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Client

Jacob and Rebecca Emery

Report

External lighting design at Manor Farm, Keevil.

Rev A

Date 9 October 2025

Background

RCC Town Planning is working with their client, Jacob and Rebecca Emery, for a proposed new house at Manor Farm, Keevil near Trowbridge. The house is accessed from Main Street, Keevil, BA14 6LU.

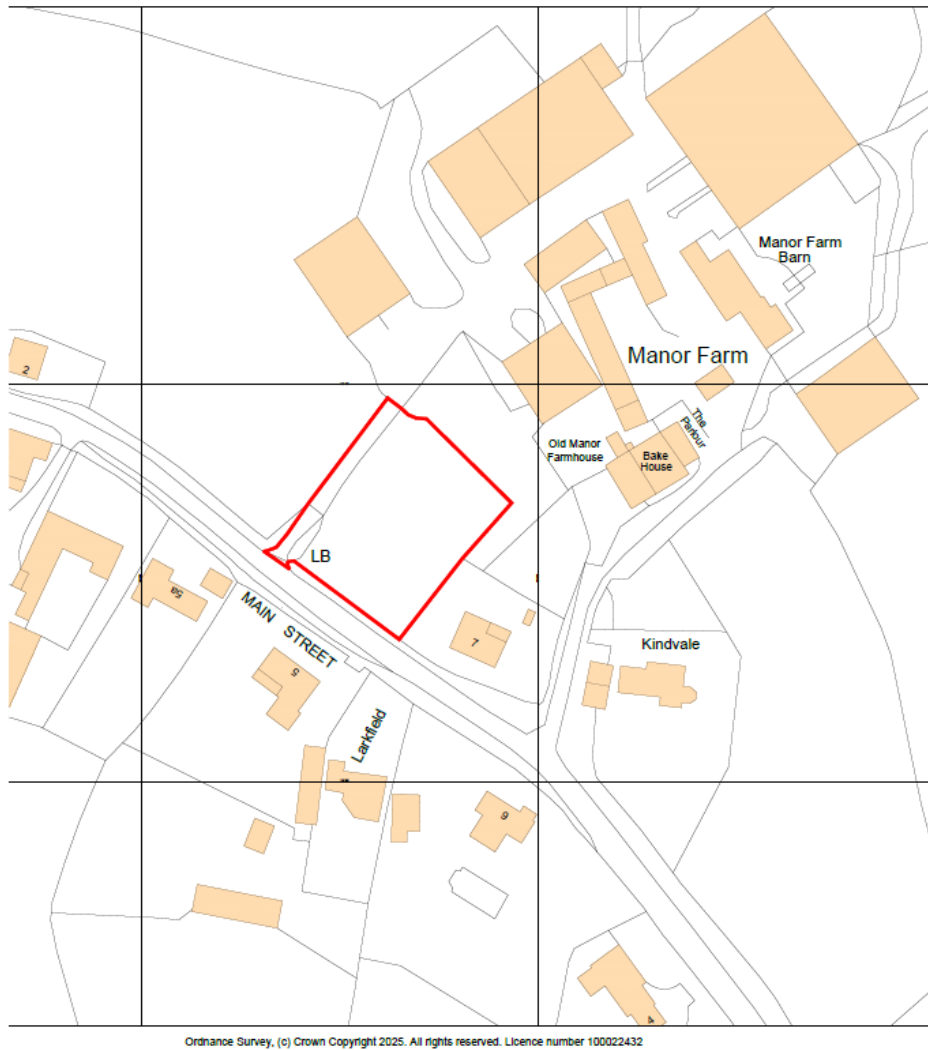
The Council are asking for a lighting assessment which can demonstrate that the external lighting can protect the key features. In particular, the existing and new boundary vegetation, the mature tree and the installed bat boxes.

A minimal lighting design is required and this will include entrance porch, patio doors and the parking and turning area.

Our design excludes the road linking Main Street to Manor Farm.

Alan Tulla, FSLL, FILP, is a Fellow and Past President of the Society of Light and Lighting and has been awarded the CIBSE/SLL Lighting Diploma. He is also a Fellow of the Institution of Lighting Professionals, ILP and lectures for them on the topic of exterior and amenity lighting. He is author of the Society of Light and Lighting "Guide to the Exterior Environment", LG06.

Location



SITE LOCATION PLAN
Red line indicates application area

Assumptions underlying this report

The location is rural, in the village of Keevil. There is no streetlighting in Main Street but the town of Trowbridge is approximately 2km away. As such, we consider that the location falls under the criteria for an E2 classification. This is described as below. The E2 classification determines the allowable amount of spill and that there should be very little upward light emitted from the light fittings. The light fittings we are proposing emit no upward light.

The Institution of Lighting Professionals, ILP, Environmental Zones are described below:

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity

Table taken from ILP Guidance Note, GN01/2021

Exterior lighting

We understand that only minimal lighting is required for the outside of the house and none for the lane leading to Main Street, Keevil. We have included for low level bollard lighting in the parking and turning areas.

We have only used wall mounted downlights on the house itself.

The guidance in the ILP document GN09/19 “Domestic Exterior lighting: getting it right!” recommends that porch lights should emit no more than 600 – 900 lumens. The 3W wall mounted units that we propose emit only 198 lumens.

The wooden bollards are 5W and emit approximately 155 lumens.

All the LED light sources are a Warm 2700K as recommended by the Bat Conservation Trust.

None of the luminaires emit any upward light.

Product illustrations are shown at the end of this report.

House lighting

Two 3W wall lights are mounted in the covered porch adjacent to the front door on the NW elevation. These could be substituted for ceiling mounted downlights depending on the construction of the porch. There are two more wall mounted units on the adjacent patio windows.

We have also used another 3W wall light to illuminate the EV charging point area. This also illuminates the other entrance door.

For the calculations, these are typically mounted at 2m – 2.5m above ground to spread the light wider; the actual mounting height is not critical.

The fittings used are only 9 cm square and project just 6 cm from the wall. As such, they are very unobtrusive.

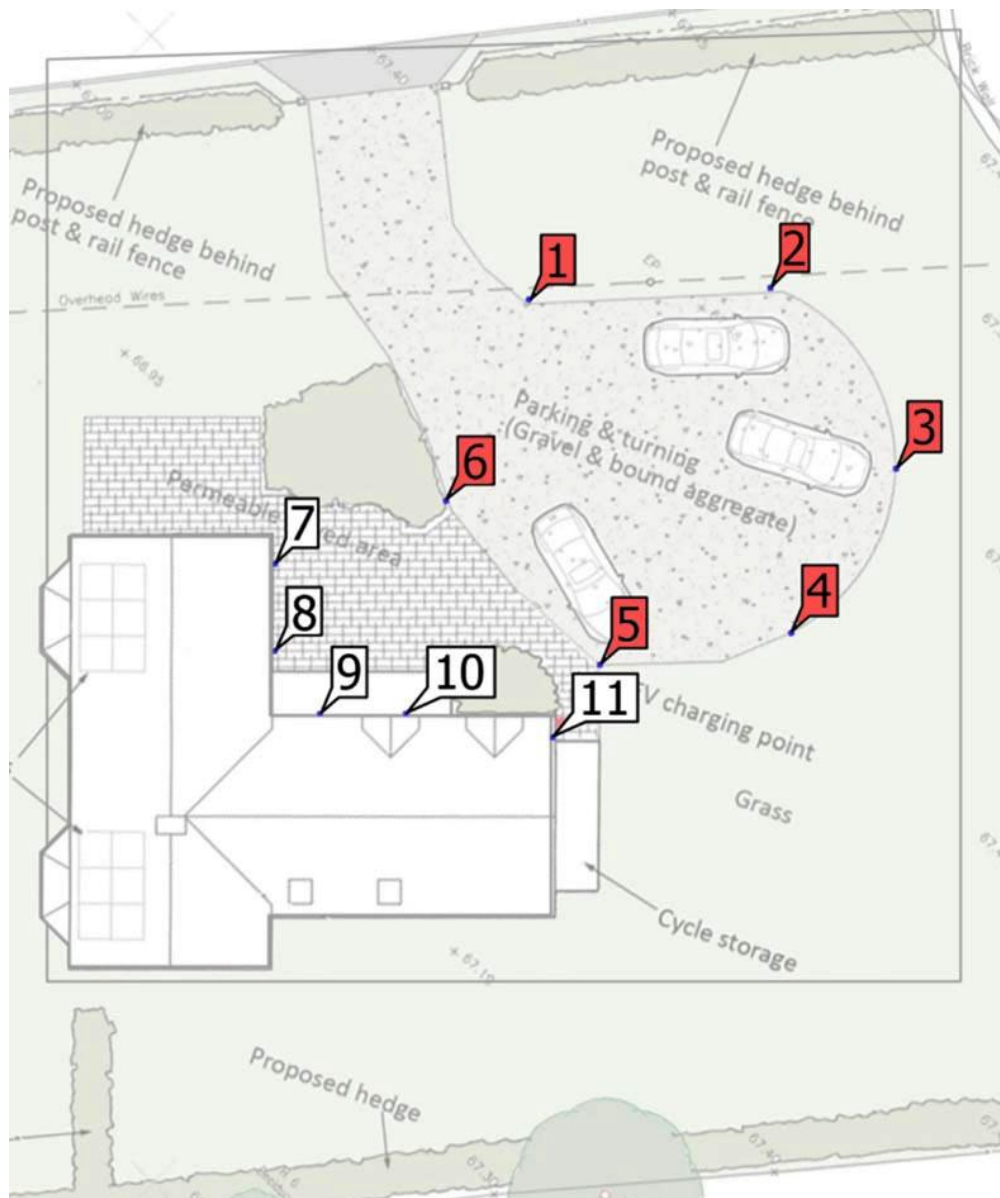
Parking and Turning area

These are illuminated using 1m high wooden bollards (95 x 95 mm section), which emit no upward light. They are designed to project the light forwards and there is almost zero rearward light – the illumination drops to below 0.2 lux within 0.8m of the bollard.

The bollards are mainly used to delineate edges. At the entrance to the site, we suggest using an unlit reflective post/sign to ensure the new hedge is kept dark. Bollard 5 illuminates the EV charging area and bollard 6 highlights shrubbery/tree.

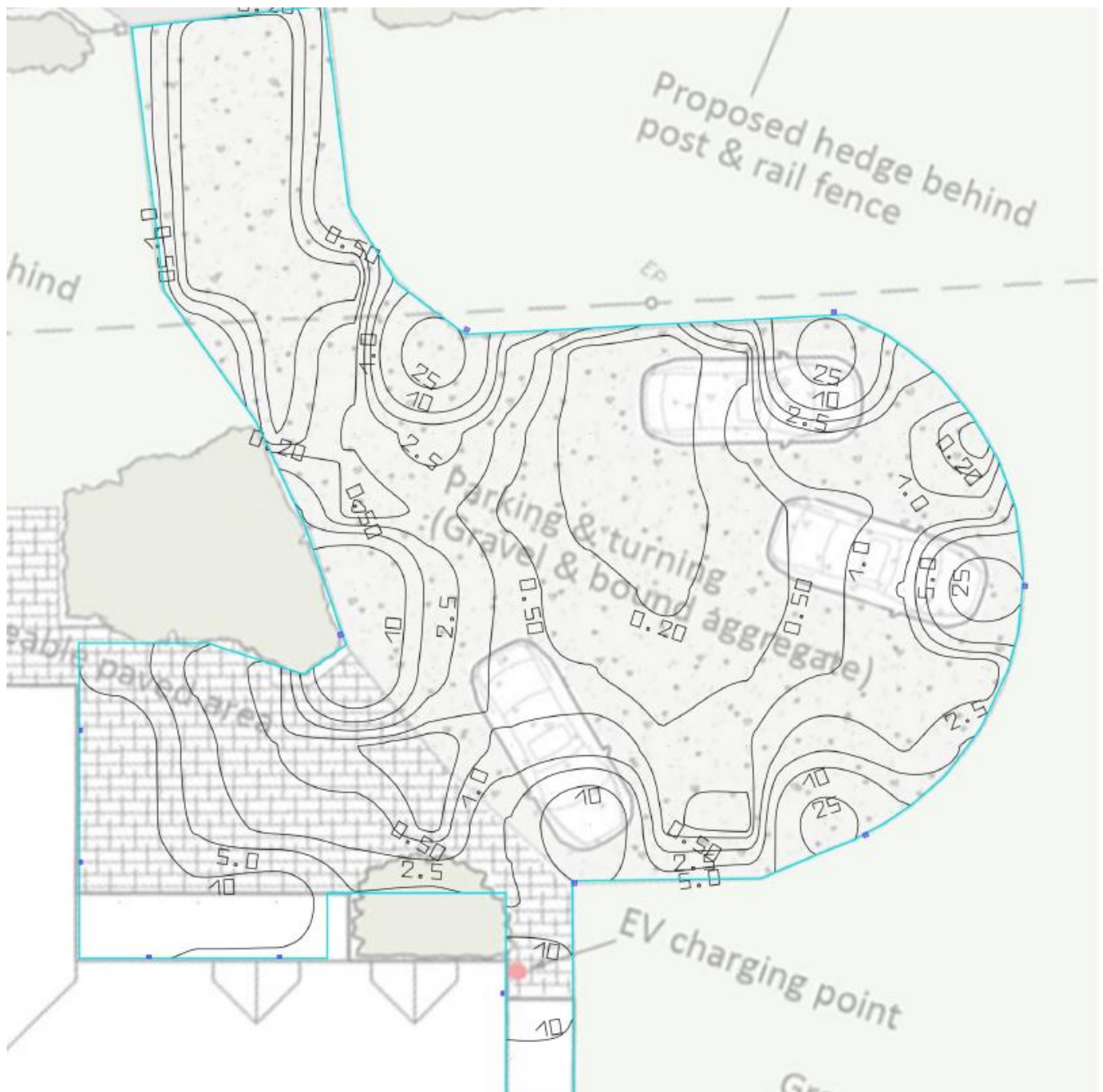
We suggest that the bollards are switched by a PIR movement sensor and/or time clock.

Fitting positions

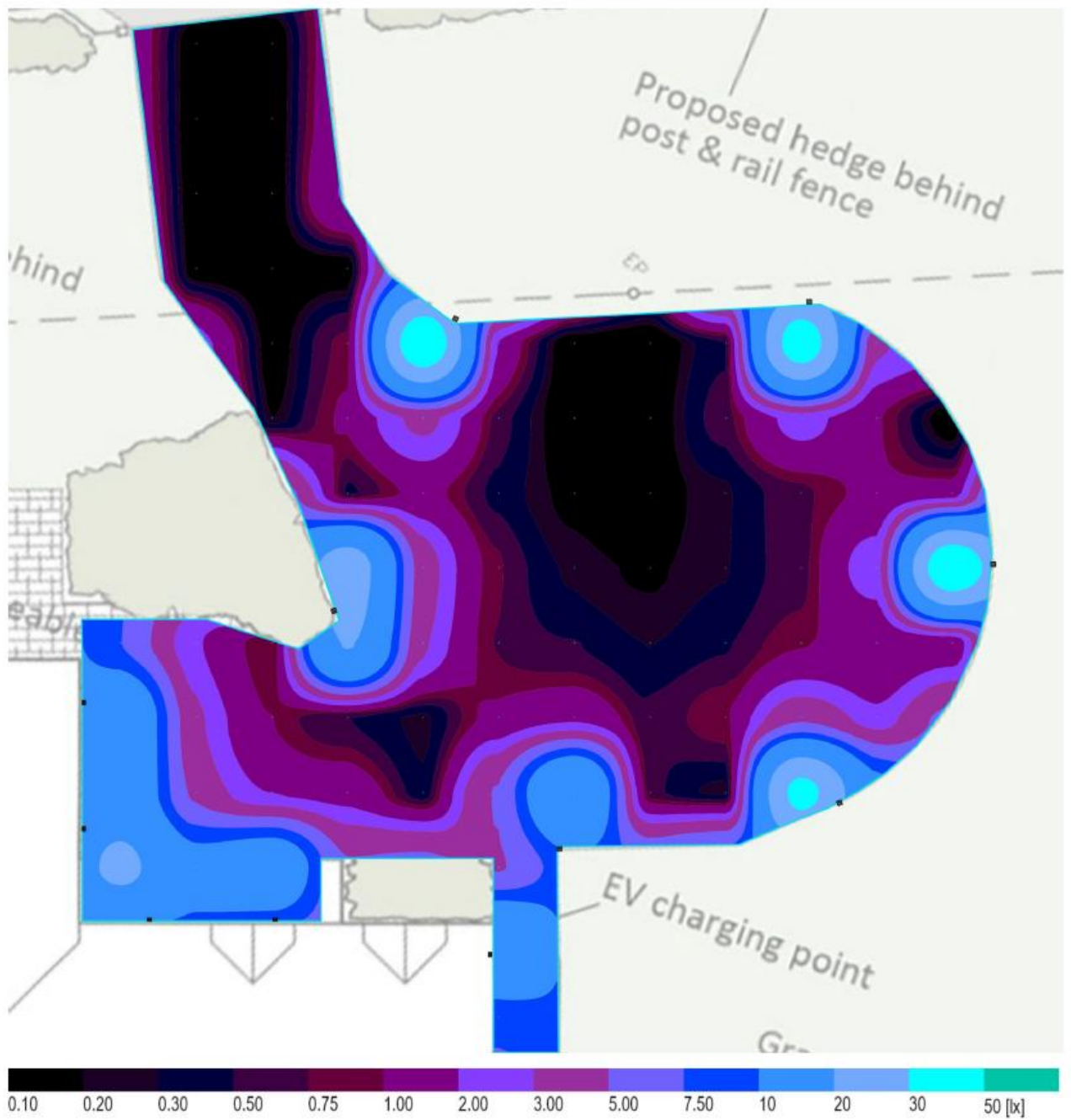


It can be seen that there are 6 bollards (red) and 5 wall mounted units (white).

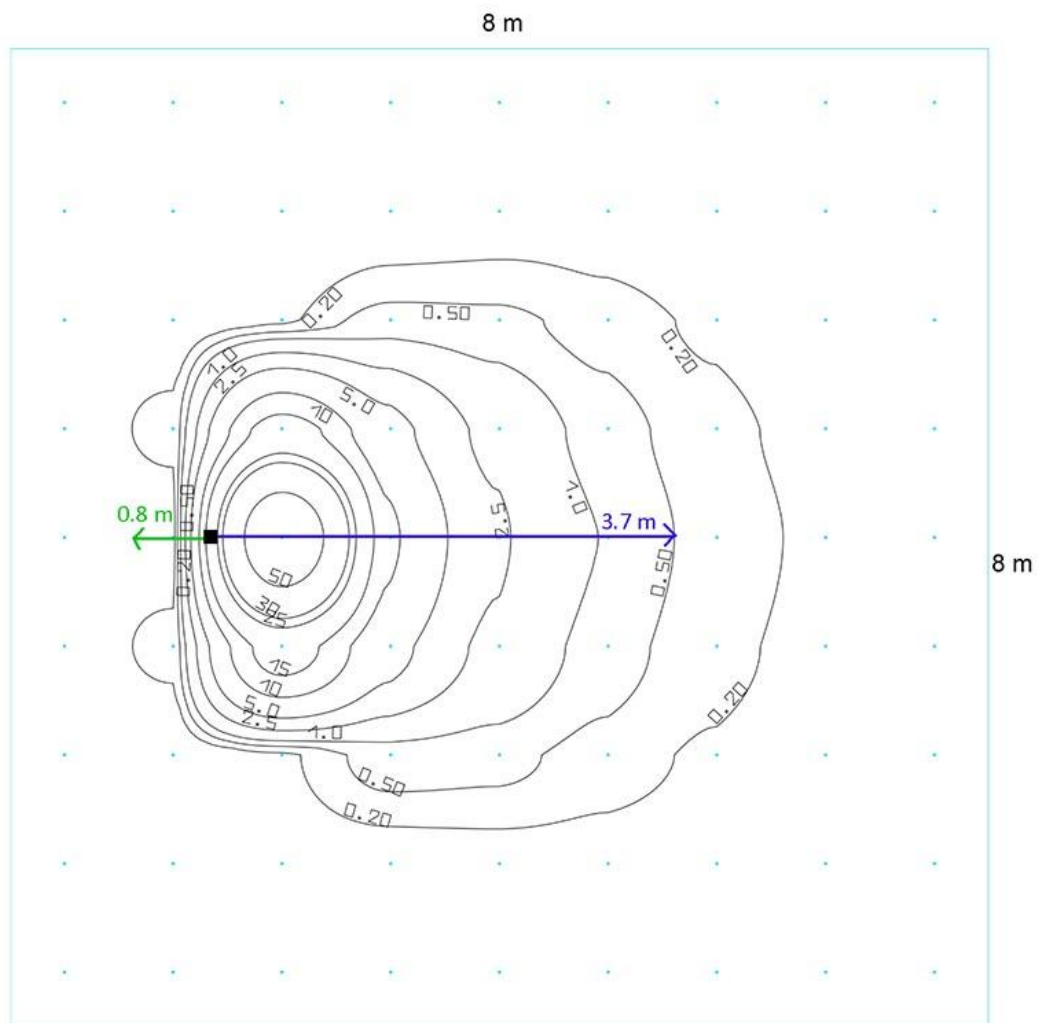
Calculation area and lux values



Spill showing lux values down to 0.2 lux.

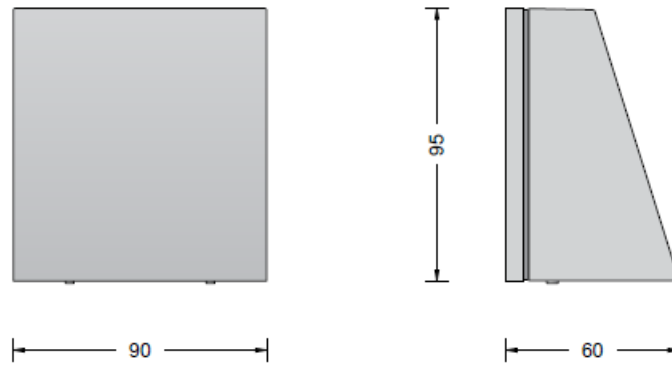


Spill from one bollard



Detailed view showing isolux contours down to 0.2 lux. Values lower than 0.5 lux are normally taken as being acceptable to wildlife and is the typical value achieved under a full moon.

External wall light



Bega Model 22 215, 64 lumens, 2700K. This unit emits no upward light.

Bollard



BL03

Manufactured by Collingwood. This 2700K bollard is just 5W and emits no upward light.
Most light is projected forwards and rearward light reduces to < 0.2 lux at 0.8m.

Glossary of Lighting Terms

Illuminance: this is the SI term for what is normally referred to as Illumination level. It is measured in lux. It refers to the light falling on a surface. Normally this is a horizontal plane such as the ground or desktop. It can also refer to vertical surfaces such as windows and building facades. Illuminance is measured in lux.

Lumen: is the SI term for luminous flux or quantity of light. A typical 8w LED “bulb” emits 700 lumens; a 1.5m fluorescent tube emits around 5,500 lm.

Lux: is defined as an illuminance of 1 lumen/m². A residential road is typically 3 – 10 lux, a major traffic route 20 – 30 lux. A typical tennis court would be 300 -500 lux. Note that lux is normally taken to be the horizontal value but the vertical value is often relevant. E.g. vertical illuminance is important in recognising faces or light intrusion on windows.

Luminance: It is a measure of objective brightness and is a function of how much light is reflected off a surface. There are many factors involved but the major one is the reflectance of the surface. For a given level of illuminance, dark surfaces have lower luminance than light coloured surfaces. Its importance is that it is the metric used for classifying traffic routes, signs and advertising hoardings.

Luminaire: is the term for what is usually referred to as a light fitting. A fixture, light fitting or lantern are other commonly used terms. These terms are used to distinguish them from the actual light source or lamp.