FALLON DESIGN
M&E ENGINEERING

PUBLIC LIGHTING REPORT

HOUSING DEVELOPMENT AT

MAYNOOTH RAIL PARK WEST

CO. KILDARE

Residential Development
Maynooth
Rail Park
West
Co. Kildare

Project: 2485
Issue: Planning
Rev: 4
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Project Details

Project:	LRD Residential Development, Maynooth, Rail Park West, Co. Kildare.
Client:	Maynooth Montane Limited Maynooth Business Campus, Moneycooly, Co. Kildare, Unit J1D.
Architect:	Duignan Queen Architects 62 Brighton Square, Rathgar, Dublin 6.
M&E Consultant:	Fallon Design Ltd. Avocet House, Riverwalk, Arklow, Co. Wicklow. Y14 XD68

Document Details:

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1. Introduction

This report will outline the design intent for the public lighting design for the proposed development at Maynooth Rail Park West, Co. Kildare.

This report outlines the lighting design as developed by Fallon Design to provide adequate illuminance to meet all regulations and requirements as follows:

- To provide adequate illumination to contribute toward the safe use of the access roads and pathways for vehicular and pedestrians.
- Minimise lighting pollution on surrounding areas and neighbours
- Reduce glare on pedestrians and other users of the access areas
- Use of highly efficient artificial lighting to reduce energy consumption

The complete installation will be required to meet the following regulatory standards and policies:

- S.I. No. 291 of 2013: Safety, Health and Welfare at work (Construction Reg. 2013)
- ETCI National Rules for electrical Installation ET101-2008
- BS 5489-1:2013 Code of Practice for the design of road lighting
- IS EN 13201-1 & 2 -2015
- IS EN 13201-5-2015 S2 & ME4A
- CIBSE Lighting Guide 7
- Housing Scheme: Guidebook ESB Networks Standards for Electrical Services
- Guidance Note 08/18:Bats and artificial lighting in the UK (Bat Conservation Trust, 2018)
- Bats & Lighting Guidance notes for: Planners, engineers, architects and developers (12/2010)
- Local County Council Street Lighting Technical Specification

2. Development Description

The development will comprise a Large-Scale Residential Development (LRD) on a site at “Railpark West”, in the townland of Railpark, Maynooth, Co. Kildare.

The proposed development is for 139 no. units comprising 36 no. houses (ranging in heights up to 3 storeys), 95 no. apartments (5 no. blocks ranging in heights up to 5 storeys partially over podium parking) and 08 no. duplexes (1 no. 3/4 storey Block).

The proposal includes for a new vehicular/pedestrian/cyclist access from the permitted Maynooth Eastern Ring Road (MERR) to the east and the adjoining development to the South, and pedestrian/cyclist access (and vehicular access for one of the proposed houses) to Parklands Grove/Old Railpark to the north of the site.

The development also includes all car and bicycle parking at surface and podium underdeck level, new streets and footpaths, bin stores, residential private open spaces, public & communal open spaces, boundary treatments, waste management areas, landscaping and all associated site development works.

3. Design Concept

The public lighting design for residential development is to provide adequate illuminance for vehicular and pedestrian access for the residents and general public.

The design of the public lighting includes low energy LED lighting throughout. Energy efficient light fittings are a key element in reducing the developments energy consumption.

4. Detailed Design

The design now uses 48 x Metro Streetlight 19w LED 2700K - 14 x Forward Throw A Optic (3 x Twin & 8 x Single) and 34 x Street Optic R03 (1 x Twin and 32 x Single) mounted on 44 x 6m columns with no tilt.

The average light level is 5.4 lux, 1.0 lux minimum (0.20 uniformity). This complies with IS EN 13201-2 / BS 5489-1 for residential roads and paths – class P4 (5.0 lux average, 1.0 lux minimum).

Proposed luminaire design layout as per drawings:

RMM-FDE-60-SW-DR-EE-1000

Lighting Calculations:

Results

Eav	5.43
Emin	1.07
Emax	16.73
Emin/Emax	0.06
Emin/Eav	0.20

5. Luminaires:

Luminaire A Data

Supplier	
Type	Veelite Metro Streetlight 19w LED Forward Throw A Optic
Lamp(s)	8 LED 2700K G4
Lamp Flux (klm)	1.88
File Name	5MTA08LGA-FTA.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	401.3, 47.0, 0.5
No. in Project	14

Luminaire B Data

Supplier	
Type	Veelitre Metro Streetlight 19w LED Street Optic R03
Lamp(s)	8 LED 2700K G4
Lamp Flux (klm)	1.89
File Name	5MTA08LGA-R03.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	537.8, 56.5, 0.3
No. in Project	34

5.1 Veelite Metro Series

Metro Series

External Lighting

Modern functional LED streetlight, available in 3 sizes. Ideal for roadway, path or carpark applications.

Construction: Die-cast aluminium. IP66. IK09 as standard. Driver and LED Modules are accessible for maintenance or replacement.

Lens: Tempered glass as standard.

Installation: Luminaire supplied with 76mm mastfitter for post-top mounting or 60mm for side entry installation. Tiltable: 0°, 5° or 10°

Finish: Grey RAL 9006 as standard. Other RAL colours on request.

LED: Available in 10w to 134w LED (see ordering codes). CRI 70 4000K (standard). 3000K or other on request. Asymmetric street optic as standard. See ordering codes for more details.

Life: L90 B10 >100,000 hours. (at 25°C).

Driver: 220-240V AC 50/60 Hz. 700mA as Standard. 350mA, 500mA, 1050mA or custom setting on request. Lifetime (<10% failures): 100,000 hrs.

Mains Surge Protection: 10kV device included as standard.

Temperature: -30°C +50°C (-20°C +40°C with Emergency Kit)

Options: Dimming, DALI, Photocell, various optics available. Emergency available in some versions, please check with Veelite to clarify which.

Manufactured: Ireland

Product Compliance: EN 60598; CE.

VeeLite

6. Grid Results

6.1 Horizontal Illuminance (lux) - Road & Paths

Results

Eav	5.43
Emin	1.07
Emax	16.73
Emin/Emax	0.06
Emin/Eav	0.20

6.2 Horizontal Illuminance (lux) - Road & Paths

Results

Eav	5.43
Emin	1.07
Emax	16.73
Emin/Emax	0.06
Emin/Eav	0.20

6.3 Horizontal Illuminance (lux) - Road & Paths

6.4 Lux Point Levels

Reference drawing RMM-FDE-60-SW-DR-EE-1000 for a full lux plot across the development.

7. Energy Efficiency

The design of Public Lighting with regard to the energy consumption has been carefully considered for the lifetime of the development.

- Low energy LED light fittings with high quality efficient lamps will provide considerable operational saving for the development.
- Greater energy savings will also result using the inbuilt multi-step dimming program during late hours of darkens along the public lighting spaces.

8. Ecological Impact Design Considerations:

Careful consideration has been given to the design of Public Lighting with regard to the existing natural habitat and the wildlife. The chosen luminaire Veelight Metro Series has a full cut off lantern type, that offers with a G6 Glare rating and no upward light making it dark sky friendly.

- An inbuilt multi step dimming program within this luminaire allows for night time hours to be dimmed by up to 25%. This means during peak hours of nocturnal foraging, feeding and activity the adjacent public lighting can be further designed to minimize impact on the local wildlife.
- The colour rendering of the selected light fitting is 2700k making the LED fittings a warmer light, helping to further minimize the impact on the local wildlife.
- Greater energy savings will also result using the inbuilt multi-step dimming program during late hours of darkens along the public lighting spaces.
- Unnecessary light spill controlled through a combination of directional lighting and luminaire optics design.
- No floodlighting will be used on the scheme.

The public lighting design references the following documents and best practice guides as outlined below:

- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2011;
- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011.
- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland);
- The Eurobats Mitigation of Lighting Document