

**For: Haven Falls Limited**

Proposed Residential Development,  
Water Rock, Midleton

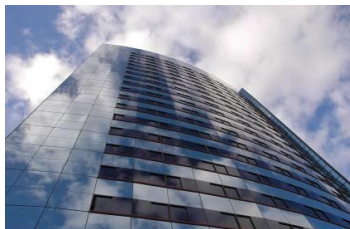


Public Lighting Design

**OCT 2022**



**MHL & Associates Ltd.**  
**Consulting Engineers**





**Document Control Sheet**

<b>Client</b>	Haven Falls Ltd.
<b>Project Title</b>	Residential Development
<b>Project Location</b>	Water Rock, Midleton, Co. Cork
<b>Document Title</b>	Public Lighting Design
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***M.H.L. & Associates Ltd.***

**Consulting Engineers**

Carraig Mór House,  
10 High Street,  
Douglas Road,  
Cork.

Tel 021-4840214 Fax: 021-4840215

E-Mail: [info@mhl.ie](mailto:info@mhl.ie)

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# 1 INTRODUCTION

MHL & Associates have been appointed by McCutcheon Halley Planning Ltd. on behalf of Haven Falls Ltd. to produce a public lighting design for a new residential development at Water Rock, Midleton, Co. Cork. The applicant's site is located to the north of Nordic Enterprise Park and Northern Park Business Park, linking onto then Midleton Northern Relief Road

## Development description:

The proposed development is to consist of 199 No. houses and 131 No. apartment units. The houses consist of 3 and 4-bedroom units while each of the apartments are 2-bedroom units as shown.



**Figure 1.1 Site Location (Google)**

Vehicular and pedestrian/cycle access is to be accommodated at the proposed entrance. For the proposed site access details, please refer to road layout for the developments access proposals.

The site location and proposed site layout is shown in Figures 1.2. For further details see the Site Layout Plan drawing accompanying the application, produced by Gittens Murray Architect's Ltd.





**Figure 1.2 Proposed site layout (GMA)**

The lighting design has been carried out using the Reality Lighting design software which enables Public Lighting Design Engineers to produce standards-compliant street and outdoor area lighting plans.

## 2 PUBLIC LIGHTING DESIGN STATEMENT

### 2.1 Design

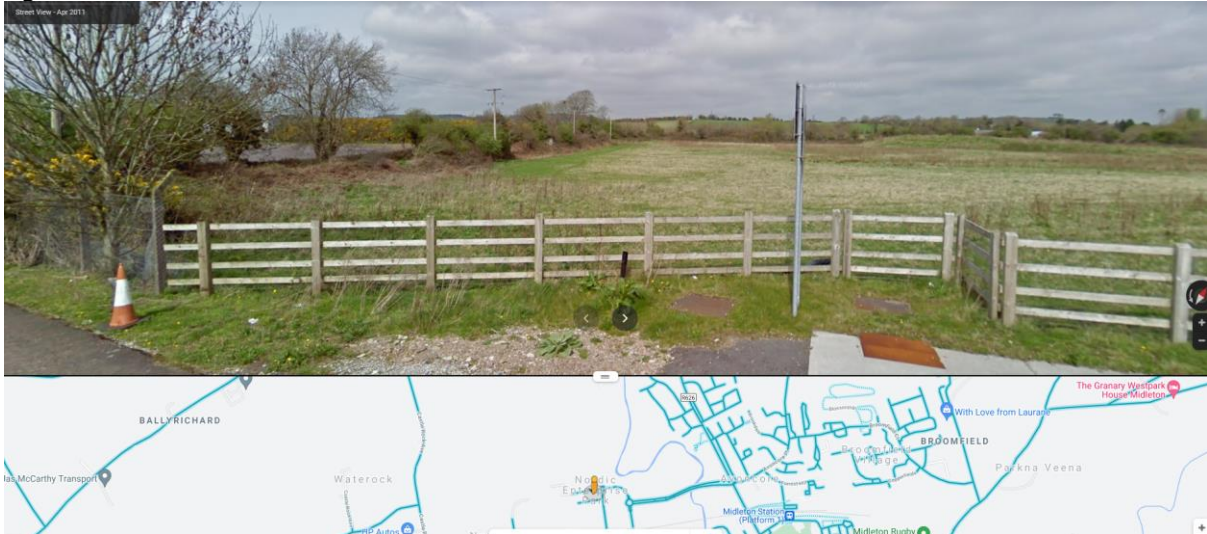
- Public Lighting Design is to BS5489, Class2/1
- Development Junction/ Local Road designed to Class P2.
- All internal estate roads are designed to Class P3.
- All recreational areas, amenity walks are designed to Class P4.
- The lights are to be dimmable from 12.00 midnight to 06.00 as per dimming class 2A in housing estates.
- LED lighting shall have a 35Lux on 18 Lux off dusk to dawn photocell-controlled switching regime on roads and 35Lux on to midnight off on amenity walks/playgrounds/monument lighting.
- Minimum lux level on public roads, paths and playgrounds within the housing estate to be 1.5 lux.

### 2.2 Lighting Specification:

- Public lighting to be fed from new power supply connections.
- Lanterns should comply with IS EN 60598-2-3
- Lanterns proposed for the local public road within proximity of the applicant's development are to be LED, 4000K, neutral white.
- Columns heights along the public road to be 8.0m.
- All lanterns proposed for within the applicant's development are to be LED, 3000K, warm white.
- Internal columns heights within this development to be 6.0m.
- All residential estate lanterns to be erected are to be LED, 3000K, warm white.
- Constant light output (CLO) is to be incorporated into selected lanterns to compensate for light reduction output over time.
- The S/P ratio can be applied to these lux levels depending on lantern type.
- Each light is to have its own individual photocell.
- Columns are to have a double locked framed door and should be multisided galvanised to County Council specification.
- Columns shall be manufactured to BS 5649.
- Columns in recreational play zone to be hinged type for future maintenance access.
- All columns to be galvanised steel/ aluminium, certified to ISEN 40 Series, with underground ducting supplies.
- Columns to be rooted type in the main.
- Columns to be positioned to the rear of the footpath, providing enough lateral offset from edge of carriageway.
- The proposed lighting for the residential estate is to be powered by a separate power supply, independent of the local road.
- All lighting columns shall be to BS EN40.
- Where columns are located close to scalable structures, anti-climb paint shall be applied form 2m above ground level.
- Column doors are to be oriented so that council operatives can perform maintenance whilst facing oncoming traffic.
- All internal estate luminaires are to be post mounted.

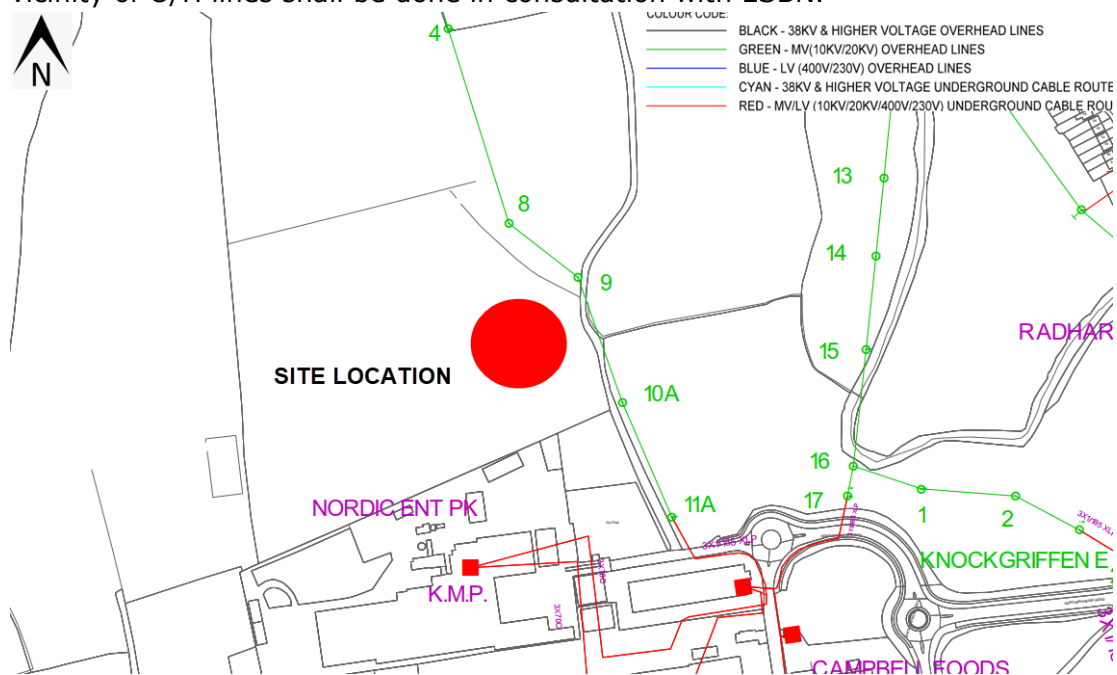
### 2.3 Notes on Existing ESB overheads

Existing O/H ESB infrastructure passes through the southwest of the site as shown in the figure below.



**Figure 2.1 Existing ESB O/H**

- A minimum 10m offset from column positions to the O/H line is to be maintained, as noted in the proposed lighting layouts. A hazard zone of 6m either side of the O/H lines is to be clearly demarcated during construction and appropriate protection measures to be installed during the development works on site.
- Installed lighting columns in proximity to the adjacent O/H lines are to be hinged type. This will ensure that future maintenance of these lights can be safely undertaken without the need for high level gantry maintenance vehicles being deployed to the site location.
- Overhead lines in the vicinity of the installation of lighting columns installed shall be shrouded by the ESN prior to installation. All works planned within in the vicinity of O/H lines shall be done in consultation with ESN.



**Figure 2.2 Existing ESB Infrastructure**



## 2.4 Notes on Existing Public Road lighting

The existing local road serves the nearby business park. Airtricity is to be liaised with regarding any proposed upgrade works on the local road.



**Figure 2.3 Existing Local Road lighting**



**Figure 2.4 Existing Local Road lighting/ Development entrance location**



**2.5 Notes on ecology**

Sensitive ecology in proximity to the applicant’s site is defined in the figure below, supplied by Malone O’Regan Environmental.

**Figure 4-5: Habitat Map**



E1860 - Malone O'Regan Environmental - DRAFT

**Figure 2.5 Adjacent Ecology (Malone O’Regan Environmental)**

The site’s western and southeastern boundaries are areas of existing treelines/ hedge grows. Both sides of the existing Water Rock Lane are also lined by existing hedge grows. The habitat survey did not identify any trees within the hedgerow / treeline with bat roost potential, although the habitat has the potential for foraging and commuting bats.

The lighting design incorporates measures to avoid of excessive lighting of the estate and sensitive receptor ecologies, whilst providing appropriate lighting to the required lighting classification for residential estates.

Sensitive lighting measures to avoid spill light/obtrusive lighting are:

- The use of LED lighting, with appropriate burn profiles to limit lighting levels.
- The use of bat sensitive warm white 3000k luminaires
- Proposed lighting is directed away from landscaped areas and potential bat roost locations.
- Upward lighting is not proposed, with all lantern tilt angle set at zero.

- LED lantern shielding in the form of hoods/cowling is proposed to be installed along the areas defined in the layouts. The back scatter of lighting will be greatly reduced with the implementation of these shielding/ cowling measures.
- The lights are to be dimmable from 12.00 midnight to 06.00 as per dimming class 2A for the main spine road in housing estate.
- LED lighting shall have a 35Lux on 18 Lux off dusk to dawn photocell-controlled switching regime on main estate spine road.
- The Luminaire Maintenance Factors have been based on a 6 year cleaning intervals within an E3/E4 Environmental Zone and it is assumed that lamp/luminaire failures will be replaced on a 'spot replacement'.
- Energy consumptions have been based on the luminaire/s having Constant Light Output (CLO) enabled and the quoted wattage/s are the average over 100,000 hours (without dimming).
- Lanterns to be used are flat glass type to minimise the amount of upward light and spill light onto the surrounding area.
- Avoidance of excessive lighting
- Lighting will be aimed only where it is needed, with no upward lighting
- Lighting will be directed away from landscaped areas and retained sections of hedgerows and trees
- Following the installation of the lighting for the Proposed Development, the project ecological clerk of works (ECoW) will undertake a further Site inspection in order to check the lighting patterns and lux levels along the site boundaries

The lighting strategy has been designed to mitigate against any potential impacts on nocturnal species in line with the Bat Conservation Trust Guidelines on 'Bats and Artificial Lighting'. The lighting strategy will be implemented as part of the Proposed Development ensuring that there will be adverse effects to bats or other nocturnal fauna in the area are minimised/eliminated. Mitigation measures as noted above will ensure that effects on potential commuting and foraging bats within the site is minimised.

## 2.6 Water Rock Urban Expansion Area (UEA) Proposed Link Road

The proposed Water Rock Link Road and associated development junction was outside the remit of this design report.

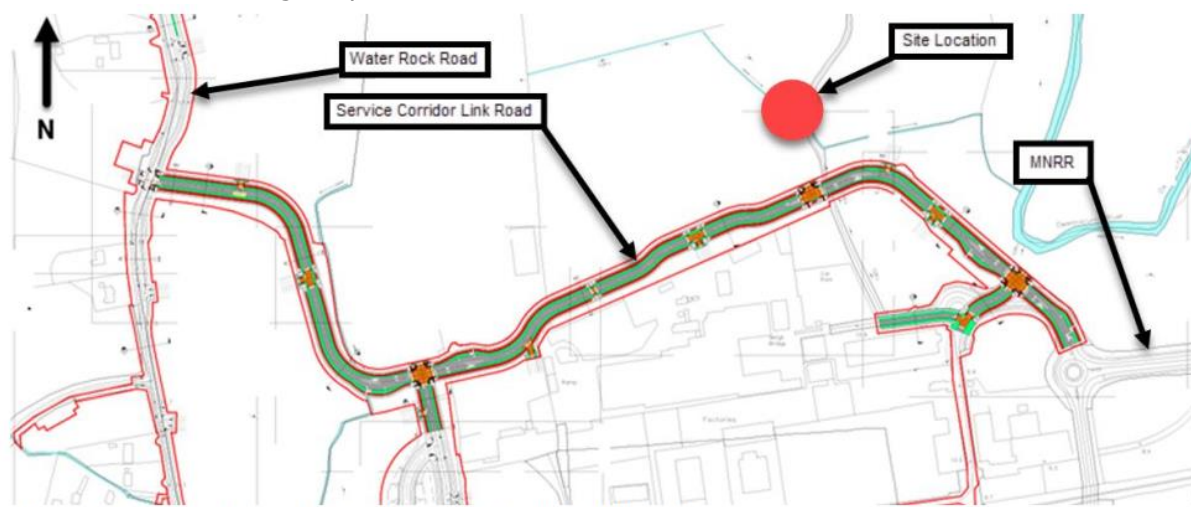


Figure 2.6 Proposed Corridor Link Road (CCC)

## **3 DESIGN DRAWINGS**

Drawings have been compiled showing the lantern types and locations and lux contours for 1.5, 3.0, 5, 10, 15 and 20, as appropriate. The drawings are scaled at 1:500. Please refer to the public lighting layouts as submitted.

### **3.1 Design Drawings**



## 4 LRD ITEMS

The design, materials and installation comply with the Cork County Council Public Lighting Manual and Product Specification 2021.

Appendix H, Figure 4, of the Cork County Council Public Lighting Manual and Product Specification 2021 shall apply to this development: - M1, M2, M3, M4, M5, M6, M9, M14, M19, M22, M23, M25, M27 and M28.

Proposed columns being installed to be in accordance with the CCC Public Lighting manual 2021

Clashes between the location of lights and trees throughout this development have been revised. Please refer to the Landscape Architect's Landscape layout.

Public lighting columns are located at the back of the footpath in public ground, and where appropriate, columns are located on the boundaries between properties.

A separate power source for public lighting is proposed to be provided for to the Creche/Apartments/Commercial premises. This power source is to be from the private development and not from the housing estate public lighting system

The horizontal illuminance (lux) across all design grids has been revised to ensure selected lighting class are achieved.

Light pollution (obtrusive light- as per ILP Guidance note GN10:2011) with the potential of affecting third party properties and members of the public, including drivers travelling on the public road has been designed for with the selection of LED lantern optics with specified cowling near ditchlines and narrow access ways. The lighting layouts demonstrate the extent of the light contouring across the site, ensuring backscatter and obtrusive lighting is minimised and/or eliminated.

"Conflict Zone" at the entrance to the proposed development has been designed for. A public light opposite the T-junction entrance to this development is included.

## **5 REALITY LIGHTING DESIGN REPORT**

The design was carried out as follows:

Design A- Proposed Development – internal estate (LHS of Spine Road)

Design B- Proposed Development – internal estate (RHS of Spine Road)

Design C- Proposed Development's Spine Road

**DATE:** 7 October 2022  
**DESIGNER:** MHL & Associates  
**PROJECT No:** 21-1154TT  
**PROJECT NAME:** Midleton (Design A)

**LIGHTING  
REALITY**

Lighting Classification

P3 Internal Estate Roads  
Eav=7.50 to 11.25  
Emin=1.5

P4 Isolated Footpaths/ Parks  
Eav = 5.00 to 7.50  
Emin= 1.00

## Outdoor Lighting Report

**PREPARED BY:** Design Software from:  
Lighting Reality Ltd  
Park Business Centre  
Wood Lane  
Erdington  
Birmingham  
B24 9QR  
United Kingdom  
e-mail: [sales@lightingreality.com](mailto:sales@lightingreality.com)  
website: [www.lightingreality.com](http://www.lightingreality.com)



## Layout Report

### General Data

Dimensions in Metres Angles in Degrees

### Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Internal Estate LHS	586613.70	574457.06	308.48	289.71	1.50	1.49
2	Isolated Paths LHS	586617.57	574465.28	294.60	271.48	1.50	1.50

### Luminaires

#### Luminaire A Data



Supplier	Philips
Type	BGP703 DX51
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	7.00
File Name	Luma Gen2 Mini_BGP703_DX51_7000_40_LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	467.9, 27.1, 0.0
No. in Project	51

#### Luminaire B Data



Supplier	Philips
Type	BGP702 DM32
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	4.00
File Name	Luma Gen2 Micro_BGP702_DM32_4000_2_OLED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	457.3, 30.0, 0.0
No. in Project	5

#### Luminaire C Data



Supplier	Philips
Type	BGP701 DN11
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	1.60
File Name	Luma Gen2 Nano_BGP701_DN11_1600_6_LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	662.3, 84.0, 0.0
No. in Project	38

#### Luminaire G Data



Supplier	Philips
Type	BGP701 DM30
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	2.40
File Name	Luma Gen2 Nano_BGP701_DM30_2400_1_OLED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	455.2, 34.3, 0.0
No. in Project	2

### Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	586643.91	574701.03	6.00	187.00	0.00	0.00	0.50			
10	A	586866.95	574642.47	6.00	99.18	0.00	0.00	0.40			
11	A	586844.43	574639.39	6.00	99.18	0.00	0.00	0.40			
12	A	586815.96	574637.95	6.00	99.18	0.00	0.00	0.40			
13	A	586796.09	574633.84	6.00	99.18	0.00	0.00	0.40			
14	A	586797.17	574651.70	6.00	279.29	0.00	0.00	0.40			
15	A	586828.56	574652.66	6.00	279.29	0.00	0.00	0.40			
16	A	586856.84	574657.19	6.00	279.29	0.00	0.00	0.40			
32	C	586703.11	574732.93	6.00	105.00	0.00	0.00	0.40			

**Layout Continued**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
33	C	586721.65	574735.74	6.00	105.00	0.00	0.00	0.40			
34	C	586738.63	574744.89	6.00	100.00	0.00	0.00	0.40			
35	C	586758.73	574748.75	6.00	100.00	0.00	0.00	0.40			
36	C	586777.88	574751.96	6.00	90.00	0.00	0.00	0.40			
37	C	586798.19	574754.67	6.00	90.00	0.00	0.00	0.40			
15	C	586606.61	574710.95	6.00	277.08	0.00	0.00	0.40			
16	C	586626.04	574714.21	6.00	277.08	0.00	0.00	0.40			
17	C	586642.59	574711.40	6.00	107.00	0.00	0.00	0.40			
18	C	586661.41	574713.92	6.00	90.00	0.00	0.00	0.40			
19	A	586645.26	574683.55	6.00	187.26	0.00	0.00	0.50			
20	A	586649.47	574664.34	6.00	187.30	1.00	0.00	0.40			
21	A	586653.26	574641.59	6.00	187.30	1.00	0.00	0.50			
22	A	586655.95	574623.38	6.00	187.30	2.00	0.00	0.40			
23	A	586637.03	574603.23	6.00	7.51	0.00	0.00	0.50			
24	A	586639.19	574584.57	6.00	10.00	3.00	0.00	0.50			
48	A	586645.29	574562.73	6.00	13.00	1.00	0.00	0.40			
50	B	586665.12	574534.65	6.00	267.00	0.00	0.00	0.40			
51	C	586696.32	574531.99	6.00	290.00	0.00	0.00	0.40			
52	C	586711.89	574534.74	6.00	267.00	0.00	0.00	0.40			
53	C	586728.09	574531.17	6.00	283.00	0.00	0.00	0.40			
54	C	586752.02	574542.53	6.00	293.68	0.00	0.00	0.40			
55	C	586770.55	574550.84	6.00	293.68	0.00	0.00	0.40			
86	A	586763.39	574743.02	6.00	9.05	0.00	0.00	0.40			
87	A	586766.78	574721.37	6.00	9.05	0.00	0.00	0.40			
88	B	586774.37	574695.67	6.00	11.00	0.00	0.00	0.40			
89	A	586788.83	574700.50	6.00	98.46	0.00	0.00	0.40			
90	A	586814.59	574704.33	6.00	98.46	0.00	0.00	0.40			
91	A	586840.35	574708.16	6.00	98.46	0.00	0.00	0.40			
39	A	586713.21	574627.46	6.00	10.61	0.00	0.00	0.40			
40	A	586709.16	574649.09	6.00	10.61	0.00	0.00	0.40			
41	A	586705.11	574670.71	6.00	10.61	0.00	0.00	0.40			
42	A	586700.59	574694.87	6.00	10.61	0.00	0.00	0.40			
43	A	586663.13	574602.99	6.00	99.61	0.00	0.00	0.40			
44	A	586683.70	574606.31	6.00	99.60	2.00	0.00	0.40			
99	A	586717.15	574565.99	6.00	8.43	0.00	0.00	0.40			
100	A	586716.29	574579.98	6.00	8.43	0.00	0.00	0.40			

**Layout Continued**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
101	B	586712.67	574603.10	6.00	8.43	0.00	0.00	0.40			
49	B	586786.25	574621.75	6.00	9.50	1.00	0.00	0.40			
50	B	586788.61	574606.21	6.00	9.46	0.00	0.00	0.40			
51	A	586791.46	574591.21	6.00	9.46	0.00	0.00	0.40			
105	A	586812.18	574581.59	6.00	276.77	0.00	0.00	0.40			
106	A	586832.05	574584.73	6.00	276.77	0.00	0.00	0.40			
108	C	586854.03	574585.58	6.00	99.00	0.00	0.00	0.40			
109	A	586728.94	574630.65	6.00	277.00	0.00	0.00	0.40			
110	A	586751.36	574634.36	6.00	278.00	0.00	0.00	0.40			
111	A	586774.13	574637.67	6.00	280.00	0.00	0.00	0.40			
59	A	586722.15	574682.41	6.00	279.22	0.00	0.00	0.40			
60	A	586745.84	574686.25	6.00	279.22	0.00	0.00	0.40			
114	C	586614.34	574611.94	6.00	276.99	0.00	0.00	0.40			
115	C	586632.75	574612.41	6.00	276.99	0.00	0.00	0.40			
116	A	586626.47	574533.04	6.00	274.57	0.00	0.00	0.40			
117	A	586653.54	574520.38	6.00	100.00	1.00	0.00	0.40			
118	A	586783.63	574719.16	6.00	279.11	0.00	0.00	0.40			
119	A	586808.46	574723.46	6.00	279.11	0.00	0.00	0.40			
121	C	586652.79	574509.54	6.00	-170.87	0.00	0.00	0.40			
122	A	586833.00	574727.07	6.00	279.11	0.00	0.00	0.40			
123	A	586786.85	574681.96	6.00	189.80	0.00	0.00	0.40			
124	A	586774.79	574660.56	6.00	8.00	0.00	0.00	0.40			
72	C	586759.19	574669.78	6.00	220.00	0.00	0.00	0.40			
73	C	586694.38	574723.28	6.00	140.00	0.00	0.00	0.40			
70	C	586687.65	574515.99	6.00	0.00	0.00	0.00	0.50			
139	G	586646.12	574724.00	6.00	307.00	0.00	0.00	0.40			
77	C	586653.20	574495.26	6.00	55.00	0.00	0.00	0.40			
78	C	586787.23	574558.47	6.00	293.70	0.00	0.00	0.40			
81	C	586842.30	574577.83	6.00	200.00	0.00	0.00	0.40			
82	C	586871.91	574588.53	6.00	103.00	0.00	0.00	0.40			
83	C	586728.99	574639.42	6.00	293.70	0.00	0.00	0.40			
85	C	586730.03	574650.53	6.00	10.00	0.00	0.00	0.40			
86	C	586734.51	574667.99	6.00	333.00	0.00	0.00	0.40			
89	C	586765.90	574658.74	6.00	166.00	0.00	0.00	0.40			
90	C	586753.97	574637.78	6.00	96.00	0.00	0.00	0.40			
92	C	586771.95	574650.46	6.00	242.00	0.00	0.00	0.40			

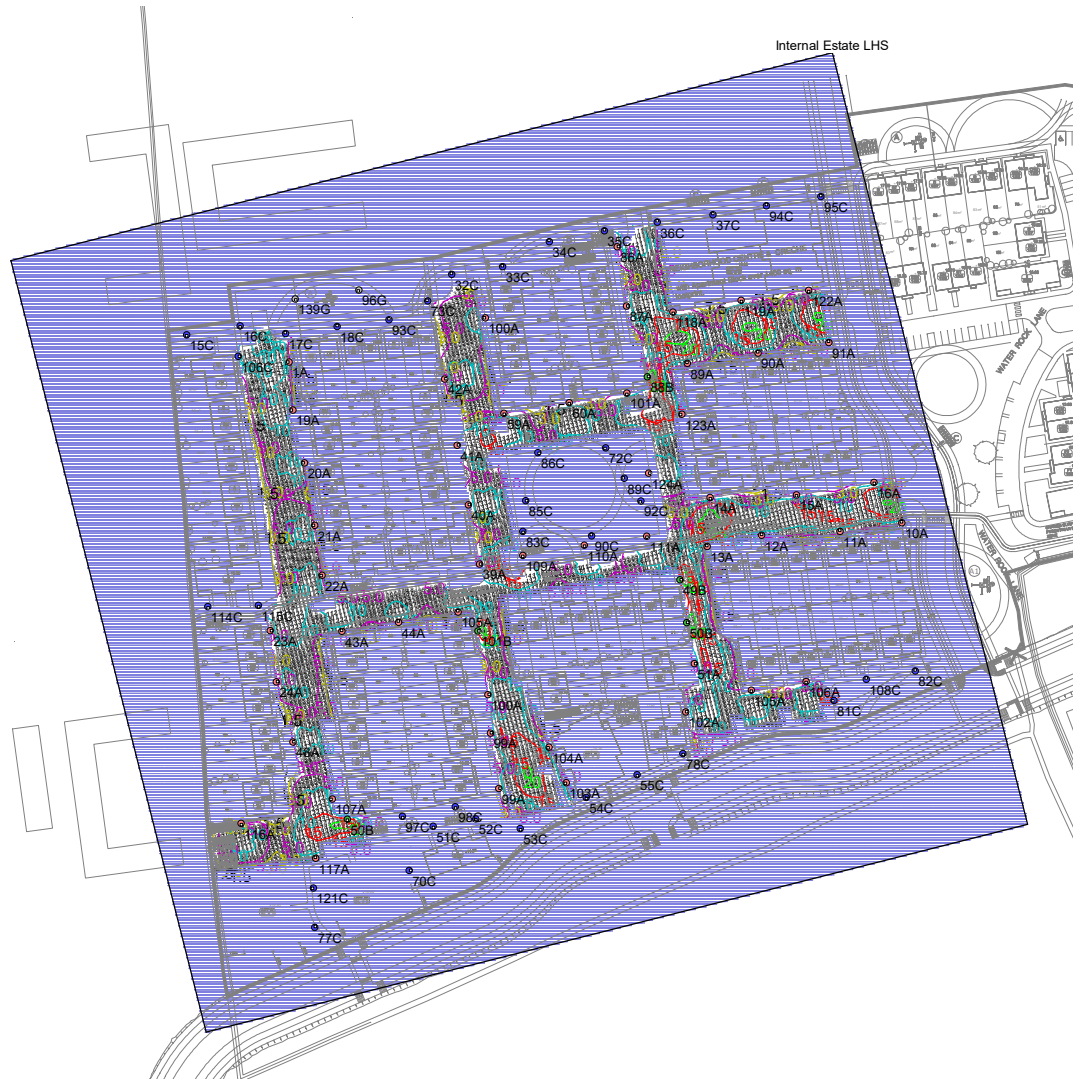


**Layout Continued**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
93	C	586680.23	574716.40	6.00	90.00	0.00	0.00	0.40			
94	C	586817.69	574757.91	6.00	90.00	0.00	0.00	0.40			
95	C	586837.52	574761.25	6.00	90.00	0.00	0.00	0.40			
97	C	586685.14	574535.69	6.00	279.57	0.00	0.00	0.50			
98	C	586704.38	574539.14	6.00	279.57	0.00	0.00	0.50			
99	A	586720.24	574545.79	6.00	17.00	0.00	0.00	0.50			
100	A	586715.39	574717.15	6.00	187.00	3.00	0.00	0.40			
101	A	586766.82	574689.66	6.00	279.22	0.00	0.00	0.40			
102	A	586788.25	574573.66	6.00	9.46	0.00	0.00	0.40			
103	A	586744.78	574547.83	6.00	212.00	0.00	0.00	0.40			
104	A	586738.51	574560.76	6.00	210.00	0.00	0.00	0.40			
105	A	586705.43	574610.04	6.00	99.60	1.00	0.00	0.40			
106	C	586625.43	574703.07	6.00	3.00	0.00	0.00	0.40			
107	A	586659.68	574541.93	6.00	187.00	0.00	0.00	0.50			
96	G	586669.27	574727.20	6.00	240.00	0.00	0.00	0.40			

## Horizontal Illuminance (lux)

Internal Estate LHS

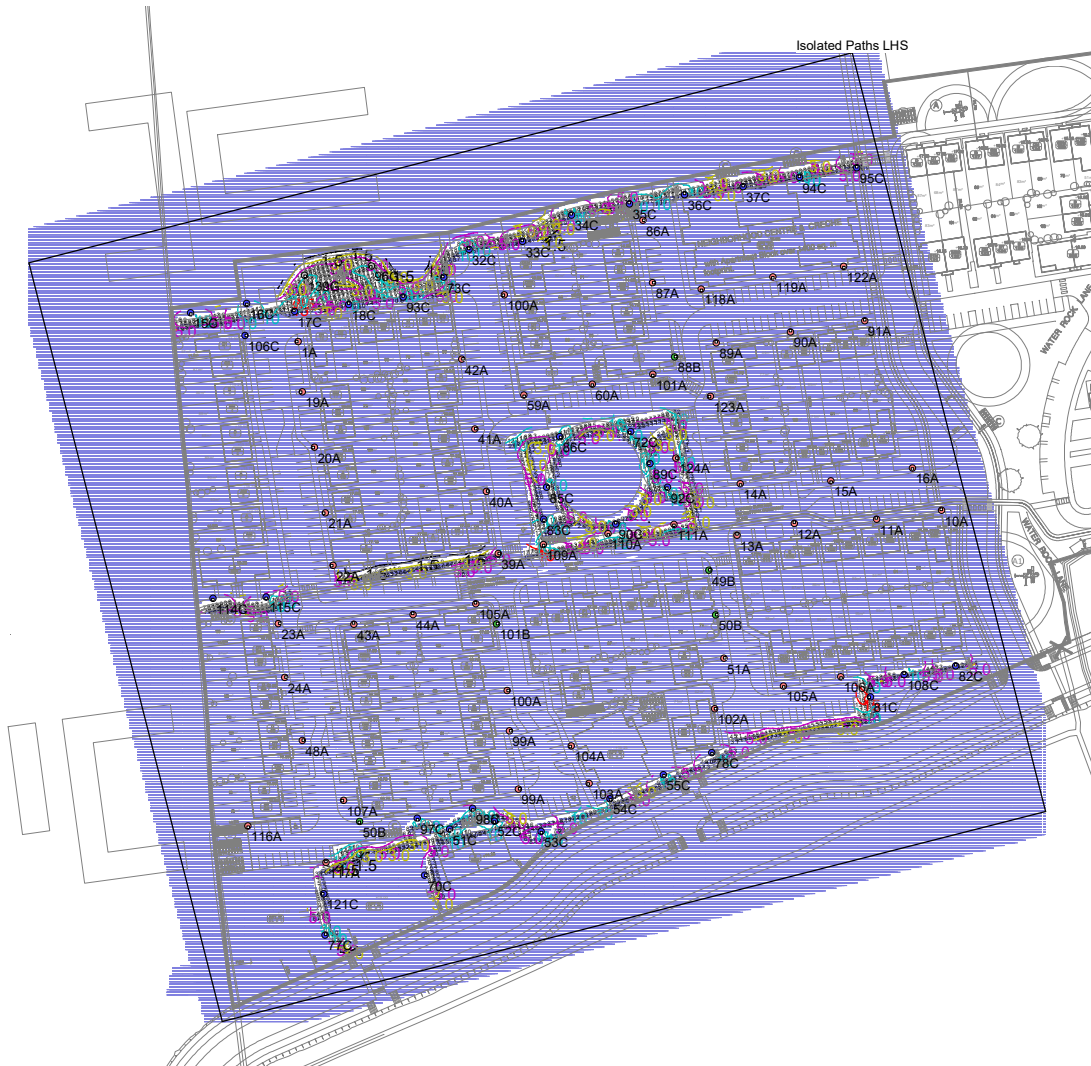


### Results

Eav	9.76
Emin	1.93
Emax	23.75
Emin/Emax	0.08
Emin/Eav	0.20

## Horizontal Illuminance (lux)

Isolated Paths LHS



### Results

Eav	7.12
Emin	1.39
Emax	18.76
Emin/Emax	0.07
Emin/Eav	0.20

**DATE:** 7 October 2022  
**DESIGNER:** MHL & Associates  
**PROJECT No:** 21-1154TT  
**PROJECT NAME:** Midleton (Design B)

**LIGHTING  
REALITY**

Lighting Classification

P3 Internal Estate Roads  
Eav=7.50 to 11.25  
Emin=1.5

P4 Isolated Footpaths/ Parks  
Eav = 5.00 to 7.50  
Emin= 1.00

## Outdoor Lighting Report

**PREPARED BY:** Design Software from:  
Lighting Reality Ltd  
Park Business Centre  
Wood Lane  
Erdington  
Birmingham  
B24 9QR  
United Kingdom  
e-mail: [sales@lightingreality.com](mailto:sales@lightingreality.com)  
website: [www.lightingreality.com](http://www.lightingreality.com)

## Layout Report

### General Data

Dimensions in Metres Angles in Degrees

### Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Internal Estate	586870.19	574561.63	306.12	254.47	1.55	1.38
2	Isolated Paths RHS	586885.34	574582.39	256.98	226.49	1.30	1.27

### Luminaires

#### **Luminaire A Data**



Supplier	Philips
Type	BGP703 DX51
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	7.00
File Name	Luma Gen2 Mini_BGP703_DX51_7000_40 LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	467.9, 27.1, 0.0
No. in Project	37

#### **Luminaire B Data**



Supplier	Philips
Type	BGP702 DM32
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	4.00
File Name	Luma Gen2 Micro_BGP702_DM32_4000_2 0LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	457.3, 30.0, 0.0
No. in Project	1

#### **Luminaire C Data**



Supplier	Philips
Type	BGP701 DN11
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	1.60
File Name	Luma Gen2 Nano_BGP701_DN11_1600_6 LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	662.3, 84.0, 0.0
No. in Project	14

#### **Luminaire D Data**



Supplier	Philips
Type	BGP701 DM33
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	1.60
File Name	Luma Gen2 Nano_BGP701_DM33_1600_6 LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	322.0, 15.8, 0.0
No. in Project	3

#### **Luminaire G Data**



Supplier	Philips
Type	BGP701 DM30
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	2.40
File Name	Luma Gen2 Nano_BGP701_DM30_2400_1 0LED_5.2S_CLO_L90_730.ies
Maintenance Factor	0.77
Imax70,80,90(cd/klm)	455.2, 34.3, 0.0
No. in Project	1



**Layout**

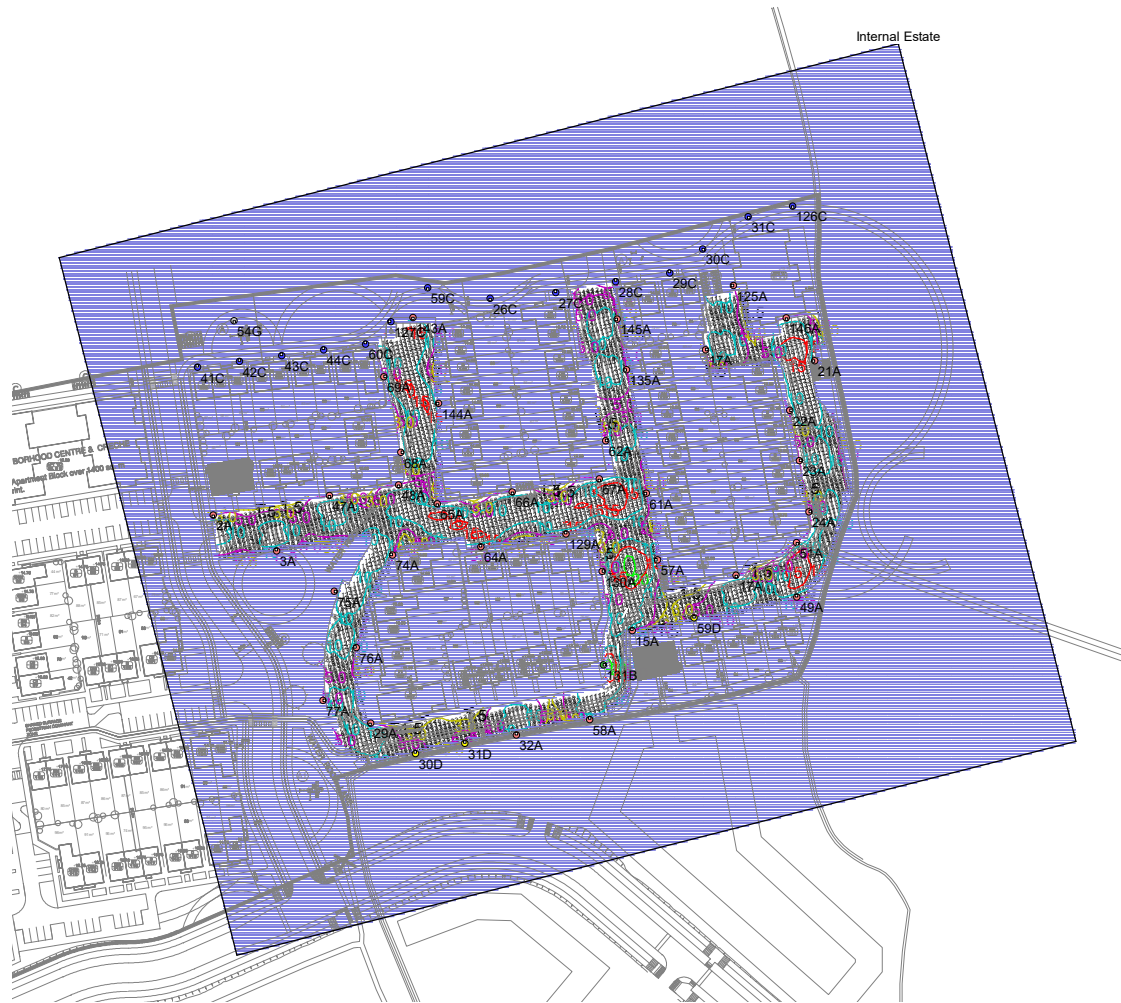
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
17	A	587035.89	574775.61	6.00	15.00	0.00	0.00	0.40			
2	A	586861.75	574717.21	6.00	279.31	0.00	0.00	0.50			
3	A	586884.20	574704.50	6.00	100.00	0.00	0.00	0.50			
21	A	587074.49	574771.80	6.00	196.00	0.00	0.00	0.50			
22	A	587065.58	574754.18	6.00	9.95	0.00	0.00	0.50			
23	A	587068.98	574736.50	6.00	9.95	0.00	0.00	0.50			
24	A	587072.40	574718.36	6.00	9.95	0.00	0.00	0.50			
26	C	586959.65	574793.80	6.00	280.00	0.00	0.00	0.40			
27	C	586982.84	574795.93	6.00	95.00	0.00	0.00	0.40			
28	C	587004.05	574799.75	6.00	95.00	0.00	0.00	0.50			
29	C	587023.18	574802.81	6.00	101.00	0.00	0.00	0.50			
30	C	587034.86	574811.29	6.00	312.00	0.00	0.00	0.40			
31	C	587050.97	574822.71	6.00	289.00	0.00	0.00	0.40			
15	A	587009.94	574676.35	6.00	109.14	0.00	0.00	0.50			
17	A	587046.66	574695.96	6.00	279.00	0.00	0.00	0.50			
59	D	587031.84	574680.83	6.00	100.00	0.00	0.00	0.40			
61	A	587014.96	574724.87	6.00	-171.03	0.00	0.00	0.40			
62	A	587000.50	574743.49	6.00	10.00	0.00	0.00	0.40			
64	A	586956.36	574706.00	6.00	99.07	0.00	0.00	0.40			
65	A	586940.97	574721.20	6.00	278.67	0.00	0.00	0.50			
66	A	586967.51	574725.41	6.00	278.67	0.00	0.00	0.50			
67	A	586998.25	574729.98	6.00	268.70	0.00	0.00	0.50			
68	A	586928.14	574739.35	6.00	8.88	0.00	0.00	0.50			
69	A	586922.08	574766.13	6.00	8.88	0.00	0.00	0.50			
29	A	586917.42	574643.63	6.00	255.00	0.00	0.00	0.50			
30	D	586933.32	574632.92	6.00	105.00	1.00	0.00	0.50			
31	D	586950.76	574636.50	6.00	90.00	1.00	0.00	0.50			
32	A	586968.92	574639.45	6.00	90.00	0.00	0.00	0.50			
74	A	586925.20	574703.11	6.00	164.39	0.00	0.00	0.50			
75	A	586904.55	574690.26	6.00	350.00	0.00	0.00	0.50			
76	A	586912.39	574670.39	6.00	164.39	0.00	0.00	0.50			
77	A	586900.59	574651.63	6.00	0.00	0.00	0.00	0.50			
41	C	586856.23	574769.47	6.00	97.87	0.00	0.00	0.50			
42	C	586871.09	574771.53	6.00	97.87	0.00	0.00	0.50			
43	C	586885.95	574773.58	6.00	97.87	0.00	0.00	0.50			
44	C	586900.81	574775.64	6.00	97.87	0.00	0.00	0.50			

**Layout Continued**

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
125	A	587045.76	574798.41	6.00	193.00	0.00	0.00	0.40			
126	C	587066.66	574826.50	6.00	274.00	0.00	0.00	0.40			
127	C	586924.56	574785.55	6.00	160.00	0.00	0.00	0.40			
129	A	586986.47	574710.58	6.00	99.07	0.00	0.00	0.40			
130	A	586999.31	574697.31	6.00	10.00	0.00	0.00	0.40			
131	B	586999.71	574664.19	6.00	2.25	0.00	0.00	0.40			
47	A	586902.81	574724.11	6.00	279.31	0.00	0.00	0.50			
48	A	586927.30	574727.88	6.00	276.00	0.00	0.00	0.50			
49	A	587068.16	574688.23	6.00	114.10	0.00	0.00	0.50			
135	A	587007.88	574768.59	6.00	-171.03	0.00	0.00	0.40			
51	A	587068.03	574707.45	6.00	310.00	1.00	0.00	0.50			
143	A	586932.47	574787.10	6.00	261.00	0.00	0.00	0.40			
144	A	586941.47	574756.68	6.00	194.00	0.00	0.00	0.40			
145	A	587004.68	574786.46	6.00	-171.03	0.00	0.00	0.40			
146	A	587064.45	574786.92	6.00	284.00	0.00	0.00	0.40			
60	C	586915.67	574777.69	6.00	97.87	0.00	0.00	0.50			
54	G	586869.11	574785.97	6.00	288.00	0.00	0.00	0.50			
58	A	586994.88	574644.90	6.00	90.00	0.00	0.00	0.50			
59	C	586937.67	574797.55	6.00	270.00	0.00	0.00	0.40			
57	A	587018.85	574701.36	6.00	185.00	0.00	0.00	0.50			

## Horizontal Illuminance (lux)

Internal Estate

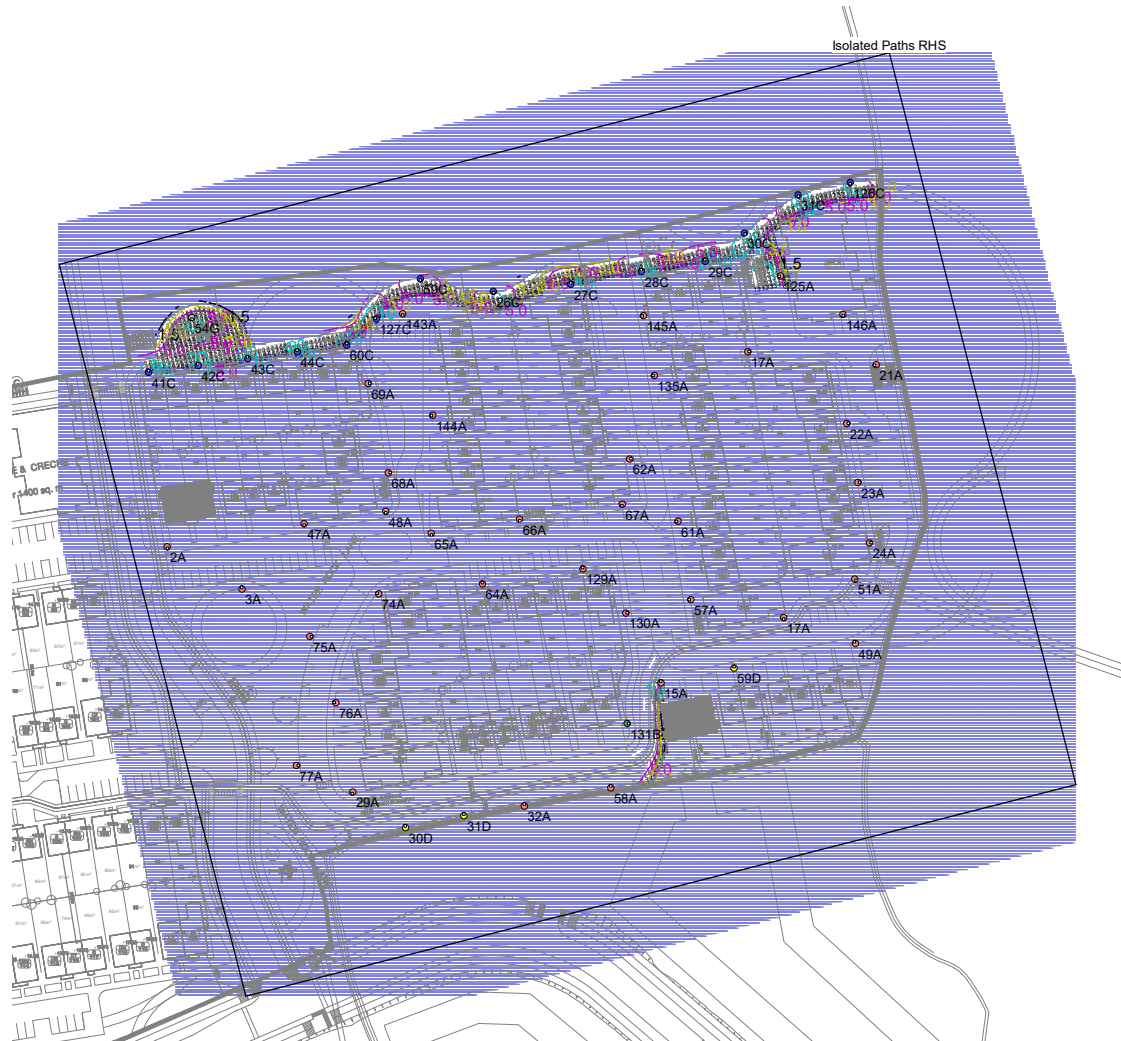


### Results

Eav	9.48
Emin	1.91
E <sub>max</sub>	22.42
E <sub>min</sub> /E <sub>max</sub>	0.09
E <sub>min</sub> /E <sub>av</sub>	0.20

## Horizontal Illuminance (lux)

Isolated Paths RHS



### Results

Eav	7.08
Emin	1.91
Emax	13.99
Emin/Emax	0.14
Emin/Eav	0.27

**DATE:** 7 October 2022  
**DESIGNER:** MHL & Associates  
**PROJECT No:** 21-1154TT  
**PROJECT NAME:** Midleton (Design C)

**LIGHTING  
REALITY**

Lighting Classification

P2 Spine Road  
Eav = 10.00 to 15.00  
Emin = 2.00

C3 Development Junction  
Eav = 15.00  
Emin/Eav Min = 0.40

## Outdoor Lighting Report

**PREPARED BY:** Design Software from:  
Lighting Reality Ltd  
Park Business Centre  
Wood Lane  
Erdington  
Birmingham  
B24 9QR  
United Kingdom  
e-mail: [sales@lightingreality.com](mailto:sales@lightingreality.com)  
website: [www.lightingreality.com](http://www.lightingreality.com)



## Layout Report

### General Data

Dimensions in Metres Angles in Degrees

### Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Spine Road	586863.89	574540.94	79.05	263.28	1.49	1.50
2	Development Junction	586849.40	574539.20	108.43	52.49	1.49	1.50

### Luminaires

#### Luminaire E Data



Supplier	Philips
Type	BGP702 DM10
Lamp(s)	LED-HB 5.2S 730
Lamp Flux (klm)	5.20
File Name	Luma Gen2 Micro_BGP702_DM10_5200_2 0LED_5.2S_CLO_L90_730.ies
Maintenance Factor	1.00
Imax70,80,90(cd/klm)	523.4, 90.0, 0.0
No. in Project	9

#### Luminaire F Data



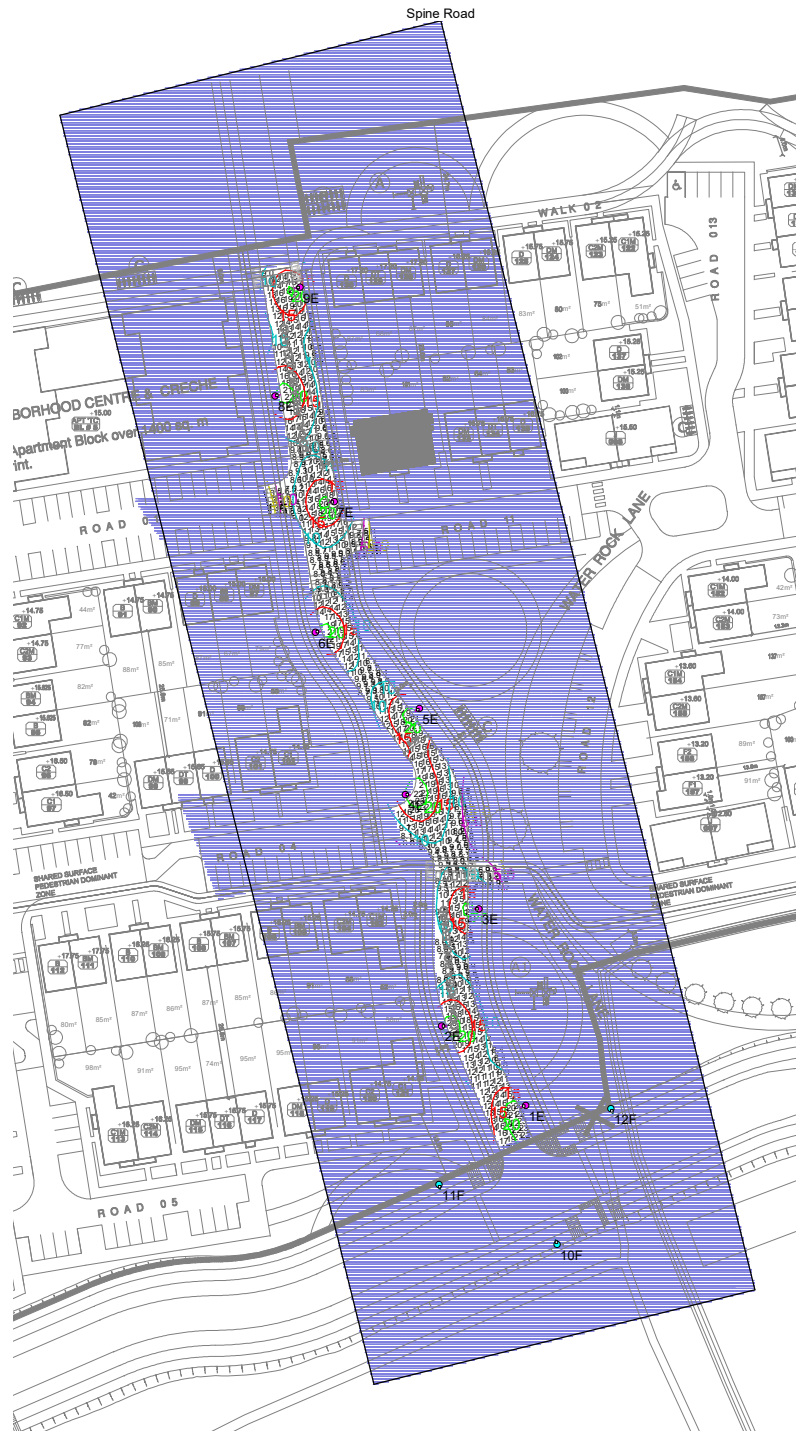
Supplier	Philips
Type	BGP292 DW50
Lamp(s)	LED-HB 5.2S 740
Lamp Flux (klm)	11.50
File Name	LumiStreet Gen2 Mini_BGP292_DW50_115 00_40LED_5.2S_CLO_L90_740.ies
Maintenance Factor	1.00
Imax70,80,90(cd/klm)	609.4, 39.0, 0.0
No. in Project	3

### Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	E	586894.42	574597.09	8.00	202.00	0.00	0.00	0.40			
2	E	586877.47	574613.09	8.00	0.00	0.00	0.00	0.40			
3	E	586885.04	574636.70	8.00	182.00	0.00	0.00	0.40			
4	E	586870.18	574659.68	8.00	357.00	0.00	0.00	0.40			
5	E	586873.05	574677.01	8.00	212.00	0.00	0.00	0.40			
6	E	586852.10	574692.40	8.00	10.00	0.00	0.00	0.40			
7	E	586855.90	574718.68	8.00	190.00	1.00	0.00	0.40			
8	E	586843.94	574739.97	8.00	12.00	1.00	0.00	0.40			
9	E	586848.98	574761.89	8.00	195.00	1.00	0.00	0.40			
10	F	586900.78	574569.10	10.00	110.00	0.00	0.00	0.50			
11	F	586876.97	574581.17	10.00	285.00	0.00	0.00	0.50			
12	F	586911.60	574596.43	10.00	290.00	0.00	0.00	0.50			

## Horizontal Illuminance (lux)

Spine Road



### Results

Eav	12.71
Emin	2.96
Emax	23.01
Emin/Emax	0.13
Emin/Eav	0.23



## 6 REFERENCES

Public Lighting Manual and Product Specification 2022.

BS5489-1: Code of practice for the design of road lighting- Part 1: Lighting roads and public amenity areas

EN13201:2015 Road Lighting

Guidance Notes for the reduction of obtrusive light. The Institution of Lighting Engineers

Lighting Reality software

Cork County Council Public Lighting Technical Specification

7 APPENDIX

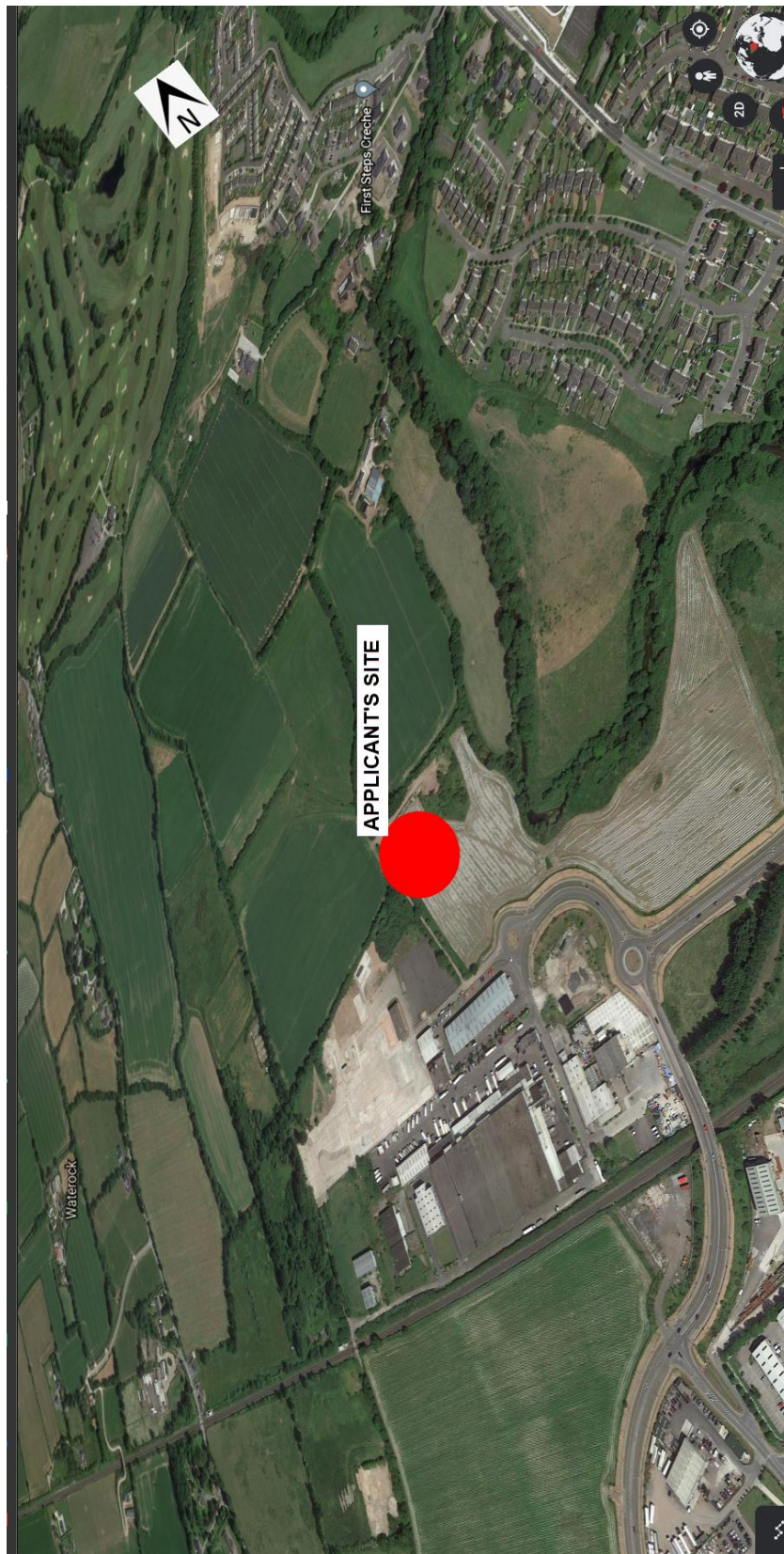


Figure 7.1 Existing Site view perspective showing wider Water Rock area (Credit: Google)



## **8 EXISTING ESB SERVICE RECORDS**

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TITLE:  
20211203-020\_A0

COLOUR CODE:	
	BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
	GREEN - MV(10KV/20KV) OVERHEAD LINES
	BLUE - LV (400V/230V) OVERHEAD LINES
	CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
	RED - MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 03-Dec-2021

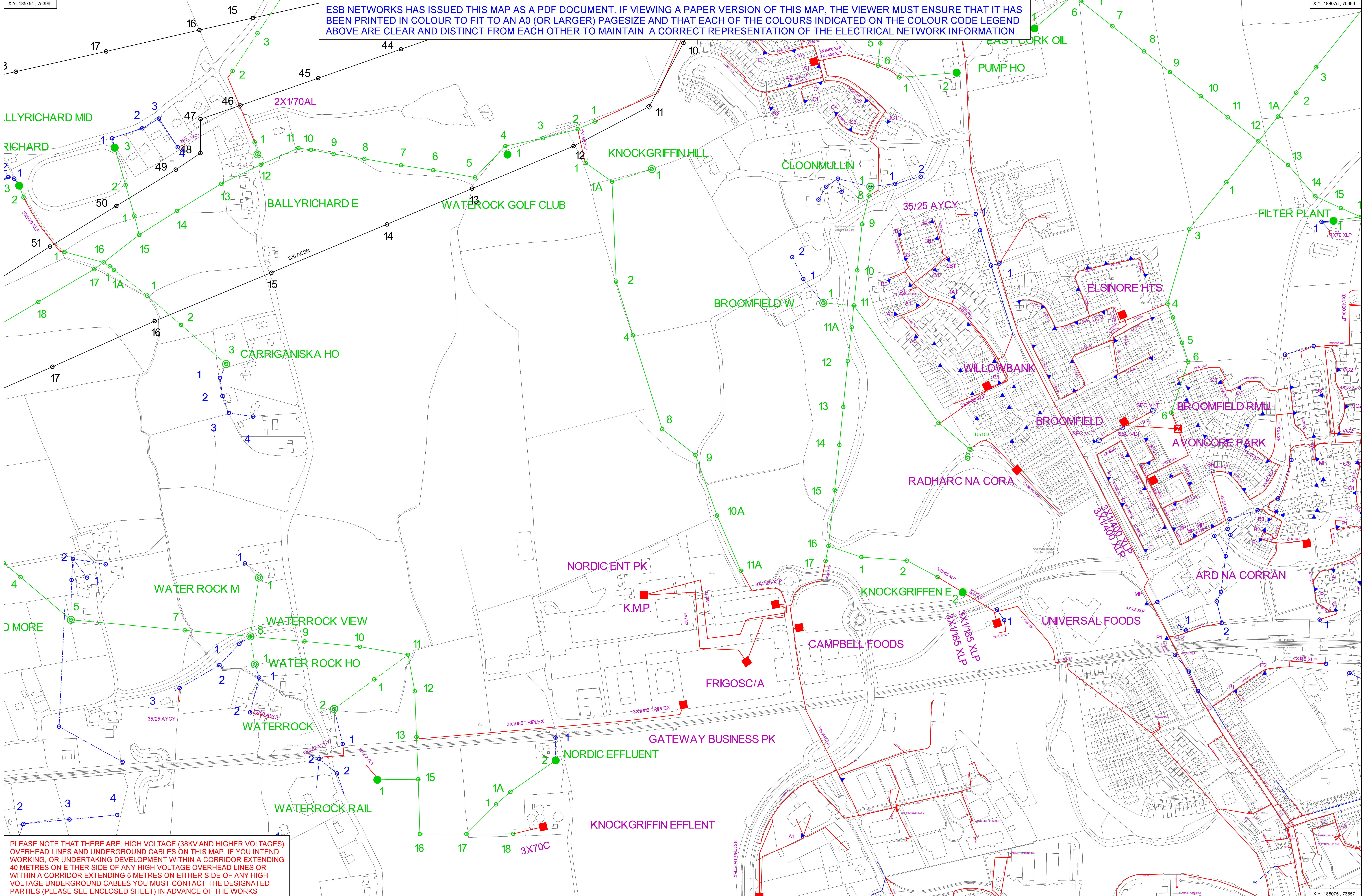
\*\* SCALE: 1:2000

\*\* SCALE WHEN PRINTED ON AN A0 PAGE  
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

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**WARNING**  
THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE. SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1850 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING:  
(A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATOR EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES;  
(C) CAREFUL HAND DIGGING OF TRIAL HOLES USING SAFE DIGGING PRACTICE. REFER ALSO TO HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES. ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY/DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A0 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.



PLEASE NOTE THAT THERE ARE: HIGH VOLTAGE (38KV AND HIGHER VOLTAGES) OVERHEAD LINES AND UNDERGROUND CABLES ON THIS MAP. IF YOU INTEND WORKING, OR UNDERTAKING DEVELOPMENT WITHIN A CORRIDOR EXTENDING 40 METRES ON EITHER SIDE OF ANY HIGH VOLTAGE OVERHEAD LINES OR WITHIN A CORRIDOR EXTENDING 5 METRES ON EITHER SIDE OF ANY HIGH VOLTAGE UNDERGROUND CABLES YOU MUST CONTACT THE DESIGNATED PARTIES (PLEASE SEE ENCLOSED SHEET) IN ADVANCE OF THE WORKS



# CONSULTING ENGINEERS



**OFFICES:**

**CORK**  
Carraig Mór House,  
10 High Street,  
Douglas Road,  
Cork.

**KERRY**  
HQ Tralee,  
Abbey Street,  
Tralee,  
Kerry

Tel: +353 (0) 214840214  
E: [info@mhl.ie](mailto:info@mhl.ie)

MHL & Associates Consulting Engineers  
Registration Number  
311279

Visit us at:  
[www.mhl.ie](http://www.mhl.ie)

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