JV TIERNEY & CO
MECHANICAL ELECTRICAL & SUSTAINABLE ENGINEERS

SITE LIGHTING REPORT

SHD AT FORMER O'DEVANEY GARDENS SITE, DUBLIN 7

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1. Executive Summary

The assessment below for the O'Devaney Gardens development at Stoneybatter provides design evidence that the designed external lighting scheme shall be fit for purpose, achieve all applicable regulatory requirements and concludes that the light spill and glare from the new development and communal park area between the buildings within the new development boundaries will have minimal impact on the surrounding area.

The recommendations made in this report for the area lighting are as follows;

- Zero Upwards Light Output Ratio {ULOR) column light fittings are used.
- The height of the roadway lights are restricted to 8m maximum.
- The lighting installation shall be controlled via a combination of timeclock and photocell operation which will restrict the lighting operation to only when essential.

2. Design Guidelines

The lighting design for the proposed Claremont development will be designed in line with the following industry standards, best practice guidelines and local authority guidelines;

I. Dublin County Council Public Lighting Standards.
II. I.S.10101 National Rules for Electrical Installations.
III. ET211:2003 Code of Practice for Public Lighting.
IV. EN 13201 Road Lighting Standards.
V. BS 5498:2013 Code of Practice for Design of Road Lighting
VI. Luminaires should be selected to ensure that when installed, there shall be zero direct upward light emitted to the sky (all output shall be at or below 90°to the horizontal) to help prevent sky glow from light pollution in the night sky.
VII. The light emitted from these fittings shall have no photo biological risk and shall be categorised as 'Exempt Group' in relation to emissions of Blue Light, Infrared and Ultra-Violet Radiation in accordance with EN 62741:2008.
VIII. All luminaires shall have a Luminous Intensity Classification of between G4 and G6 to IS EN 13201-2:2003/BS 5489-1:2013 and recommendations of Institution of Lighting Professionals and Bat Conservation Trust 'Bats and Lighting in the UK' documentation and Bat Conservation Ireland Guidance Notes for Planners, Engineers, Architects and Developers December 2010.
IX. Guidance note for the Reduction of Obtrusive Light GN01:2011, produced by the Institute of Lighting Professionals (ILP).
X. All luminaires shall comply with IS EN 60598; and all luminaires shall be energy efficient LED source fittings with sharp cut off optics.

3. Methodology:

J.V. Tierney & Co. will contact all Public Utilities companies for gas, telecom and electricity services and will carry out the full coordination of the utilities throughout, including security services for the scheme. These services will be collated and run in specific service zones with agreement from all the stakeholders.

The proposed lighting scheme will be designed using LED fittings with high performance optics to provide visual comfort. The lighting scheme will specifically respond to the landscape treatment and be sensitively designed to ensure minimum light pollution.
Luminaires will be selected to ensure that when installed there shall be zero direct upward light emitted to the sky (all output shall be at or below 90° to the horizontal) to help prevent sky glow from light pollution in the night sky.

The light emitted from these fittings shall have no photo biological risk and shall be categorised as 'Exempt Group' in relation to emissions of Blue light, Infrared and Ultraviolet Radiation in accordance with EN 62741:2008.

All luminaires shall have a Luminous Intensity Classification of between G4 and G6 to IS EN 13201-2:2003(E)/BS 5489-1:2013 and recommendations of Institution of Lighting Professionals and Bat Conservation Trust 'Bats and Lighting in the UK' documentation and Bat Conservation Ireland Guidance Notes for Planners, Engineers, Architects and Developers December 2010. As also recommended in the above guides and standards, Variable Lighting and Part-Night Lighting shall be utilised.

4. Calculation Procedure

The proposed final lighting scheme IS designed using the lighting design software Relux to ensure all regulations are achieved and to review its effects on the local residents, ecology and environment.

The lighting design within the site boundary shall generally be carried out utilising 8 metre and 6 meter high lighting poles. The lighting shall be automatically controlled via photocell and timeclock combination as per DCC Public Lighting Specification.

All light fittings used shall comply with the requirements set out within the Institute of Lighting Professionals Guidance notes for the Reduction of Obtrusive Light GN01:2011.

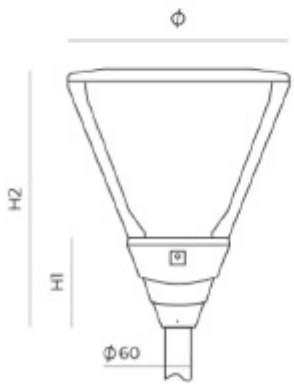
5. Appendix

External Lighting

LUMINAIRE REFERENCE:	Type A	Dimensions:	160x360x743mm (HxWxD)
BODY DESCRIPTION:	Luma Gen2 Medium BGP704 4000K DW50 - LED module - LED – Power supply unit with DALI and SystemReady interface – Distribution medium 31 - Glass - 70° x 37° - Internal (no external connection)	RECESSED, SURFACE OR WALL MOUNTED:	Column mounted
DIFFUSER TYPE:	IP66	LAMPS:	24,000 lm 4000K
CONTROL GEAR:		LAMP LIFE:	100,000 hours
AREA OF APPLICATION:	Street Lighting	MANUFACTURER:	Philips Lighting

LUMINAIRE REFERENCE:	Type B	Dimensions:	160x360x743mm (HxWxD)
BODY DESCRIPTION:	Luma Gen2 Medium BGP704 4000K DW50 - LED module - LED – Power supply unit with DALI and SystemReady interface – Distribution medium 31 - Glass - 70° x 37° - Internal (no external connection)	RECESSED, SURFACE OR WALL MOUNTED:	Column mounted
DIFFUSER TYPE:	IP66	LAMPS:	18,000 lm 4000K
CONTROL GEAR:		LAMP LIFE:	100,000 hours
AREA OF APPLICATION:	Street Lighting	MANUFACTURER:	Philips Lighting

LUMINAIRE REFERENCE:	Type C	Dimensions:	245x245x560mm (HxWxD)
BODY DESCRIPTION:	Buck KORZO 24LED VSM Highly efficient LED park luminaire. The reversed conical shape with two holders represents an aesthetically unobtrusive shape. The design reconciles the traditional ambience solutions and modern shape while maintaining the maximal benefits of LED sources.	RECESSED, SURFACE OR WALL MOUNTED:	Column mounted
DIFFUSER TYPE:	IP66	LAMPS:	6,446 lm 4000K
CONTROL GEAR:		LAMP LIFE:	100,000 hours
AREA OF APPLICATION:	Walkway Lighting	MANUFACTURER:	Buck



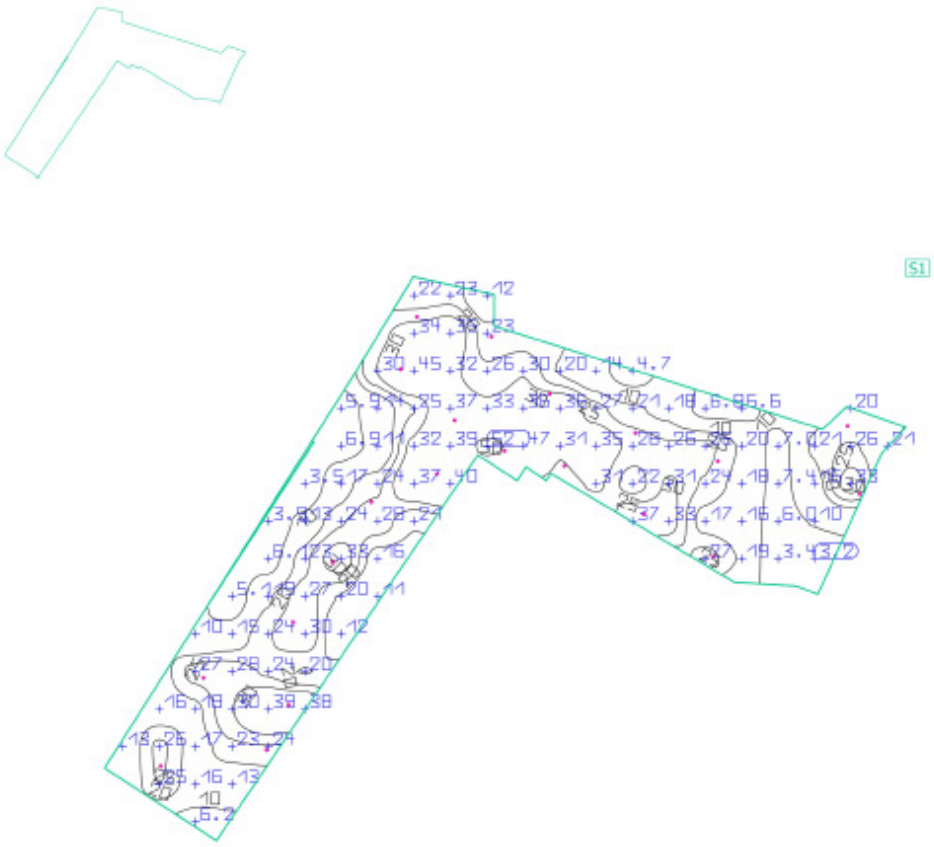
Calculation objects

Calculation objects

Calculation surfaces

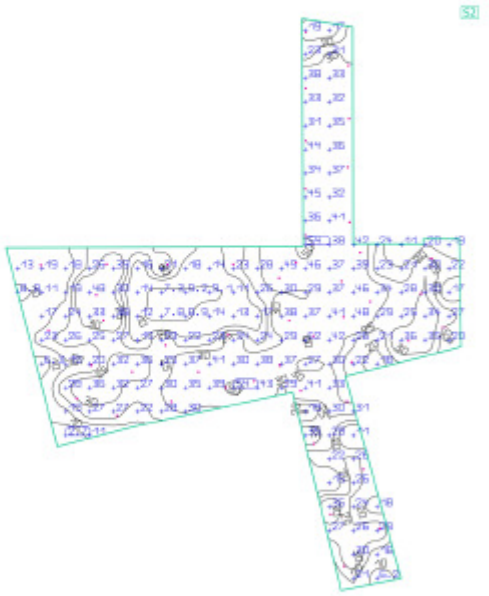
Properties	Ē	E_{min}	E_{max}	g_1	g_2	Index
North Pedestrian Area Perpendicular illuminance Height: 0.000 m	22.3 lx	3.20 lx	52.3 lx	0.14	0.061	S1
South Pedestrian Area Perpendicular illuminance Height: 0.000 m	27.4 lx	2.66 lx	54.5 lx	0.097	0.049	S2

North Pedestrian Area

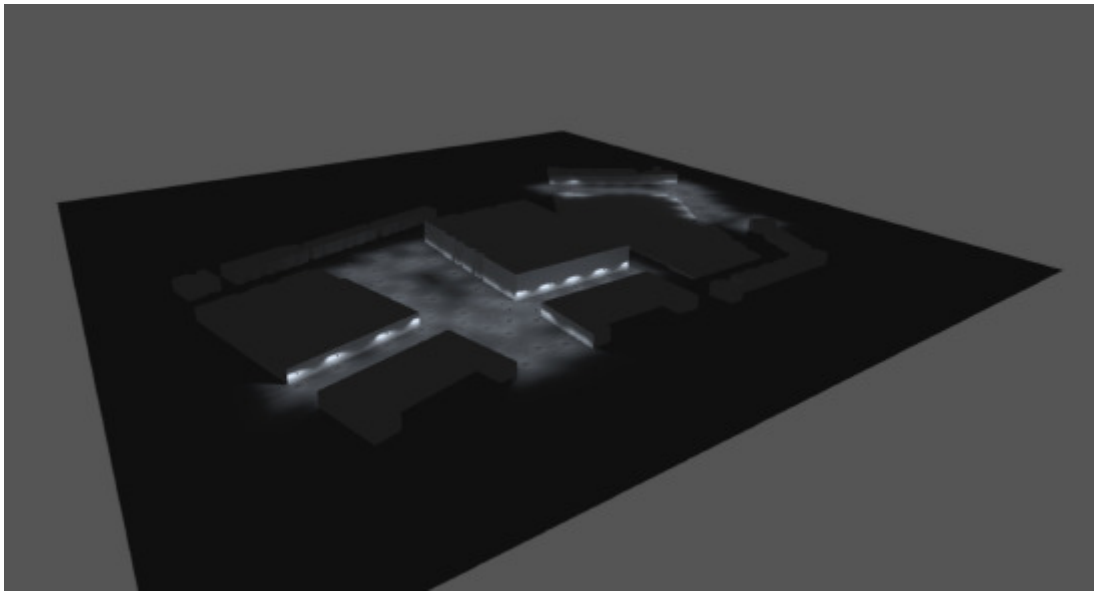


Properties	Ē	E_{min}	E_{max}	g_1	g_2	Index
North Pedestrian Area Perpendicular illuminance Height: 0.000 m	22.3 lx	3.20 lx	52.3 lx	0.14	0.061	S1

South Pedestrian Area



Properties	Ē	E_{min}	E_{max}	g_1	g_2	Index
South Pedestrian Area Perpendicular illuminance Height: 0.000 m	27.4 lx	2.66 lx	54.5 lx	0.097	0.049	S2



Roadway	
2685 points at z=0, sp 1.5m by 1.5m	
HORIZONTAL LUX	
Average	7.6
Maximum	14.4
Minimum	2.2
Min/Avg(Uo)	0.288
Min/Max	0.153
Coef Var	0.251
UnifGrad	1.46

Ashford Cottages Footpath	
19 points at z=0, sp 1.5m by 1.5m	
HORIZONTAL LUX	
Average	9.9
Maximum	11.8
Minimum	7.8
Min/Avg(Uo)	0.786
Min/Max	0.661
Coef Var	0.108
UnifGrad	1.27