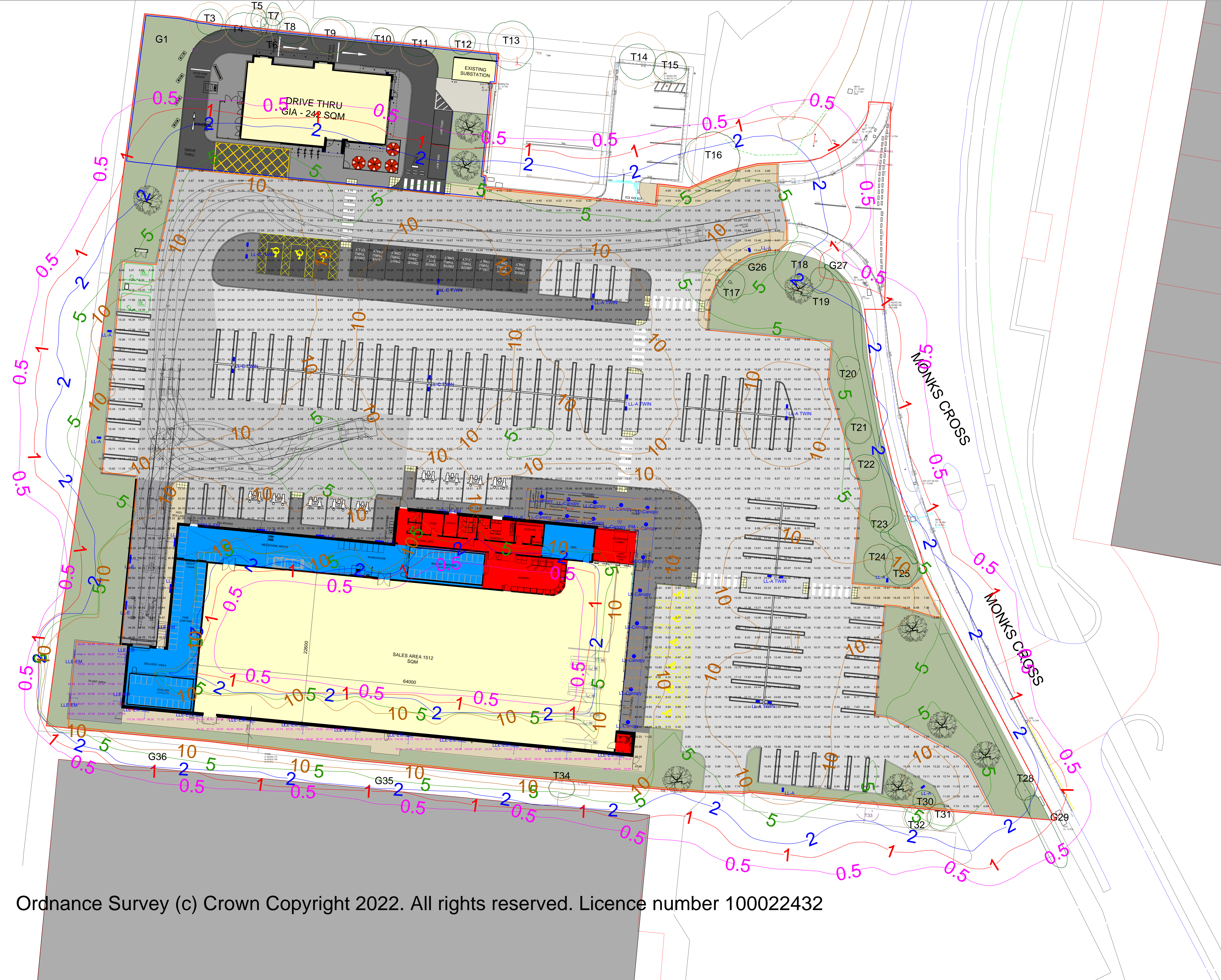
These terms apply to the use of this preliminary proposal produced by Signify UK. This "Proposal" is understood to mean this document, a CAD drawing, lighting calculations, written documents, verbal conversations or any medium used to demonstrate or communicate the proposed lighting scheme using products from Signify's brands. A "Customer" is the person or organisation for whom the Proposal is intended. The "CDM Regulations" means The Construction, Design and Management Regulations 2015, the Safety, Health & Welfare at Work Act 2005, The Construction (Design & Management) Regulations (Northern Ireland) 2015.

This Proposal is for guidance only and cannot be relied upon for purposes of installation or Health and Safety.

The supply and installation of this lighting scheme are subject to a contract being agreed between Customer and Signify.

PROPOSAL
(NOT FOR CONSTRUCTION)

Rev	DSR no.	Comment	Date	LiAS	KAM	Project Number	Project Name
0	D-540356	INITIAL PROPOSAL	16.11.23	CP	RF	0400936399	LIDL MONKS CROSS YORK
						Scale & Sheet Size	Drawing Name
						NTS @ A3	LiAS DESIGN NOTES & LUMINAIRE SCHEDULE
						Sheet No	
						DWG 00	



- LL-A**
lamp(s): LL-A
candela file LL-A 4.9klm.ltd
1 lamp(s) per luminaire, 4900 initial lumens per lamp
Maintenance Factor = 0.760
Outreach (from mounting axis to photometric center)= 400 mm
mounting height= 6 m
number locations= 6, number luminaires= 6
 - LL-A TWIN**
lamp(s): LL-A
2 luminaires per location, candela file LL-A 4.9klm.ltd
1 lamp(s) per luminaire, 4900 initial lumens per lamp
Maintenance Factor = 0.760
Outreach (from mounting axis to photometric center)= 900 mm
mounting height= 6 m
number locations= 5, number luminaires= 10
 - LL-C TWIN**
lamp(s): LL-C
2 luminaires per location, candela file LL-C 7.5klm.ltd
1 lamp(s) per luminaire, 7500 initial lumens per lamp
Maintenance Factor = 0.760
Outreach (from mounting axis to photometric center)= 900 mm
mounting height= 6 m
number locations= 4, number luminaires= 8
 - LLE-EM**
lamp(s): LLE-EM
candela file LLE-EM.ltd
1 lamp(s) per luminaire, 4200 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
mounting height= 3.25 m
number locations= 17, number luminaires= 17
 - LL-E**
lamp(s): LL-E
ballast -
candela file LL-E.ies
1 lamp(s) per luminaire, 4200 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
mounting height= 3.25 m
number locations= 8, number luminaires= 8
 - LL-Canopy_EM**
lamp(s): LL-Canopy
candela file LL-CANOPY.ltd
1 lamp(s) per luminaire, 2100 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
mounting height= 3.25 m
number locations= 1, number luminaires= 1
 - LL-Canopy**
lamp(s): LL-Canopy
candela file LL-CANOPY.ltd
1 lamp(s) per luminaire, 2100 initial lumens per lamp
Maintenance Factor = 0.810
Outreach (from mounting axis to photometric center)= 0 mm
mounting height= 3.25 m
number locations= 15, number luminaires= 15
- | Car Park
2986 points at z=0, sp 1.5m by 1.5m | | Rear Walkway
73 points at z=0, sp 1.5m by 1.5m | |
|-------------------------------------------------|--------|---------------------------------------------------|--------|
| HORIZONTAL LUX | | HORIZONTAL LUX | |
| Average | 15.48 | Average | 74.91 |
| Maximum | 138.42 | Maximum | 164.32 |
| Minimum | 3.94 | Minimum | 20.32 |
| Min/Avg(Uo) | 0.254 | Min/Avg(Uo) | 0.271 |
| Min/Max | 0.028 | Min/Max | 0.124 |
| Coef Var | 1.055 | Coef Var | 0.423 |
| Uni/Grad | 4.87 | Uni/Grad | 3.62 |
- | Canopy
73 points at z=0, sp 1.5m by 1.5m | | External Plant
43 points at z=0, sp 1.5m by 1.5m | |
|---------------------------------------------|--------|-----------------------------------------------------|--------|
| HORIZONTAL LUX | | HORIZONTAL LUX | |
| Average | 104.91 | Average | 80.81 |
| Maximum | 164.75 | Maximum | 137.55 |
| Minimum | 48.16 | Minimum | 47.23 |
| Min/Avg(Uo) | 0.459 | Min/Avg(Uo) | 0.584 |
| Min/Max | 0.292 | Min/Max | 0.343 |
| Coef Var | 0.311 | Coef Var | 0.291 |
| Uni/Grad | 1.93 | Uni/Grad | 1.70 |

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- Notes:
- 1) Unless agreed otherwise, the lighting proposal produced by the Lighting Application Specialist (LIAS) team of Philips Lighting UK&I is not intended for construction purposes, as it does not take into account the elimination of health and safety risks at this stage. For further details please refer to sheet number DWG 00
 - 2) Do not scale for this drawing

PROPOSAL
(NOT FOR CONSTRUCTION)

Rev	DSR no.	Comment	Date	LIAS	KAM	Project Number	Project Name
0	D-540356	INITIAL PROPOSAL	16.11.23	CP	RF	0400936399	LIDL MONKS CROSS YORK
						Scale & Sheet Size	Drawing Name
						1:200 @ A0	PROPOSED LIGHTING LAYOUT
						Sheet No	
						DWG 01	