



Lighting Impact Assessment

Eastlands Car Park, JLR Halewood

JLR

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Revision Record

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Basis of Report

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Executive Summary

The lighting design is provided to support the full planning application for the proposed construction of a new WIP and despatch car park, including new surfacing, lighting, drainage, security fencing and cabins (the 'Proposed Development') within the larger Jaguar Land Rover site at Halewood, Liverpool (the 'Site').

The report is intended to provide details of a carefully considered design for any lighting within the Site required for the safety and security whilst balancing the requirements to protect any identified receptors such as adjacent residential properties, light sensitive ecology, their linked natural habitats and the quality of the night sky.

This report further aims to satisfy the requirements of the Validation List provided by Knowsley Council ('the Council'):

9. External Lighting / Floodlighting schemes including a light pollution assessment

'Details of the floodlighting scheme together with an assessment that will cover such matters as, light spillage (shown on a site plan with the relevant LUX levels at the boundary with neighbouring properties), hours of illumination, light levels, column heights, specification and colour, treatment for lamps and luminaries, levels of impact on nearby dwellings and highways and mitigation of potential impacts, which may include the use of demountable columns; retention of screening vegetation; and the use of planting and bunding to contain lighting effects.'

A baseline lighting survey was undertaken by SLR Consulting Ltd ('SLR') surveyors on the 17th of February 2026 to assess baseline lighting conditions. Photographic and photometric data was collected at various viewpoint locations, both within and around the Site as well as at identified receptor locations to establish the existing lighting conditions.

The Baseline Lighting Survey forms the basis for the Lighting Impact Assessment where prevailing conditions are considered alongside the new requirements for lighting within the Proposed Development.

Advice is given on the specification and positioning strategy of new lighting to minimise any potential impact on the ecology, the environment or residential properties surrounding the development.



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Acronyms and Abbreviations

ALAN	Artificial Lighting at Night
BCT	Bat Conservation Trust
CIBSE	Chartered Institute of Building Services Engineers
CMS	Central Management System
FFL	Finished Floor Level
IDA	International Dark-Sky Association
ILP	Institute of Lighting Professionals
JLR	Jaguar Land Rover
LNR	Local Nature Reserve
MF	Maintenance Factor
PIR	Passive Infrared
PNL	Part Night Lighting
SAC	Special Area of Conservation
SLR	SLR Consulting Ltd
SSSI	Site of Special Scientific Interest



1.0 Introduction

1.1 Purpose of Report

- 1.1.1 The lighting design is provided to support the full planning application for the proposed construction of a new WIP and despatch car park, including new surfacing, lighting, drainage, security fencing and cabins (the 'Proposed Development') within the larger Jaguar Land Rover site at Halewood, Liverpool (the 'Site')
- 1.1.2 The following report aims to satisfy the requirements of the Validation Checklist provided by Knowsley Council (the 'Council'):

9. External Lighting / Floodlighting schemes including a light pollution assessment

'Details of the floodlighting scheme together with an assessment that will cover such matters as, light spillage (shown on a site plan with the relevant LUX levels at the boundary with neighbouring properties), hours of illumination, light levels, column heights, specification and colour, treatment for lamps and luminaries, levels of impact on nearby dwellings and highways and mitigation of potential impacts, which may include the use of demountable columns; retention of screening vegetation; and the use of planting and bunding to contain lighting effects.'

1.2 Site Context

- 1.3 The Site (indicated by the red line boundary) occupies land to the east of the wider JLR Halewood Site which is well lit throughout and operated 24/7 as would be expected for a facility of this type.
- 1.4 The Site is within the wider conurbation of Liverpool and is bounded by 'Crab Tree Rough', a parcel of vegetation and woodland to the east, and the wider JLR Halewood and Ford Transmission site to the west. Running east - west along the northern boundary sits a national railway which serves as a dark corridor, connecting to a wider network of linked habitats.
- 1.5 Further details of the Site and context are presented in the Baseline Lighting Survey Report, see **Section 2.1** on **Page 3**.

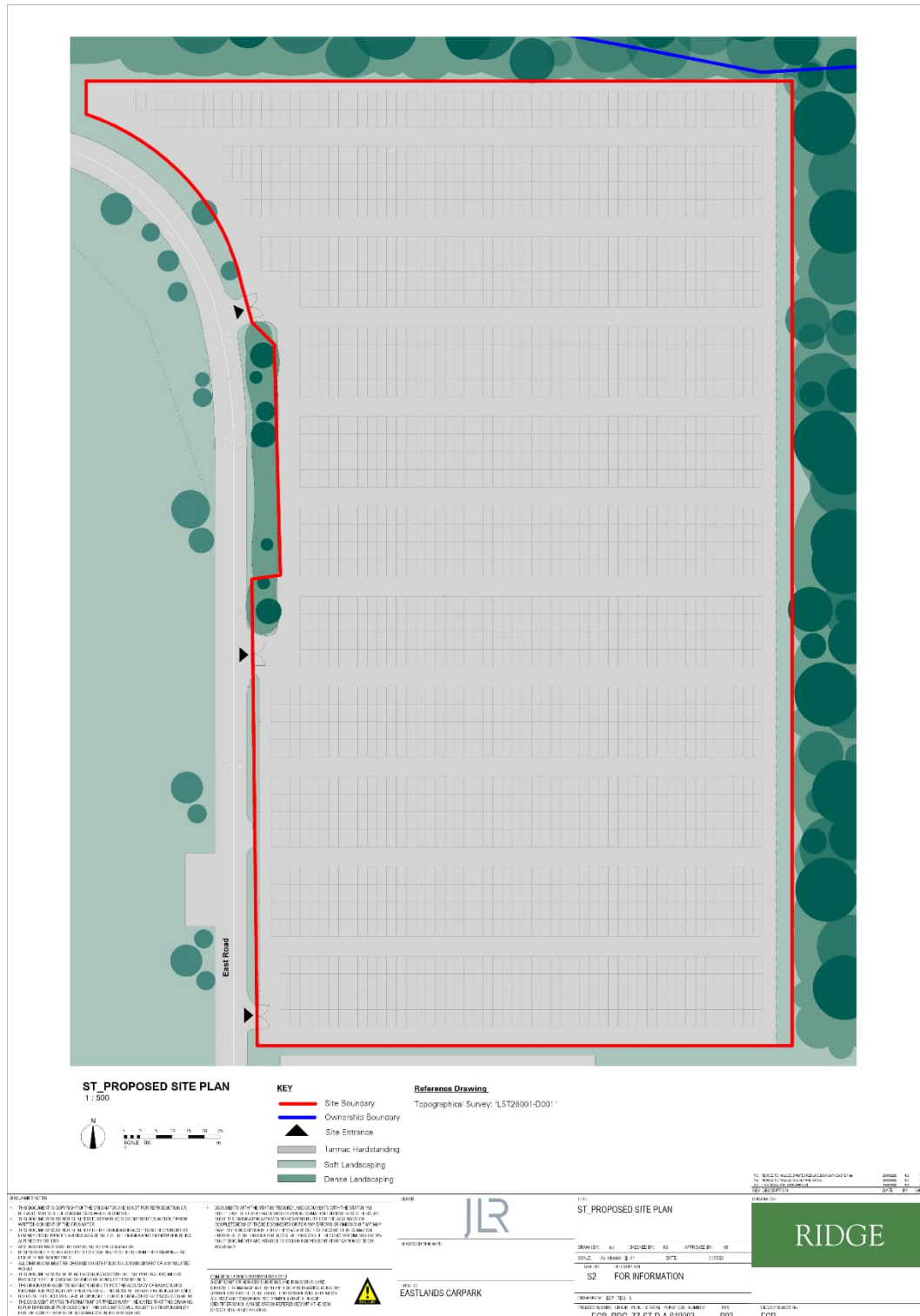


Figure A: Location and Boundary on Page 2:

ECP-RDG-ZZ-ST-D-A-010003-ST_SITE PLAN_ARRANGEMENT 01-P03 (By Ridge)

Eastlands Car Park, Speke Boulevard, Halewood, Liverpool, L24 9LE

Site: 952J+RCC Liverpool (Google Plus Code)



2.0 Assessment of Baseline Conditions

2.1 Baseline Report

- 2.2 As set out in the 'Eastlands Car Park, JLR Halewood Baseline Survey Report Rev02 01.04.26' ('Baseline Survey Report') prepared by SLR, a baseline lighting survey was undertaken by SLR surveyors on the 17th of February 2026 to assess baseline lighting conditions.
- 2.3 Viewpoints were established to capture photographic and photometric data of the existing lighting conditions within and around the Proposed Development.
- 2.4 Potential receptors were also identified, and their current lighting conditions were measured:
- Crab Tree Rough, a vegetation and woodland parcel at the eastern boundary.
 - National railway line and adjacent tree line forming a dark corridor along the northern boundary.
 - Residential properties on Higher Road (approximately 0.3km to the north of the Proposed Development)
- 2.5 The conditions and sensitivity of these ecological and human receptors are summarised in Section 8-14 of the Baseline Survey Report which states:
- '11-2 - The shared boundary within the southern compound is observed to be subject to minor adverse light pollution from existing peripheral floodlighting.'*
- '12-2 - Due to an absence of light within the northern compound and a bund along the perimeter, minimal light was received at this receptor with measurements indicating the area to be 'contextual darkness' with readings below 0.5 lux.'*
- 2.6 There were no residential receptors identified as at risk from obtrusive light as a result of existing lighting within the wider JLR Halewood site or likely to be at risk from any changes as a result of the Proposed Development. This is due to significant distance, intervening landscape and natural screening. The Baseline Lighting Survey forms the basis for the Lighting Impact Assessment where prevailing conditions are considered alongside the new requirements for lighting within the Proposed Development.
- 2.7 The summary of the assessment of baseline conditions and a review of receptor sensitivity is that whilst there are residential receptors beyond the JLR Halewood Site boundary, there are no identified residential receptors that are sensitive to obtrusive light or glare conditions as a result of minor changes in lighting within the Site boundary due to screening.



2.8 Obtrusive Light & Glare

- 2.9 A summary of the potential risk to identified receptors is set out in Section 13 of the Baseline Survey Report:

‘13-3 - The properties have partial overlooking views towards the Site, however due to existing screening in the form of vegetation, distance and intervening landscape, the properties are not considered at risk of obtrusive light.’

- 2.10 The context to the west of the Proposed Development is a well-developed industrial and commercial area which is lit with extensive street and flood lighting. This makes the visual context toward the Proposed Development from these potential receptors a well-lit environment at night and therefore any minor changes to the lighting in this context is unlikely to be noticeable.

2.11 Ecology

- 2.12 The northern boundary is identified as being of potential ecological significance as the tree belt running adjacent to the national railway line serves as a habitat corridor for light sensitive species to traverse and access a wider network of linked habitats.
- 2.13 The eastern boundary is shared with ‘Crab Tree Rough’, a vegetation and woodland parcel which has also been identified as potential habitat for light sensitive species. This feature connects to the wider network of habitats to the south beyond Speke Boulevard (A561) of Hop Yard Wood and the ancient woodland, Mill Wood. Due to the observed levels of darkness in this area, and following consultation with the project ecologist, the ‘Crab Tree Rough’ was determined to be the most sensitive receptor surrounding the Site.
- 2.14 Observations made during the Baseline Survey demonstrate that the face of the Crab Tree Rough within the southern compound of the Proposed Development is currently subject to higher levels of illumination from existing area and peripheral floodlighting. Due to an absence of artificial lighting throughout the northern compound, the lux levels readings taken at the face of the receptors were in line with ‘contextual darkness’ and therefore suitable habitat for light sensitive species.
- 2.15 Following discussions with the project ecologist, a 15 metre lighting buffer / transition zone is to be employed from the Proposed Development eastern edge to prevent light pollution to ‘Crab Tree Rough’ and further areas of sensitivity beyond the boundary.

2.16 Sky Glow

- 2.17 Observations made within the Baseline Survey Report on the existing conditions regarding sky glow in Section 14:

‘14-6: A noticeable contribution to localised sky glow was observed from the wider JLR Halewood site, with a more general background of significant sky glow from the wider conurbation of Liverpool beyond to the west. Therefore, any changes to lighting within the Development Area are unlikely to change the overall contribution of upward light when considered in the wider context.’



3.0 Proposed Lighting Scheme

- 3.1 A lighting scheme is proposed that is coordinated with the existing lighting to similar structures within the wider JLR site.
- 3.2 Lighting requirements are established with reference to '**BS EN 12464-2:2024**' with illumination requirements set out in *Table 8 – Parking Areas* in **Table A**:

Table A: Identification of Operational Lighting Requirements

BS EN 12464-2:2024 Table8: Type of area, task or activity	Em lx	Uo –	RGL –	Ra –
Light traffic, e.g. parking areas of shops, terraced and apartment houses; cycle parks	5	0.25	55	70

Table B: JLR Lighting Standards (Relevant Selections)

JLR-STN-48949, ISSUE LEVEL 6.5 Table 2 – External Lighting: Application	Em lx	Uo –	UGR –	Ra –
Parking - light traffic	5	0.25	55	20

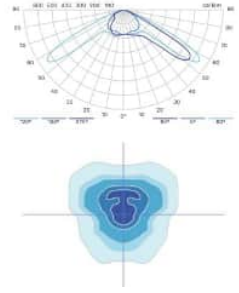
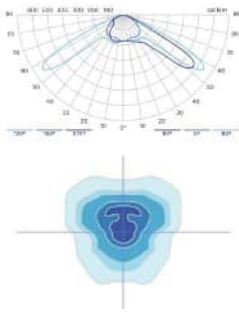
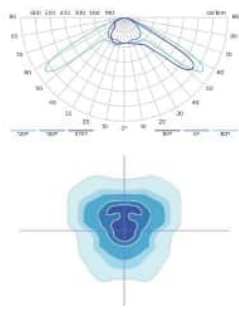
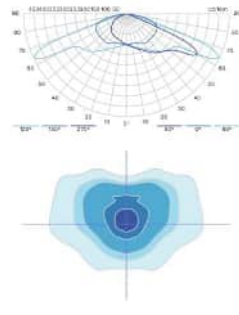
- 3.3 The relevant performance criteria for lighting is selected from both relevant standards and guidance such as '**BS EN 12464-2:2024**' as well as JLR's own internal Lighting Standards '**JLR-STN-48949**' – whichever is higher or the more stringent requirement.
- 3.4 To determine appropriate lighting requirements for the proposed lighting scheme, the following criteria are selected:
- To ensure lighting required for roadway safety is maintained to the sections of internal access roadway and car parking areas within the Proposed Development, '*Parking – light traffic*' from JLR-STN-48949 has been selected.
- 3.5 The proposed lighting scheme is designed to achieve the target illumination criteria highlighted in **Table A** and **Table B** as a minimum at an appropriate Maintenance Factor (MF) of 0.87.
- 3.6 The existing columns within the southern compound of the Proposed Development Site are to be removed and replaced with a scheme that adheres to the above criteria. The proposed lighting will be column mounted at a maximum of 8 metres at 30 metre spacing, to provide an even uniformity across the Site, whilst limiting light spill beyond the boundary to the east and south.
- 3.7 A lighting layout plan with ISOlux contours is presented in **Appendix A** demonstrating the position, orientation and photometric distribution of the proposed lighting installations for the Proposed Development.



3.8 Equipment Specification

3.9 The equipment chosen for the scheme and used in the photometric modelling for lighting calculations is shown in **Table C** below:

Table C: Equipment Specification

Product Specification	Reference Image	Photometric Distribution
L1 Schröder IZYLUM 1 Double Head Column Mounting Height: 8 m 20 LEDs / 400mA Optic: 5366 Extra Wide Delivered Lumens: 2936 lm Control: Photocell		
L2 Schröder IZYLUM 1 Single Head Column Mounting Height: 8 m 20 LEDs / 400mA Optic: 5366 Extra Wide Delivered Lumens: 3157 lm Control: Photocell Rear Louvre / Back Shield		
L3 Schröder IZYLUM 1 Single Head Column Mounting Height: 8 m 20 LEDs / 300mA Optic: 5366 Extra Wide Delivered Lumens: 2444 lm Control: Photocell		
L4 Schröder IZYLUM 1 Single Head Column Mounting Height: 8 m 20 LEDs / 300mA Optic: 5393 Ultra-Wide Delivered Lumens: 2407 lm Control: Photocell Rear Louvre / Back Shield		



- 3.10 With 0% direct upward light emissions, these luminaires ensure that minimal contribution to sky glow is achieved.
- 3.11 The luminaires above have been chosen for the lighting scheme in departure from the standard lighting manufacturer for JLR sites. Through completion of the modelling exercise, it was determined that a lower glare rating was required for the lighting scheme, to comply with required thresholds of glare leaving Site, especially along the active railway to the north.
- 3.12 Mitigations through control includes the use of a photocell to ensure the lighting installations are not active during natural daylight to reduce energy consumption.

3.13 Control

- 3.13.1 All luminaires are expected to be controlled by a DALI based lighting control system to enable dimming modes, localised dimming and security override.
- 3.13.2 The lighting installation will be controlled by photocell to prevent lighting equipment using energy during daylight hours or when ambient conditions allow for natural daylight to be sufficient.
- 3.13.3 When ambient conditions reach a minimum of 10 lux, the lighting installation will be activated by photocell.
- 3.13.4 The control concepts for lighting car park installation uses area specific localised dimming to reduce overall light output when the area is not in active use.
- 3.13.5 Presence detection which may include PIR, radar or CCTV based sensing will elevate levels of illuminance to the required standard when activity is detected.
- 3.13.6 The area subject to enhanced illumination should be proportionate to the area where activity is detected i.e. one column in every direction.
- 3.13.7 When no activity is detected throughout the car park, all luminaires will default to a dimmed state of 50%.
- 3.13.8 The lighting installations will remain on in the dimmed state throughout the hours of darkness with enhanced illumination subject to activity detected.
- 3.13.9 An emergency or security override may be provided in the events of an incident by automatic or manual control to 100% light output.



4.0 Impact Assessment

4.1 Methodology, Policy and Guidance

4.2 The Lighting Impact Assessment uses the information provided in **Section 4.3** below along with policy and guidance as per **Section 4.4**, to determine the best practise for lighting impacts to human and ecological receptors.

4.3 The following information has been considered:

Proposed Development Plans and Elevations (by Ridge):

- ECP-RDG-ZZ-ST-D-A-010003-P01 - ST_PROPOSED SITE PLAN

4.4 The following documents have been referred to in the preparation of this document. It is expected that, at the time of construction, the latest issue of the documents below will be referred to so as to ensure current regulations and best practice are met:

Government

- Clean Neighbourhoods and Environment Act 2005, (Section 102).
- DEFRA: Guidance on Sections 101 to 103 of the Clean Neighbourhoods and Environment Act 2005.
- Wildlife & Countryside Act 1981.
- Conservation (Natural Habitats etc.) Regulations 1994.

ILP - Institution of Lighting Professionals

- GN01:2021. Guidance Notes for the Reduction of Obtrusive Light.
- PLG02:2013. The Application of Conflict Areas on the Highway.
- PLG03:2012. Lighting for Subsidiary Roads.
- PLG04:2013. Guidance on Undertaking Environmental Lighting Impact Assessments.
- Bat Conservations Trust ILP Guidance Note 08/23 - Bats and Artificial Lighting at Night
- TR12-1:1997. Lighting of Pedestrian Crossings.
- TR25:2002. Lighting for Traffic Calming Features.

SLL - The Society of Light and Lighting (CIBSE)

- Fact File 8: Lighting for People who are Visually Impaired 2012.
- The SLL Lighting Handbook 2018.
- The SLL Code for Lighting 2022.

CIE - International Commission on Illumination

- CIE Publication 150-2017. Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations, 2nd Edition.



- CIE Publication 115-2010. Lighting of Roads for Motor & Pedestrian Traffic.
- CIE Publication 126-1997. Guidelines for minimising sky glow.

British Standards

- BS 5489-1:2020 - Design of road lighting - Lighting of roads and public amenity areas. Code of Practice.
- BS EN 12464-2:2024 - Light and lighting - Lighting of work places - Part 2: Outdoor work places.

Other

- DarkSky (previously known as The International Dark-Sky Association).
- All-party Parliamentary Group (APPG) for Dark Skies.
- Bat Conservation Trust.
- Eurobats Publication Series No.8 - Guidelines for Consideration of bats in lighting projects.

- 4.5 To determine the Environmental Zone for the site, information provided in the Institute of Lighting Professionals (ILP) Guidance Note 1 The Reduction of Obtrusive Light **Table D** is replicated below. **Environmental Zone E3** is the appropriate zone for the site.

Table D: Environmental Zone Selection

ILP GN01/21 Table 2: Environmental Zones			
Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village, or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity
a) Rural Zones under protected designations should use a higher standard of policy. b) Zone E0 must always be surrounded by an E1 Zone. c) Zoning should be agreed with the local planning authority.			

- 4.6 **Table E** below shows illuminance limitations (lux levels) and maximum luminous intensity (cd, candelas) for each Environmental Zone. These are the maximum levels of light that would be permitted at the receptor and the emission of the light source within the luminaire when viewed from the receptor position.
- 4.7 For **Environmental Zone E3** this would be maximum of 10 lux pre-curfew and 2 lux post-curfew. As a simple comparison, a standard candle at 1 metre would give 1 lux and twilight is judged to be approximately 1 lux. The maximum luminous intensity allowed would be 10,000 cd pre-curfew and 1,000 cd post-curfew.



- 4.8 The Site is in 24hr operation, so the maximum light output is assessed against both pre and post curfew limits to ensure compliance.

Table E: Illuminance Limitations

ILP GN01/21 Table 3 & 4: Illuminance Limitations & Maximum Luminous Intensity (Ap)				
Zone	Pre-Curfew (lx)	Post-Curfew (lx)	Pre-Curfew (cd)	Post-Curfew (cd)
E0	N/A	N/A	0	0
E1	2	<0.1*	2,500	0
E2	5	1	7,500	500
E3	10	2	10,000	1,000
E4	25	5	25,000	2,500
* If the installation is for public (road) lighting then this can increase to 1 lx				

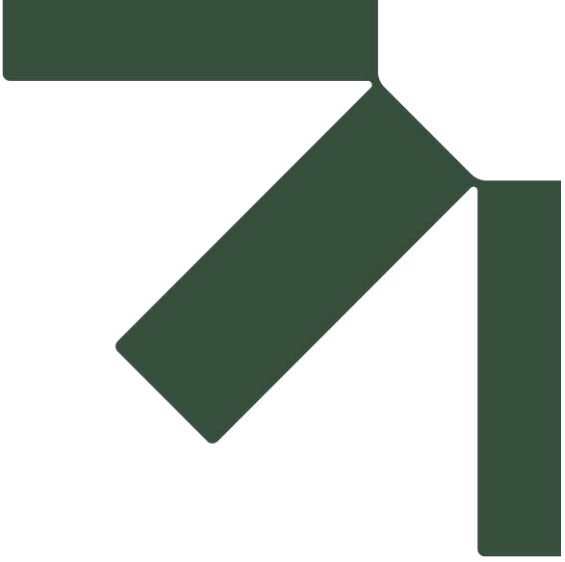
- 4.9 To assess the potential impact of the proposed changes to lighting within the Site, a 3D photometric model was constructed to a reasonable degree of accuracy representing the existing and proposed new building within and adjacent to the Proposed Development.
- 4.10 These receptors are identified within the CAD drawing in **Appendix A**.
- 4.11 An assessment of the effects of the proposed lighting scheme on the closest identified residential receptors using 3D photometric light modelling demonstrates the following criteria are below the thresholds considered to be obtrusive light:
- Obtrusive Light Spill below 2lux Post Curfew;
 - Glare below 50GR; and
 - Luminous Intensity below 1000cd Post Curfew.
- 4.12 As there is no direct view of, or any means by which light emitted from the proposed lighting scheme within the Site boundary may directly reach these identified residential receptors due to existing intervening screening and significant distance, negligible amounts of light are received at these residential receptor locations.
- 4.13 The results of the calculations for the identified ecological receptors are set out in the Impact Assessment **Appendix C**.
- 4.14 An assessment of these results shows there is no increase in spill light, glare or source intensity present at the ecological receptor locations as a result of the proposed changes to the lighting scheme as a result of this development.
- 4.15 The net contribution of spill light to the ecological receptor on the eastern boundary is below existing baseline conditions and represents a net improvement in terms of light spill to these potential habitats. This is due to the removal of some existing lighting and the screening provided by the proposed new opaque fencing as a result of the Proposed Development.
- 4.16 The impact assessment of the Proposed Development also illustrates that the glare rating along the existing railway line to the north is minimal, in line with relevant guidance.



5.0 Conclusions

- 5.1 The application of lighting parameters, best practice lighting design techniques and suitable technical specifications result in a sensitively designed car park lighting scheme that meets identified safety, security and amenity requirements for outdoor workplaces.
- 5.2 The result of the efforts to avoid excessively lighting the Proposed Development, in line with local and national policy, minimises any potential impact on the sensitive receptors identified with this assessment.
- 5.3 The Site has been observed to be potentially ecologically sensitive along the eastern periphery due to the presence of existing and extensive vegetation, and therefore an appropriate scheme has been employed to mitigate adverse effects at the Site boundary and maintain the area in contextual darkness.
- 5.4 It is demonstrated through modelling that the northern periphery will be subject to minimal levels of light spill, and as such the existing railway line and residential receptors to the north will not experience an adverse effect or obtrusive light as a result of proposed lighting within the Site.
- 5.4.1 With a sensitively designed lighting scheme, the Proposed Development does not make any materially significant contribution to sky glow or pose a materially significant risk to adjacent ecological receptors, the landscape or the quality of the night sky through light pollution.





Appendix A Lighting Layout & Lux Contour Plan

Lighting Impact Assessment

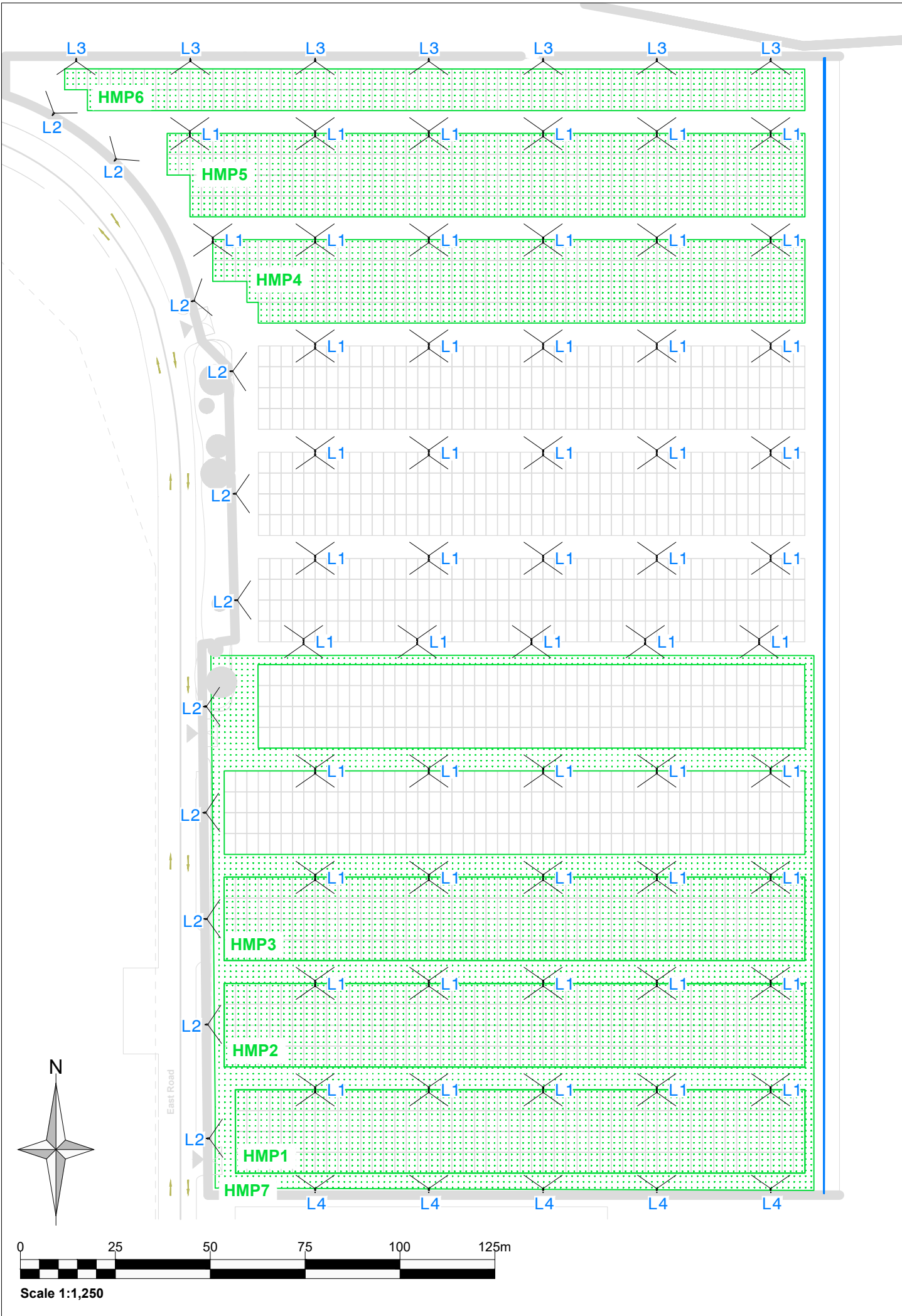
Eastlands Car Park, JLR Halewood

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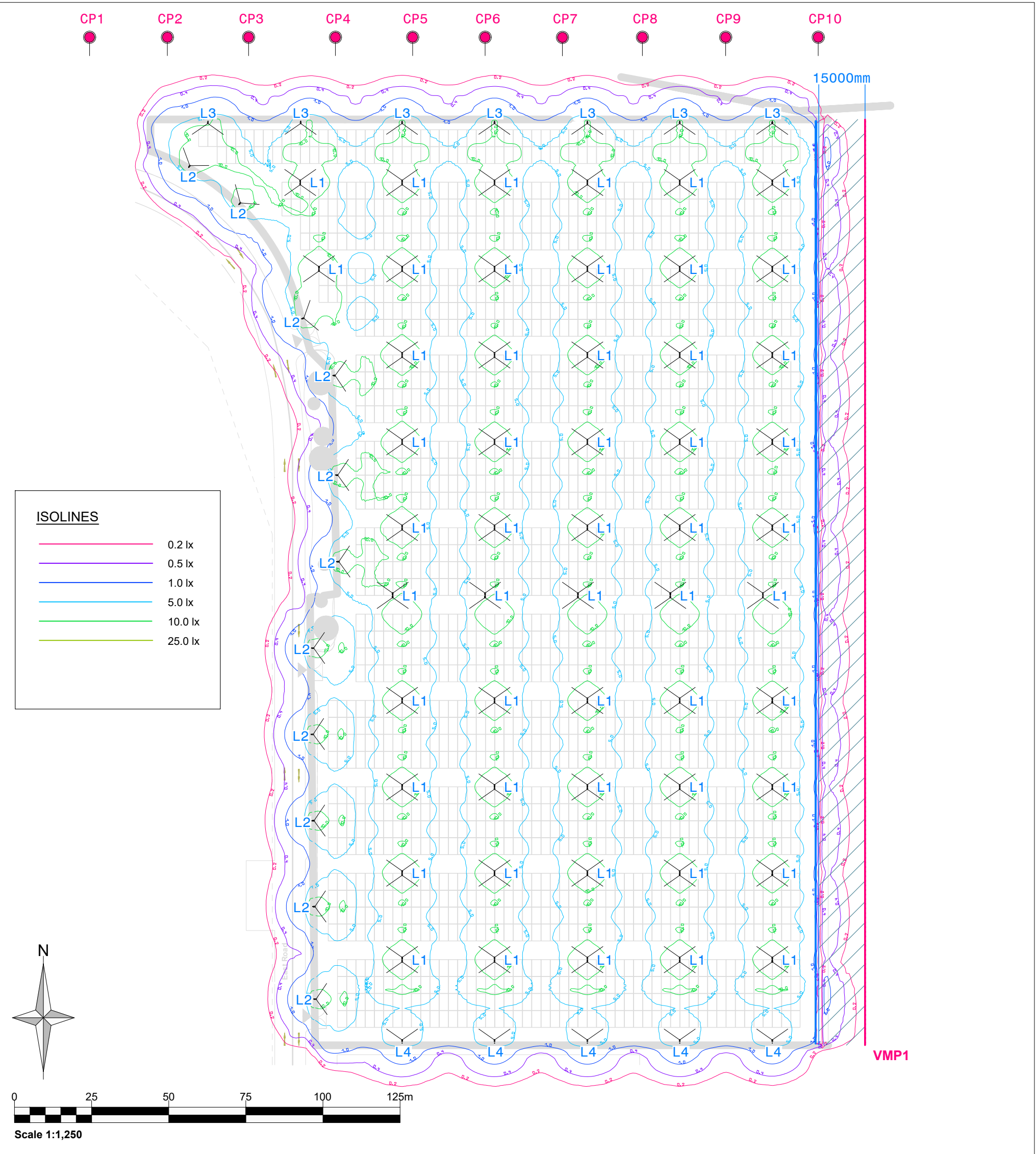
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MAINTENANCE FACTOR (MF) = 1.0, (0 hrs / 0 yrs)	TOTAL ILLUMINANCE IN THE VERTICAL PLANE [LUX] (in lux)		TARGET
	PRE-CURFEW	POST- CURFEW	
ENVIRONMENTAL ZONE E3	10.00	2.00	PASS / FAIL
CP1	0.015	0.015	PASS
CP2	0.048	0.048	PASS
CP3	0.073	0.073	PASS
CP4	0.062	0.062	PASS
CP5	0.081	0.081	PASS
CP6	0.064	0.064	PASS
CP7	0.069	0.069	PASS
CP8	0.068	0.068	PASS
CP9	0.064	0.064	PASS
CP10	0.054	0.054	PASS



BS EN 12464-2:2024 & LG01:2018 GUIDANCE ON OPERATIONAL REQUIREMENTS FOR INDUSTRIAL / COMMERCIAL SITE					
HORIZONTAL ILLUMINANCE Pre Curfew Normal Operation MF = 0.87	AVERAGE ILLUMINANCE		UNIFORMITY		TARGET
AREA / USAGE	REQUIREMENT	RESULT	REQUIREMENT	RESULT	PASS/FAIL
HMP1 - Car Park Bays (BS EN 12464-2 Table 8.1)	5	5.66	0.25	0.29	PASS
HMP2 - Car Park Bays (BS EN 12464-2 Table 8.1)	5	5.98	0.25	0.27	PASS
HMP3 - Car Park Bays (BS EN 12464-2 Table 8.1)	5	6.01	0.25	0.27	PASS
HMP4 - Car Park (BS EN 12464-2 Table 8.1)	5	6.07	0.25	0.27	PASS
HMP5 - Car Park (BS EN 12464-2 Table 8.1)	5	6.27	0.25	0.28	PASS
HMP6 - Car Park (BS EN 12464-2 Table 8.1)	5	7.71	0.25	0.33	PASS
HMP7 - Internal Roads (BS EN 12464-2 Table 8.1)	5	6.28	0.25	0.25	PASS

- KEY**
- Lighting Transition / Buffer Zone**
Minimum 15m from Dark Habitat Zone
No Lighting to be Installed in this Area
No Illuminance Limits Apply
 - Dark Habitat Zone**
Areas marked by the ecologist as habitat for light sensitive species.
 - Maximum Illuminance of <0.4 lux in the Vertical Plane from Developer Installed Lighting
 - Maximum Illuminance of <0.2 lux in the Horizontal Plane from Developer Installed Exterior Lighting

LUMINAIRE REF	QTY	LOAD (Watts)	TOTAL LOAD (Watts)
L1 Manufacturer: Schreder Model: IZYLUM 1 Column Height: 8 m Double Head Column 20 LEDs / 400mA Optic: 5366 Extra Wide Delivered lumens: 2936 lm CCT: Warm White Light (3000 K) CRI: >70 Control: Photocell	52	2 x 25.6 W	2355.2 W @ 100%
L2 Manufacturer: Schreder Model: IZYLUM 1 Column Height: 8 m Single Head Column 20 LEDs / 400mA Optic: 5366 Extra Wide Delivered lumens: 3157 lm CCT: Warm White Light (3000 K) CRI: >70 Control: Photocell Rear Louvre / Back Shield	11	25.6 W	179.2 W @ 100%
L3 Manufacturer: Schreder Model: IZYLUM 1 Column Height: 8 m Single Head Column 20 LEDs / 300mA Optic: 5366 Extra Wide Delivered lumens: 2444 lm CCT: Warm White Light (3000 K) CRI: >70 Control: Photocell	7	19.3 W	135.1 W @ 100%
L4 Manufacturer: Schreder Model: IZYLUM 1 Column Height: 8 m Single Head Column 20 LEDs / 300mA Optic: 5393 Extra Wide Delivered lumens: 2407 lm CCT: Warm White Light (3000 K) CRI: >70 Control: Photocell Rear Louvre / Back Shield	5	19.3 W	96.5 W @ 100%

01	First Issue	31.03.26	RD	ND	ND
Rev	Amendments	Date	By	Chk	Auth



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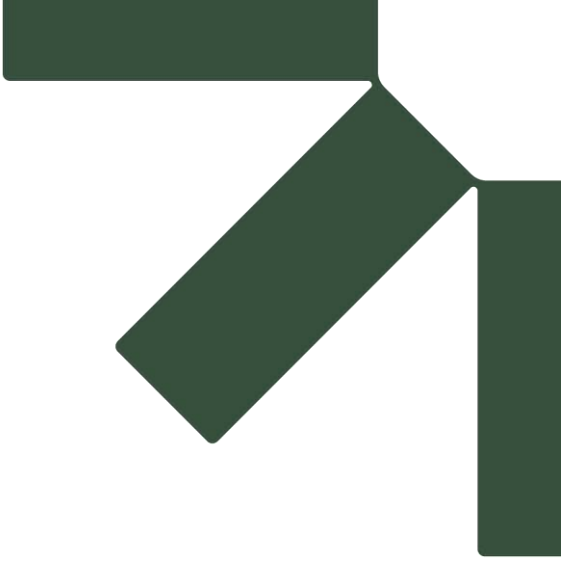
Drawing Purpose FOR PLANNING	Suitability Code S1
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Client JLR

Project JLR HALEWOOD / EASTLANDS CAR PARK
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Drawing Title LIGHTING LAYOUT & LUX CONTOUR PLAN
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Scale 1:1250		@ A2	SLR Project No. 416.066699.00001	
Designed RD	Drawn RD	Checked ND	Authorised ND	
Date 31.03.26	Date 31.03.26	Date 31.0331.03.26	Date 31.03.26	
Drawing Number 416.066699.00001-LLP+ LCP			Rev. 01	



Appendix B Operational Requirements

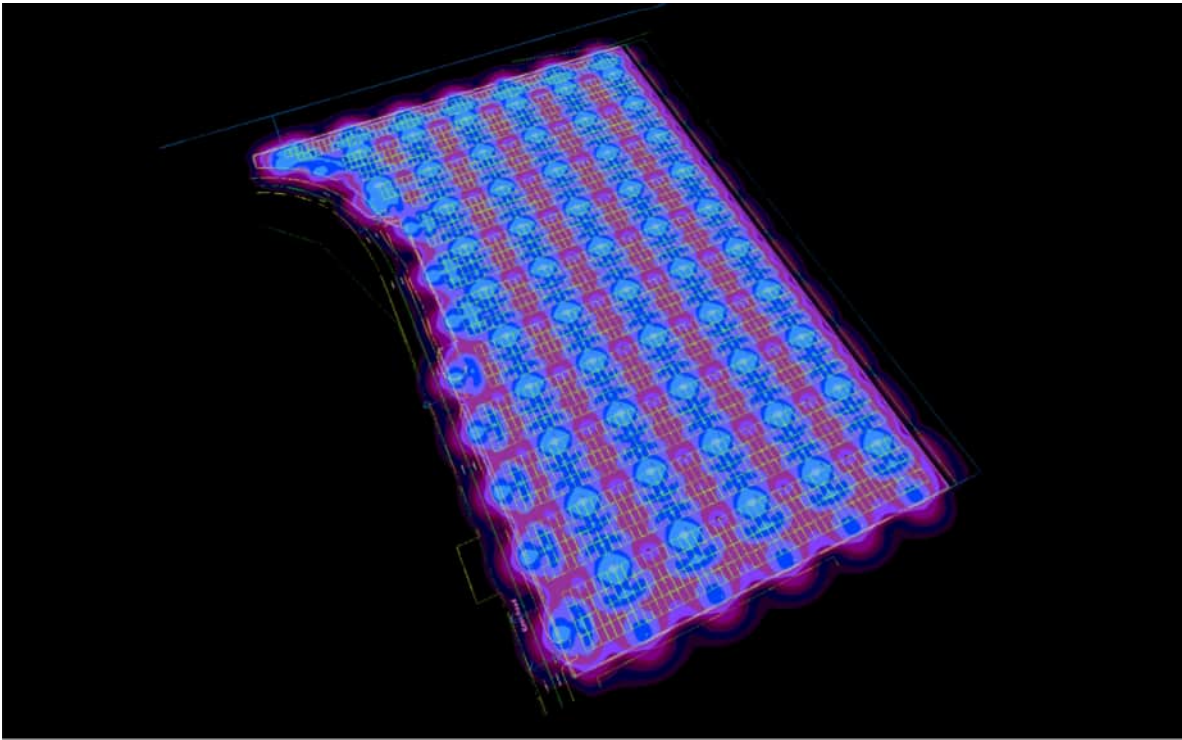
Lighting Impact Assessment

Eastlands Car Park, JLR Halewood

JLR

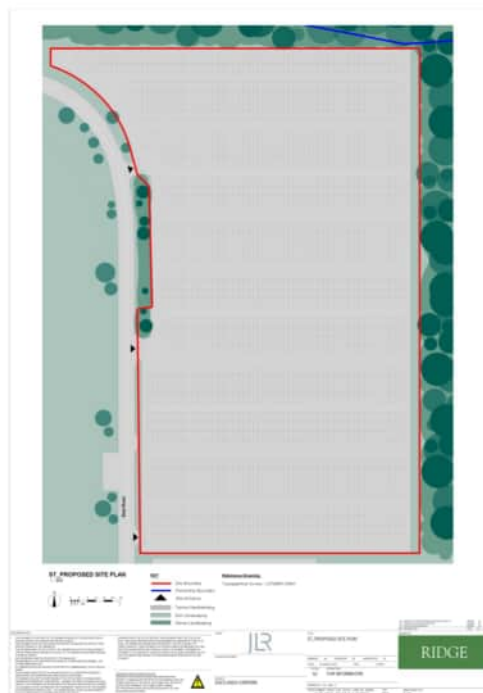
SLR Project No.: 416.066699.00001

1 April 2026



JLR Halewood / Eastlands Car Park

Appendix B: Operational Requirements



Description

Based on: 'ECP-RDG-ZZ-ST-D-A-010003-ST_SITE
PLAN_ARRANGEMENT 01-P03'

Environmental Zone E3 - Suburban / medium district brightness (well inhabited rural abd urban settlements, small town centres of suburban locations) - GN01

E3, Mounting Height >6m, cleaning frequency (worst case) - 72 months
MF = 0.92

Luminiare - L95

Project MF = $0.92 \times 0.95 = 0.87$

Images

Light Rendering Glow Plan

Glow plan visual representation of the 3D photometric model rendered with all parts of the lighting system active.

The CAD layout is visible for reference.

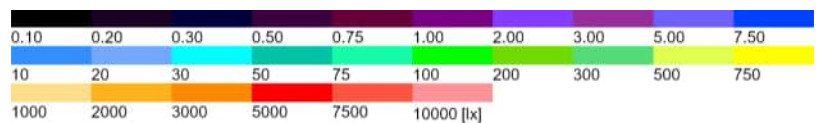
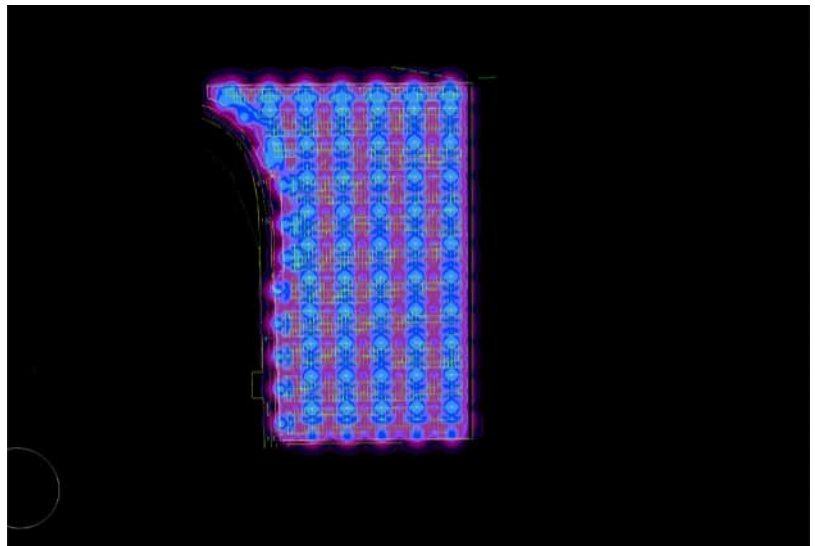


False Colour Glow Plan

False colour glow plan representation of the 3D photometric model with all parts of the lighting system active.

The colours represent lux levels according to the key below.

The CAD layout is visible for reference.



Luminaire list

Φ_{total} 369214 lm	P_{total} 3175.6 W	Luminous efficacy 116.3 lm/W
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pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy	Index
104	Schröder	468932	IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932	25.6 W	2936 lm	114.7 lm/W	L1
7	Schröder	IZYLUM 1 5366 20 LEDs@300 mA WW 730 230V 00-36-646 Back Light	IZYLUM 1	19.3 W	2444 lm	126.6 lm/W	L3
11	Schröder	IZYLUM 1 5366 20 LEDs@400 mA WW 730 230V 00-36-646 Back Light	IZYLUM 1	25.6 W	3157 lm	123.3 lm/W	L2
5	Schröder	IZYLUM 1 5393 20 LEDs@300 mA WW 730 230V 00-36-646 Back Light	IZYLUM 1	19.3 W	2407 lm	124.7 lm/W	L4

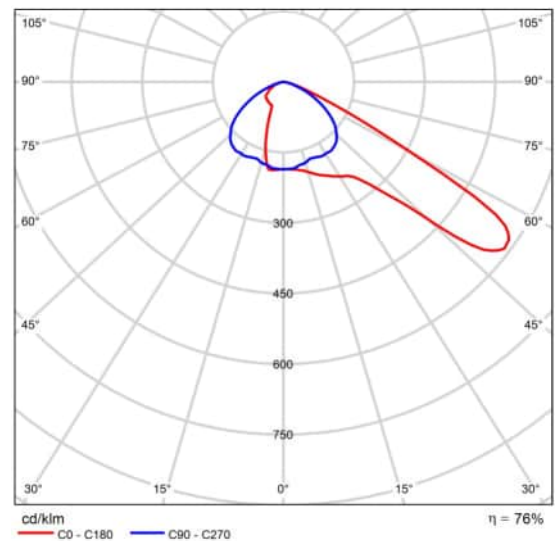
Product data sheet

Schröder - IZYLUM 1



Article No. IZYLUM 1 5366 20
LEDs@300mA WW
730 230V 00-36-646
Back Light

P	19.3 W
Φ_{Lamp}	3219 lm
$\Phi_{\text{Luminaire}}$	2444 lm
η	75.91 %
Luminous efficacy	126.6 lm/W
CCT	3000 K
CRI	100
Index	L3



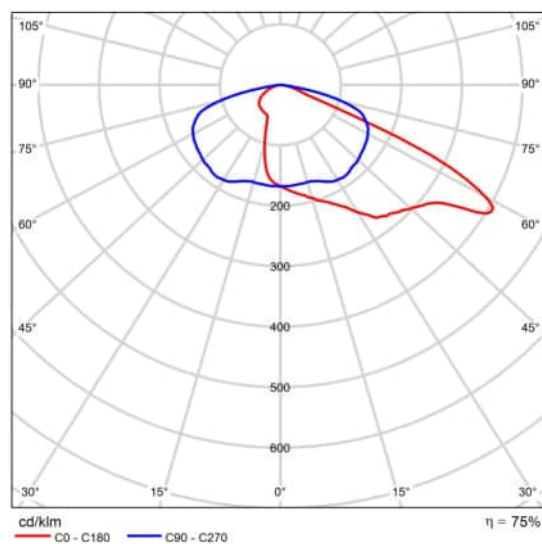
Polar LDC

Product data sheet

Schröder - IZYLUM 1



Article No.	IZYLUM 1 5393 20 LEDs@300mA WW 730 230V 00-36-646 Back Light
P	19.3 W
Φ_{Lamp}	3219 lm
$\Phi_{\text{Luminaire}}$	2407 lm
η	74.78 %
Luminous efficacy	124.7 lm/W
CCT	3000 K
CRI	100
Index	L4



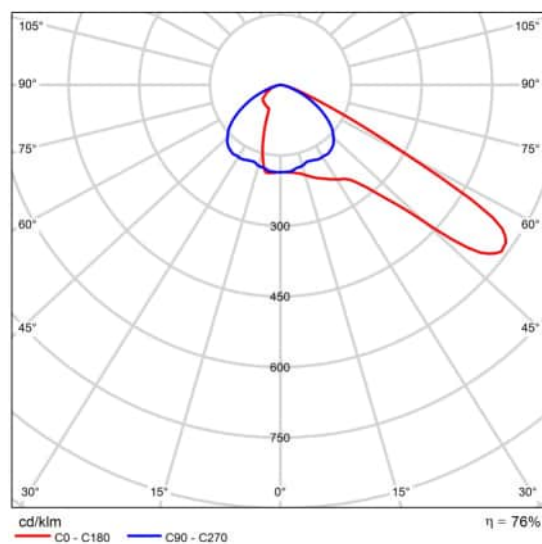
Polar LDC

Product data sheet

Schröder - IZYLUM 1



Article No.	IZYLUM 1 5366 20 LEDs@400mA WW 730 230V 00-36-646 Back Light
P	25.6 W
Φ_{Lamp}	4159 lm
$\Phi_{\text{Luminaire}}$	3157 lm
η	75.91 %
Luminous efficacy	123.3 lm/W
CCT	3000 K
CRI	100
Index	L2



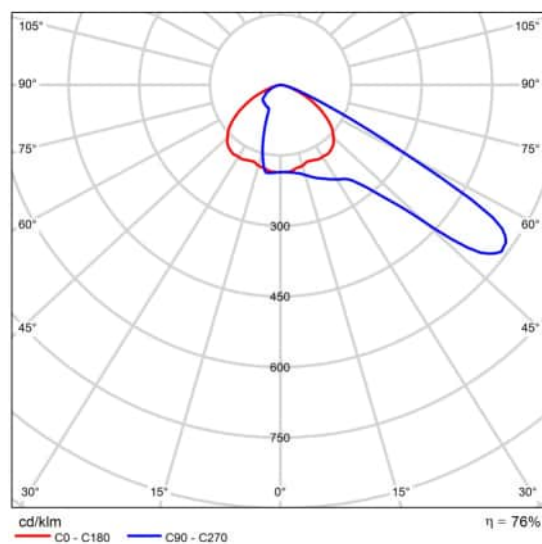
Polar LDC

Product data sheet

Schröder - IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932



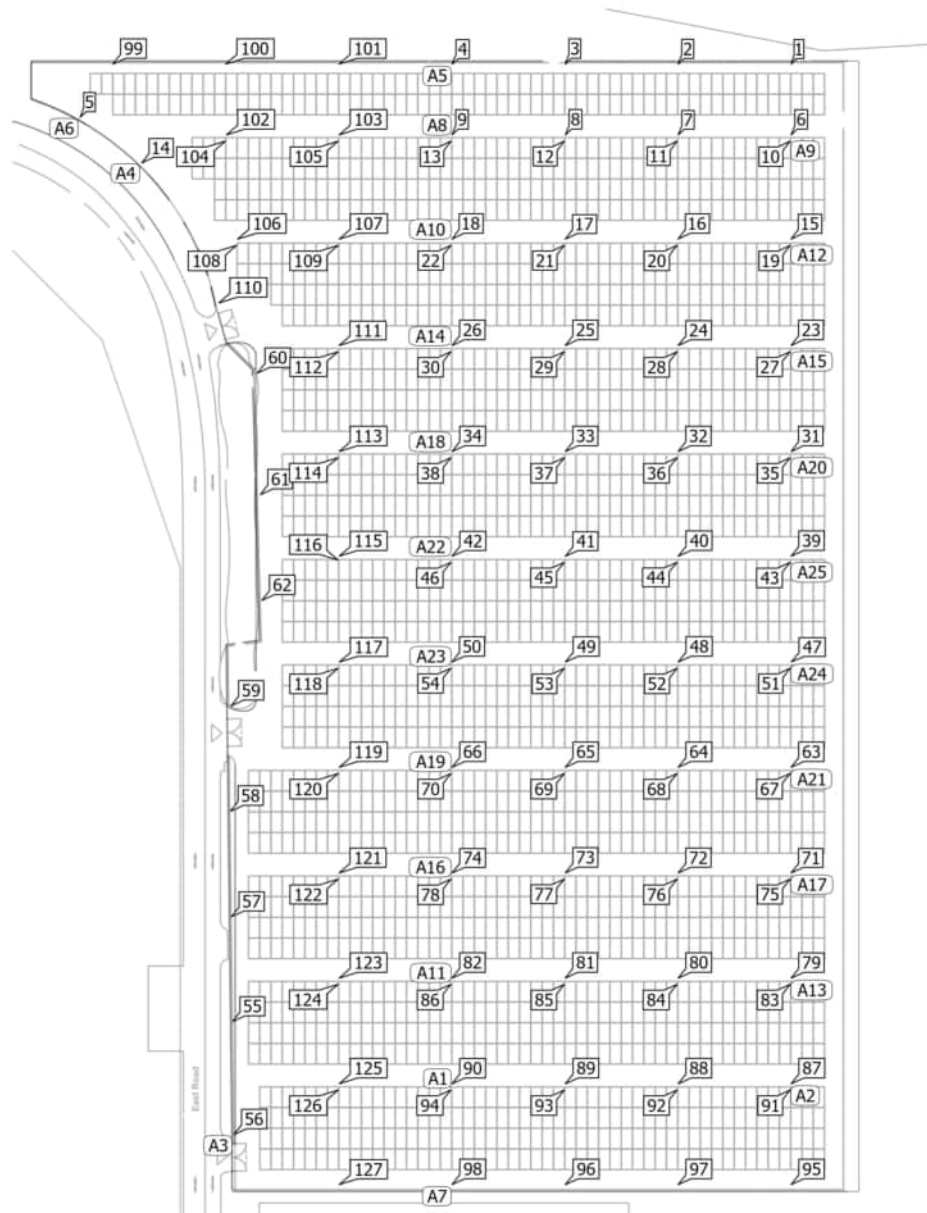
Article No.	468932
P	25.6 W
Φ_{Lamp}	3867 lm
$\Phi_{\text{Luminaire}}$	2936 lm
η	75.91 %
Luminous efficacy	114.7 lm/W
CCT	2700 K
CRI	70
Index	L1



Polar LDC

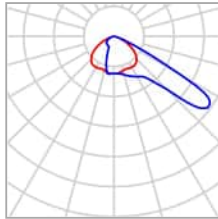
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Luminaire layout plan



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Luminaire layout plan



Manufacturer	Schröder	P	25.6 W
Article No.	468932	$\Phi_{\text{Luminaire}}$	2936 lm
Article name	IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932		
Fitting	1x 20 LEDs@400mA WW 727 230V 00-36-646		
Index	L1		

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	204.608 m / 34.985 m / 8.000 m	204.608 m	34.985 m	8.000 m	91
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	34.985 m	8.000 m	92
		144.655 m	34.985 m	8.000 m	93
Arrangement	A1	114.552 m	34.985 m	8.000 m	94

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	204.608 m / 36.042 m / 8.000 m	204.608 m	36.042 m	8.000 m	87
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	36.042 m	8.000 m	88
		144.655 m	36.042 m	8.000 m	89

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Luminaire layout plan

Arrangement	A2	X	Y	Mounting height	Luminaire
		114.552 m	36.042 m	8.000 m	90

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 287.947 m / 8.000 m	204.608 m	287.947 m	8.000 m	6
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	287.947 m	8.000 m	7
		144.655 m	287.947 m	8.000 m	8
Arrangement	A8	114.552 m	287.947 m	8.000 m	9

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 286.889 m / 8.000 m	204.608 m	286.889 m	8.000 m	10
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	286.889 m	8.000 m	11
		144.655 m	286.889 m	8.000 m	12
Arrangement	A9	114.552 m	286.889 m	8.000 m	13

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 260.281 m / 8.000 m	204.608 m	260.281 m	8.000 m	15
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	260.281 m	8.000 m	16
		144.655 m	260.281 m	8.000 m	17
Arrangement	A10	114.552 m	260.281 m	8.000 m	18

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Luminaire layout plan

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 63.030 m / 8.000 m	204.608 m	63.030 m	8.000 m	83
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	63.030 m	8.000 m	84
		144.655 m	63.030 m	8.000 m	85
Arrangement	A11	114.552 m	63.030 m	8.000 m	86

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 259.224 m / 8.000 m	204.608 m	259.224 m	8.000 m	19
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	259.224 m	8.000 m	20
		144.655 m	259.224 m	8.000 m	21
Arrangement	A12	114.552 m	259.224 m	8.000 m	22

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 64.087 m / 8.000 m	204.608 m	64.087 m	8.000 m	79
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	64.087 m	8.000 m	80
		144.655 m	64.087 m	8.000 m	81
Arrangement	A13	114.552 m	64.087 m	8.000 m	82

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
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Luminaire layout plan

1st luminaire (X/Y/Z)	114.552 m / 232.039 m / 8.000 m	X	Y	Mounting height	Luminaire
X-direction	4 pcs., Centre - centre, Distances not equal	204.608 m	232.039 m	8.000 m	23
		174.602 m	232.039 m	8.000 m	24
Arrangement	A14	144.655 m	232.039 m	8.000 m	25
		114.552 m	232.039 m	8.000 m	26

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 230.981 m / 8.000 m	204.608 m	230.981 m	8.000 m	27
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	230.981 m	8.000 m	28
		144.655 m	230.981 m	8.000 m	29
Arrangement	A15	114.552 m	230.981 m	8.000 m	30

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 90.954 m / 8.000 m	204.608 m	90.954 m	8.000 m	75
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	90.954 m	8.000 m	76
		144.655 m	90.954 m	8.000 m	77
Arrangement	A16	114.552 m	90.954 m	8.000 m	78

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 92.011 m / 8.000 m	204.608 m	92.011 m	8.000 m	71
		174.602 m	92.011 m	8.000 m	72

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Luminaire layout plan

X-direction	4 pcs., Centre - centre, Distances not equal	X	Y	Mounting height	Luminaire
		144.655 m	92.011 m	8.000 m	73
Arrangement	A17	114.552 m	92.011 m	8.000 m	74

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 203.889 m / 8.000 m	204.608 m	203.889 m	8.000 m	31
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	203.889 m	8.000 m	32
		144.655 m	203.889 m	8.000 m	33
Arrangement	A18	114.552 m	203.889 m	8.000 m	34

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 118.996 m / 8.000 m	204.608 m	118.996 m	8.000 m	67
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	118.996 m	8.000 m	68
		144.655 m	118.996 m	8.000 m	69
Arrangement	A19	114.552 m	118.996 m	8.000 m	70

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 202.832 m / 8.000 m	204.608 m	202.832 m	8.000 m	35
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	202.832 m	8.000 m	36
		144.655 m	202.832 m	8.000 m	37
Arrangement	A20	114.552 m	202.832 m	8.000 m	38

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Luminaire layout plan

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 120.054 m / 8.000 m	204.608 m	120.054 m	8.000 m	63
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	120.054 m	8.000 m	64
		144.655 m	120.054 m	8.000 m	65
Arrangement	A21	114.552 m	120.054 m	8.000 m	66

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 176.105 m / 8.000 m	204.608 m	176.105 m	8.000 m	39
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	176.105 m	8.000 m	40
		144.655 m	176.105 m	8.000 m	41
Arrangement	A22	114.552 m	176.105 m	8.000 m	42

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 146.949 m / 8.000 m	204.608 m	146.949 m	8.000 m	51
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	146.949 m	8.000 m	52
		144.655 m	146.949 m	8.000 m	53
Arrangement	A23	114.552 m	146.949 m	8.000 m	54

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
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Luminaire layout plan

1st luminaire (X/Y/Z)	114.552 m / 148.007 m / 8.000 m	X	Y	Mounting height	Luminaire
X-direction	4 pcs., Centre - centre, Distances not equal	204.608 m	148.007 m	8.000 m	47
		174.602 m	148.007 m	8.000 m	48
Arrangement	A24	144.655 m	148.007 m	8.000 m	49
		114.552 m	148.007 m	8.000 m	50

4 x Schröder IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	114.552 m / 175.047 m / 8.000 m	204.608 m	175.047 m	8.000 m	43
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	175.047 m	8.000 m	44
		144.655 m	175.047 m	8.000 m	45
Arrangement	A25	114.552 m	175.047 m	8.000 m	46

Individual luminaires

X	Y	Mounting height	Luminaire
54.683 m	287.947 m	8.000 m	102
84.608 m	287.947 m	8.000 m	103
54.683 m	286.889 m	8.000 m	104
84.608 m	286.889 m	8.000 m	105
57.649 m	260.281 m	8.000 m	106
84.608 m	260.281 m	8.000 m	107
57.649 m	259.224 m	8.000 m	108
84.608 m	259.224 m	8.000 m	109
84.608 m	232.039 m	8.000 m	111

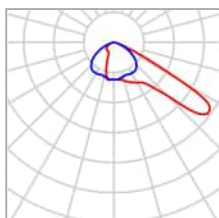
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Luminaire layout plan

X	Y	Mounting height	Luminaire
84.608 m	230.981 m	8.000 m	112
84.608 m	203.889 m	8.000 m	113
84.608 m	202.832 m	8.000 m	114
84.608 m	176.105 m	8.000 m	115
84.608 m	175.047 m	8.000 m	116
84.608 m	148.007 m	8.000 m	117
84.608 m	146.949 m	8.000 m	118
84.608 m	120.054 m	8.000 m	119
84.608 m	118.996 m	8.000 m	120
84.608 m	92.011 m	8.000 m	121
84.608 m	90.954 m	8.000 m	122
84.608 m	64.087 m	8.000 m	123
84.608 m	63.030 m	8.000 m	124
84.608 m	36.042 m	8.000 m	125
84.608 m	34.985 m	8.000 m	126

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Luminaire layout plan



Manufacturer	Schröder	P	19.3 W
Article No.	IZYLUM 1 5366 20 LEDs@300mA WW 730 230V 00-36-646 Back Light	$\Phi_{\text{Luminaire}}$	2444 lm
Article name	IZYLUM 1		
Fitting	1x 20 LEDs@300mA WW 730 230V 00-36- 646 [CJO! RB.X8.O8STDA], valid from 11/06/2024		
Index	L3		

4 x Schröder IZYLUM 1

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	204.608 m / 306.744 m / 8.000 m	204.608 m	306.744 m	8.000 m	1
X-direction	4 pcs., Centre - centre, Distances not equal	174.602 m	306.744 m	8.000 m	2
		144.655 m	306.744 m	8.000 m	3
Arrangement	A5	114.552 m	306.744 m	8.000 m	4

Individual luminaires

X	Y	Mounting height	Luminaire
24.500 m	306.744 m	8.000 m	99
54.500 m	306.744 m	8.000 m	100

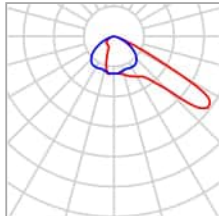
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Luminaire layout plan

X	Y	Mounting height	Luminaire
84.608 m	306.744 m	8.000 m	101

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Luminaire layout plan



Manufacturer	Schröder
Article No.	IZYLUM 1 5366 20 LEDs@400mA WW 730 230V 00-36-646 Back Light
Article name	IZYLUM 1
Fitting	1x 20 LEDs@400mA WW 730 230V 00-36- 646 [CJO! RB.X8.O8STDA], valid from 11/06/2024
Index	L2

P	25.6 W
$\Phi_{\text{Luminaire}}$	3157 lm

8 x Schröder IZYLUM 1

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	56.517 m / 22.705 m / 8.000 m	56.147 m	52.703 m	8.000 m	55
X-direction	8 pcs., Centre - centre, Distances not equal	56.517 m	22.705 m	8.000 m	56
		55.868 m	80.539 m	8.000 m	57
Arrangement	A3	55.606 m	108.546 m	8.000 m	58
		55.761 m	136.501 m	8.000 m	59
		62.708 m	224.853 m	8.000 m	60
		63.554 m	192.583 m	8.000 m	61
		63.925 m	164.510 m	8.000 m	62

1 x Schröder IZYLUM 1

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Luminaire layout plan

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	32.033 m / 280.664 m / 8.000 m	32.033 m	280.664 m	8.000 m	14
X-direction	1 pcs., Centre - centre, 12.875 m				
Arrangement	A4				

1 x Schröder IZYLUM 1

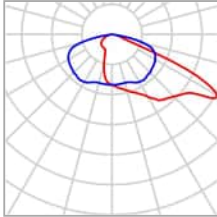
Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	15.695 m / 292.733 m / 8.000 m	15.695 m	292.733 m	8.000 m	5
X-direction	1 pcs., Centre - centre, 12.885 m				
Arrangement	A6				

Individual luminaires

X	Y	Mounting height	Luminaire
52.544 m	243.389 m	8.000 m	110

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Luminaire layout plan



Manufacturer	Schröder	P	19.3 W
Article No.	IZYLUM 1 5393 20 LEDs@300mA WW 730 230V 00-36-646 Back Light	$\Phi_{\text{Luminaire}}$	2407 lm
Article name	IZYLUM 1		
Fitting	1x 20 LEDs@300mA WW 730 230V 00-36- 646 [CJO! RB.X8.O8STDA], valid from 11/06/2024		
Index	L4		

4 x Schröder IZYLUM 1

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	204.608 m / 9.295 m / 8.000 m	204.608 m	9.295 m	8.000 m	95
X-direction	4 pcs., Centre - centre, Distances not equal	144.655 m	9.295 m	8.000 m	96
		174.602 m	9.295 m	8.000 m	97
Arrangement	A7	114.552 m	9.295 m	8.000 m	98

Individual luminaires

X	Y	Mounting height	Luminaire
84.608 m	9.295 m	8.000 m	127

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Luminaire list

 Φ_{total}

369214 lm

 P_{total}

3175.6 W

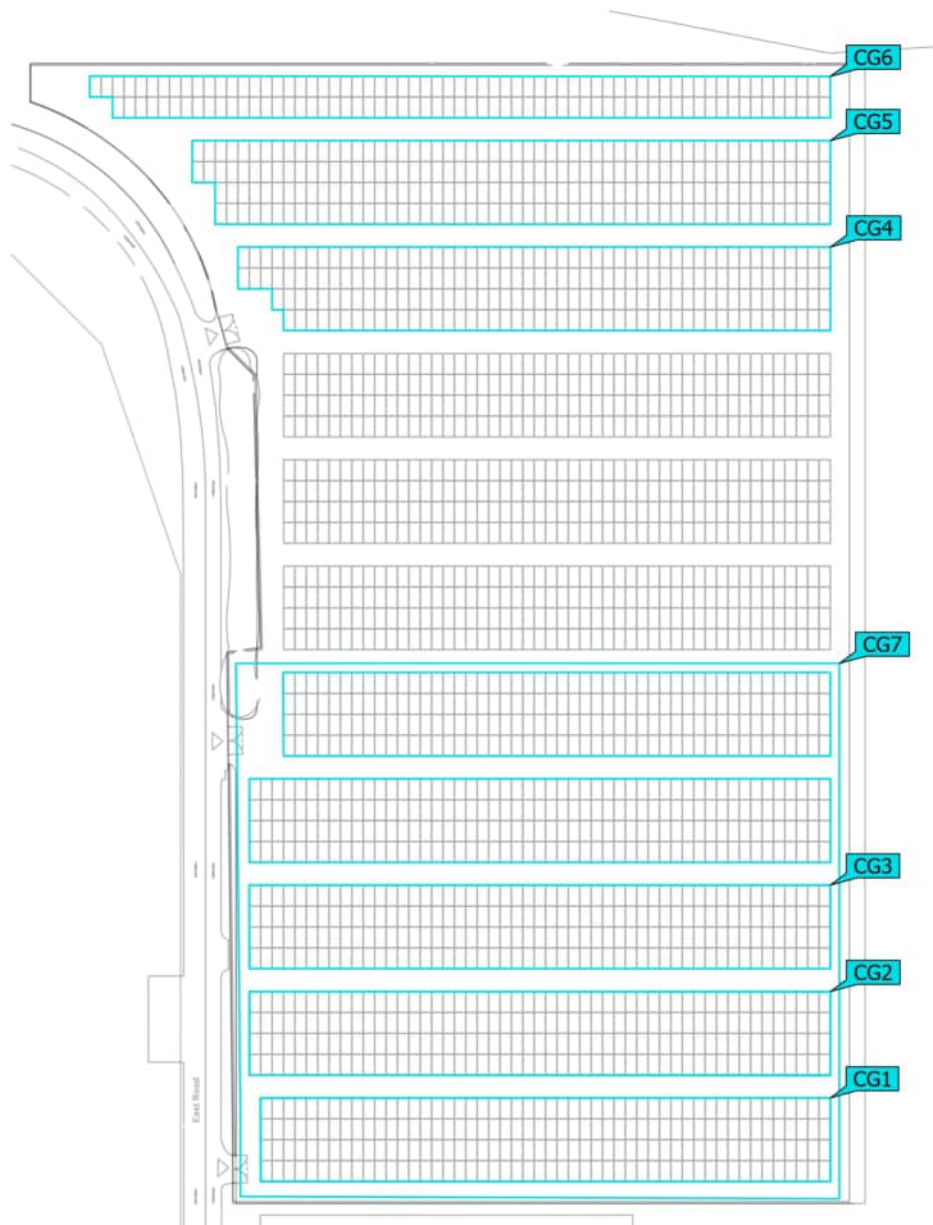
Luminous efficacy

116.3 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy	Index
104	Schröder	468932	IZYLUM 1 5366 Flat glass Back Light 20 LEDs@400mA WW 727 230V 00-36-646 468932	25.6 W	2936 lm	114.7 lm/W	L1
7	Schröder	IZYLUM 1 5366 20 LEDs@300 mA WW 730 230V 00-36-646 Back Light	IZYLUM 1	19.3 W	2444 lm	126.6 lm/W	L3
11	Schröder	IZYLUM 1 5366 20 LEDs@400 mA WW 730 230V 00-36-646 Back Light	IZYLUM 1	25.6 W	3157 lm	123.3 lm/W	L2
5	Schröder	IZYLUM 1 5393 20 LEDs@300 mA WW 730 230V 00-36-646 Back Light	IZYLUM 1	19.3 W	2407 lm	124.7 lm/W	L4

JLR Halewood (All on 100%)

Calculation objects



JLR Halewood (All on 100%)

Calculation objects

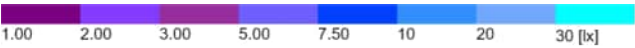
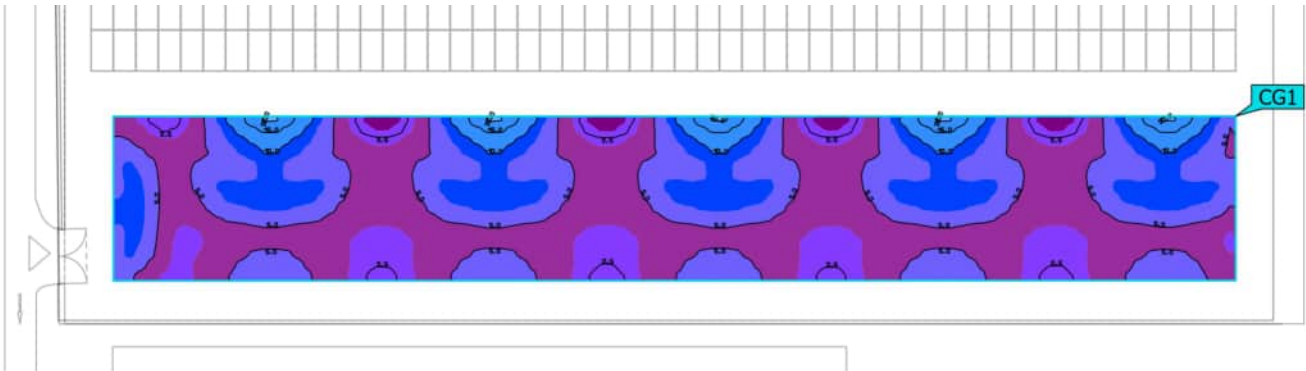
Calculation surfaces

Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP1. Parking Bays Perpendicular illuminance Height: 0.100 m	5.66 lx	1.62 lx	20.4 lx	0.29	0.079	CG1
HMP2. Parking Bays Perpendicular illuminance Height: 0.100 m	5.98 lx	1.62 lx	20.4 lx	0.27	0.079	CG2
HMP3. Parking Bays Perpendicular illuminance Height: 0.100 m	6.01 lx	1.62 lx	20.4 lx	0.27	0.079	CG3
HMP4. Parking Bays Perpendicular illuminance Height: 0.100 m	6.07 lx	1.65 lx	21.8 lx	0.27	0.076	CG4
HMP5. Parking Bays Perpendicular illuminance Height: 0.100 m	6.27 lx	1.77 lx	20.7 lx	0.28	0.086	CG5
HMP6. Parking Bays Perpendicular illuminance Height: 0.100 m	7.71 lx	2.52 lx	15.2 lx	0.33	0.17	CG6
HMP7. Internal Roads Perpendicular illuminance Height: 0.100 m	6.28 lx	1.59 lx	20.8 lx	0.25	0.076	CG7

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

JLR Halewood (All on 100%)

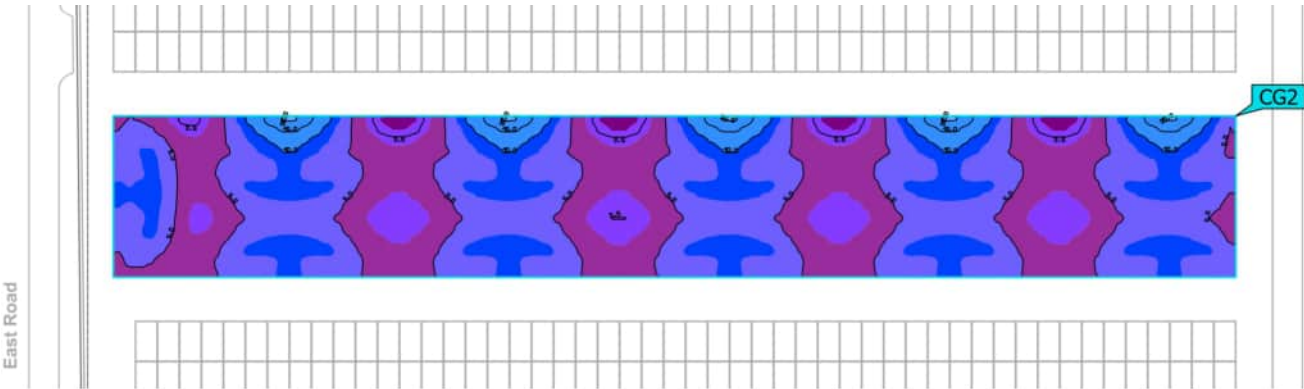
HMP1. Parking Bays



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP1. Parking Bays Perpendicular illuminance Height: 0.100 m	5.66 lx	1.62 lx	20.4 lx	0.29	0.079	CG1

Notes on planning:
BS EN 12464-2 Table 8.1
Average: 5 lux; Uniformity: 0.25

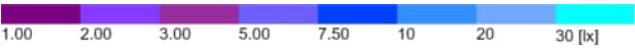
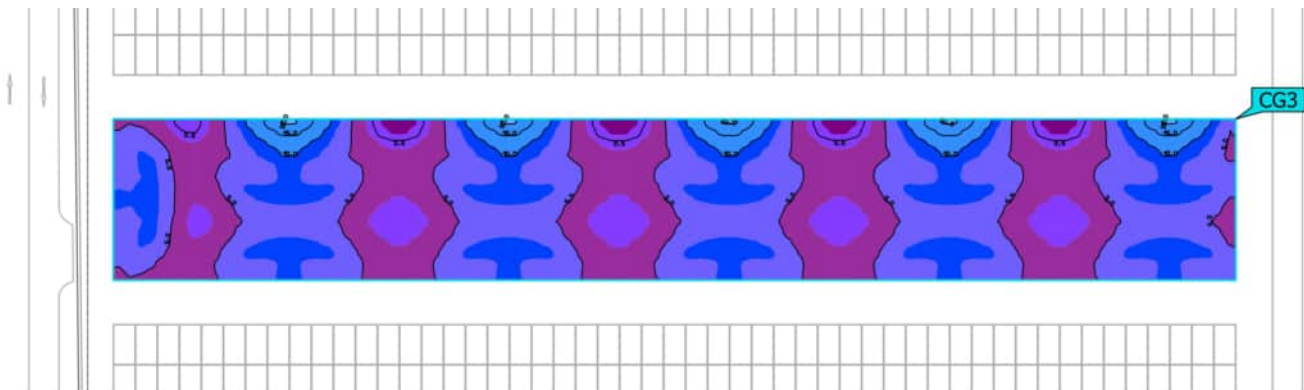
JLR Halewood (All on 100%)
HMP2. Parking Bays



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP2. Parking Bays Perpendicular illuminance Height: 0.100 m	5.98 lx	1.62 lx	20.4 lx	0.27	0.079	CG2

Notes on planning:
BS EN 12464-2 Table 8.1
Average: 5 lux; Uniformity: 0.25

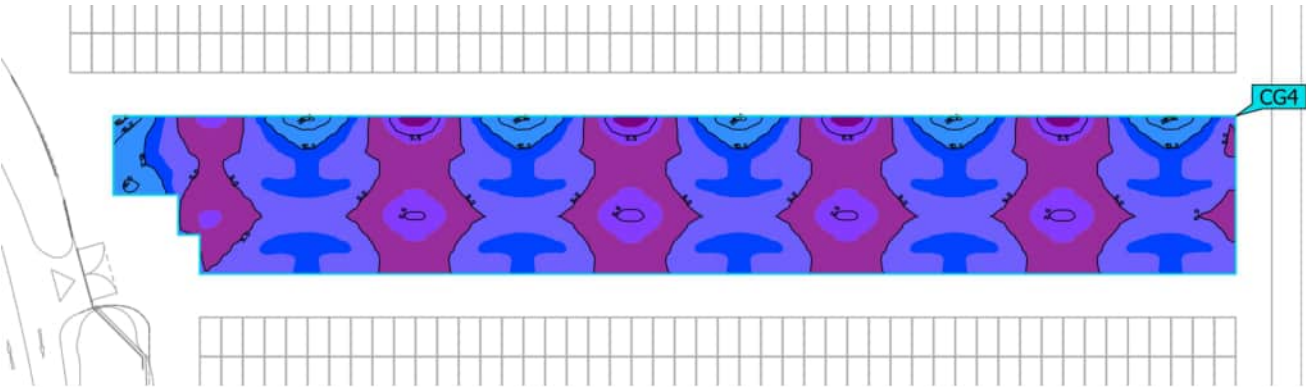
JLR Halewood (All on 100%)
HMP3. Parking Bays



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP3. Parking Bays Perpendicular illuminance Height: 0.100 m	6.01 lx	1.62 lx	20.4 lx	0.27	0.079	CG3

Notes on planning:
BS EN 12464-2 Table 8.1
Average: 5 lux; Uniformity: 0.25

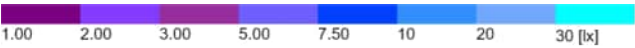
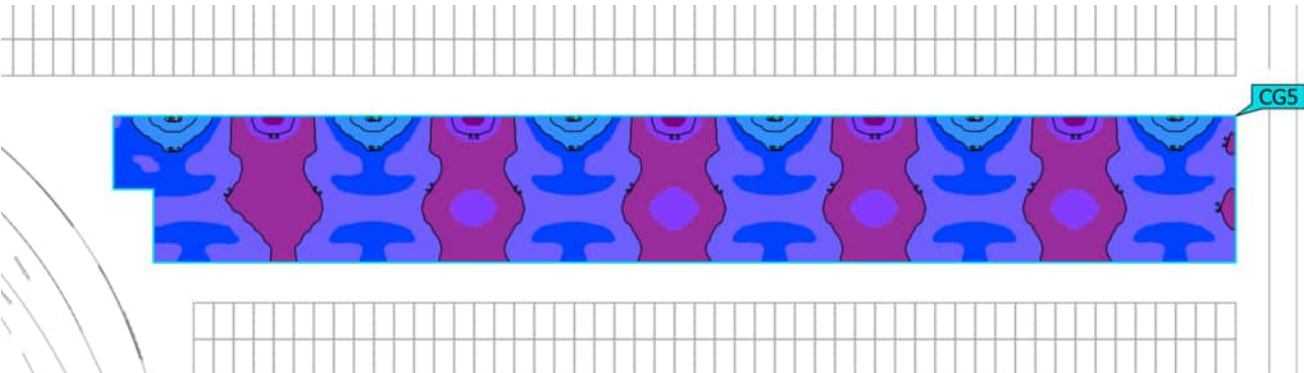
JLR Halewood (All on 100%)
HMP4. Parking Bays



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP4. Parking Bays Perpendicular illuminance Height: 0.100 m	6.07 lx	1.65 lx	21.8 lx	0.27	0.076	CG4

Notes on planning:
BS EN 12464-2 Table 8.1
Average: 5 lux; Uniformity: 0.25

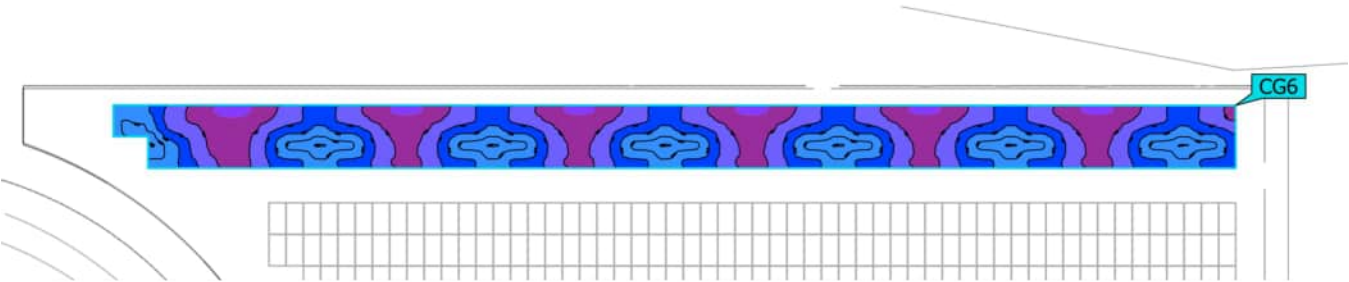
JLR Halewood (All on 100%)
HMP5. Parking Bays



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP5. Parking Bays Perpendicular illuminance Height: 0.100 m	6.27 lx	1.77 lx	20.7 lx	0.28	0.086	CG5

Notes on planning:
BS EN 12464-2 Table 8.1
Average: 5 lux; Uniformity: 0.25

JLR Halewood (All on 100%)
HMP6. Parking Bays

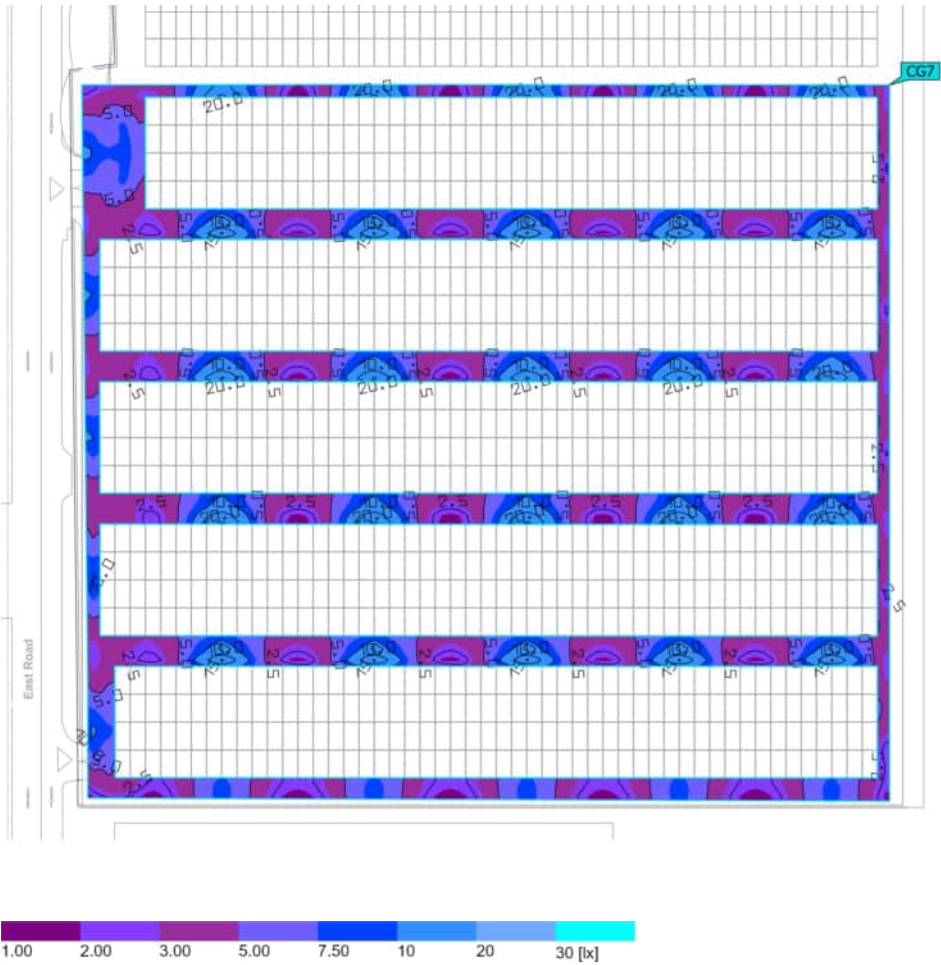


Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP6. Parking Bays Perpendicular illuminance Height: 0.100 m	7.71 lx	2.52 lx	15.2 lx	0.33	0.17	CG6

Notes on planning:
BS EN 12464-2 Table 8.1
Average: 5 lux; Uniformity: 0.25

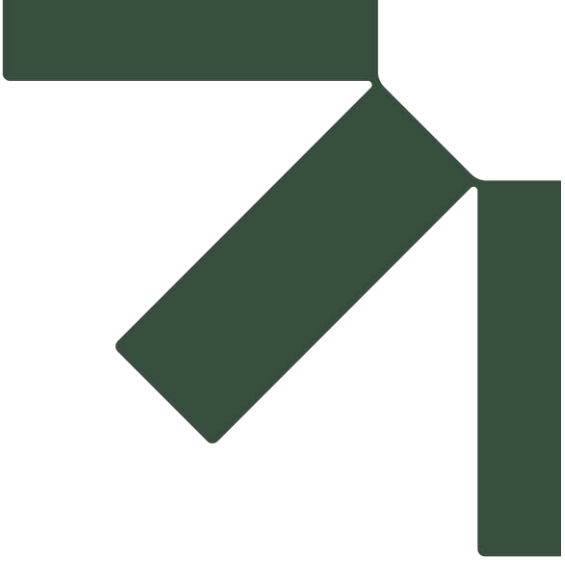
JLR Halewood (All on 100%)

HMP7.Internal Roads



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
HMP7.Internal Roads Perpendicular illuminance Height: 0.100 m	6.28 lx	1.59 lx	20.8 lx	0.25	0.076	CG7

Notes on planning:
BS EN 12464-2 Table 8.1
Average: 5 lux; Uniformity: 0.25



Appendix C Impact Assessment

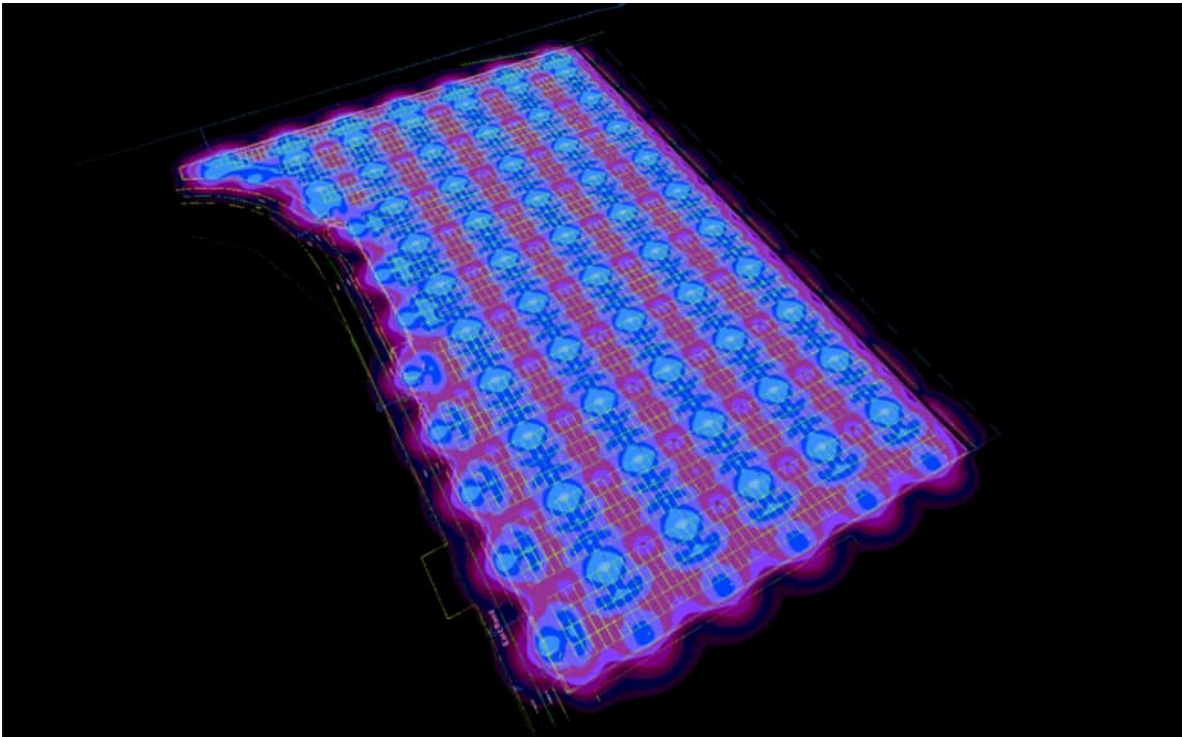
Lighting Impact Assessment

Eastlands Car Park, JLR Halewood

JLR

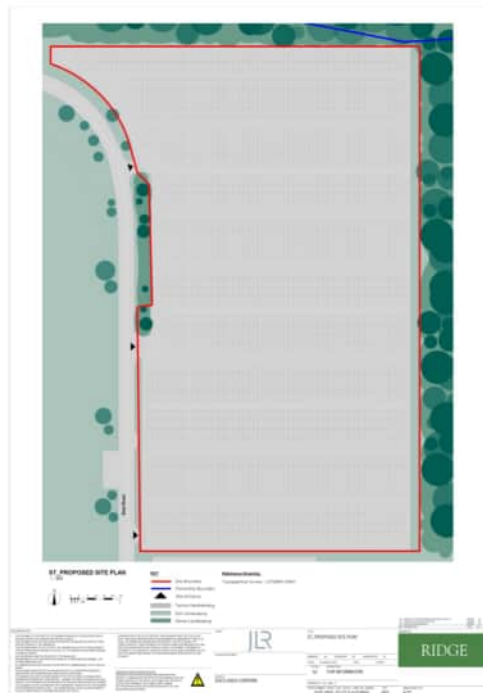
SLR Project No.: 416.066699.00001

1 April 2026



JLR Halewood / Eastlands Car Park

Appendix C: Impact Assessment



Description

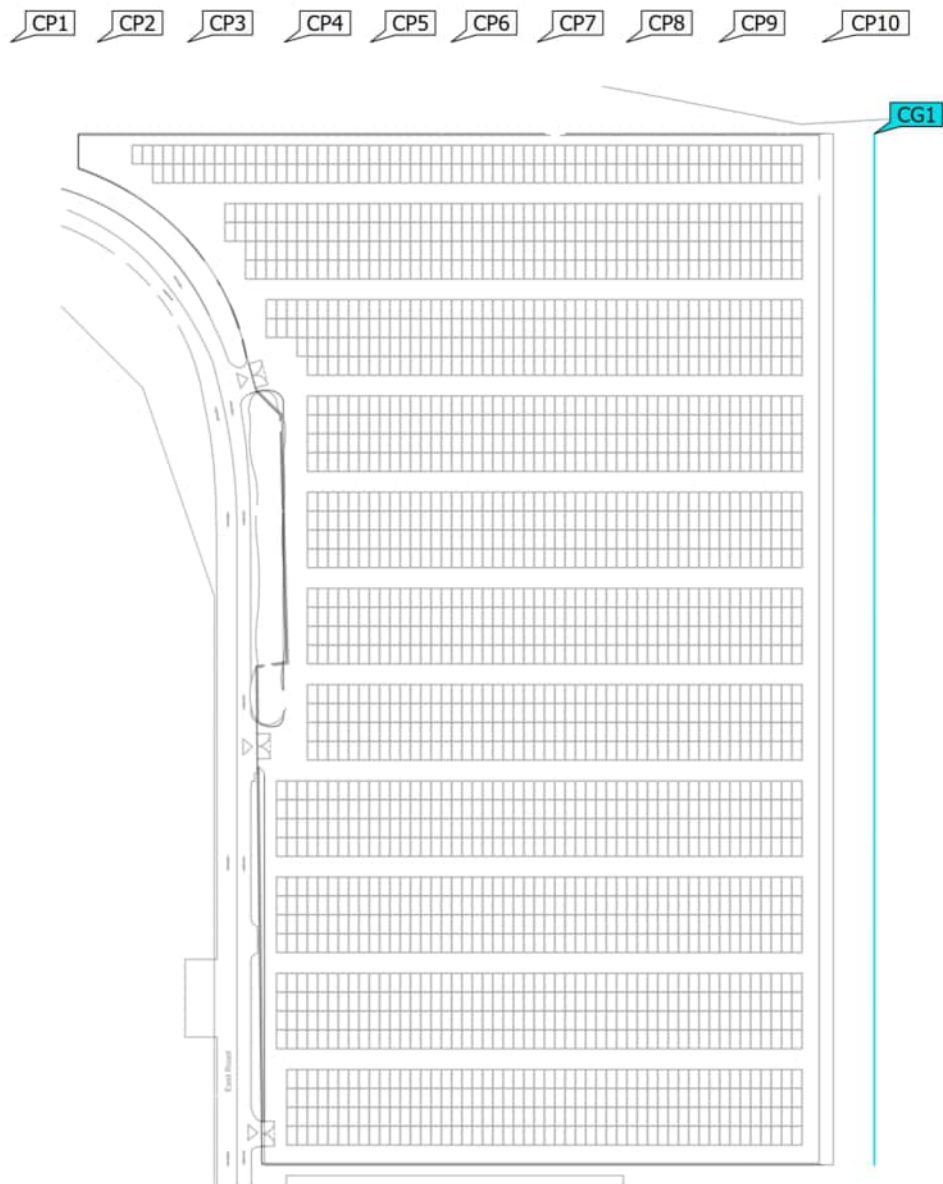
Based On: 'ECP-RDG-ZZ-ST-D-A-010003-ST_SITE
PLAN_ARRANGEMENT 01-P03'

Environmental Zone E3 - Suburban / medium district brightness (well inhabited rural abd urban settlements, small town centres of suburban locations) - GN01

Maintenance Factor, MF 1.0

JLR Halewood (All on 100%)

Calculation objects



JLR Halewood (All on 100%)

Calculation objects

Calculation surfaces

Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
01. VMP East Perpendicular illuminance Height: 4.000 m	0.22 lx	0.10 lx	0.39 lx	0.45	0.26	CG1

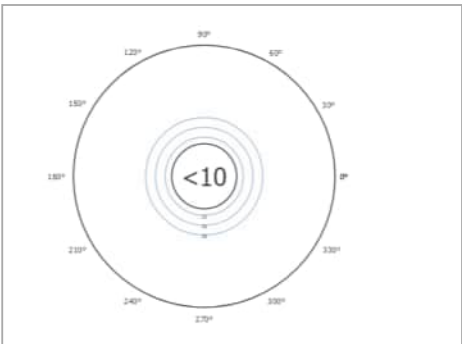
Calculation point 001 (RUG)

Strongest glare at	315°
max	11.3
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP1



Calculation point 001 (R_G)

Strongest glare at	315°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP1
Method	Simplified calculation according to EN 12464

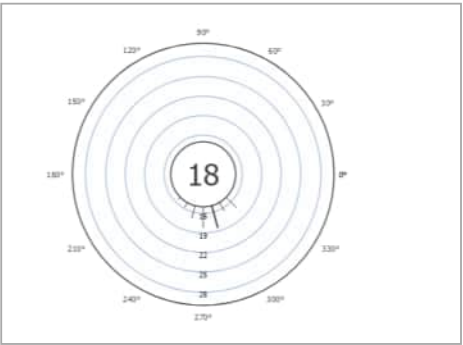


JLR Halewood (All on 100%)

Calculation objects

Calculation point 002 (RUG)

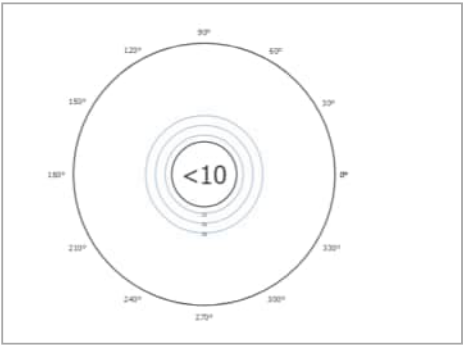
Strongest glare at	285°
max	18.4
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP2



Calculation point 002 (R_G)

Strongest glare at	285°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP2

Method Simplified calculation according to EN 12464



JLR Halewood (All on 100%)

Calculation objects

Calculation point 003 (RUG)

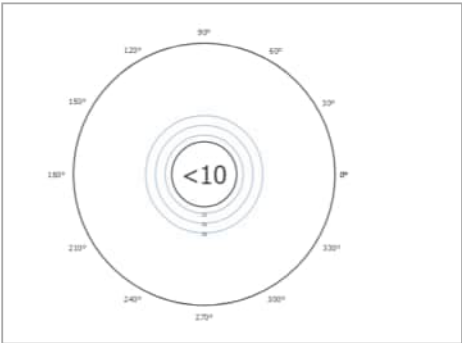
Strongest glare at	270°
max	16.6
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP3



Calculation point 003 (R_G)

Strongest glare at	255°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP3

Method	Simplified calculation according to EN 12464
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JLR Halewood (All on 100%)

Calculation objects

Calculation point 004 (RUG)

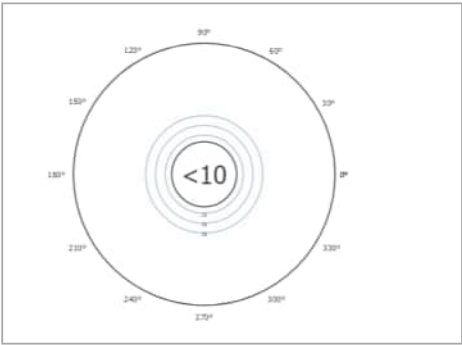
Strongest glare at	240°
max	17.2
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP4



Calculation point 004 (R_G)

Strongest glare at	255°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP4

Method Simplified calculation according to EN 12464

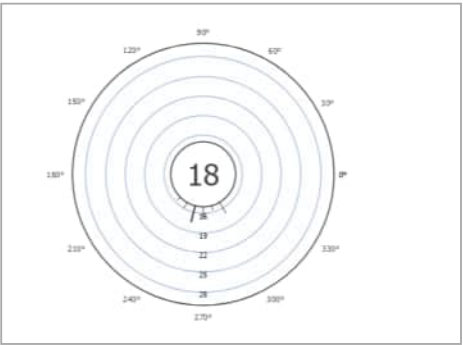


JLR Halewood (All on 100%)

Calculation objects

Calculation point 005 (RUG)

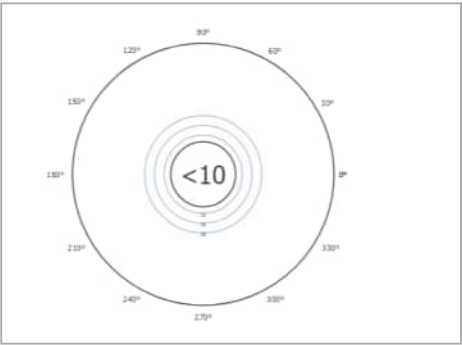
Strongest glare at	255°
max	17.5
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP5



Calculation point 005 (RG)

Strongest glare at	270°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP5

Method Simplified calculation according to EN 12464



JLR Halewood (All on 100%)

Calculation objects

Calculation point 006 (RUG)

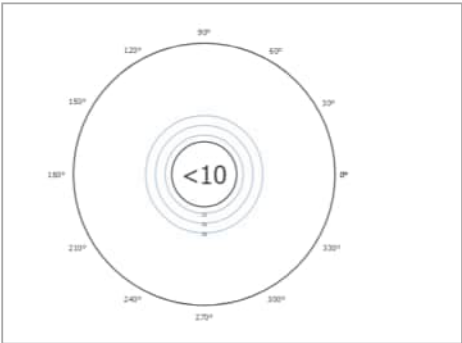
Strongest glare at	285°
max	16.5
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP6



Calculation point 006 (R_G)

Strongest glare at	270°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP6

Method Simplified calculation according to EN 12464



JLR Halewood (All on 100%)

Calculation objects

Calculation point 007 (RUG)

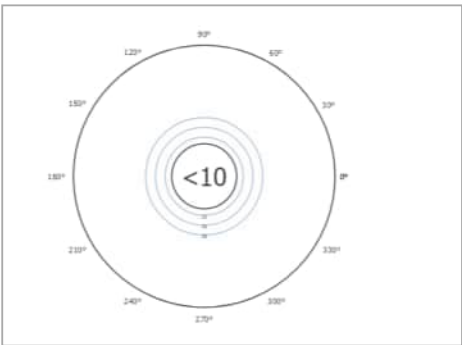
Strongest glare at	270°
max	16.7
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP7



Calculation point 007 (RG)

Strongest glare at	285°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP7

Method	Simplified calculation according to EN 12464
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JLR Halewood (All on 100%)

Calculation objects

Calculation point 008 (RUG)

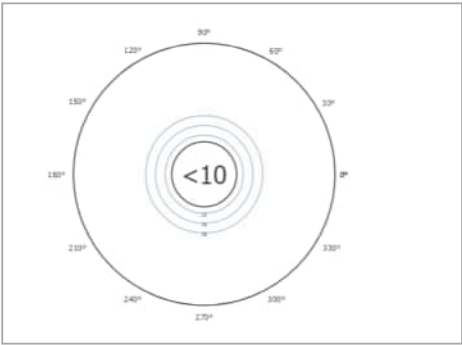
Strongest glare at	315°
max	17.1
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP8



Calculation point 008 (R_G)

Strongest glare at	285°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP8

Method Simplified calculation according to EN 12464



JLR Halewood (All on 100%)

Calculation objects

Calculation point 009 (RUG)

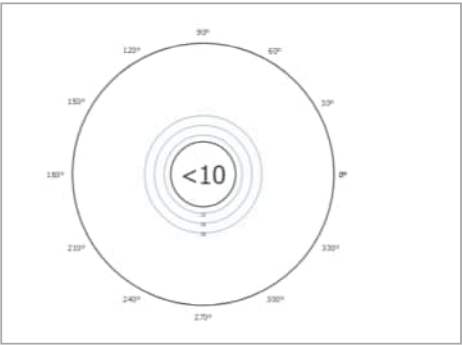
Strongest glare at	255°
max	17.6
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP9



Calculation point 009 (R_G)

Strongest glare at	255°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP9

Method Simplified calculation according to EN 12464



JLR Halewood (All on 100%)

Calculation objects

Calculation point 010 (RUG)

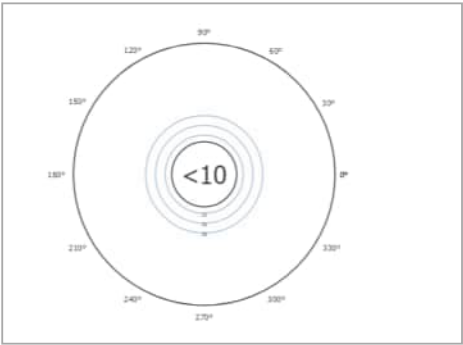
Strongest glare at	225°
max	17.6
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	1.600 m
Index	CP10



Calculation point 010 (R_G)

Strongest glare at	255°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.600 m
Index	CP10

Method Simplified calculation according to EN 12464



JLR Halewood (All on 100%)

Calculation objects

Calculation points

Properties	Calculated	Index
Calculation point 001 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.019 lx	CP1
Calculation point 002 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.054 lx	CP2
Calculation point 003 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.071 lx	CP3
Calculation point 004 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.083 lx	CP4
Calculation point 005 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.072 lx	CP5
Calculation point 006 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.084 lx	CP6
Calculation point 007 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.082 lx	CP7
Calculation point 008 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.080 lx	CP8
Calculation point 009 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.061 lx	CP9
Calculation point 010 Semi-cylindrical illuminance Rotation: 270.0°, Height: 1.600 m	0.039 lx	CP10

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

JLR Halewood (All on 100%)

01. VMP East



Properties	$\bar{E}$	E_{min}	E_{max}	$U_o (g_1)$	g_2	Index
01. VMP East Perpendicular illuminance Height: 4.000 m	0.22 lx	0.10 lx	0.39 lx	0.45	0.26	CG1

Notes on planning:
ILP GN08, Paragraph 4.54
0.4 lux Maximum ($E_{max} \leq 0.4$ lux)



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