



EXTERNAL LIGHTING ENVIRONMENTAL
IMPACT ASSESSMENT

FOR

TOLLGATE HOTEL SITE
WROTHAM ROAD
GRAVESEND
KENT

Issued by:-
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CONTENTS

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- 1.0 Introduction
- 2.0 Executive Summary and Conclusions
- 3.0 Site Location
- 4.0 Baseline Conditions
- 5.0 Lighting Requirement/Amenity/Ecology
- 6.0 Design Criteria
- 7.0 Glossary of Terms and Bibliography
- 8.0 Appendices
 - A) View Point Images
 - B1) Proposed Lighting Layout Plan
 - B2) Proposed Illuminance Layout Plan
 - C) Proposed Scheme Specification
 - D) Product Datasheets
 - E) ILP GN01.2021 (page5)

1.0 Introduction:

- 1.1 My name is Graham White. I am the Senior Consultant and Managing Director of GWLC Lighting Consultancy.
- 1.2 I have worked within the construction industry for 48 years, achieving an HNC Civil Engineering qualification (1975) and for the last 32 years I have specialised within the building services sector with exterior lighting systems. I was awarded the National Lighting Contractors Certificate in 1988.
- 1.3 I provide professional lighting consultancy services for BP Oil UK Ltd, Shell UK Ltd, Esso Petroleum Ltd and their professional teams including Architects, Consulting Engineers, Planning Agencies and Ecologists for roadside service area proposals throughout England and Wales.
- 1.4 This document has been prepared to provide guidance to those considering this planning application in relationship to the proposed external lighting scheme.
- 1.5 A site survey and desk top exercise has been undertaken to assess the existing environment and then to provide a suitable lighting design for the proposed new development which will minimise the environmental impact on the surrounding residential, commercial and natural environment.

2.0 Executive Summary and Conclusions:

- 2.1 This Lighting Impact Assessment sets out a process to inform and confirm the implementation of suitable measures to restrict and diminish any risk of light pollution to the surrounding landscape. This will include but not be limited to existing property receptors, wildlife habitats and the night sky.
- 2.2 Consideration of the existing ambient lighting around the proposed development site, relates primarily to a density of road junctions. The southern boundary is shared with the eastbound slip road access to the A2 dual carriageway (VP5&6). The northern boundary has a grass verge and wild shrub hedging fronted by a no through road with street lighting and high illumination levels from the petrol filling station (VP images 5, 6&10). The western boundary follows a curved line derived from the former road alignment and the roundabout junction of the A227 Wrotham Road and A2 (from where the subject site is currently accessed).
- My survey (dusk/night 22/9/22, fair weather conditions) identified high road lighting illuminance levels of between 20 – 30 Lux (see **images VP7, 8&9 Appendix 8A**), This is mainly due to the “conflict area” status (BS5489-1.2020/M2.C1etc.) created by the two major roundabout junctions either side of the A2 flyover and in addition the east bound slip road to the A2.
- 2.3 This Lighting Impact Assessment has determined that there will be no significant additional light pollution from the subject site. The Lighting Illuminance Layout Plan DM186.2 (appendix 8B) demonstrates that the lighting will be strictly contained within the site boundaries and the aggregate of the main site illuminance levels will be less or equal to the two junctions and associated road lighting.

Where there is increased illuminance over the pump islands this is masked by a canopy (all lighting within the canopy is fully recessed), the amenity building and boundary landscaping. The fill points for fuel tanker delivery are conveniently located under the canopy reducing the requirement for regulatory additional external flood lighting.

2.4 The proposed lighting scheme for the application site will have a much reduced impact on the existing base line lighting levels because of the adjacent highway lighting requirement.

1) The high illuminance level of the junctions and road network lighting including associated car headlamps will create an illuminated curtain for over 70% of the site boundaries reducing contrast and therefore amenity impact.

2) Any potential loss of amenity by identified receptors will be mitigated by boundary containment and associated planting along with the masking effect of the canopies and retail buildings obscuring direct line of sight.

3) Impact of the proposed development lighting on the immediate environment is further mitigated by the existing mature vegetation, proposed development landscaping scheme and the very latest technology lighting products specified within the lighting design.

2.5 It is my conclusion that the proposed lighting at the subject site will have no adverse impact on the rural amenity or night sky over and above that experienced from the current baseline conditions in this area.

3.0 Site Location



- 3.1 The application site is the former Tollgate Hotel, Wrotham Road, Gravesend and is located to the north of the eastbound entry slip road to the A2. The site retains buildings associated with the former hotel, and occupies an area of approximately 1 hectare. The site is accessed off the adjacent roundabout junction of Wrotham Road and the A2, using an existing, dedicated turning from the roundabout.

4.0 Baseline Conditions:

The existing site contains a derelict hotel complex consisting of a large mock Tudor building to the northwest, with a large 2 storey L shaped accommodation building along the northern and eastern boundaries. There are additional facility buildings including a function room.

A central courtyard provided car parking with areas of hard and soft landscaping.

There is evidence of significant external lighting installed, predominantly I would suggest) for health and safety purposes, this would be due to the hotel and restaurant facility accommodating guests on a casual basis who would not have been conversant with the concentration of pedestrian and vehicle routes around the complex - presenting a greater risk of accidents.

4.1 The southern boundary of the site is shared with the eastbound entry slip road of the A2 dual carriageway. The western boundary follows a generally curved line which is derived from the former road alignment and access arrangements which existed before the realignment of the A2. To the east of the site lies a field, with the A2 eastbound slip road abutting the site to the south, which leads from the northern roundabout of the junction of the A2 with the A227 Wrotham Road. The former A2 (Roman Road) is adjacent to the site to the north and north east. Further to the north-east is the Cyclopark cycling and outdoor activity facility.

4.2 Beyond the former A2, directly to the north of the site and served by a dead-end road, is a large convenience store and petrol filling station with full facilities.

Around the petrol filling station are a number of residential dwellings, the nearest of which is approximately 60m from the subject site boundary.

Residential receptors within the wider context are very limited, with potential visual effects confined to existing properties located within the distant surrounding residential roads.

High density and high speed category roads and a roundabout junction are located immediately adjacent to the subject site on the south and west boundaries with a requirement for high illumination levels.

- 4.3 A baseline study in dusk and dark conditions was undertaken at the subject site and the surrounding area on 22/9/22 to identify possible receptors and other lighting installations present near to the appeal site and also to establish artificial lighting conditions both on and in the immediate vicinity of the subject site. My conclusions relating to the baseline conditions have been informed by my professional judgement, confirmed during my site visit. I can also confirm that, to the best of my knowledge, there will have been no significant changes to the site context that would impact this base line survey to the present day. These baseline conditions have been fully taken into account when compiling **section 5** of this assessment.

Viewing point locations representative of the baseline conditions are shown on the aerial view image within **section 3** and view point photographs are presented in **Appendix 8A**.with the relevant notation under each view point image.

- 4.4 In my professional judgement the above identified primary receptor locations in this area I have classified as ILE Zone Criteria E3 (E3: Medium District Brightness Areas – Well inhabited rural and urban settlements, small town centres of suburban locations).
- 4.5 Classification of the relevant environmental zone for the reduction of artificial obtrusive lighting is identified in the ILP Guidance Note GN01.2020 (**Appendix 8E**) and a Glossary of Terms used within this assessment are included at Section 7.

5.0 Lighting Requirement, Amenity and Ecology Impact:

- 5.1 The proposed development is for an Ev charging hub and petrol filling station, to include 24 charging bays and supporting electrical infrastructure (12 charging upstands, three substations and two network cabinets), six pump islands with canopy above, a forecourt shop/amenity building, customer parking, two air and water spaces with associated hardstanding and landscaping.

The site will be accessed from the Wrotham Road/eastbound A2 roundabout junction.

- 5.2 It is understood that forming part of the application will be a substantial and sensitive landscaping scheme which proposes significant landscape buffer areas, the retention and embellishment of existing hedging, trees and shrubs and new planting – all of which will assist line of sight visual obscuration and restrict the risk of light trespass.

- 5.2 Adequate but measured, levels of light are required so that relevant tasks can be carried out safely and that all persons using the site will feel secure in their environment.

An appropriate level of lighting is required so that pedestrian and vehicular activities can proceed in safety, particularly in potential conflict areas such as pedestrians crossing traffic routes and vehicles manoeuvring.

Poor lighting levels and /or the lack of lighting can lead to serious incidents involving injury through accident or criminal damage and theft.

Car parking, pedestrian and vehicle routes need to be adequately illuminated to provide safe passage on the site and ingress and egress routes need to be illuminated to compatible levels with connecting roads.

- 5.3 I can confirm that the minimum lighting requirement for the subject site accords with the recommendations of CIBSE LG6 and ILP GN01:2011.

CIBSE LG6 Outdoor Lighting Guide (Ref: 4.12 page 19) states that “*(the lighting) must identify the safe route the driver must take from the entrance to the pump island. Those (sites) situated in busy urban areas with high levels of competition will require a much stronger degree of emphasis than one in a remote rural setting.*”

ILP Guidance Notes for the Reduction of Obtrusive Light GN01:2021 identifies and classifies locations to determine expected ambient light levels. The subject site is likely to be identified as “*Environmental Zone E3*” Medium District Brightness Areas – Well inhabited rural and urban settlements, small town centres of suburban locations).

- 5.4 In terms of the issue of neighbour amenity, I have previously stated in para.4.2 the location of receptors relative to the appeal site.

It is my judgement that the only significant receptors will be the existing Petrol filling station and the immediate group of properties on either side of this site. The views towards the proposed development will be significantly obscured by existing mature trees and shrub vegetation and the additional boundary landscaping proposals.

In addition, the canopy, amenity building and the latest lighting technology employed to achieve a zero glare standard (see section 7.0 Glossary of Terms) will provide a good level of obscuration, restrict direct line of sight to any light reflectance within the development and produce good light emission control respectively.

- 5.5 With reference to the baseline conditions (VP images Appendix 8A) it is reasonable to assess that the appeal site lighting will predominantly extend the existing road lighting illuminance. It is also worthy of note that the road lighting will be up to 2 to 3m higher in elevation and that illuminance levels, plus the introduction of car headlamps on very busy roundabout junctions, will result in greater illuminance levels at the subject site boundaries than that emitted from the proposed development.(see **Appendix 8B Lighting Illuminance Plan DM186**)
- 5.7 The detailed design of the proposed site lighting scheme (BP186) has fully addressed best industry standards and practice and in my professional opinion the proposals would not introduce unacceptable levels of light pollution to the identified receptors or be detrimental to their visual amenity or to the surrounding area.
- 5.8 The canopy over the pump islands will contain fully recessed downlights with highly focused LED lighting systems that control the lighting to the immediate canopy area only. No light sources will be seen under the canopy except some light reflected from surfaces, such as vertical structure and pump heads (these are proportionally very small areas). Any canopy floor reflectance can be mitigated by using light absorbent surfaces with low reflectance factors, example - block pavements.

- 5.9 In addition to the aforementioned mitigation the technology employed with the specified lighting products provides accurate control of beam and switching techniques. The floodlight lantern controller is also calibrated to zero Glare or classification G1 meaning no internal reflection and no upward light component, providing improved uniformity at lower illuminance levels (see 7.0 Glossary of Terms).
- 5.10 Ecology advice confirms that a desirable lighting scheme would minimise spill light generally, as far as is practical, and should specifically maintain dark conditions with low UV emissions around any existing wild life habitats. The new technology measures employed within the external lighting scheme design, will mitigate light trespass onto site boundaries, vegetation and restrict any night sky pollution.

6.0 Design Criteria:

- 6.1 The external lighting scheme has been designed in line with the best practice for visual performance, comfort and the lowest energy consumption using LED light sources.

Environmental considerations for exterior lighting will comply with the recommendations of the Chartered Institute of Building Services Engineers (CIBSE).

- 6.2 Illuminance levels for lighting in all external areas are as specified within the CIBSE Lighting Guide 6 (The Outdoor Environment) and relevant British Standards.

The lighting design is compliant and meets the criteria stated within Table 2 and Table 3 (page 8) of the Institute of Lighting Professionals (ILP)

Guidance notes for the Reduction of Obtrusive light.GN01. 2021.

The lighting scheme is designed to ensure that external lighting is concentrated in the appropriate areas and that there is no upward light component, removing unnecessary light pollution, energy consumption and nuisance to adjacent property.

- 6.3 All external lighting will be controlled by a photocell and solar time clock switch, configured so as to prevent operation during daylight hours and the minimum hours of usage required during the hours of darkness.

Objectives for design seek to achieve 1) maximum beam control, 2) zero glare, 3) high lamp efficacy, 4) good colour rendering, 5) warm lamp colour temperatures, and 6) low UV emissions.

7.0 Glossary of Terms and Bibliography

Colour rendering index (Ra): A measure, between 0 and 100, of the ability of a lamp to reproduce the colour of objects in comparison to their aspect under a natural or reference source of light. An incandescent source has an Ra of 100 and a low pressure sodium source an Ra of 0 (see below for further information on colour rendering).

Daylight Sensors: A type of sensor that detects daylight and switches lighting on at dusk and off at dawn.

Luminous efficacy in lamp Lumens per circuit Watt: The ratio between the brightness (luminous flux) produced by a lamp (in Lumens) and the total power consumed by both the lamp and its associated control gear (in Watts).

Lumen: The measure of brightness (luminous flux) emitted from a light source.

Time Switching: A switch with an inbuilt solar clock will control the relevant lighting circuit/s allowing the lighting to be switched on and off at programmed times.

Glare – is unwanted light in the field of view. This is generally identified in two forms: Disability Glare - when the light source is directly viewed and Discomfort Glare – typically light seen from a distance on surfaces or through vapour or dust particles

Luminaire design for Glare Control

Different classifications have been introduced for discomfort and disability glare to classify different shield levels. Shield classes for disability glare range from level G1 to G6 (G1 = cut off at 0 deg tilt.) and are further specified in EN 13201-2 (see table 1). Shield classes for discomfort glare are specified as D1 to D6 (see table 2).

Generally G1 classification means no internal reflection, no upward light, no losses (more efficient) improved uniformity (reduce hot spots on surface).

Colour Rendering: At night time, the sensitivity of the eye is shifted towards the blue region of the visual spectrum. As a result, lamps with poor colour rendering index (CRI), such as some sodium lamps that emit light between the yellow and red region of the visual spectrum, require more luminous output to light an object than a source with a better CRI. Sources with a poor CRI also make the differentiation of coloured objects more difficult for individuals.

In BS 5489-1:200353 Code of practice for the design of road lighting - Part 1: Lighting of roads and public amenity areas, this is acknowledged by allowing a relaxation of the lighting levels (illuminance levels) required when the source specified has a Ra greater than or equal to 60. Other benefits of using sources with an index greater than 60 include an increased feeling of safety for individuals, making recognition of spaces and other individuals easier. In areas where CCTV is used or where tasks requiring high definition are performed then the CRI of light sources can be more critical.

Bibliography

ILP Guidance Notes for the Reduction of Obtrusive Light: GN01.2020

CIBSE Lighting Guide LG6: The outdoor environment.

DOE: Lighting in the Countryside: Towards good practice.

BS5489 Part 1. Roads and Amenity Areas.

ILP GN08/18 Bats and Artificial Lighting in the UK

8.0 Appendices

(8A) View Point Images



VP1 view to front of hotel original main admin and facility buildings with significant floodlighting at roof soffit level.



VP2 further view of original hotel facility buildings with floodlighting to roof soffit.



VP3 hotel accommodation building with column mounted floodlighting to illuminate courtyard and service road.



VP4 looking north east towards residential properties, approximately 150m distance from this VP, mature vegetation provides some good obscuration.



VP5 looking east along subject site northern boundary to well illuminated Spar/Shell Convenience store and petrol station



VP6 looking south east along north east boundary. Considerable Spill light from petrol station.



VP7 view to main site entrance with high illuminance levels on adjacent roundabout required by conflict area status



VP8 view of slip road to the A2 access with the subject site boundary on the left demonstrating high illuminance along southern boundary of site.

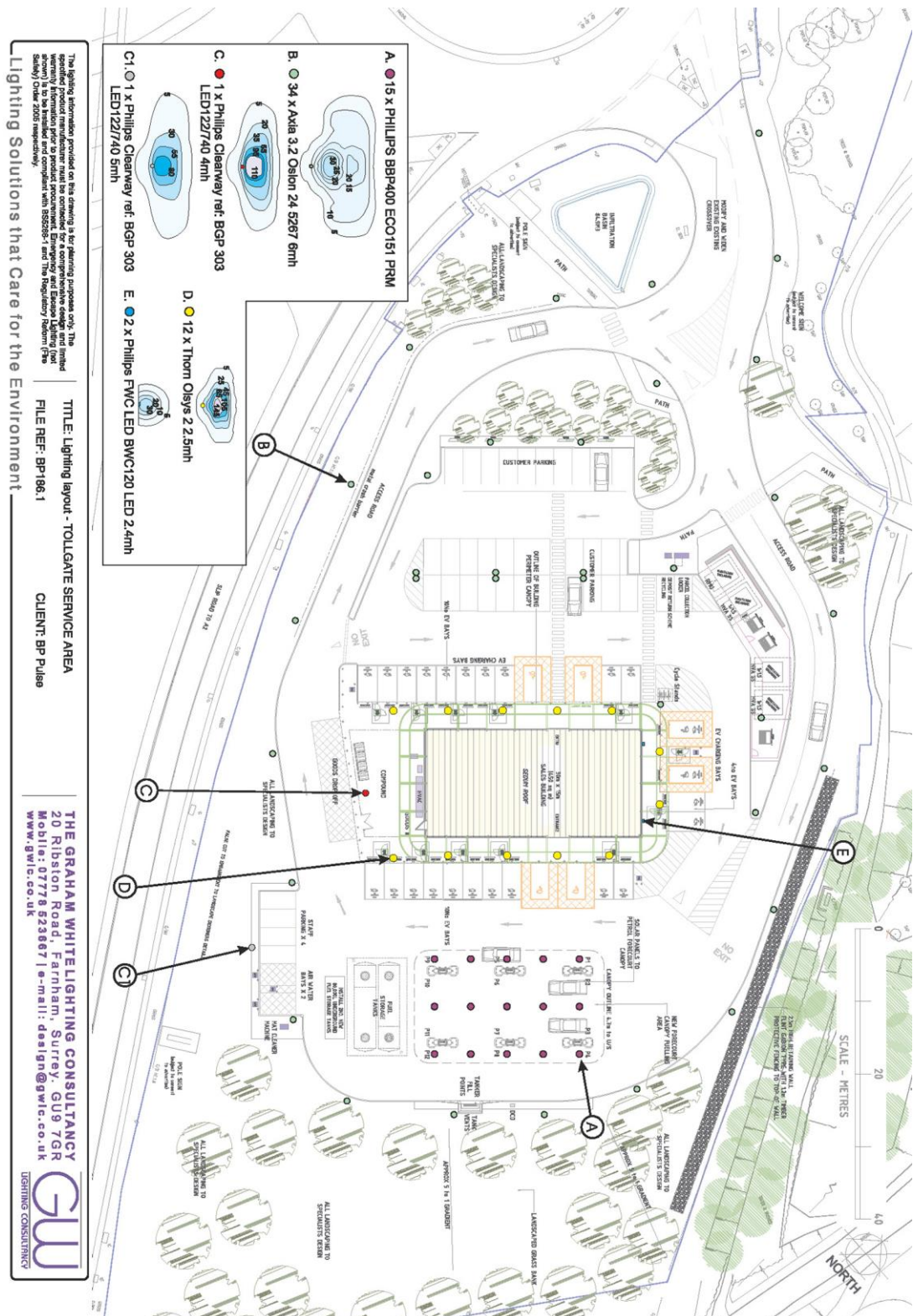


VP9 view of return from southern boundary to eastern boundary showing a mix of some planted and self-seeded thicket, trees and shrubs beyond.

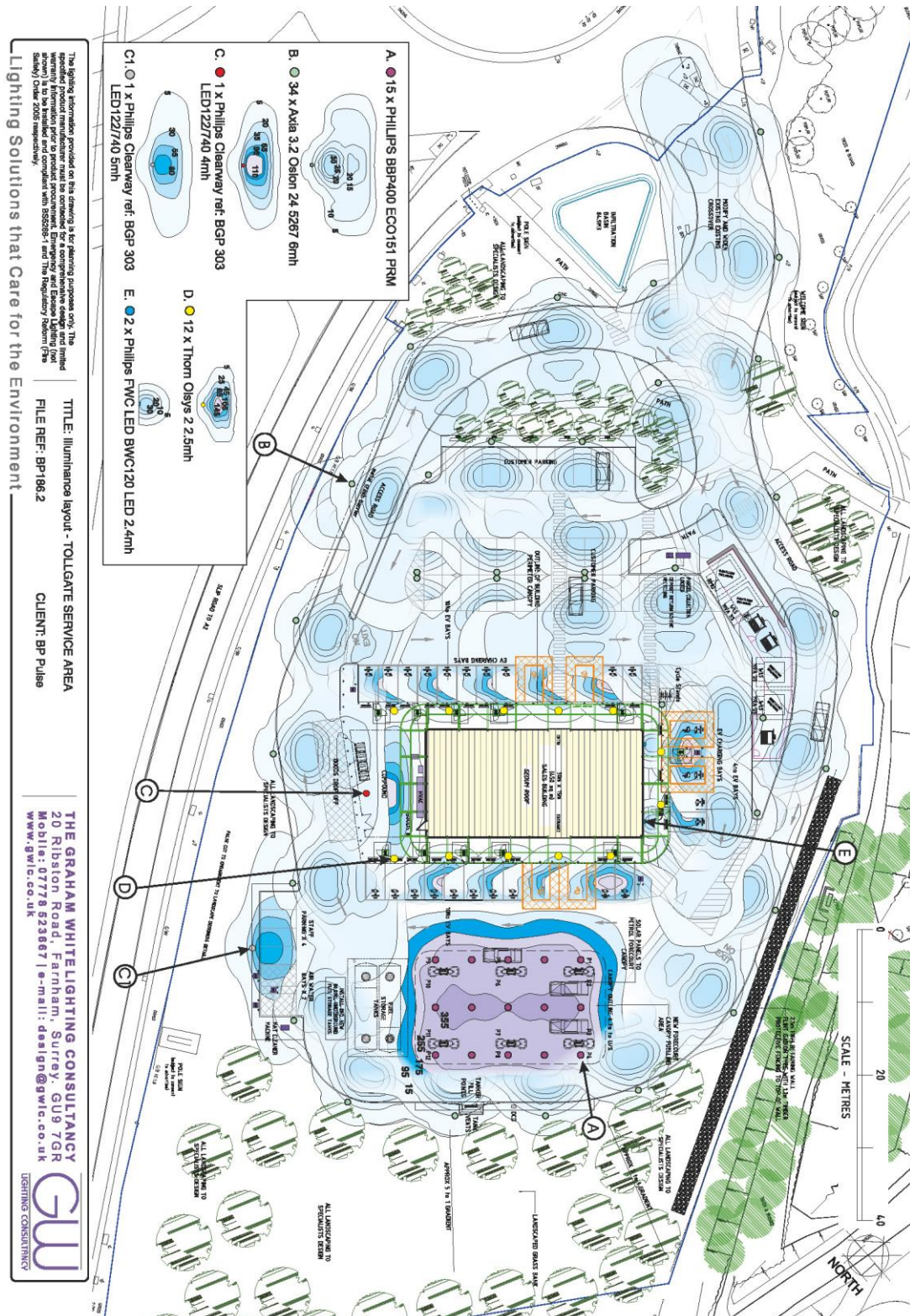


VP10 shows that considerable light pollution exists from the petrol filling station site.

(8B1) Proposed Lighting Layout Plan



(8B2) Proposed Illuminance Layout Plan



(8C) Lighting Specification for Proposed Lighting Scheme.

(Please refer to Drawing BP186.1 and 186.2)

Exterior Lighting

The canopy, road and area lighting is fitted with the latest LED (light emitting diode) technology.

The PFS canopy lighting layout is designed using fully recessed bisymmetric luminaires to provide a high degree of illumination control onto the pump islands and minimise unwanted light outside the canopy area.

The required lighting for the Access Roads and Parking areas are concentrated to provide minimum levels of light required for task and pedestrian/traffic route safety. Luminaire specifications, locations and mounting heights (mh) are shown on the Lighting Illuminance Layout Plan BP186.2.

Design Data and Assessment

The Lighting Layout Plan (186.1) provides a letter and colour key to denote the location and various types of luminaires specified.

The Lighting Illuminance Layout Plan (186.2) presents each luminaire with its own ISOLUX contour diagram derived from the relevant photometric data.

Control of beam direction (below 70 degrees) is provided by the LED beam control system enabling sharp cut off, avoiding glare, trespass and night sky pollution.

A product datasheet is attached within the Appendices for each referenced luminaire type.

I am satisfied that any effect on the immediate environment by the designed illuminance for this site is appropriately mitigated and will not cause light trespass beyond the proposed development boundaries.

Graham White (Senior Designer)

GWLC

(8D) Product Datasheets (see 8B1 Lighting Layout Plan)

Luminaire Ref: A



Mini 300 LED gen2

BBP400 ECO151-3S/757 I PRM WH CFRM-2

Mini300 LED gen2 - LED EconomyLine 15100 lm - Petrol rotational symmetric medium

With operating margins under pressure, companies are looking for ways to save energy. LED products like our Mini 300 LED gen2 luminaires are a perfect solution. Designed for petrol-station canopies and low-bay applications, these ultra-efficient retrofit fixtures offer outstanding light quality, effective thermal management, and a very long lifespan. Reduced maintenance, replacement and energy cost means a short payback period, making Mini 300 LED gen2 a shining example of how businesses can save money by opting for green products. A movement detector combined with a daylight sensor enables further energy savings. Our Mini 300 LED gen2 app gives users control in ways that are simply not possible with other luminaires – for instance, reading status and managing lighting from the floor by laptop or Smartphone via Bluetooth.

Product data

General Information			
Number of light sources	60 [60 pcs]	Light regulation	-
Lamp family code	ECO151 [LED EconomyLine 15100 lm]	Master-slave unit	No [-]
Lamp version	3S [3rd generation, screw fixation]	Connection	SI [Screw connection block]
Light source colour	757 cool white	Cable	Cable 2.0 m with screw connector
Light source replaceable	Yes	Protection class IEC	Safety class I (I)
Number of gear units	1 unit	Standard RAL colour	Pure white
Driver/power unit/transformer	PSR [Power supply unit regulating]	Coating	-
Driver included	Yes	Glow-wire test	960/5 [Temperature 960 °C, duration 5 s]
Optical cover/lens type	FG [Flat glass]	Flammability mark	NO [-]
Luminaire light beam spread	114°	CE mark	CE mark
Embedded control	No [-]	ENEC mark	ENEC mark
		UL mark	-

Datasheet, 2019, September 3

data subject to change

Axia 3



Engineered for performance, designed for the customer experience

With customer feedback playing a critical part in our innovative design process, we developed Axia 3. More than a luminaire, it is a platform delivering sustainability, cost-effectiveness and customer experience all while supporting smart city frameworks. Based on experience from the hundreds of thousands Axia luminaires installed worldwide, this third generation luminaire pushes the boundaries with photometric innovation, ease and speed of installation and FutureProof connectivity.

Available in three sizes, Axia 3 enables towns and cities to maximise efficiency when lighting numerous environments, from bike paths, squares and car parks to residential streets, carriageways, urban roads and large boulevards. This lightweight and compact luminaire combines quality of light with a minimal carbon footprint. It excels in easy installation and carefree maintenance, reducing operating costs.

IP 66

IK 10

- URBAN & RESIDENTIAL STREETS
- BRIDGES
- BIKE & PEDESTRIAN PATHS
- RAILWAY STATIONS & METROS
- CAR PARKS
- LARGE AREAS
- SQUARES & PEDESTRIAN AREAS
- ROADS & MOTORWAYS

Luminaire Ref: C and C1



ClearWay

BGP303 LED122-3S/740 PSU II DM C450CE 42

ClearWay - LED module 12200 lm - 3rd generation, screw fixation - 740 neutral white - Power supply unit - Safety class II (II) - Philips standard surge protection level kV - Cable 450 mm with connector 2-pole - Universal for diameter 42-60 mm

LED technology represents a breakthrough in lighting in many different respects. The light quality provided by LEDs, for example, has made our roads safer, while the tremendous efficacy of LEDs is helping cities reduce their energy bills. At Philips, we believe we can make even more roads safer, and help more municipalities achieve their goal of reducing energy consumption. That's why we have developed ClearWay – a LED road luminaire that is affordable yet does not compromise on light quality and energy efficiency.

Product data

General information		Connection	Screw connection block 5-pole
Number of light sources	1 [1 pc]	Cable	Cable 450 mm with connector 2-pole
Lamp family code	LED122 [LED module 12200 lm]	Protection class IEC	Safety class II (II)
Lamp version	3S [3rd generation, screw fixation]	Standard RAL color	Pale gray
Light source color	740 neutral white	Coating	-
Kombipack	Lamp(s) included	Ready-to-install	Ready-to-install
Light source replaceable	No	Glow-wire test	960/5 [Temperature 960 °C, duration 5 s]
Number of gear units	1 unit	Flammability mark	F [For mounting on normally flammable surfaces]
Gear	EBP [Electronic Primalume]	Country version	NO [Norway]
Driver/power unit/transformer	PSU [Power supply unit]	CE mark	CE mark
Driver included	Yes	ENEC mark	ENEC mark
Optical cover/lens type	FG [Flat glass]	Warranty period	3 years
Luminaire light beam spread	95° x 160°	Optic type outdoor	Distribution medium
Embedded control	No [-]	Photocell	No [-]
Light regulation	-	Gland for mains supply	1PG13 [Cable gland 1x PG 13 mm]

Datasheet, 2018, March 12

data subject to change

Luminaire Ref: D

Olsys Street

96274091 OLSYS2 24L70-740 STR BP8 CL1

THORN

LED 57W OSYR_24L70_STR_4K



IP66

IK08



CE

T_a50

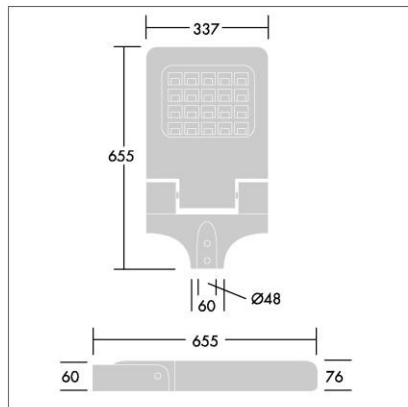
Olsys Street

An LED street lantern with street distribution for urban street lighting applications. electronic bi-power. Class I electrical, IP66, IK08. Body: die-cast aluminium (AS9U), powder coated silver-grey (RAL 9006). Enclosure: tempered glass. Optics: aluminium. Supplied in one box, ready to install. Mounting attachments to be ordered separately. Equipped with power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. Complete with 4000K LED

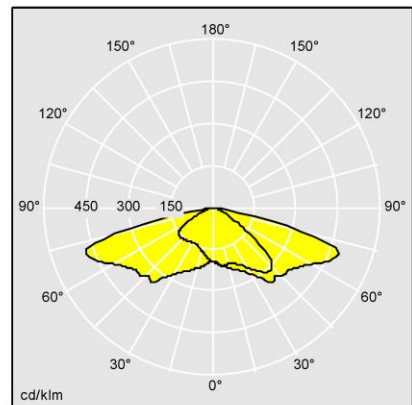
Dimensions: 505 x 337 x 76 mm
Total power: 57 W
Weight: 8.5 kg
Scx: 0.17 m²



TLG_OSYS_F_2STRUT.jpg



TLG_OSYS_M_STR2.wmf



TLLA_OLSYS_2_24_700_LTL_GLD1021.ltd

Lamp position: STD - standard
Light Source: LED
Luminaire luminous flux*: 6373 lm
Luminaire efficacy*: 112 lm/W
Lamp efficacy: 111 lm/W

Correlated colour temperature*: 4000 Kelvin
Rated median useful life*:
50000h L90 at 25°C
Ballast: 1x EL BP
Luminaire input power*: 57 W
LOR: 1,00 ULOR: 0,00 DLOR: 1,00

All values marked with an * are rated values. Thorn uses tried and tested components from leading suppliers, however there may be isolated instances of technology-related failures of individual LEDs during the rated product lifetime. International standards set the tolerance in initial flux and connected load at $\pm 10\%$. Colour temperature is subject to a tolerance of up to ± 150 Kelvin from the nominal value. Unless stated otherwise, the values apply to an ambient temperature of 25°C.

In most products the failure of one LED point causes no functional impairment to the lighting performance of the luminaire and is therefore no reason for complaint. Unless otherwise stated all Thorn LED products are suitable for unrestricted use (rated RG0 or RG1) with regard photobiological blue light safety (IEC/EN60598-1).

Thorn Lighting is constantly developing and improving its products. The right is reserved to change specifications without prior notification or public announcement.
© Thorn Lighting

Luminaire Ref: E



FWC LED

BWC120 LED18-/830 PSU II WH

SECURITY LED 120 - LED module 1800 lm - Power supply unit

Only texts for Benelux market available

Product data

General Information	
Number of light sources	1 pc
Lamp family code	LED18 [LED module 1800 lm]
Beam angle of light source	120 °
Light source color	830 warm white
Cap-Base	- [-]
Light source replaceable	No
Number of gear units	1 unit
Driver/power unit/transformer	Power supply unit
Driver included	Yes
Optic type	-
Optical cover/lens type	Opal bowl/cover
Luminaire light beam spread	180°
Connection	Screw connection block 3-pole
Cable	-
Protection class IEC	Safety class II
Glow-wire test	Temperature 650 °C, duration 5 s
Flammability mark	For mounting on normally flammable surfaces
CE mark	CE mark
ENEC mark	ENEC mark
Warranty period	5 years
Optic type outdoor	-

Photocell	-
Remarks	* At extreme ambient temperatures the luminaire might automatically dim down to protect components
Constant light output	No
Number of products on MCB of 16 A type B	50
EU RoHS compliant	Yes
Light source engine type	LED
Serviceability class	Class C, luminaire without serviceable parts, not serviceable
Product family code	BWC120 [SECURITY LED 120]

Light Technical	
Upward light output ratio	0.08
Standard tilt angle posttop	0°
Standard tilt angle side entry	0°

Operating and Electrical	
Input Voltage	220 to 240 V
Input Frequency	50 to 60 Hz
Inrush current	5 A
Inrush time	0.05 ms

Datasheet, 2020, June 5

data subject to change

8E) ILP GN01.2021 (page 5)

Guidance Note 01/21

Environmental Zones

It is recommended that Local Planning Authorities specify the following environmental zones for exterior lighting control within their Development Plans.

Table 2: Environmental zones

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

Note 1 Where an area to be lit lies close to the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone (see comment below)

Note 2 Rural zones under protected designations should use a higher standard of policy

Note 3 Zone E0 must always be surrounded by an E1 Zone

Note 4 Zoning should be agreed with the local planning authority. Due to local requirements a more stringent zone classification may be applied to protect special / specific areas

Note 5 SQM (Sky Quality Meter) is referenced by the International Dark Skies Association (IDA). SQM is an instrument used to measure the luminance of the night sky. It is typically used by astronomers to quantify skyglow, using units of magnitudes per square arcsecond. the scale is between 16:00 (a bright night sky) and 22:00 (the least light pollution). The criteria for zone E0 was revised in mid 2019, with the new requirements not being made retrospective

Note 6 Astronomical Observable Dark Skies will offer clearer views of the Milky Way and of other objects such as the Andromeda Galaxy and the Orion Nebula

Note 7 Although values of SQM 20 to 20.5 may not offer clear views of astronomical dark sky objects such as the Milky Way, these skies will have their own relative intrinsic value in the UK