

# **McDonald's Kirkby in Ashfield Lighting Impact Assessment Report Car Park & Drive-Thru External Lighting**

Associated Reference Documents:

Institute of Lighting Professionals Guidance Note 01/21

Institute of Lighting Professionals Guidance Note 08/23

Signify Drawing D-5966529/501682049

Signify Lighting Application Specialist Design Notes & Luminaire Schedule

10th January 2025



## **Scope of Report and Lighting Design Principles**

The lighting impact assessment report is summarised in conjunction with:

- Signify Drawing D-5846096/501682049
- Signify Lighting Application Specialist Design Notes & Luminaire Schedule
- Extracts from Google Earth and Street View

The assessment examines each boundary, verifies the effective use of LED optics and the lux levels that have been achieved and then considers what impact there might be upon the residential properties in the unnamed road and the adjacent adopted highway. In addition, it considers the overall impact on night sky preservation and general recommended ecology principles.

### **Neighbouring Properties**

In consideration of the residential properties in the unnamed road, the lighting design has adopted the principles set out in the Institute of Lighting Professionals Guidance Note 01/20 and GN 01/21 to minimise or eliminate any obtrusive light and to protect the night sky. The LED luminaires to the eastern boundary with the unnamed road incorporate backlight louvres which eliminate any horizontal illuminance and provide contained light overspill at ground level. The residential properties on the opposite side of the unnamed road will not be affected by any obtrusive light. The Isolux plot shows the 1 lux contour following the boundary line and road.

### **Lane End**

In consideration of the adopted highway, Lane End, the lighting design has ensured that there is no obtrusive light that could distract highway users and that the light spill at ground level is broadly contained within the McDonald's site. The 1 lux contour has been plotted to show the ground light containment through to the road centre. The Local Authority highway lighting comprises of tilted LED luminaires on 8m high columns with outreach arms. The illuminance levels produced by these will be the dominant light source.

### **Ecology Mitigation**

In consideration of the ecology principles set out in the Institute of Lighting Professionals Guidance Note 08/23 Bats and Artificial Lighting at Night:

- There is no increase to the level of light falling on to the unnamed road trees and hedging or the mature tree canopies to the western boundary.
- The column heights are limited to 6m.
- The LED luminaires have directional optics which limit any light overspill at ground level.
- The luminaires are set at zero-degree tilt which eliminates any vertical light pollution and protects the night sky.
- The specified luminaires use an LED light source which does not have a UV light component.
- The specified luminaires have a CCT of 4000K Neutral White.

## Eastern Boundary

The unnamed road to the eastern boundary of the site has a number of residential properties to it's east for approximately the first 71m:



The first group of houses that abut Urban Road have a limited number of first floor windows that have direct line of sight.



Houses numbered 2 to 10 have more first floor windows that have direct line of sight measured at 15m from the site boundary and 4m from ground level. 2023 Google pictures show higher close boarded fencing installations and more mature trees which afford better screening for all of the ground floor windows.



The two luminaires to the eastern site boundary are mounted on 6m high columns and incorporate Signify BL2 backlight louvres which eliminate any horizontal light illuminance and contain the light spread at ground level. The 1 lux contour shows the extent of light spread at ground level. It does not extend beyond the road width.

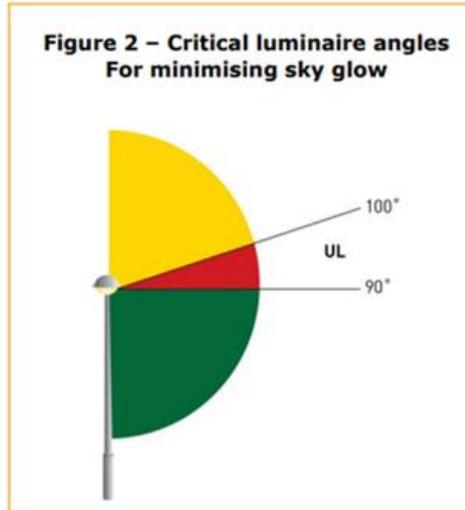
This is the eastern boundary Isolux plot superimposed onto the Google Maps image:



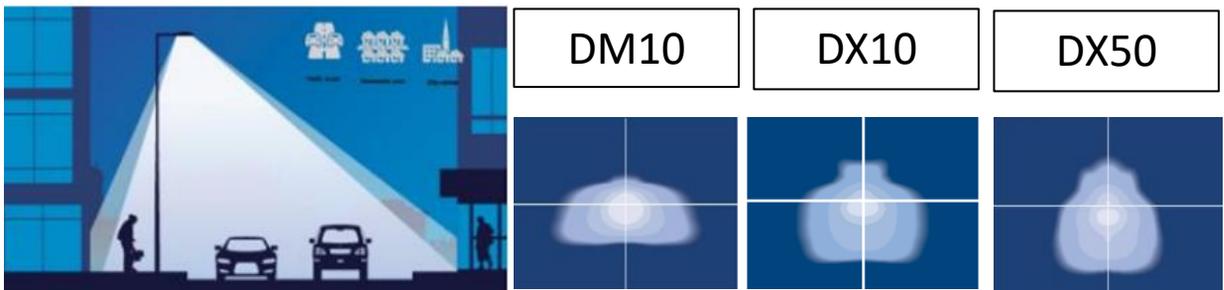
There will not be line of sight obtrusive light into or observed from any of the windows in the 2 storey residential properties opposite the site.

## Night Sky Preservation

The lighting design uses Signify luminaires with downward directional LED optics which, in conjunction with the luminaire heads set at zero-degree tilt, prevent any upward light and consequential night sky glow



The Signify LiAS schedule details the full product specification for the 12 luminaires specified in the lighting design. The luminaires incorporate directional optics that ensure that the angle of light emitted is under the required 85°. These are the polar curves for the 3 optics being used.



The DM and DX Optics that are being used are recommended for both night sky and biodiversity preservation.

Night preservation	DN10 / DM11 / DW10 / DX10	DM50 / DW50 / DX60 / DS50	DSM11
Biodiversity preservation		DN10 / DM11	DW10 / DX51

## Conclusions

1. The lighting design has no lighting impact on any neighbouring residential properties.
2. The lighting design eliminates any potential night sky pollution by using downward projection luminaires set at zero tilt.
3. The lighting design uses a CCT of 4000 Neutral White.
4. The lighting design eliminates any directional light spill into nearby trees and hedges.
5. The Signify LED luminaires have no UV component and the luminaires have a peak wavelength that is greater than 550nm. This is above the minimum wavelength recommended by the ILP in consideration of bats and other airborne wildlife.
6. The luminaire column heights are limited to 6m.
7. The lighting design provides excellent lux levels and light uniformity within the McDonald's site to support staff and customer welfare, CCTV clarity and safe use of the 3 pedestrian crossings at the end of the drive-thru lane and across the width of the car park.
8. The Signify LED luminaires surpass the current BREEAM efficacy requirements.