

LEAFIELD INDUSTRIAL ESTATE, CORSHAM

LIGHTING SURVEY REPORT

DFL-UK

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Designs for Lighting (DFL) is a business built on successfully collaborating with our clients. We have over 20 years proven experience in our industry, listening to the challenges our clients face, developing the best solutions and being innovators in our specialism. Our role is to find the most effective and sustainable outcome to enhance and support your projects. We proudly work with recognised industry bodies to promote and shape the future of the industry and ensure our staff are trained to exceed the required competency levels of our industries. Above all, we ensure each project delivers against our values.



Quality



Knowledgeable



Dependable



Clear Advice

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Executive Summary

A baseline lighting survey was undertaken at Leafield Industrial Estate and the surrounding roadways including Leafield Way to quantify existing illumination levels and characterise the current nighttime lighting environment. The assessment was conducted by two qualified lighting professionals from Designs for Lighting Ltd (DFL), using calibrated Konica Minolta T-10A illuminance measurement equipment and DSLR camera for nighttime photography.

Horizontal and vertical illuminance measurements were recorded across 26 survey locations. Results indicate that the Application Site is well-lit industrial area, with roadways lit by 5-6m columns and industrial units lit using floodlighting and bulkhead lighting primarily.

Nighttime photography corroborates the quantitative findings, demonstrating a brightly illuminated environment within the Application Site as well as the adjacent industrial unit to the north of the Application Site. The lighting present is consistent with what would be expected of an industrial estate.

Overall, the survey concludes that the Application Site operates within the context of a well-lit commercial area and that the existing lighting is consistent with what would be expected within this setting.

Any potential impacts arising from the proposed lighting should therefore be assessed in the context of this already well-lit baseline environment.

1. INTRODUCTION

- 1.1.1. This Lighting Survey Report has been written by DFL (Designs for Lighting Ltd), a lighting design consultancy specialising in Lighting Impact Assessments, obtrusive light mitigation, and detailed lighting design.
- 1.1.2. The Lighting Survey Report assesses the existing lighting installed at Padel People, Corsham, within Leafield Industrial Estate and the existing lighting environment surrounding this area.
- 1.1.3. The lighting survey was carried out by two quality and competent lighting professionals with years of experience conducting such surveys.
- 1.1.4. This report outlines the following:
- Details of the lighting baseline at the Application Site
 - An assessment of the effects of the Proposed Lighting on surrounding dwellings

2. BASELINE LIGHTING SURVEY

2.1. Introduction

- 2.1.1. To provide an objective assessment of the lighting baseline levels within and surrounding the Application Site, a lighting baseline survey has been undertaken.
- 2.1.2. This survey consisted of recorded illuminance levels and photography of the existing lighting at night.

2.2. Methodology

- 2.2.1. Illuminance measurements were taken in the horizontal plane with the illuminance meter being placed on the ground above the measurement point, and in the vertical plane at approximately 1.5 m in height facing north, east, south, and west. This totalled 5 illuminance readings per measurement location.
- 2.2.2. Measurements were taken using a Konica Minolta T-10A illuminance meter (serial number: 20015648) which has a current calibration certificate (certificate no: STD_137059). A copy of the calibration certificate can be found in **Appendix 1**. This is a handheld illuminance meter.
- 2.2.3. All photography was recorded in locations within and surrounding the Application Site, to provide an overview of the existing lighting, and to provide context to the illuminance readings that were recorded.
- 2.2.4. Photographs were recorded using a DSLR camera mounted on a tripod.
- 2.2.5. The location of all illuminance measurements and the photography locations can be seen in **Appendix 1**.

2.3. Weather Conditions During the Survey

Date	Astronomical Twilight	Moon Phase	Weather Conditions (night)	Night-time Phase Start
12/01/2026	17:25 – 18:25	Third Quarter	Clear	18:16

Table 1: Weather Conditions During Lighting Survey

2.4. Illuminance Measurements

Reading number	Eh	Ev North	Ev East	Ev South	Ev West
1	2.84	0.38	0.2	5.05	7.27
2	6.12	11.54	0.46	11.35	3.96
3	99.2	4.64	1.22	6.73	100.3
4	7.76	0.27	0.43	15.76	4.54
5	0.74	0.06	0.13	1.86	0.34
6	0.15	0.09	0.05	0.44	0.08
7	0.31	0.34	0.09	1.39	0.89
8	0.26	1.18	0.1	1.06	1.37
9	0.71	0.69	0.05	0.88	2.49
10	0.75	0.55	0.08	0.37	3.08
11	0.58	1.82	0.09	0.04	2.44
12	1.95	4.83	0.09	0.15	5.29
13	13.17	20.1	0.29	0.34	18.51
14	3.89	13.76	2.18	0.85	3.54
15	4.14	14.37	3.81	1	2.78
16	0.66	2.02	1.84	0.54	0.15
17	8.54	19.84	6.01	0.75	0.24
18	32.1	40	33	4.17	7.67
19	22.07	22.9	23.08	0.8	14.33
20	19.74	26.58	13.53	0.61	16.34
21	5.81	17.81	1.06	0.55	6.2
22	4.98	4.26	1.18	0.21	1.42
23	2.55	5.86	11.29	1.33	5.7
24	3.51	4.92	2.48	1.11	3.26
25	8.33	3.7	3.27	9.65	8.75
26	15.52	2	2.41	11.54	3.37

Table 2: Baseline Illuminance Results

2.5. Summary of Illuminance Readings

- 2.5.1. The illuminance measurements taken represent a well-lit environment within and surrounding the Application Site.
- 2.5.2. Horizontal readings ranged from 0.15 Lux at reading location 6, to 99.2 Lux at reading location 3 which was directly impacted by the wall mounted floodlight shown in **Figure 4**.

- 2.5.3. Vertical illuminance readings ranged from 0.05 Lux to 100.3 Lux, demonstrating a variable lighting environment.
- 2.5.4. The levels experienced within the Application Site at reading locations 2 to 13 demonstrated that the wall mounted floodlight provides a high level of existing lighting in this area for the readings facing north and west, especially in contrast to the east and southern facing results.
- 2.5.5. The car park for the Application Site recorded as readings 14 to 21 demonstrated higher levels of baseline illuminance than locations 1 to 13 due to the 3 high level wall mounted floodlights illuminating the car park. Across the 32 readings taken in the car park, the average illuminance recorded was 9.45 Lux. For the north facing results alone this average is 19.66 Lux. Therefore, the car park presents evidence of a very well-lit area.
- 2.5.6. Illuminance readings 22 to 26 represent the recorded illuminance levels of Leafield Way including the access road to the Application Site. This roadway is well lit and demonstrates baseline horizontal illuminance levels of 3.51 Lux to 15.52 Lux. The average vertical illuminance levels recorded along the roadways was 4.72 Lux. From these results, it is likely that the roads surrounding the Application Site are a well-lit P class in accordance with BS 5489-1:2020.

2.6. Nighttime Photography

- 2.6.1. To provide some visual context to the illuminance readings, photography has been recorded across the Application Site.
- 2.6.2. The photography taken during the lighting survey can be seen below (**Figure 1 - Figure 14**).

Photography Location 1 – Photo 1 Facing North



Figure 1: View from Photography Location 1 – Photo 1

This page is only for electronic viewing only and the brightness of the screen used to view should be set to maximum brightness.

Photo Parameters:

F-stop: f/10

Exposure Time: 4 sec

ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 1 – Photo 2 Facing East

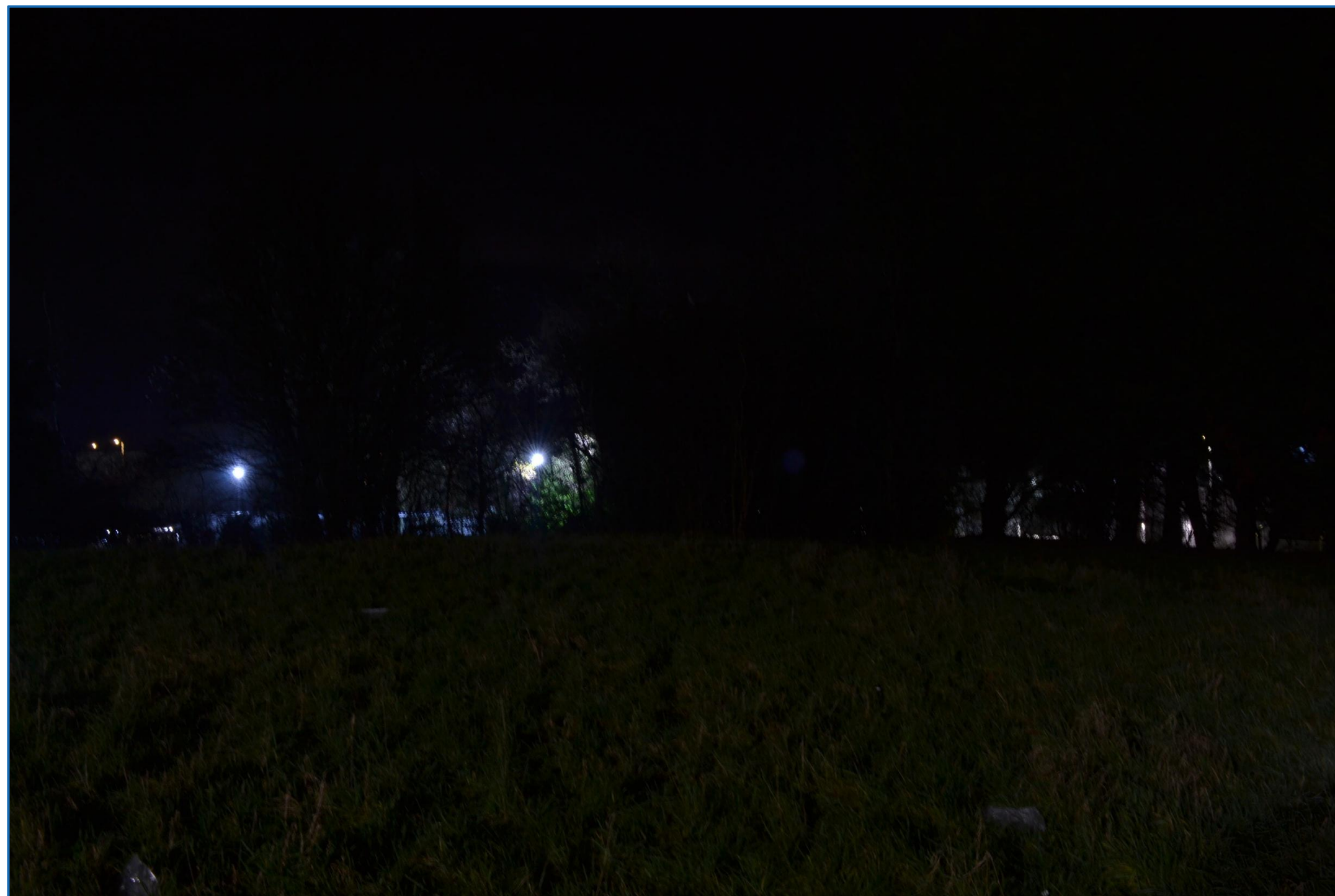


Figure 2: View from Photography Location 1 – Photo 2

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 should be set to maximum brightness.

Photo Parameters:

F-stop: f/10

Exposure Time: 4 sec

ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 1 – Photo 3 Facing South

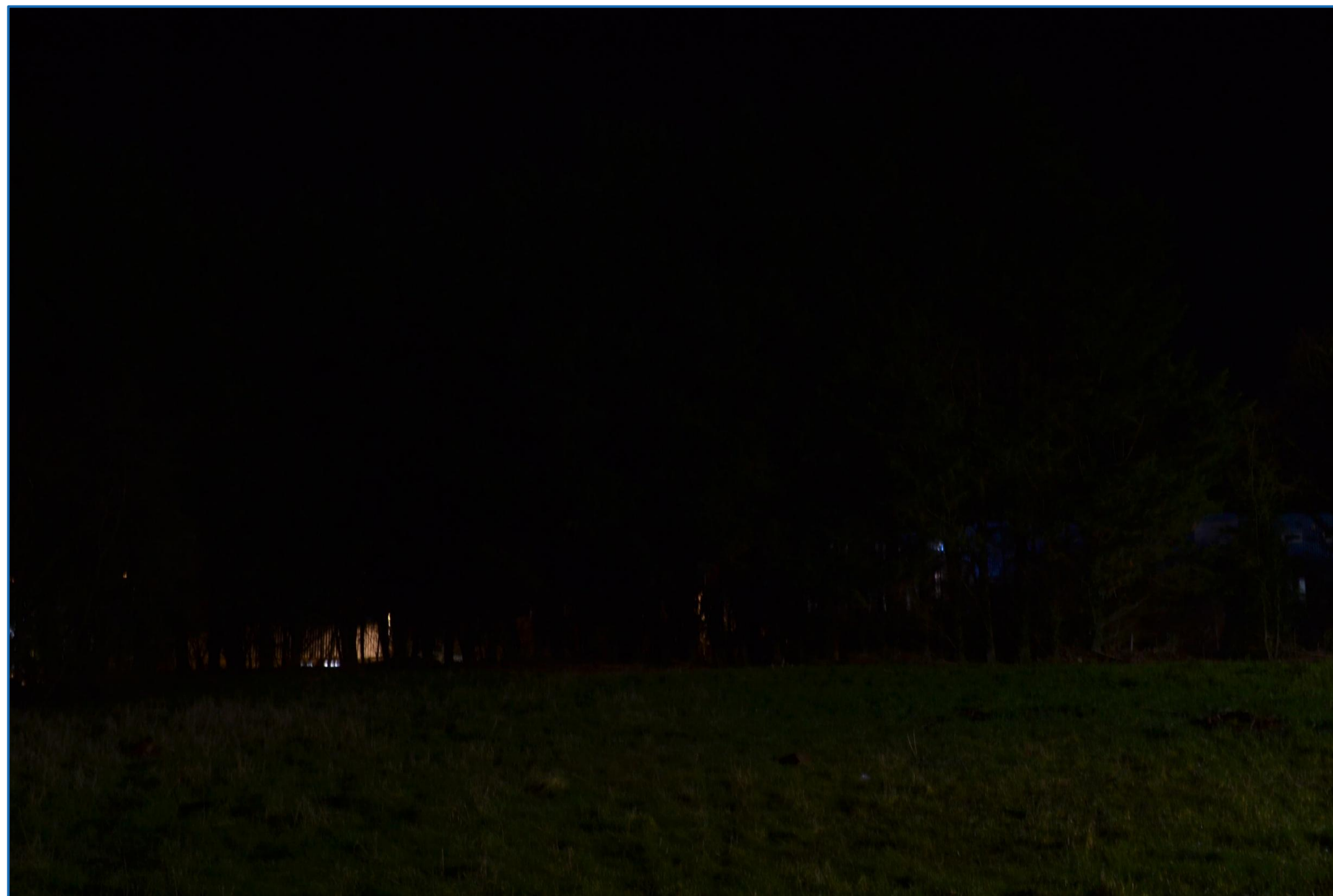


Figure 3: View from Photography Location 1 – Photo 3

Photo Parameters:

F-stop: f/10

Exposure Time: 4 sec

ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 should be set to maximum brightness.

Photography Location 1 – Photo 4 Facing West



Figure 4: View from Photography Location 1 – Photo 4

Photo Parameters:

F-stop: f/10

Exposure Time: 4 sec

ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 should be set to maximum brightness.

Photography Location 2 – Photo 1



Figure 5: View from Photography Location 2 – Photo 1

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

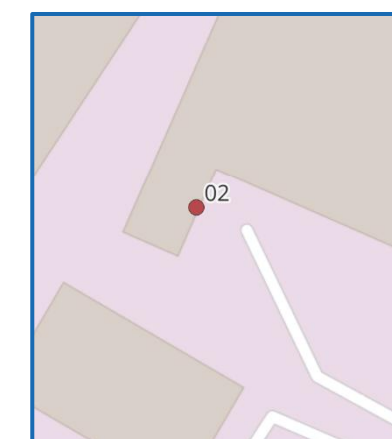
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 should be set to maximum brightness.

Photography Location 2 – Photo 2



Figure 6: View from Photography Location 2 – Photo 2

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

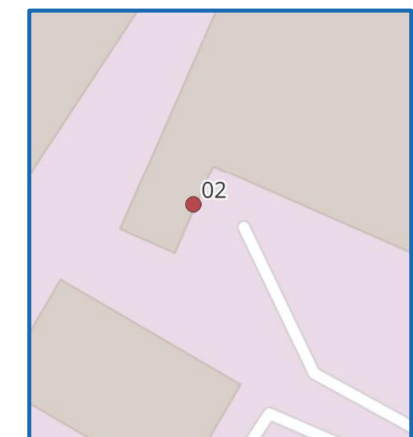
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 and the brightness of the screen used to view
 should be set to maximum brightness.

Photography Location 3 – Photo 1



Figure 7: View from Photography Location 3 – Photo 1

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 3 – Photo 2



Figure 8: View from Photography Location 3 – Photo 2

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

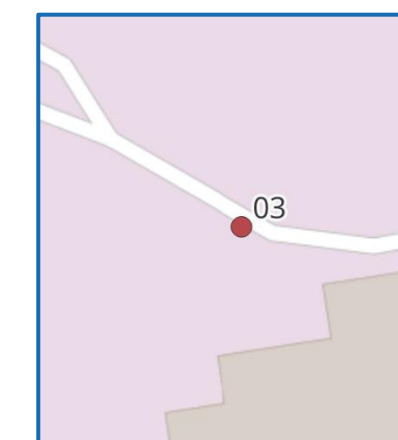
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 4 – Photo 1



Figure 9: View from Photography Location 4 – Photo 1

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 and the brightness of the screen used to view
 should be set to maximum brightness.

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

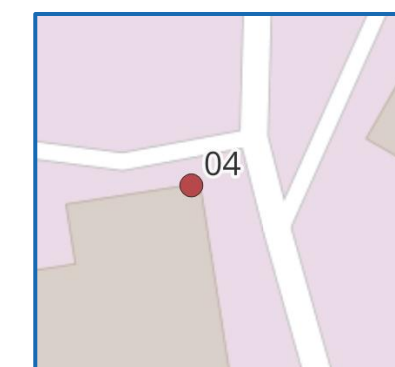
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 4 – Photo 2



Figure 10: View from Photography Location 4 – Photo 2

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

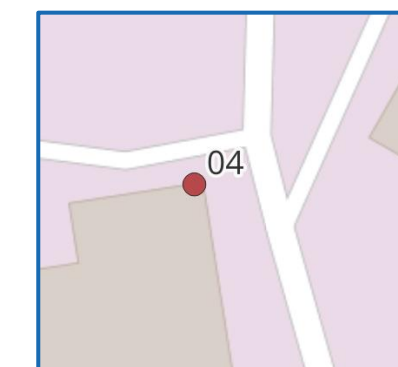
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 and the brightness of the screen used to view
 should be set to maximum brightness.

Photography Location 4 – Photo 3



Figure 11: View from Photography Location 4 – Photo 3

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

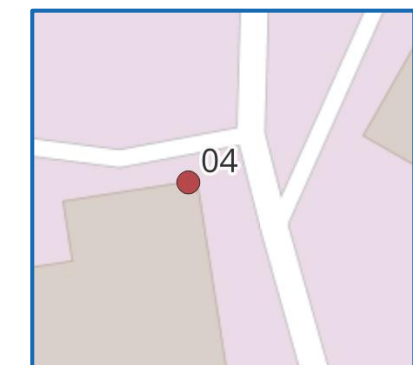
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 and the brightness of the screen used to view
 should be set to maximum brightness.

Photography Location 5 – Photo 1



Figure 12: View from Photography Location 5 – Photo 1

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

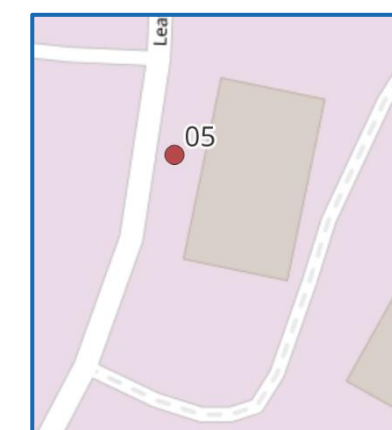
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 and the brightness of the screen used to view
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Photography Location 5 – Photo 2



Figure 13: View from Photography Location 5 – Photo 2

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

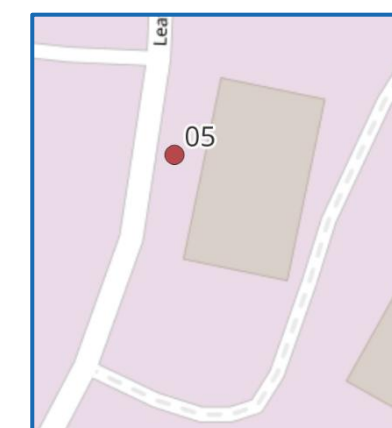
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 and the brightness of the screen used to view
 should be set to maximum brightness.

Photography Location 6 – Photo 1



Figure 14: View from Photography Location 6 – Photo 1

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 sec

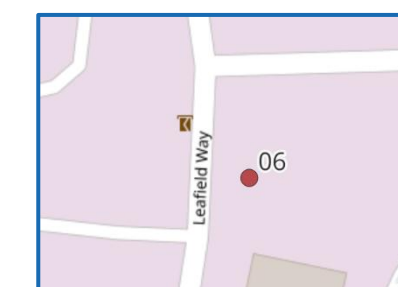
ISO Speed: ISO-200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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 should be set to maximum brightness.

2.7. Lighting Baseline Summary

- 2.7.1. The photography taken demonstrates that the Application Site is well lit by high level wall mounted floodlights in both the car park and area for the proposed padel courts. **Figure 4, Figure 5 & Figure 6** demonstrate the floodlighting used across the Application Site well, illustrating how the existing lighting illuminates the area for wayfinding and safety purposes of cars and people moving through the area.
- 2.7.2. **Figure 8 to Figure 12 and Figure 14** show the existing street lighting on Leafield Way and the access road to the Application Site. The existing lighting is approximately 5-6m high column lighting likely using 3000K luminaires due to the warm white colour temperature emitted.
- 2.7.3. **Figure 1** shows the light intrusion from the adjacent industrial unit into the Application Site when facing north. **Figure 13** expands this view by showing the extent of the lighting in the adjacent industrial unit which is very brightly lit. The recorded vertical illuminance level at location 25 facing west (towards the industrial unit) recorded levels of 8.75 Lux. These levels recorded have been affected by this existing lighting and therefore demonstrates significant volumes of existing lighting in the area and light spill into Leafield Way.
- 2.7.4. **Figure 7, Figure 10, Figure 11 & Figure 12** provide further evidence of surrounding industrial estates and commercial building using exterior lighting to illuminate their buildings and pathways for wayfinding and security purposes. There are various bulkhead luminaires in use across Leafield Industrial Estate which contribute to a high level of baseline illuminance and make the estate a well-lit area.

3. CONCLUSION

3.1. General

- 3.1.1. This lighting baseline survey has been completed to establish the existing nighttime lighting environment within and surrounding the Application Site at Leafield Industrial Estate, Corsham.
- 3.1.2. The results of the survey demonstrate that the Application Site and its surrounding context are already characterised by a well-lit environment, predominantly influenced by high-level wall-mounted floodlighting within the car park and proposed padel court area, as well as existing street lighting along Leafield Way and adjacent access roads. Horizontal illuminance levels recorded across the site ranged from very low background levels to significantly elevated values where luminaires were in proximity, indicating a varied but established lighting environment.
- 3.1.3. The nighttime photography supports the recorded illuminance data, illustrating the extent of external lighting used for wayfinding, safety, and security purposes throughout the industrial estate. Light intrusion from neighbouring units was observed and recorded, demonstrating that existing background lighting levels within the area are already elevated.

- 3.1.4. Overall, the findings of this baseline survey confirm that the Application Site is situated within an environment where artificial lighting is well established and forms an integral part of the night-time character of the area. This baseline information provides a robust foundation against which the proposed lighting scheme can be assessed, ensuring that future lighting proposals are considered within the context of the existing illuminated environment and managed appropriately to minimise adverse effects.

APPENDIX 1

Lighting Baseline Survey Maps and Equipment Calibration

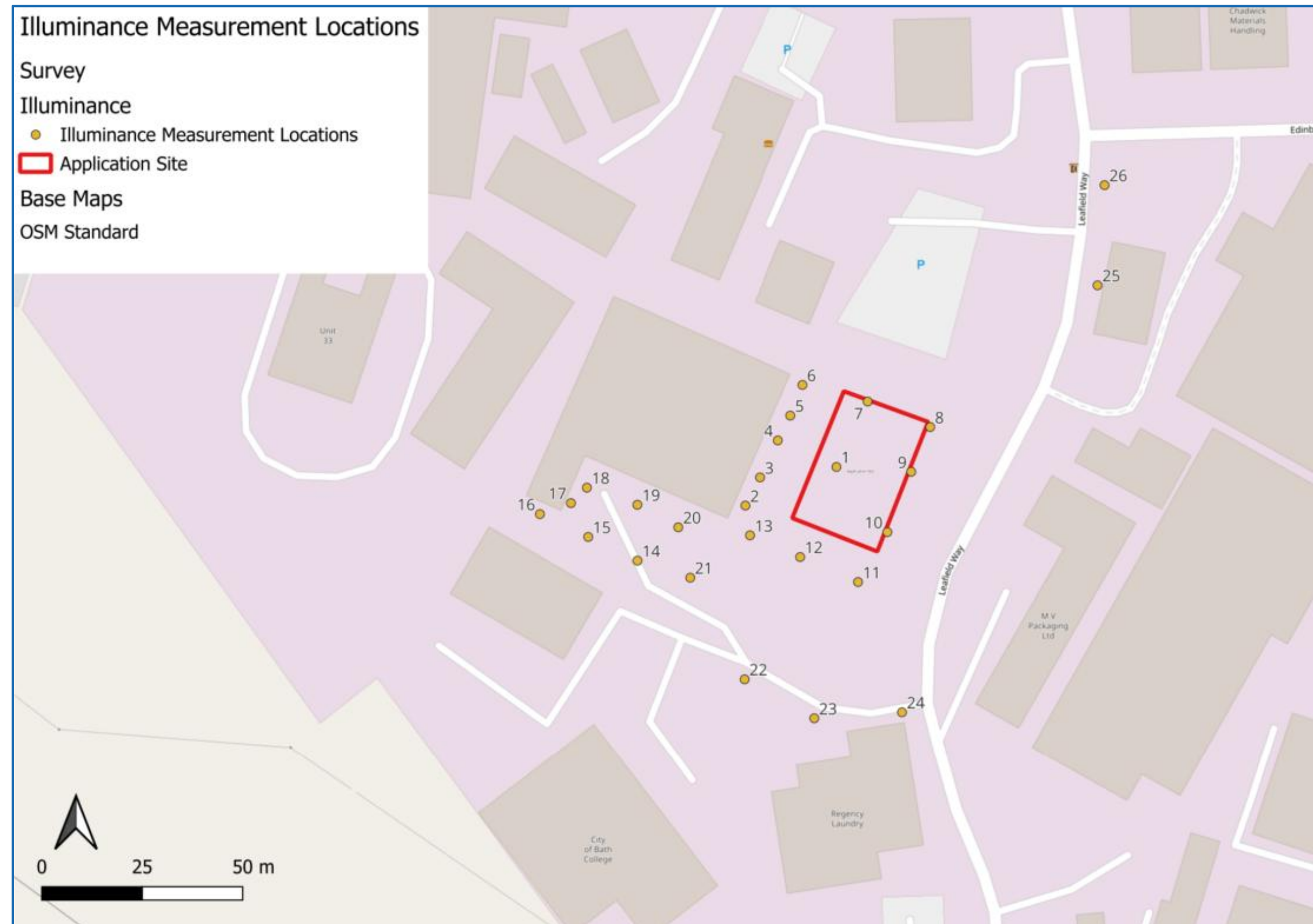


Figure 15: Illuminance Measurement Locations

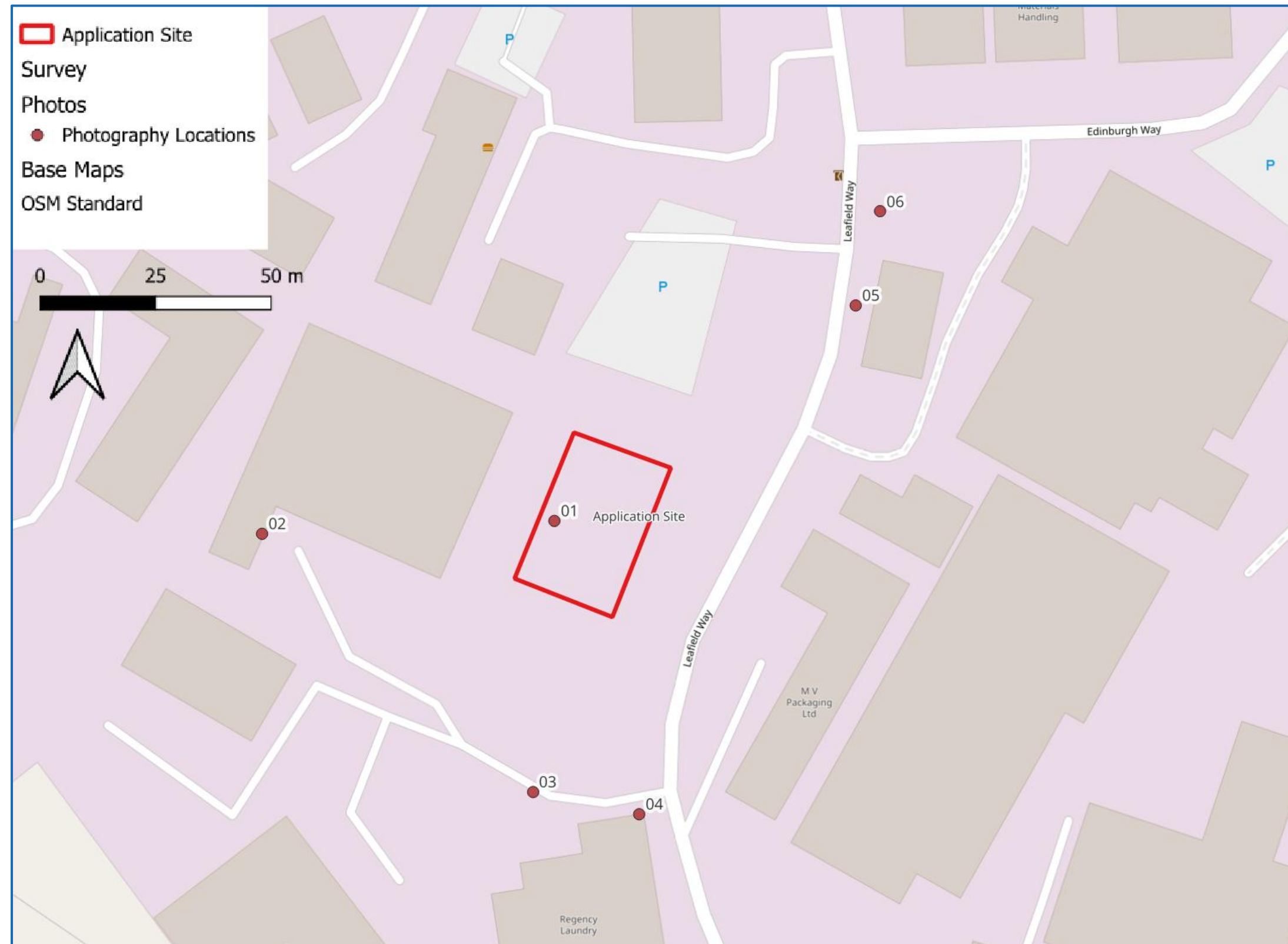


Figure 16: Photography Locations

Certificate of Calibration		Certificate number STD_154400
Issued by: BSRIA Limited Date of issue: 29 July 2024		Page 1 of 2 pages
 Laboratory address: Old Bracknell Lane West, Bracknell, Berkshire RG12 7AH T: +44 (0) 1344 459 314 0800 254 5566 E: instruments@bsria.co.uk W: www.bsria.com/uk/instrument/  MARTIN TROTTER Approved signatory		
Customer: Designs for Lighting UK Ltd Fao Fran Goodyear 17 City Business Centre Hyde Street Winchester Hampshire SO23 7TA		
Date received: 13 July 2024		
Instrument: BSRIA I.D.: 129521 Description: Light meter Manufacturer: Konica Minolta Model: T-10A Serial number: 36621008 Procedure version: BLT264V1		
Laboratory conditions: Temperature: 20 °C ± 4 °C Relative humidity: < 75 %rh Mains voltage: 240 V ± 10 V Mains frequency: 50 Hz ± 1 Hz		
Comments: Instrument calibration conducted as found - no adjustments undertaken. This certificate only relates to the range shown within. At time of calibration the instrument was fitted with the measurement head serial number 55611050.		
Calibration information: The instrument was calibrated by comparison against laboratory reference equipment whose values are traceable to recognised National Standards. This is an electronic document that has been signed digitally. The uncertainties quoted refer to the calibration only and are not intended to indicate any long-term instrument specification/performance. This certificate only relates to the items calibrated and was performed at the above laboratory address.		
 Calibrated by: D. M. Tovey Date of calibration: 29 July 2024 This certificate provides traceability of measurement to recognised National Standards, and to the units of measurement realised at the National Physical Laboratory or other recognised National Standards laboratories. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except with the prior written approval of the issuing laboratory. This certificate complies with the requirements of BS EN ISO 10012:2003.		

Figure 17: Illuminance Meter Calibration Certificate Page 1

Certificate of Calibration		Certificate number STD_154400																																																			
As Found Results		Page 2 of 2 pages																																																			
Reference equipment used in the calibration: <table border="1"> <thead> <tr> <th>Instrument description</th> <th>Serial number</th> <th>Certificate number</th> <th>Last cal. date</th> <th>Cal. period</th> </tr> </thead> <tbody> <tr> <td>Light Bench (ZZMLB02)</td> <td>18425/2 & 18426/1</td> <td>ZZMLB02 - March 2024</td> <td>14/03/2024</td> <td>12 Months</td> </tr> <tr> <td>Light Bench (ZZMLB03)</td> <td>18425/1 & 18427/1</td> <td>ZZMLB03 - March 2024</td> <td>14/03/2024</td> <td>12 Months</td> </tr> <tr> <td>Distance Measuring System (ZZMLB04)</td> <td>4816</td> <td>ZZMLB04 - Feb 2024</td> <td>15/02/2024</td> <td>12 Months</td> </tr> </tbody> </table>			Instrument description	Serial number	Certificate number	Last cal. date	Cal. period	Light Bench (ZZMLB02)	18425/2 & 18426/1	ZZMLB02 - March 2024	14/03/2024	12 Months	Light Bench (ZZMLB03)	18425/1 & 18427/1	ZZMLB03 - March 2024	14/03/2024	12 Months	Distance Measuring System (ZZMLB04)	4816	ZZMLB04 - Feb 2024	15/02/2024	12 Months																															
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Light Bench (ZZMLB03)	18425/1 & 18427/1	ZZMLB03 - March 2024	14/03/2024	12 Months																																																	
Distance Measuring System (ZZMLB04)	4816	ZZMLB04 - Feb 2024	15/02/2024	12 Months																																																	
Calibration uncertainties: Illuminance : 0 to 2000 lux ±5 % of applied value or 0.1 lux whichever is greatest. Measurement uncertainty equals the above plus the devices resolution as reported in the results section, added in quadrature.																																																					
Calibration procedure, Illuminance: The instrument was calibrated against laboratory standards which are themselves traceable back to National Standards. The illuminance measurements were conducted in accordance with the methodology contained in BS 667 using a tungsten filament lamp with a colour temperature of 2856 k. Illuminance levels were calculated using an inverse square law with respect to distance away from a tungsten filament lamp source. The light meters reference plane was taken to be the front face of the diffuser. The illuminance meter was zeroed prior to calibration.																																																					
Calibration results, Illuminance: <table border="1"> <thead> <tr> <th>Range</th> <th>Applied</th> <th>Indicated</th> <th>Correction</th> <th>Specification</th> <th>% of Spec.</th> <th>Comment</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Auto</td> <td>0.00 lux</td> <td>0.00 lux</td> <td>0.00 lux</td> <td>±0.01 lux</td> <td>0.0 %</td> <td></td> </tr> <tr> <td>50.0 lux</td> <td>50.5 lux</td> <td>-0.5 lux</td> <td>±1.1 lux</td> <td>45.5 %</td> <td></td> </tr> <tr> <td>100.0 lux</td> <td>100.5 lux</td> <td>-0.5 lux</td> <td>±2.1 lux</td> <td>23.8 %</td> <td></td> </tr> <tr> <td>250.0 lux</td> <td>248.8 lux</td> <td>1.2 lux</td> <td>±5.1 lux</td> <td>23.5 %</td> <td></td> </tr> <tr> <td>500.0 lux</td> <td>496 lux</td> <td>4.0 lux</td> <td>±11.0 lux</td> <td>36.4 %</td> <td></td> </tr> <tr> <td>1000.0 lux</td> <td>985 lux</td> <td>15.0 lux</td> <td>±21.0 lux</td> <td>71.4 %</td> <td></td> </tr> <tr> <td></td> <td>2000.0 lux</td> <td>1966 lux</td> <td>34.0 lux</td> <td>±41.0 lux</td> <td>82.9 %</td> <td></td> </tr> </tbody> </table> Any test points marked with a * do not comply with instrument specification. End.			Range	Applied	Indicated	Correction	Specification	% of Spec.	Comment	Auto	0.00 lux	0.00 lux	0.00 lux	±0.01 lux	0.0 %		50.0 lux	50.5 lux	-0.5 lux	±1.1 lux	45.5 %		100.0 lux	100.5 lux	-0.5 lux	±2.1 lux	23.8 %		250.0 lux	248.8 lux	1.2 lux	±5.1 lux	23.5 %		500.0 lux	496 lux	4.0 lux	±11.0 lux	36.4 %		1000.0 lux	985 lux	15.0 lux	±21.0 lux	71.4 %			2000.0 lux	1966 lux	34.0 lux	±41.0 lux	82.9 %	
Range	Applied	Indicated	Correction	Specification	% of Spec.	Comment																																															
Auto	0.00 lux	0.00 lux	0.00 lux	±0.01 lux	0.0 %																																																
	50.0 lux	50.5 lux	-0.5 lux	±1.1 lux	45.5 %																																																
	100.0 lux	100.5 lux	-0.5 lux	±2.1 lux	23.8 %																																																
	250.0 lux	248.8 lux	1.2 lux	±5.1 lux	23.5 %																																																
	500.0 lux	496 lux	4.0 lux	±11.0 lux	36.4 %																																																
	1000.0 lux	985 lux	15.0 lux	±21.0 lux	71.4 %																																																
	2000.0 lux	1966 lux	34.0 lux	±41.0 lux	82.9 %																																																

Figure 18: Illuminance Meter Calibration Certificate Page 2

TECHNICAL DESCRIPTIONS, DEFINITIONS & ABBREVIATIONS

PHAR: is an abbreviation for a potential human amenity receptor, a location where an observer could have the potential to be affected by the proposed lighting to be installed *Abbreviation used by DFL LI&P.*

PSER: is an abbreviation for an area identified as or treated as a location that may host a potentially sensitive ecological receptor. This is generally used where light sensitive bats have the potential to live, forage or use as a flight path, other ecologically sensitive receptors such as (but not limited to) the Great Crested Newt may also be identified by this term. *Abbreviation used by DFL LI&P.*

PSR: is an abbreviation for an area where an individual maybe susceptible to light brightness (Light intensity) which may have the potential to cause a hazardous situation. *Abbreviation used by DFL LI&P.*

Obtrusive Light: refers to excessive or bothersome artificial light that goes where it shouldn't, causing discomfort and disruption. *Spill light which because of quantitative, directional or spectral attributes in a given context gives rise to annoyance, discomfort, distraction or reduction in the ability to see essential information.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Sky glow: When lights are directed upwards or light is scattered by particles in the air, like dust or water droplets, it creates a glow that makes it hard to see stars. *The increase in diffuse illuminance of the night sky above that produced by natural sources such as the moon and visible star.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Vertical Illuminance: is how much light lands on upright surfaces like walls. It's measured in lux or footcandles and matters for places where the view from a vertical angle is important. *Lighting of vertical surfaces such as walls, windows, statues, sculptures and people's faces.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Correlated colour temperature (CCT): the appearance of light emitted by a light source measured in Kelvin (K), Lower CCT values such as 2700K represent warmer, more yellowish light, *similar to the light from older incandescent lamps. (Tcp)The temperature of the Planckian radiator whose perceived colour most closely resembles that of a given stimulus at the same brightness and under specified viewing conditions, measured in absolute temperature on the kelvin (K) scale.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Lux: measures the brightness of light as perceived by the human eye at a specific point on a surface. *The SI derived unit of illuminance, measuring luminous flux per unit area (1 lux = 1 lumen/m²).* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Lumens: measure how bright a light appears to our eyes. *The SI derived unit of luminous flux; a measure of the total quantity of visible light emitted by a source or received by a surface (unit: lumen).* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Glare: refers to an excess of bright light that makes you uncomfortable or hinders your vision. It happens when there's a big difference between a bright light and the rest of the surroundings. *Glare: condition of vision in which there is discomfort or a reduction in the ability to see details or objects, caused by an unsuitable distribution or range of luminance, or by extreme contrasts.* BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.1.8

Luminous intensity: is light brightness or how intense the light source is. light intensity is how intense a light source is emitted or received in a particular direction, this is measured candelas and is termed as luminous intensity I_v <of a source, in a given direction> quotient of the luminous flux, $d\Phi_v$, leaving the source and propagated in the element of solid angle $d\Omega$ containing the given direction, by the element of solid angle (unit: $cd = lm \cdot sr^{-1}$). BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.2.

Candela: is a measurement for the brightness of a light source, taking into account the direction in which the light is emitted. Base unit of luminous intensity in the International System of Units (SI); the luminous power per unit solid angle emitted by a point light source in a particular direction. CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Uniformity (Uo): is an explanation for the even distribution of light across an area or surface. The overall uniformity shall be calculated as the ratio of the lowest luminance, occurring at any grid point in the field of calculation, to the average luminance. BS EN 13201-3-2015, Calculation of Performance Section 8.3.

Luminance: is how bright a surface appears to our eyes. It considers the light coming from or reflected by an object. L_v <in a given direction, at a given point of a real or imaginary surface> quantity defined by the formula (unit: $cd \cdot m^{-2} = lm \cdot m^{-2} \cdot sr^{-1}$) BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.3.

Illuminance is how much light lands on a surface per square meter. It's measured in lux. More lux means a brighter area. E_v (unit: $lx = lm \cdot m^{-2}$) 1. <at a point of a surface> quotient of the luminous flux $d\Phi_v$ incident on an element of the surface containing the point, by the area dA of that element 2. <at a point of a surface> equivalent definition: integral, taken over the hemisphere visible from the given point, of the expression. BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.10.

Luminaire: a light fixture, this is also sometimes referred to as a lantern or a light fitting, is a product that produces artificial light. apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.3.3

ULOR: upward light output ratio or ULOR refers to the amount of light the light fixture will produce upwards as a percentage of its total light output. $RULO$ <of a luminaire> ratio of the upward luminous flux of the luminaire, measured under specified practical conditions with its own lamp(s) and equipment, to the sum of the individual luminous fluxes of the same lamp(s) when operated outside the luminaire with the same equipment, under specified conditions BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.3.12.

Maintenance factor (MF): is an allowance for how well the lights keep working overtime. It considers things like dirt on the light fittings and "wear and tear". **DEPRECATED:** light loss factor ratio of illuminance produced by the lighting installation after a certain period to the illuminance produced by the installation when new Note 1 to entry: The term depreciation factor has been formerly used to designate the reciprocal of the above ratio. Note 2 to entry: The maintenance factor takes into account light losses caused by dirt accumulation on luminaires and room surfaces (in interiors) or other relevant surfaces (in exteriors, where appropriate), and the decrease of the luminous flux of lamps. BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.5.18.

Tilt: is how much the luminaire is lifted based on the fitting facing flat to the ground.

Outreach: how far away the fitting is from the column/wall its mounted on to the light source.

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