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**Client:** Rockture 1 Limited

**Project:** Dunshaughlin East SHD,  
Dublin Road, Dunshaughlin, Co Meath  
Proposed new residential development

**Title:** PROPOSED PUBLIC LIGHTING REPORT FOR DUNSHAUGHLIN EAST SHD

**Date:** 17-12-18

**Revision:** Application Rev B

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## 1 INTRODUCTION

The client, Rockture 1 Limited, is proposing the next phase of Dunshaughlin residential development. This strategic housing development is located at the lands to the north of the R147 /Dublin Road, Dunshaughlin, County Meath.

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The proposed development consists of a residential development comprising of 913 no. residential units, a neighbourhood centre, including 2 no. retail units, a café / restaurant unit, a primary healthcare / gym, a community facility and a childcare facility, all associated open space, a section of the Outer Relief Road, internal roads, cycle and pedestrian infrastructure, services and all other associated development on a site of c. 28.1 hectares.

The 913 no. residential units proposed consist of 505 no. houses (single, two, and three storey), 186 no. duplex units (three storey), and 222 no. apartments (four and five storey).

The proposed lighting for this site has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles. The lighting design also takes into consideration and is adequately placed to deter anti-social behaviour and minimise light pollution to each of the dwellings.

## 2 DESIGN CONSIDERATIONS

### 2.1 Road Usage

When designing the proposed lighting scheme for the development the following traffic classifications have been considered:

- Vehicular Traffic
- Pedestrian Traffic
- Cyclist Traffic
- Car parking

### 2.2 Landscape Trees

Co-ordination with the landscape designer is necessary to ensure the following:

- Luminaire and tree positions do not overlay.
- Luminaires should be located outside the branch width of the trees to avoid damage to the light fitting from falling branches and to avoid the need to regularly trim them back.
- Avoid obstructions to lighting by reducing the height of lighting columns

### 3 LIGHTING DESIGN

The lighting design is based on current Meath County Council Public Lighting Technical Specification & Requirements Rev 0 March 2017.

British Standards BS 5489 and EN 13201 1&2 2013. Based on the guidelines set out in these documents the parameters applicable to the site are set out in Table 1 below:

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Table 1

Location	Maintained (Eave) Lux Level	Maintained (Emin) Lux Level
Main Road	15 lux	3 lux
Subsidiary Roads-Traffic areas for slow moving vehicles	7.5Lux	1.5 lux
Pedestrian & Cyclist areas	5 lux	1.0 lux

The proposed lighting scheme within the development consists of 6m and 8m pole mounted fittings as indicated on the drawings. The luminaire selected for site lighting is the CU-Phosco P852.

- Low level lighting
- Minimal upward light spill
- Low voltage LED lamps
- Pre-approved by Meath County Council



Figure 1: P852

The output or wattage of the fitting varies depending on the area in which it is being installed. Some areas require a higher output fitting to achieve the required lux level as outlined in Table 1:

- Main road consists of 6m - 23w & 8m - 32w LED P852- 12-P4-NW-D0600
- Subsidiary road consists of a combination of 6m - 17w & 6m —21w LED P852
- Pedestrian and Cyclist areas consists of 6m – 11w LED P852-12-R3B
- Where access to lighting columns is obstructed by pathways etc, an abacus raise & lower type column should be used.

**Lighting Layout**

Figure 2 below indicates the proposed lighting layout (Refer to *dwg No 17008-E004 SHD Proposed Site Lighting Layout*).

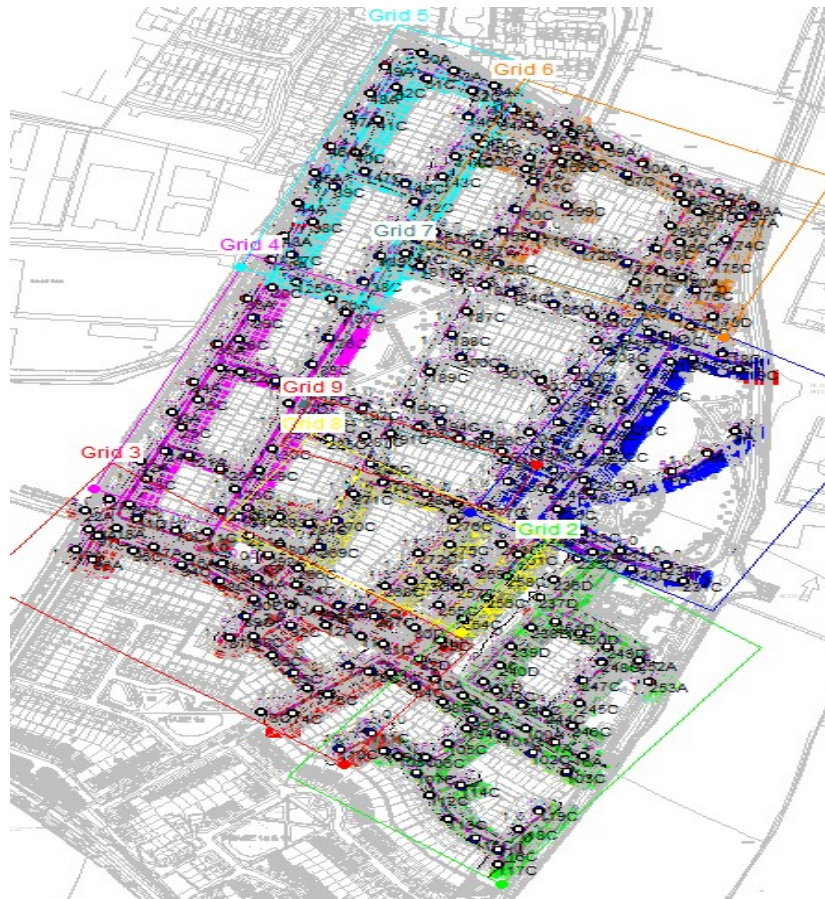


Fig 2. Lighting Layout

**Table 2: Grid setting out**

**Calculation Grids**

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	897477.50	751547.60	203.36	254.32	1.50	1.48
2	Grid 2	897500.20	751155.03	311.76	191.00	1.50	1.49
3	Grid 3	897387.51	751281.44	156.87	323.14	1.43	1.50
4	Grid 4	897208.07	751572.20	108.80	270.85	1.49	1.50
5	Grid 5	897313.72	751805.62	108.44	279.07	1.49	1.49
6	Grid 6	897660.13	751731.22	186.95	245.48	1.50	1.50
7	Grid 7	897359.58	751660.86	188.90	187.78	1.50	1.49
8	Grid 8	897471.02	751420.58	116.89	204.34	1.50	1.49
9	Grid 9	897525.73	751597.10	175.44	56.91	1.50	1.50



Figure 3 & 4 below indicates the proposed lighting layout for the main road to the development. (Refer to dwg No 17008-E004 SHD Proposed Site Lighting Layout).

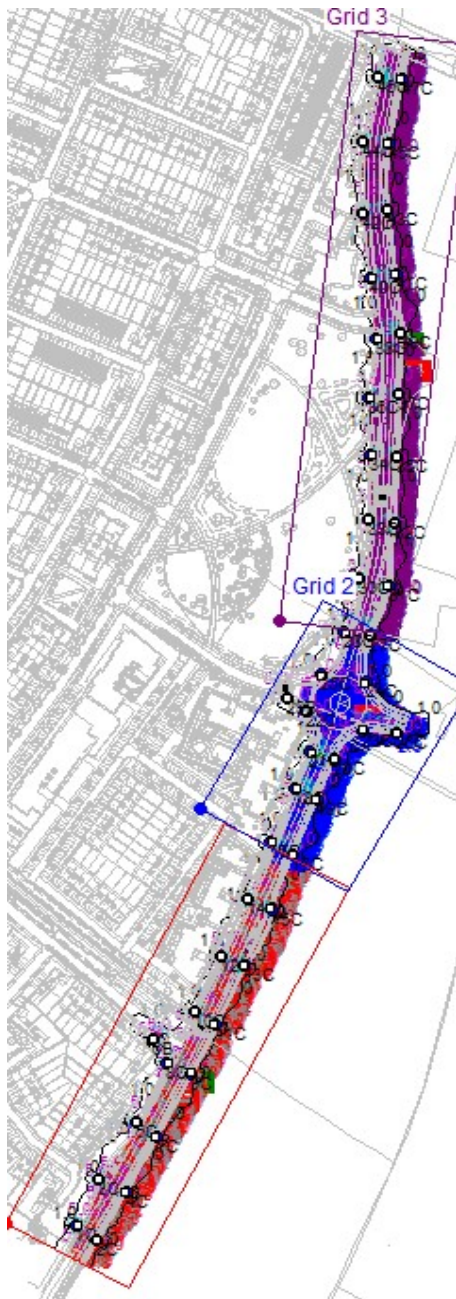


Fig 3. Lighting Layout

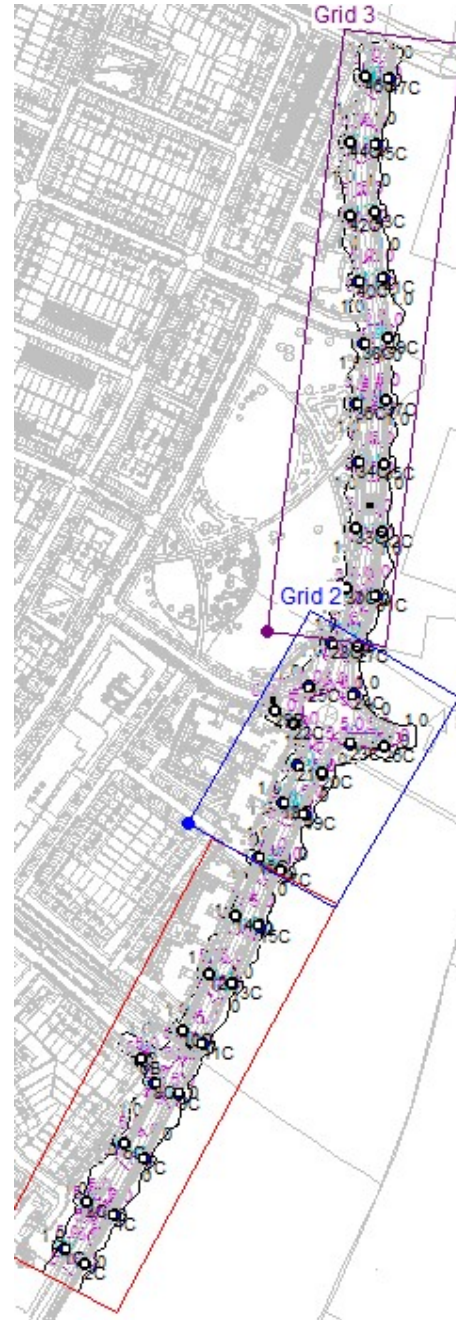


Fig 4. Lighting Layout

Table 3: Grid setting out

**General Data**

Dimensions in Metres Angles in Degrees

**Calculation Grids**

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	697481.18	751162.08	82.68	273.00	1.48	1.50
2	Grid 2	697575.77	751411.38	100.57	144.66	1.48	1.49
3	Grid 3	697622.84	751524.57	69.72	358.42	1.48	1.49

#### 4 LIGHTING SIMULATION RESULT

The lighting class for the development is determined using the Code of practice for the design of road lighting Part 1: Lighting of roads and public amenity areas - *Table 3 BS5489-1-2013*.

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- Class P3 along roadways and footpaths, achieving a maintained average illuminance of 7.5 lux and minimum illuminance of 1.5 lux.
- Class P4 along pedestrian walkways and cycle paths, achieving a maintained average illuminance of 5 lux and minimum illuminance of 1.0 lux.

#### 5 Lighting Control

Each light fitting shall be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile, 35 lux on/18 lux off.

To limit the amount of upward sky glow at night all lighting shall be dimmed by 30% post curfew. For this development post curfew is considered to be 11pm

*stricter requirements will apply – if not otherwise given 23:00hrs is suggested ILP GN01:2011).*

All luminaires will be fitted with a photocell. All lamps selected are fitted with DALI ballast and as such are dimmable. Dimming of the lamp is controlled via an astronomical clock which is built into the circuit board of the luminaire. This clock is standard in all external light fittings and it determines when the lamp should be switched on/off based on time and date.

Preferred light output settings can be pre-programmed within the clock. It is proposed to pre-programme the fittings to ensure all lights are dimmed post curfew between 11pm-6am.

Pre-curfew lux level results are within the parameters set out in Table 2 below:

Table 2

Location	Maintained ( $E_{ave}$ ) Lux Level	Maintained ( $E_{min}$ ) Lux Level
Main Road	15 Lux	3 Lux
Roadways and footpaths	7.5 Lux	1.5 Lux
Pedestrians walkways and cycle paths	5 Lux	1.0 Lux

Post curfew lux level results are within the parameters set out in Table 3 below:

Table 3

Location	L Maintained (Eave) Lux Level	Maintained (Emin) Lux Level
Main Road	10 Lux	2 Lux
Roadways and footpaths	5 Lux	1 Lux
Pedestrians walkways and cycle paths	3 Lux	0.6 Lux

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The proposed lighting installation for the residential development achieves the following:

- Luminaire selection limits upward light spill.
- Dimming lights by 30% post-curfew will reduce running and maintenance cost.
- The lighting scheme achieves the recommended lux levels in accordance with current regulations and standards.
- The lighting scheme achieves good uniformity throughout the development to ensure good visibility at night.
- The inclusion of baffles/shields on luminaires positioned within the eco-park.
- Co-ordination with the landscape developers will ensure light positions do not clash with tree positions, limiting light obstruction and future maintenance costs.



## 6 REFERENCE INFORMATION

### Code and Standards:

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Calculations performed, and results produced in this document are in accordance with the following relevant codes and standards:

- *Meath County Council technical Specification & Requirements rev 0, March 2017*
- *BS 5489 – 1 2013- Code of practice for the design of road lighting Part 1: Lighting of roads and public amenity areas*
- *EN 13201 – 2 2003 – Road Lighting Part 2: Performance Requirements*
- *CIBSE Lighting Guide 6 2016 – Outdoor Environment*

**Reality Lighting software calculations available on request.**

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**DATE:** 19 November 2018

**DESIGNER:** Ross Traynor - Thomas McCormack

**PROJECT No:** 17008

**PROJECT NAME:** The Willows SHD



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