KINGSBRIDGE CONSULTANCY LTD,

HAGGARDSTOWN, BLACKROCK, DUNDALK, CO. LOUTH

STRATEGIC HOUSING DEVELOPMENT (SHD) PLANNING APPLICATION

STREETLIGHTING PROPOSALS

10th June 2019 – Rev 3

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1 INTRODUCTION

Caldwell Consulting have been instructed to provide a MEP Design statement in relation to the plant equipment and systems being considered as an integral part of the MEP Services installation to be provided and installed at Haggardstown, Blackrock, Dundalk, Co. Louth, which comprises of 258 dwellings, semi-detached dwellings, Terraced, Duplexes, 12 no. ground floor apartments below duplexes and 213 Apartments and a Creche and is located within the administrative area of Louth County Council and is therefore subject to the land use policies and objectives of the County Development Plan 2015-2021.

https://www.louthcoco.ie/en/Publications/Development-Plans/Louth-County-Council-Development-Plans/Louth-County-Development-Plan-2015-2021.html

The area in the immediate vicinity of the site comprises of a large industrial park, Dundalk Golf Club, residential properties and rural agricultural land.

The proposed streetlighting installation has been designed to provide, as far as is reasonably practical, a safe environment for pedestrians, cyclists and road users whilst making every effort to limit the environmental impact.

1.1 DESIGN CONSIDERATIONS AND REFERENCE MATERIAL

In undertaking the Streetlighting design, Caldwell Consulting referred to and considered the following:

- Louth County Council Public national energy efficiency targets and Guidance
- IS EN 13201-2:2015 – Road lighting performance requirements
- BS 5489-1:2013 – Code of practice for the design of road lighting
- BS 5489-1:2003 + A2:2008 – Code of practice for the design of road lighting, lighting of roads and public amenity areas
- PD CEN TR 13201-1:2014 – Road lighting, Guidelines on selection of lighting classes
- CIBSE Lighting Guide 6 – Outdoor Environment
- ILE Guidance notes – Guidance notes for the reduction of obtrusive light

- CIE 115:2010 (N1) – Lighting of roads for motor and pedestrian traffic
- CSS – Review of the class and quality of street lighting
- The use of LED lamps with 'white' light appearance to provide a feeling of greater safety
- Providing good visibility for all road users
- Limiting the height of lighting columns as far as is reasonably practical with a view to lessening their impact, reducing overspill, glare, upward and nuisance light spill
- Ensuring that the illumination 'Uniformity' is within required limits and shaded/dark areas are eliminated as far as is reasonably practicable
- Biodiversity chapter of the EIAR

Should any Planning Conditions impose 'Curfew Hours' after which dimming of luminaires is required this will be incorporated into a revised design.

1.2 GENERAL DESIGN PARAMETERS

The design parameters in the table below are based on the recommendations of BS 5489-1:2013 and IS EN 13201 and have been used as the basis of the Streetlighting Installation design for this project.

LOCATION	**LIGHTING CLASS**	**MAINTAINED (Eave) LUX LEVELS**	**MAINTAINED (Eamin) LUX LEVELS**
Entrance road	P2 with S/P ratio of 1.4	8.4 lux	1.7 lux
Subsidiary Roads – traffic areas for slow moving vehicles	P4 with S/P ratio of 1.4	3.8 lux	0.8 lux
Cyclist areas	P5 with S/P ratio of 1.4	2.1 lux	0.4 lux
Pedestrian areas	P5 with S/P ratio of 1.4	2.1 lux	0.4 lux

Table A – General Design Parameters

1.3 PROPOSED LIGHTING CLASSES AND SELECTION CRITERIA

The Lighting Classes detailed in 'Table A' have been determined from BS 5489-1:2013 and IS EN 13201 and further information is provided within this report.

The main entrance to the development is proposed as being from the R172 Blackrock Road to the east of the site, a lighting design for this area has not been completed at this time, as a completed drawing of this area would need to be produced to allow an accurate lighting proposal.

This junction would be considered as a conflict area and will therefore be illuminated to a CE series of lighting class chosen from BS EN 13201-2:2015, Table 2 or a C Series lighting class from CIE 115:2010 (N1), Table 5.

- 20 lux with a Uniformity of not less than 0.4 Uo

Guidance on the lighting of conflict area is also given in ILP PLG02 (36). As described in BS 5489-1:2013 a conflict area is;

"Conflict areas are typically junctions, intersections, roundabouts and pedestrian crossings, where significant streams of motorized traffic intersect with each other or with other road users such as pedestrians and cyclists. At conflict areas, the visual task is generally more difficult than on straight roads, and a higher luminance or illuminance class may be selected at the conflict area."

The proposed residential development site will also consist of a cyclist and pedestrian path which will begin at the entrance to the development from the Bothar Maol road, which is located to the north of the site

Recommendations on the lighting design are highlighted in BS 5489-1:2013 and in IS EN 13201 (Table A within this report), with additional Guidance on lighting of pedestrian crossings provided in ILP TR12 (43)

It is proposed to provide Lighting Class P2 with a S/P Ratio of 1.4 to the main road into the development.

It is proposed to provide Lighting Class P4 with a S/P Ratio of 1.4 to subsidiary roads within the development.

It is proposed to provide Lighting Class P5 with a S/P Ratio of 1.4 to cyclist and pedestrian routes within the

development.

1.4 PROPOSED STREETLIGHTING INSTALLATION

The proposed streetlighting installation comprises the following:

142 No. Tech Series LED luminaires mounted on 6 Meter columns, this consists of;

- 95 No. 27 W (80 No. Street Optic wide A8, 15 No. Forward Throw Optic A9) with a 5 Degree tilt,
- 37 No. 20 W street optic wide A8 with a 5 Degree tilt,
- 10 No. 52W forward throw optic A9 with No tilt.

The Column mounted, post-top luminaire proposed is a Tech Series LED external luminaire or similar. This luminaire has been selected to produce the streetlighting illumination design calculations detailed in this report, as its performance minimises upward light spillage and glare onto site boundaries in accordance with the 'Biodiversity Chapter of the EIAR', has the ability to be dimmable and has an LED light source. Please refer to image 1.4A for a photo and detail dimensions of the luminaire below:

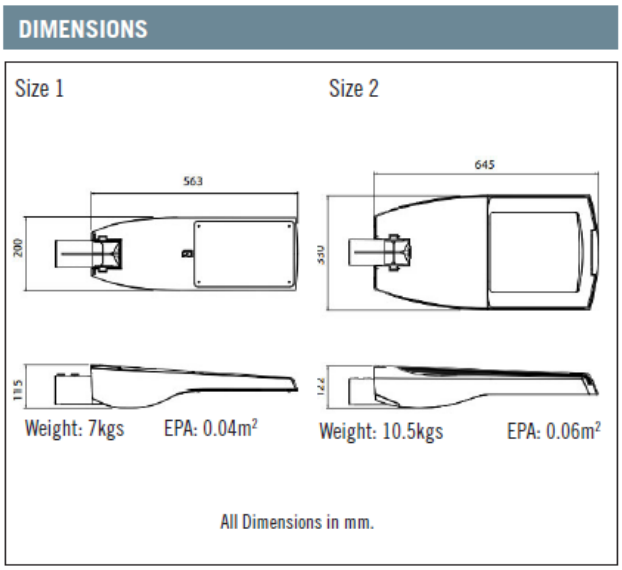

Image 1.4A - Tech series LED external luminaire

It is constructed in a Die-cast aluminium, IP66 and IK08 as standard with the upgrade option of IK10 available on request. The driver and LED modules are accessible for easy maintenance or replacement and

is provided with tempered glass as standard, it is EN 60598, CE compliant and ideal for roadway applications and has been utilised extensively throughout Ireland on adopted streetlighting schemes.

1.4.1 LUMINAIRE/COLUMN AND STREETLIGHTING CONTROL DETAILS

Each luminaire will be controlled by an individual photoelectric control unit, PECU, to limit the operation of the luminaire to between dusk and dawn.

Additional to this, all lamps selected have a DALI driver and are dimmable. Dimming of the lamp is controlled by a Timeclock which can either be integrated into the street lighting circuit or each individual luminaire. The clock is standard in all external luminaires and can be pre-set to determine when the lamp should be switched on and off based on time and date.

A curfew period is recommended in document ILP GN01:2011, however a dedicated time has not yet been discussed with the Local Planning Authorities (LPAs) and if implemented will limit the amount of upward sky glow at night during a pacific time.

1.4.2 PROPOSED STREETLIGHTING LAYOUT

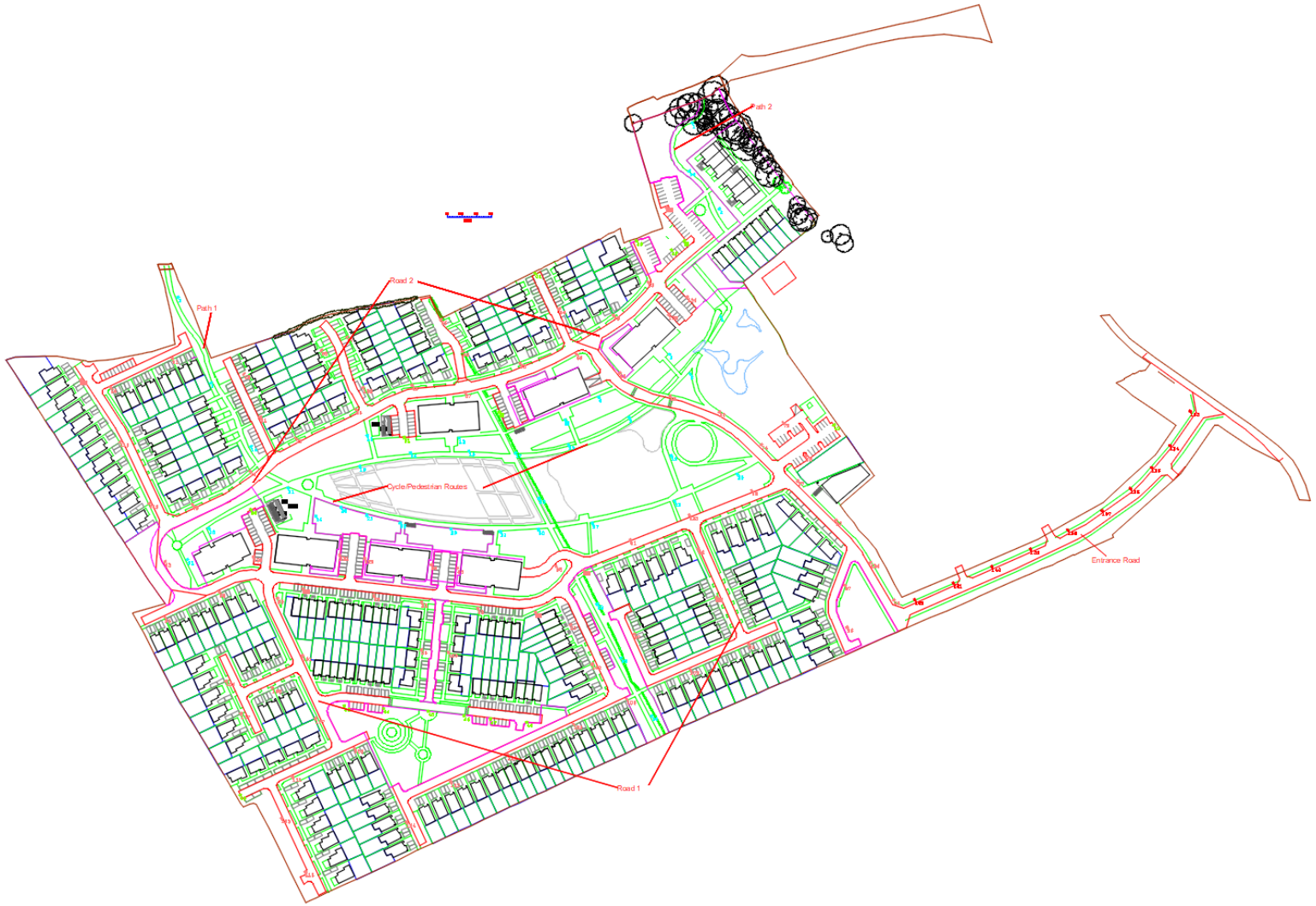

Image 1.4.2A – Proposed street lighting design with isoline remove for clarity

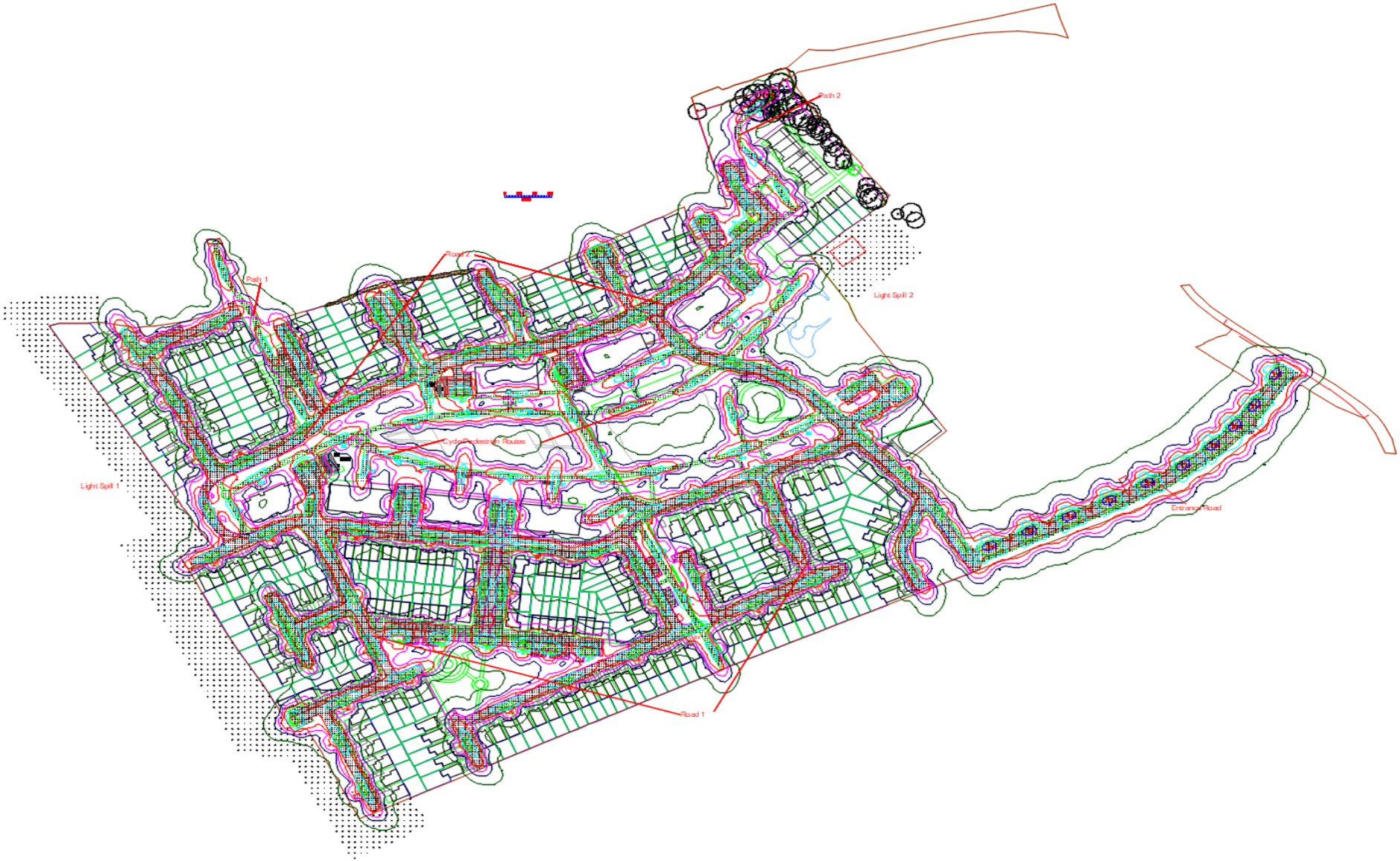

Image 1.4.2B – Proposed street lighting design with isoline

Calculation Summary										
Description	Class (BS5489-1:2013)	Avg	Max	Min	Min/Avg	Min/Max	Units	PtSpcLr	PtSpcTb	# Pts
Entrance Road	P2	9.75	32.6	1.7	0.17	0.05	Lux	1.5	1.5	1463
Road 1	P4	4.52	17.3	0.8	0.18	0.05	Lux	1.5	1.5	9924
Road 2	P4	4.68	18.5	0.8	0.17	0.04	Lux	1.5	1.5	6071
Cycle/Pedestrian Routes	P5	3.43	11.4	0.4	0.12	0.04	Lux	1.6	1.5	1949
Path 1	P5	2.81	10.7	0.6	0.21	0.06	Lux	1.5	1.5	296
Path 2	P5	3.20	10.2	0.5	0.16	0.05	Lux	1.5	1.5	188
Light spill 1		0.05	3.5	0.0	0.00	0.00	Lux	4	4	930
Light Spill 2		0.01	0.4	0.0	0.00	0.00	Lux	4	4	161

Luminaire Schedule							
Symbol	Qty	Label	Lum. Lumens	MF	S/P Ratio	Description	Filename
	80	T27W	3120	0.750	1.40	Tech 27w 16LED 500mA Street Optic Wide A8	5TCA11GLB-STW.IES
	15	T27F	3120	0.750	1.40	Tech 27w 16LED 500mA Forward Throw Optic A9	5TCA11GLB-FT.ies
	37	T20W	2050	0.720	1.40	Tech 20w 8LED 700mA Street Optic Wide A8	5TCA10GLA.IES
	10	T5F	6235	0.750	1.40	Tech 52w 32LED 500mA Forward Throw Optic A9	5TCA13GLA-FT.IES

Image 1.4.2C – Proposed street lighting design calculation summary

To ensure that new residential development is not over lit and to reduce light pollution, each development area is categorised into an environmental zone, please refer to Table 2.1 CIBSE Lighting Guide 6 - The exterior environment and ILE Guidance notes for the reduction of light pollution. This site location would be considered as a Class E3 medium brightness district

1.5 CONCLUSION

The proposed streetlighting installation for the new Residential Development at Haggardstown, Blackrock, Dundalk, Co. Louth achieves the following;

- Luminaire selection limits upward light spill and helps control minimal light spillage and glare onto site boundaries in accordance with the 'Biodiversity Chapter of the EIAR'.

- All lamps selected have a DALI driver and are dimmable. If a curfew is implemented, this will limit the amount of upward sky glow at night during a pacific time also helping to reduce running and maintenance costs

- Complies with the recommended illumination levels in accordance with relevant current regulations and standards. The light levels are as follows:

    I. Entrance Road: 9.7 lux average, with a minimum of 1.7 lux. This complies with class P2 of IS EN 13201/BS5489 with a S/P ratio of 1.4 **(8.4 lux average, 1.7 lux minimum)**

    II. Road 1: 4.5 lux average, with a minimum of 0.8 lux. This complies with class P4 of IS EN 13201/BS5489 with a S/P ratio of 1.4 **(3.8 lux average, 0.8 lux minimum)**

    III. Road 2: 4.6 lux average, with a minimum of 0.8 lux. This complies with class P4 of IS EN 13201/BS5489 with a S/P ratio of 1.4 **(3.8 lux average, 0.8 lux minimum)**

    IV. Cycle / Pedestrian Routes: 3.4 lux average, with a minimum of 0.4 lux. This complies with class P5 of IS EN 13201/BS5489 with a S/P ratio of 1.4 **(2.1 lux average, 0.4 lux minimum)**

    V. Path 1: 2.8 lux average, with a minimum of 0.6 lux. This complies with class P5 of IS EN 13201/BS5489 with a S/P ratio of 1.4 **(2.1 lux average, 0.4 lux minimum)**

    VI. Path 2: 3.2 lux average, with a minimum of 0.5 lux. This complies with class P5 of IS EN 13201/BS5489 with a S/P ratio of 1.4 **(2.1 lux average, 0.4 lux minimum)**

- Complies with Uniformity requirements throughout the development to ensure good visibility at night. The final installation will be coordinated with drop kerbs, providing access to dwellings and landscaping to ensure that lighting is not obstructed, nor does it cause a hazard to pedestrians, cyclists or road users.