

# Site Lighting Report - Planning Stage

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On behalf of  
**Ironborn Real Estate Limited**  
 for  
**Proposed Apartment Development**  
 at  
**'Sector 3', Aiken's Village, Stepside, Co. Dublin**  
 (Dun Laoghaire-Rathdown County Council)

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## 1. Introduction

The proposed development for a Strategic Housing Development at 2no. contiguous sites (c. 3.39 Ha), at 'Sector 3', Aikens Village in the Townlands of Woodside and Kilgobbin, Stepside, Co. Dublin.

The site for proposed residential development is generally bounded by Thornberry Road to the north, by Atkinson Drive and the adjoining open space lands to the west, Sandyford Hall residential development adjacent Ferncarraig Avenue to the east and by Village Road and Griannan Fidh residential development to the south (Townland of Woodside). The site for proposed below ground wastewater storage tank is on open space lands generally bounded Griannan Fidh residential development to the north, Sandyford Hall residential development to the east and open space lands (including detention basin) to the south and west (Townland of Kilgobbin)

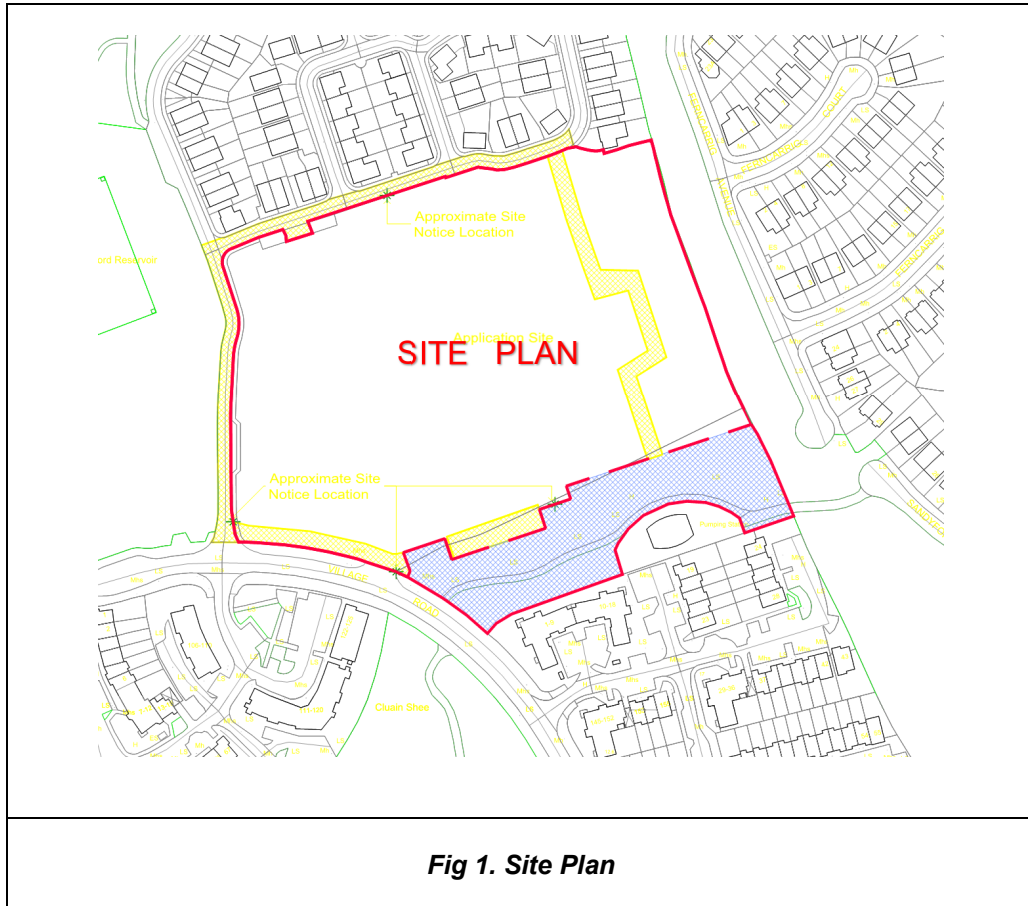
The development will consist of: -

438no. 'Build-to-Rent' apartment units (154no. 1 bedroom units and 284no. 2 bedroom units) arranged in 9no. blocks ranging in height from 2 – 8 storeys over 2no. independent single level basements. Private patios / terraces and balconies are provided for some apartment units (not all units have a patio, terrace or balcony). Upper level balconies are proposed on elevations of all multi-aspect apartment buildings.

- Blocks A – D are located above Basement 1 (c. 6,002 sq. m gross floor area) and Blocks F – J are above Basement 2 (c. 5,058 sq. m gross floor area).
- Provision 1no. childcare facility (c. 514.9 sq. m gross floor area) in Block D.
- Provision of resident amenity space / communal areas (c. 1,455.7 sq. m gross floor area) in Block C and Block G.

And all associated and ancillary site development, infrastructural, landscaping and boundary treatment works including: -

- New vehicular access to / from Basement 1 from Atkinson Drive and new vehicular access to / from Basement 2 from Thornberry Road.
- Provision of c. 9,799 sq. m public open space, including a public plaza onto Village Road and improvement works to existing open space area to the north of existing Griannan Fidh residential development.
- Provision of 350no. car parking spaces including basement parking, set down spaces for proposed childcare facility and repositioning of set down area on Atkinson Drive.
- Provision of 669no. bicycle parking spaces.
- Provision of 14no. motorcycle parking spaces.
- Communal bin storage and plant provided at basement level and additional plant provided at roof level.
- Provision of below ground wastewater storage tank (c. 500m<sup>3</sup>) and associated connection to the wastewater networks including ancillary above ground kiosk and appropriate landscaping on open space lands to the south of Griannan Fidh residential development.



## 2. Overview

Site lighting has been designed to provide adequate lighting at site entrances and within the development. The lighting has been designed to provide safe movement for the following road users:

- Vehicular
- Pedestrian
- Cyclist

The lighting design has taken the following into consideration:

- Use of low energy LED lighting
- Ensure no light spill on adjacent properties
- Review of existing lighting to ensure new lighting
- Use of simulation tools to ensure lighting class is achieved
- Achieving the recommended lighting class
- Achieving recommended lighting zone

## 3. Site Lighting

The proposed external lighting consists of pole mounted functional light fittings, and pole mounted decorative fittings. The existing street lights along Atkinson Drive & Thornberry Road has been considered within this calculation.

### 3.1 Proposed light fitting – 6m Column Fitting

The proposed light fitting selected is the Civi TEQ:

- Cost-effective LED road lighting solution.
- Fitted with R-PEC optic to bring safe and efficient light to residential streets and high traffic roads
- Comprehensive range of controls incorporating the Bi-Power Switch to activate or deactivate dimming onsite
- Visually similar to existing lighting along Parkside Boulevard



*Fig 2a. Thorn CiviTEQ*

### 3.2 Proposed light fitting – 4m Column Fitting

The proposed light fitting selected is the Avenue F2:

- Decorative LED lighting solution
- Fitted with R-PEC optic to bring safe and efficient light to residential streets and high traffic roads
- Standard dimming to optimize energy consumption



### 3.3 Lighting Control

All light fittings will be installed with a photo electric cell unit (PECU). The switching levels for each photocell shall be 35lux ON and 18lux OFF.

All lighting shall be equipped with interoperable open source components in each instance which will allow for communication with a central monitor system.

## 4. Lighting Calculations

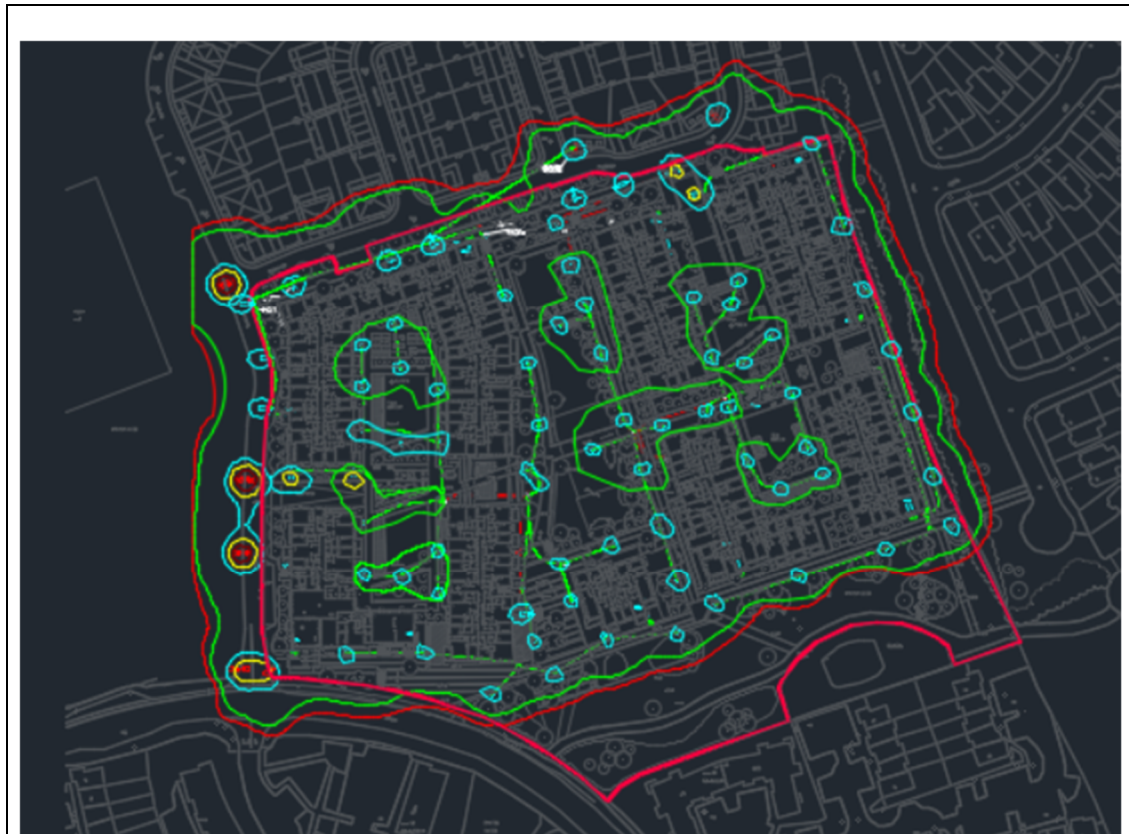
Prior to lighting calculations being performed the lighting classification and environmental zone must be determined.

The lighting classification is determined by the local council however where this is not available lighting class can be determined using the parameters outlined within the EN13201-2:2003 & BS 5498-2:2013 Code of Practice for the Design of Road Lighting. Lighting class for calculation purposes are outlined below.

The environmental zone is determined by the local council however, where this is not available lighting class can be determined using the parameters outlined within the TII (Transport Infrastructure Ireland) DN-LHT – 03038 Design of road lighting for national road network and ILP – (Institution of lighting professionals) – Guidance notes for the reduction of obtrusive light. The environmental zone is considered to be E2/E3 medium to low brightness district.

## 4.1 Lighting Design

The proposed site lighting layout is as indicated in the figure 3 below:



**Fig 3. Site Lighting Layout**

## 4.2 Lux Level Results

The lighting classification for the proposed development is as outlined in the table below. Two separate calculations were performed to determine pre and post curfew lux levels.

((**\*curfew** - the time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. If not otherwise stated - 23.00hrs is suggested.))

Location	Uniformity	Lux (Pre-Curfew)
Ramp Entrance 1&2	0.25 $U_0$	10lux
Play Areas	0.25 $U_0$	5lux
Perimeter walkways	0.25 $U_0$	5lux

### 4.3 Pre-Curfew Lux Level Results

Pre-Curfew lux level results outlined in the table below:

Location	Uniformity	Lux (Pre-Curfew)
Ramp Entrance 1&2	0.25U <sub>o</sub>	12lux
Play Areas	0.45U <sub>o</sub>	7.5lux
Perimeter walkways	0.25U <sub>o</sub>	5.95lux

## 5. Conclusion

The proposed lighting layout has been designed in accordance with current regulations and achieves:

- Lux levels as set out in B.S EN 12464-2:2007, BS EN 13201 -2 & CIBSE LG6
- Good uniformity as set out in B.S EN 12464-2:2007, BS EN 13201 -2 & CIBSE LG6
- Incorporates the use of low energy LED lighting
- Reduce light spill due to lantern selection
- The lighting layout is non-intrusive and ties in with the existing external lighting installation

## 6. Reference

The design of the lighting shall be in accordance with the following standards and guidelines:

- I.S. EN 13201-2:2015 Road Lighting – Part 2: Performance requirements
- BS 5489-1:2013 Code of Practice for the Design of Road Lighting
- S.I. No. 291 of 2013 Safety, Health and Welfare at Work (Construction) Regulations 2013
- Dun Laoghaire & Rathdown County Council guidelines for public lighting.
- ET: 101: 2008 Fourth Edition - National Rules for Electrical Installations



## **7. Appendices**

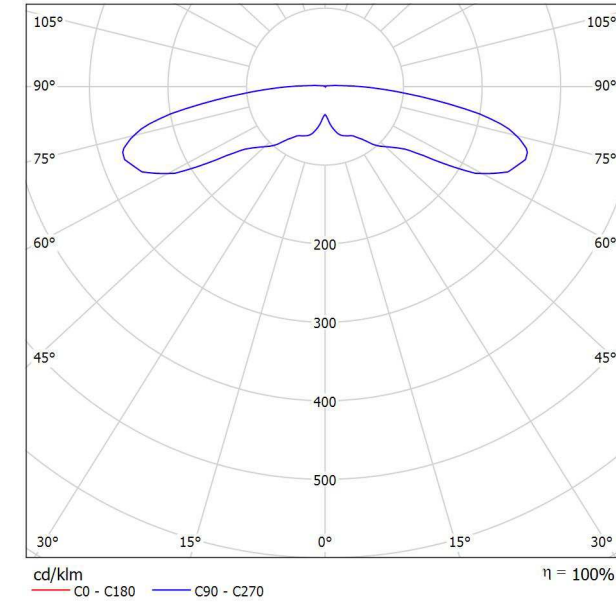
### **7.1 Light fitting Data Sheets**

Operator  
Telephone  
Fax  
e-Mail

**Thorn 96260063 AVN F2 LED 18L35 R/S BPSW CL2 N4M L740 [STD] / Luminaire Data Sheet**



Luminous emittance 1:



Luminous emittance 1:

Glare Evaluation According to UGR											
ρ Ceiling	70	70	50	50	30	70	70	50	50	30	
ρ Walls	50	30	50	30	30	50	30	50	30	30	
ρ Floor	20	20	20	20	20	20	20	20	20	20	
Room Size X Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis					
2H	2H	14.4	16.2	14.8	16.6	16.9	14.4	16.2	14.8	16.6	16.9
	3H	18.9	20.7	19.3	21.0	21.4	18.9	20.7	19.3	21.0	21.4
	4H	20.6	22.2	21.0	22.6	23.0	20.6	22.2	21.0	22.6	23.0
	6H	21.8	23.4	22.2	23.8	24.2	21.8	23.4	22.2	23.8	24.2
	8H	22.1	23.6	22.6	24.0	24.5	22.1	23.6	22.6	24.0	24.5
4H	2H	16.0	17.6	16.4	18.0	18.4	16.0	17.6	16.4	18.0	18.4
	3H	20.3	21.7	20.7	22.1	22.6	20.3	21.7	20.7	22.1	22.6
	4H	22.0	23.3	22.5	23.8	24.2	22.0	23.3	22.5	23.8	24.2
	6H	23.3	24.5	23.8	25.0	25.4	23.3	24.5	23.8	25.0	25.4
	8H	23.7	24.8	24.2	25.3	25.8	23.7	24.8	24.2	25.3	25.8
8H	2H	22.6	23.7	23.1	24.2	24.7	22.6	23.7	23.1	24.2	24.7
	3H	24.1	25.0	24.6	25.5	26.1	24.1	25.0	24.6	25.5	26.1
	4H	24.5	25.4	25.1	25.9	26.5	24.5	25.4	25.1	25.9	26.5
	6H	24.9	25.6	25.4	26.1	26.7	24.9	25.6	25.4	26.1	26.7
	8H	24.9	25.6	25.4	26.1	26.7	24.9	25.6	25.4	26.1	26.7
12H	4H	22.7	23.7	23.2	24.2	24.7	22.7	23.7	23.2	24.2	24.7
	6H	24.2	25.1	24.7	25.6	26.1	24.2	25.1	24.7	25.6	26.1
	8H	24.7	25.5	25.3	26.0	26.6	24.7	25.5	25.3	26.0	26.6
Variation of the observer position for the luminaire distances S											
S = 1.0H	+0.1 / -0.1					+0.1 / -0.1					
S = 1.5H	+0.1 / -0.1					+0.1 / -0.1					
S = 2.0H	+0.3 / -0.3					+0.3 / -0.3					
Standard table	---					---					
Correction	---					---					
Summand	---					---					
Corrected Glare Indices referring to 2330lm Total Luminous Flux											

Luminaire classification according to CIE: 97  
CIE flux code: 12 34 77 97 100

Decorative post-top lantern with symmetric distribution. Equipped with 50% power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. It can be deactivated at installation with an easily accessible internal switch. Class II electrical, IP66, IK08. Base and arms: die-cast aluminium (LM6), Canopy: spun aluminium, all powder coated dark sandy grey 900 (close to RAL7043). Diffuser: clear polycarbonate. Screw fixings: stainless steel. Supplied complete in one box, pre-wired with 4m HO5 VVF cable. Complete with 4100K LED

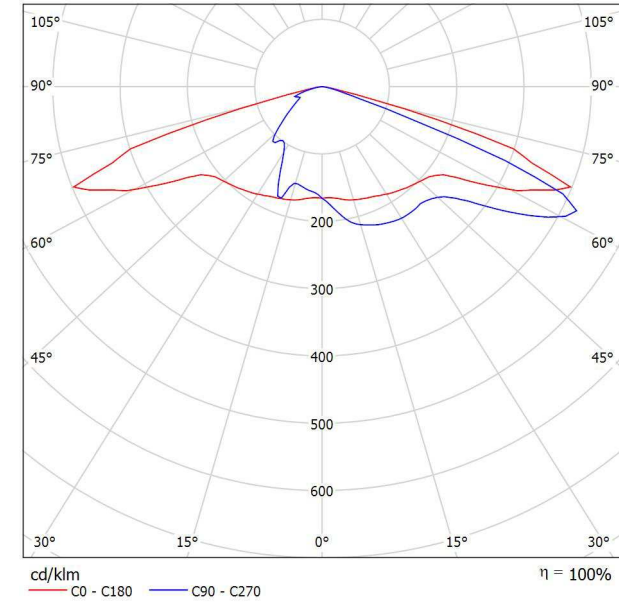
Post top mounted on a spigot of Ø60mm, length 100mm.

Dimensions: Ø700/700 x 500 mm  
Total power: 21 W  
Weight: 9.4 kg  
Scx: 0.17 m²

Operator  
Telephone  
Fax  
e-Mail

Thorn 92900717 CQ 12L70-740 EWR HFX CL2 M60 [STD] / Luminaire Data Sheet

Luminous emittance 1:



Due to missing symmetry properties, no UGR table can be displayed for this luminaire.



Luminaire classification according to CIE: 100  
CIE flux code: 29 58 95 100 100

A small size LED road lighting lantern with 12 LEDs driven at 700mA with Extra Wide Road optic. Electronic, fixed output control gear. Class II electrical, IP66, IK08. Housing: die-cast aluminium (EN AC-44300), Light grey 150 sanded textured (close to RAL9006). Enclosure: toughened flat glass. Screws: stainless steel, Ecolubric® treated. Supplied with Ø60mm spigot adaptor which can be fitted for post-top (0°/5°/10° tilt) or side-entry (-20°/-15°/-10°/-5°/0° tilt). Equipped with power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. It can be deactivated at installation with an easily accessible internal switch. DALI controllable with additional signal cables. Complete with 4000K LED. Surge protection: 10kV single pulse common mode and 8kV multipulse common mode and 6kV multipulse differential mode. If permanent DALI system is connected, 6kV multipulse common and differential mode.

Dimensions: 390 x 230 x 133 mm  
Total power: 27 W  
Luminaire luminous flux: 3525 lm  
Luminaire efficacy: 131 lm/W  
Weight: 5.5 kg  
Scx: 0.077 m<sup>2</sup>