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25 April 2022

To whom it may concern,

Re: Kenavon Drive, Reading

Temple was contacted by Berkeley Homes during March 2022 with regards to a statement in relation to Condition 43 for the planning application submitted for Kenavon Drive, Reading (reference: 210824).

Planning Proposal & Location

Proposals: To demolish several existing buildings on site, and construct new residential units, including commercial space and works to the riverside public realm.

Location: Kenavon Drive, Reading, RG1 3DH.

Following submission of the planning application, the LPA provided comments for planning Condition 43. Comments for the condition are provided below (LPA comments are provided in normal text and responses from the applicant in italics):

Condition 43

43. No dwelling/building hereby permitted (within the relevant phase of development - a) phase 1, b) phase 2, c) phase 3, as per Indicative Phasing Plan AA5990-2010 Rev A, as received 03/10/2017) shall be occupied until details of a lighting scheme (covering all external lighting proposed, including a plan indicating the locations of the lights, specifications, height, luminance; lens shape/beam pattern and any hoods/shades. The scheme shall also include details on the impact on the nearby railway) have been submitted to and been approved in writing by the Local Planning Authority. No building or use hereby permitted shall be occupied or the use commenced (within the relevant phase of development) until the approved lighting scheme (within the relevant phase of development) has been completed. The lighting scheme shall be maintained as such thereafter.

Reason: In order to protect the privacy and amenity of adjoining and future occupiers and enhance the appearance of the development, in accordance with Policies CS7 and CS34 of the Reading Borough LDF Core Strategy 2008 (Altered 2015), Policy RC5 of the Reading Central Area Action Plan (2009) and Policy DM4 of the Reading Borough LDF Sites and Detailed Policies Document 2012 (Altered 2015).

Comments

An isolux plan has not been provided which makes it difficult to assess the light spillage over the river and the riverside. It is recommended that the condition is not discharged until this has been provided.

Despite this there are elements which will result in unnecessary (and detrimental) light pollution which should be removed, specifically:

1) There is still a significant and excessive amount of lighting along the river frontage and whilst the lighting strategy claims to avoid lighting of the river the interface between the river and the land is likely to be equally as important for wildlife. As such lighting in this zone should be kept to the absolute minimum required. The proposals include bollards (albeit asymmetrical but full details not provided) adjacent to the river, lights under benches to “provide soft glow to the area”, illuminated hand rails and steps and electric points to provide “Festoon Lighting in Tree Canopy” should this so be desired in the future. All of these elements are unnecessary and should be removed particularly given the sensitive location adjacent to the river.

The latest response by the applicant states *“All of this lighting noted above is decorative and will be on a curfew after which it shall be switched off and the amenity lighting shall be significantly dimmed down. The bollards against the river as shown on page 14 of the revised Lighting Report documents reference LB_0956_LS_02_RevA and page 5 of the Specification Document reference LB_0956_LS_01. These lighting elements are integral to the scheme and to producing a quality public space.”*

This suggests that nothing is going to change and for the reasons detailed above is not acceptable.

2) The up-lighting of trees. This will result in sky glow. It is likely to disrupt the life cycles of invertebrates and birds that are trying to occupy these trees and reduce their wildlife value and should be removed.

The applicant has responded with *“Up lighting is to be retained on key trees/ locations to create feature lighting for both safety reasons and to deliver the high quality public realm as approved under the planning consent. All of the areas with feature lighting is also washed by amenity lighting for consistent levels of lighting during the night time to allow for a safe environment alongside allowing vehicles to navigate the site safely. Effectively what I am saying is even if I remove all of the feature lighting, all of the trees will have amenity lighting over them anyhow so it would be pointless and substantially weaken the quality of the public realm.”*

I fail to see how up-lighting of trees improves safety or the quality of the public realm.

3) The items referred to as “Luminous objects in soft planting sparking curiosity” will result in similar upwards sky glow and will reduce the value of any adjacent planting for wildlife.

The applicant has responded: *“The location and specification of the lighting follows the prescriptions of the environmental and biodiversity report submitted under planning condition submission 42 application reference 201215. All of these lighting elements will be switched off after curfew. These lighting elements are integral to the scheme and to producing a quality public space.”*

Again, this suggests that nothing is going to change. There are no details of any curfew are details provided.

This isolux plan has not been provided, although the ‘Festoon lighting’ has been removed from drawing II_02. However this still states:” F1 Festoon Lighting in Tree Canopy omitted from

scheme and replaced by exterior rated wiring point/power sockets for future installations". The uplighting of trees is still shown in the drawings.

An isolux plan has now been provided – this doesn't specify the height at which the contours are measured. Regardless, it displays high levels of light (3 lux) spillage next to the river. The contour map also includes a blue colour next to the lowest measurement which shown on the key. The plan is insufficient to assess the impacts of the lighting scheme.

In summary this is a sensitive site next to the river and the quantum of lighting proposed, including the up lighting of trees is not acceptable. This condition should not be discharged until amended plans have been submitted.

Further information

A review of the pre-existing lux plan and lighting specification as well as existing bat survey information was undertaken by Temple (Light Bureau, 2022a, b, c and d; Temple, 2017). There were high levels of lux in certain areas which would preclude bats and birds from using the trees and vegetation along the river and other parts of the site and would restrict bats to using the central areas of the river. A Bird and Bat Box Plan was produced by The Ecology Consultancy in 2020 (The Ecology Consultancy, 2020) and it was also noted that there were high levels of lighting (5-35 lux) around trees/vegetation directly below the location of the bat boxes on the E5 block. There were also high levels of lighting (particularly pre curfew) directly in front of the location of house sparrow nest boxes, and on trees with general hanging bird boxes along the river walk. Areas where swift boxes are suggested to be located were also subject to tree uplighting. There was a risk that lighting levels would preclude bats and potentially birds from using these features which have been designed to discharge Condition 42, and to help create valuable habitat for wildlife on the site. Several bat species were recorded largely along the river, including the particularly light sensitive *Myotis* species, as well as Species of Principal Importance, *Nathusius* and Brown Long-eared bats.

Several suggestions were outlined to the client and lighting consultant by Temple Ecologists to reduce the overall lux, in particular impacting the river and to address some of the other comments made by the LPA.

On Tuesday 05 April 2022, a meeting with Andrew Lewis (Senior Ecologist, Temple), Lilly Nicheva (Lighting Designer, Light Bureau) and Alex Burrows (Head of Design Delivery, Berkeley Homes) was conducted to discuss the items and propose a way forward to satisfy the condition. Following this meeting and review of the comments, some amendments to the lighting plans were agreed, which included the following:

- Reducing the lighting levels along the river and along other key bat routes to the post curfew levels (curfew at 11pm) throughout the night and throughout the year rather than high levels pre-curfew with lowered levels post curfew. This should be a major reduction from the original pre curfew levels that they were originally proposing.
- Removal of some more tree uplighters in key wildlife sensitive locations, including the podium gardens.
- Aiming to get the whole average lux along the river down to around 3 lux or less.

Artificial Lighting

Given the information and upon further review and discussion with the client and lighting engineer, changes have been made to the artificial lighting proposed as part of the scheme to reduce lux levels and light spill on site, in particular along the river towpath and over the river

in order to meet the requirements of Condition 43. This will retain the functionality of the site for foraging, roosting and commuting bats along the river and riverside walk, as indicated within the Ecology Chapter of the ES statement provided by Temple (Temple, 2017). Lux levels of up to 50 lux were provided previously along the river and towpath. Measures such as the type, timing restrictions and lighting wavelengths have been adopted to reduce lux levels where possible and minimise light spill and glare. An amended lux plan has been provided by the lighting consultant using a maintenance factor of 1 to incorporate recommendations. Each of the measures are summarised below:

Lighting type

All external lights proposed will be LED and lack UV radiation, and considered less likely to attract insects and affect prey availability. Light type was changed in order to reduce light levels. For example, 5 light column optics have been updated to S3 from S4 along Jopling Mews. S3 luminaires have a lower light output and a more focussed beam as opposed to the elliptical beam and higher light output of the S4 luminaires. One medium height post mounted luminaire S3 (P2), 5 U1 uplights and 3 U3 bollards have been omitted at riverside square to reduce lux levels in this area. Additionally, all 38 uplights have now been removed from the podium gardens, near to the swift boxes and potential bat foraging areas. A change in plans to have no uplighting of trees is beneficial to wildlife.

Light spectrum

LED typically features no UV component and research indicates that while lower UV components attract fewer invertebrates, warmer colour temperatures with peak wavelengths greater than 550nm (~3000°K) cause less impacts on bats (Stone et al., 2012, 2015a, 2015b). All external lighting units will measure between 2700-3000 °K.

Shields/Asymmetric beams

Asymmetric beams (as opposed to symmetric beams) will be implemented so that the light is parallel to the ground and horizontal spill is reduced. For example, the bollards along the riverside walk have asymmetric beams. The amenity lighting across the site, including those along the riverside walk and Jopling Mews will be installed with a shield(s) to ensure the beam is focused only where needed and glare and lux levels within boundary habitats are reduced. Whilst the shields are considered a last resort in reducing lux levels (BCT, ILP, 2018) and their effect is not possible to illustrate by the lux models and plans, the combined measures implemented have shown a decrease in the lux levels across the site, particularly within the southern and eastern boundary of the site.

Timing restrictions

The lights shall be subject to timing restrictions. The lighting units will have a pre curfew and post curfew setting with curfew being at 11pm. Post curfew dimming of luminaires has been increased across the site. For example, in Riverside Square and Riverside Walk Amenity Medium High Pole Mounted Lighting (S3, S4) illuminance has gone from 30% to 15%. Riverside Pathway Lighting – Bollards (B1) have gone from 25% to 10% along the Riverside Walk. The largest change is within Jopling Mews for Amenity Wall Mounted Lighting (W1, W2) which has gone from 55% to 20%. The smallest change is for the Riverside Walk Amenity Wall Recessed Lighting (B3a) which has gone from 20% to 15%. The luminaire output to the north of the middle block will be reduced post curfew where house sparrow nest boxes are present. Although post curfew, there will <0.5 lux onto the building above 3m, we have gone with a precautionary approach due to the cumulative effect of light levels from within the building.

Dark zones

A 'dark zone' has been introduced immediately along the river including the towpath. Here there is no upward facing or feature lighting. Bollards along the towpath will now have an

average illuminance of <2 lux within the dark zone. The specified bollards direct all light towards the floor and the peak areas of 6 lux are contained within a small footprint. Plans indicate light spill onto the water to be kept <1 lux. A simulated risk of a localized area of light spill into the water of 1.23 lux would be alleviated by a local shield to S4 post top luminaire to reduce the forward throw towards the water. Light intrusion to the vertical plane of Chocolate Island is kept below 1 lux (calculated maximum of 0.63lux).

Within the riverside walkways, light columns specified in this area have good optical control and are fully shielded over the top. No upward directed lighting is included in this zone. There is an average simulated illuminance of 2.56 lux with maximum peak of 3.69 lux pre curfew.

The area along the river in the south of the site is shown to have an illuminance of 0.1-6 lux pre curfew as opposed to 3-50 lux in the previous pre curfew plans as per the lighting report (Light Bureau, 2022c; Appendix 1, Figure 1). Post curfew lux levels have also decreased in this area.

Lighting has also been significantly reduced within a threshold band adjacent to the dark zone and upward emitting lighting has been omitted. This includes pathways above the towpath, the stairs towards the riverfront and Jopling Mews. Within Jopling Mews there will be an average illuminance of 2.84 lux pre curfew. This would allow this area to be used as a commuting corridor for bats towards the railway and meadows to the north. The light columns specified in this area are 4m tall with good optical control and are fully shielded over the top and no upward directed lighting is included in this zone. The area along Jopling Mews is shown to have 0.1-8.27 lux pre curfew as opposed to having 5-35 lux in the previous pre curfew plans (Light Bureau 2022c; Appendix 1, Figure 1). The post curfew lux levels have also decreased in this area.

A decrease in lux levels in areas where bat and bird boxes are located, for example along the riverside walk and to the east of the site, will encourage bat and bird species to utilise these new habitats proposed on site and allow them to function as an ecological enhancement.

In summary, following a lighting plan review with lighting engineers and the compilation of an update strategy, the proposals have sought to fit within the remit of planning condition 43 and have successfully designed in the reduction of lux levels across the site to 0-7 lux along and adjacent to the river and along potential bat commuting routes, to ensure the minimisation of lighting impact to wildlife that may be present. As noted in the Environment Statement, light sensitive myotis species were only recorded by static detectors on Chocolate Island (Temple, 2017), where light levels have been reduced to <1 lux. More light tolerant pipistrelle species were recorded along the riverside walkways (Temple, 2017) where lux levels have been reduced to dark areas with <1 lux to higher levels around 6-7 lux.

I hope that this letter provides the necessary information you require. Please do not hesitate to contact me if you require any further assistance.

Yours sincerely,



Charlotte Toon MSc BSc (Hons)
Ecologist

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Appendix 1: Figures

Figure 1: Pre Curfew and Post Curfew Lux Plan

