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Ref: L260519 Lighting Review with Regards to Bats – 2029 Horton Road, Devizes, Wiltshire

To Whom It May Concern,

Practical Ecology Ltd was commissioned by McDonald's Restaurants Ltd to undertake a review of an external lighting scheme for a proposed new development at Horton Road, Devizes, hereafter referred to as the 'Site'.

The Site is approximately 0.40 ha (central OS grid reference SU 023 630, postcode SN10 2JG) and is located on a roundabout between London Road and Horton Road on the northeastern edge of Devizes, Wiltshire. The Site is comprised of a large, surfaced petrol filling station forecourt, areas of hardstanding and gravel, low mown amenity grassland, some scattered trees and an area of former scrub, which now contains tall ruderals, scattered scrub and a vegetated soil bund in the eastern portion of the Site. The Site is bordered by London Road immediately to the north, with a warehouse unit beyond and Horton Road to the south, with residential properties beyond. To the west is a roundabout and to the east is a large concrete pad with tarmac beyond, used for motorbike driver training

The Site is assessed as having **Moderate Suitability**¹ for foraging and commuting bats as, despite limited suitable vegetation onsite and the levels of illumination on the A361 and Horton Road these areas are well connected to other offsite habitats. The four buildings onsite are to be demolished and were assessed as having **Negligible Suitability**¹ (Buildings 1 and 3), **Negligible to Low Suitability**¹ (Building 2) and **Low Suitability**¹ (Building 4) for roosting bats. A single bat survey on Buildings 2 and 4 were undertaken, with no emergences noted indicating bats are not using the buildings for roosting. No trees onsite were noted as having suitable potential roost features (PRFs) for bats therefore, all were assessed as having **Negligible Suitability**¹.

The Site has been subject to clearance of the scrub area to the east of the Site, which had some foraging and nesting potential for hazel dormice. The remaining scrub on the eastern boundary and the two trees on the northeastern boundary have some suitability for hazel dormice, though do not provide the cover required for them to traverse the Site and would now be classed as 'poor' habitat quality.

The development includes an external lighting scheme and as such, a review of the lighting design strategy is required to assess potential impacts on roosting, foraging, and commuting bats and hazel dormice within the Site and any associated habitats, in particular along the eastern boundary. Artificial light is known to negatively affect bats through the fragmentation of foraging and commuting habitats as well as reducing the suitability of roosting habitat. Artificial light can also leave hazel dormouse vulnerable to predation, habitat fragmentation, and impact upon the moulting/ growth of invertebrates which could reduce prey item availability.

¹ Collins, J. ed., 2023. Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed). The Bat Conservation Trust, London.

The development includes a new external lighting scheme and as such, a review of the lighting design strategy is required to reduce impacts on foraging and commuting habitats on and adjacent to the Site and any bat boxes installed as part of the development. A Proposed Landscape Plan is provided in **Appendix 2 (Drawing Number: epd9465_d001e)**.

This report provides a review of the lighting scheme and details the sensitive features within the Site and in the immediate landscape. Information collected during the Preliminary Ecological Appraisal (PEA)² has been considered to inform detailed recommendations and minimise any potential impacts that may arise as a result of the proposed lighting scheme associated with the new McDonald's restaurant.

Lighting Review: Bats and Hazel Dormice (Lighting Plan Revision 2)

The following review and recommendations for the Site are based on the proposed layout in the lighting plan provided in **Appendix 1 (Drawing Name: Proposed Lighting Layout Project Number: 501734912 R2)**.

As per the recommendations in the PEA report² any new lighting to be installed during and post-construction must be designed to prevent unnecessary light spill onto retained trees and any new bat boxes installed as part of the development. Additional lighting installed as a result of the scheme, in both the construction and operational phases of the development, could disrupt existing roosting or nesting, foraging and commuting routes as well as affect new bat roosting and dormouse nesting sites. Recommendations were made for lighting to be implemented with the following guidance³⁴:

- Prevent unnecessary light spill onto any foraging, commuting, or roosting habitat existing on-site or installed as part of the development, including boundary habitats, trees, or bat box locations;
- Luminaires must feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bat;
- A warm white spectrum (<2700Kelvin) must be adopted to reduce the blue light component;
- All luminaires must lack UV elements when manufactured. Metal halide, fluorescent sources must not be used;
- Luminaires should always be mounted horizontally, with no light output of about 90° and/or no upward tilt;
- Minimise light spill by eliminating any bare bulbs and upward-pointing light fixtures. The spread of light should be kept near to or below the horizontal plane, by using as steep a downward angle as possible and/or shield hood. Flat, cut-off lanterns are best;
- Avoid using reflective surfaces under lights or light reflecting off windows (e.g. onto bat flight lines);
- Limit the height of lighting columns to 8m and increase the spacing of lighting columns to reduce the spill of light into unwanted areas;
- Only the minimum amount of light needed for safety and access should be used and or turned off when the Site is not in use; &
- Any external security lighting should be set on motion sensors and short (1 min) timers.

The locations of the proposed lights are shown in **Appendix 1**.

The types proposed include six Luma Gen2 Medium BGP704 80 LED DW50 20KLM WW 2700K, which will be mounted approximately 6 m above ground level and provide 20000 initial lumens per lamp, three of these

² 2029 Horton Road Devizes PEA Report PEL V2 Feb26

³ Bat Conservation Trust, 2023. Guidance Note 08/23 Bats and artificial lighting at night.

⁴ Gunnell, K., Grant, G., and Williams, C., 2012. Landscape and urban design for bats and biodiversity. Bat Conservation Trust, London, UK.

luminaries with have a backlight louvre fitted to prevent backwards lightspill. One Luma Gen2 Medium BGP704 80 LED DM10 BL1 20KLM WW 2700K, which will be mounted approximately 6 m above ground level and provide 8000 initial lumens per lamp and will have a backlight louvre fitted. Eleven OptiSpace BCB500 T25 1 xLED35/830 A, which will be mounted approximately 1.05 m above ground level and provide 3500 initial lumens per lamp. All of the aforementioned lighting is set at zero degrees, therefore there will not be any upward or horizontal light at 6 metres. Additionally, the lighting will be 2700k warm white, have an Ra greater than 60, and have wavelengths greater than 550nm.

The majority of the Optispace bollards are located along the eastern boundary to illuminate the drive through lane, and lightspill between 6.25 and 25 lux occurs on proposed mixed scrub planting. As such, the bollards are only 1.05 m in height and the proposed close board fencing along the drive-thru, this will protect the eastern boundary corridor (mixed scrub) and the retained trees from the lightspill, as well as lightspill from cars using the drive-thru.

The area of the proposed mixed scrub along the northern boundary will be subject to light spill between 6.25 and 25 lux from the Optispace and Luma Gen2 lighting, as well as light spill from parked cars. However, it has been noted this area is currently regularly managed modified grassland and is subject to significant lightspill from the existing buildings onsite, roadside lighting and adjacent residential development and motorbike training centre which does not provide suitable foraging habitat for bats and hazel dormice.

No light spill is anticipated on habitats adjacent to the Site with foraging and commuting suitability and it is noted that the Site is already subject to significant lightspill.

In conclusion, the lighting scheme in its current form alongside the implementation of the close board fencing is acceptable as no impacts on bats and hazel dormice are anticipated due to no light spill occurring on areas which are likely to be used by roosting, foraging, and commuting bats and nesting, foraging and commuting hazel dormice as a result of an increase in external artificial light spill from the scheme.

Kind regards,

Amber

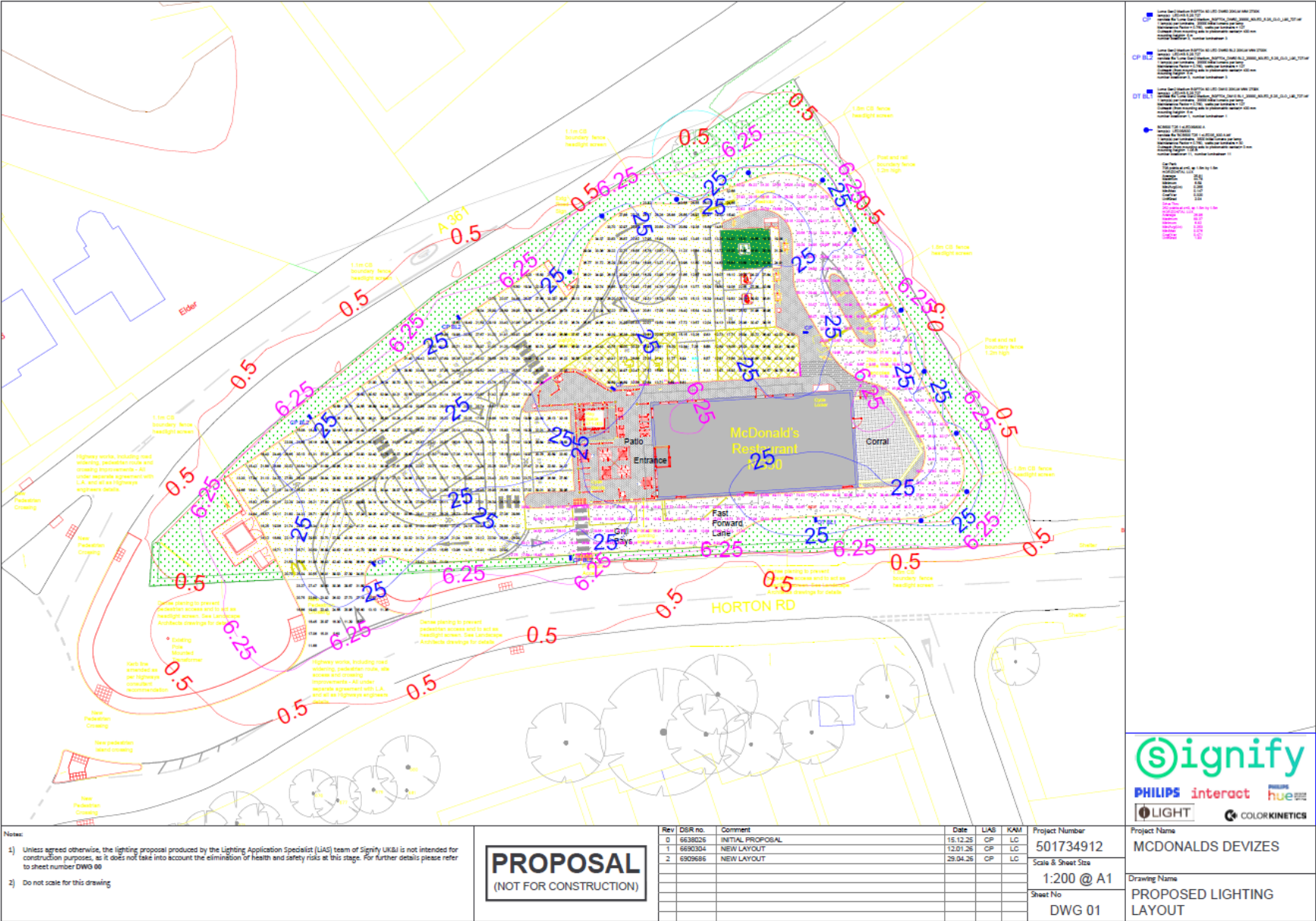
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Appendix 1: Proposed Lighting Layout at Ground Level



Appendix 2: Proposed Landscape Plan

