Light, Noise, Air and other pollution

Light impact assessment

The lighting masterplan design for the development at Ratherheath will be designed in accordance with the best practice detailed in The Institution of Lighting Engineers [ILE] The Outdoor Lighting Guide [Taylor and Francis 2005] and ILE Guidance Notes for the Reduction of Obtrusive Light, following the methodology described in The Scottish Executive Guidance Note: Controlling Light Pollution and Reducing and Reducing Lighting Energy Consumption [March 2007].

Currently the LDNPA does not specify environmental zones for exterior lighting control within the LDF or Development Plans, however the ILE guidance would deem Ratherheath to be somewhere between Category E1: Intrinsically dark landscapes - National Parks, Areas of Outstanding Natural Beauty, etc and Category E2: Low district brightness areas - Rural, small village, or relatively dark urban locations: erring toward E1.

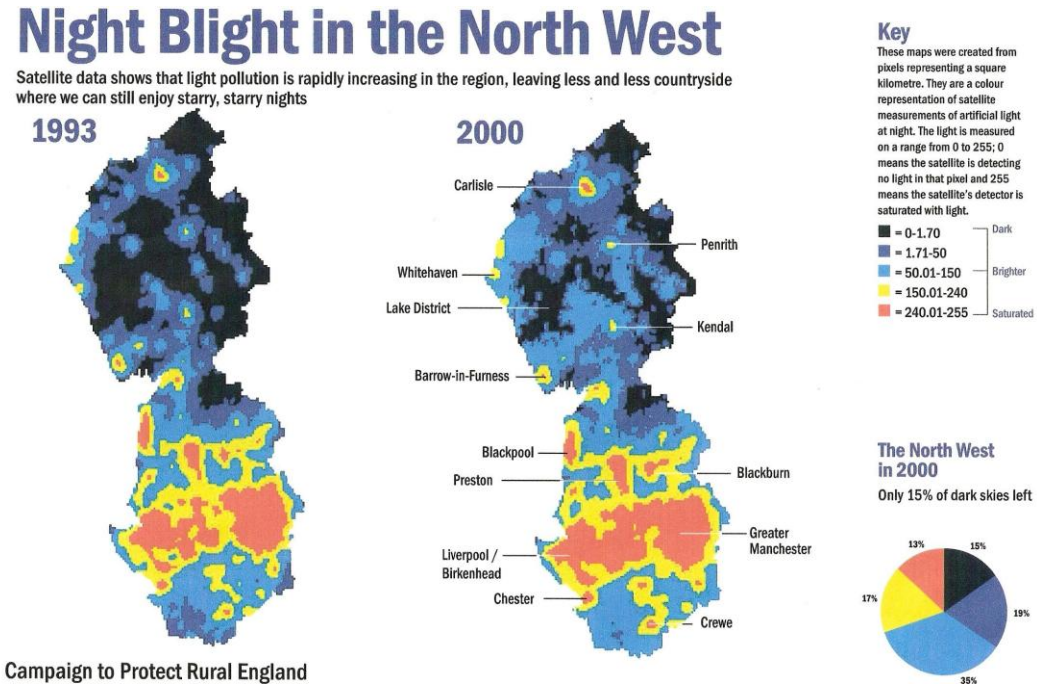
The majority of the site will need to be managed within a light curfew regime although the proximity of the site to the A591 means that light intrusion in the locality is in fact already omnipresent.

The Outdoor Lighting Guide gives guidance as to appropriate planning conditions:

Table 1 – Obtrusive Light Limitations for Exterior Lighting Installations

Environmental Zone	Sky Glow ULR [Max %]	Light trespass [into windows] Ev [Lux] Pre-curfew	Light trespass [into windows] Ev [Lux] Post-curfew	Source Intensity I [kcd] Pre-curfew	Source Intensity I [kcd] Post-curfew	Building Luminance Pre-curfew L [cd/m2]
E1	0	2	1	2.5	0	0
E2	2.5	5	1	7.5	0.5	5

It is important that the site does not exasperate the issue of skyglow identified by the Campaign for Rural England:



Light intrusion

The influencing parameters and constraints on the site community lighting design, and individual buildings, will have to accept a number of strategic restraints:

- The site cannot be envisaged to be occupied by prospective candidates who would undertake work external to their host buildings
- The drivers for high level external floodlighting at dusk must not be present.
- The site is also considered to be one where the vast majority, 90%, of the occupants will work a daily shift between the hours of 07.30/08.00hrs to 17.30/18.00hrs.
- The timing of a site street lighting curfew is envisaged to be 23.30hrs to 05.30hrs: within lighting inside that curfew at absolute minimal levels.
- The external lighting strategic design will be cognisant of using the topography of the site to obscure the lighting from vantage from northwestern and northeastern directions.
- The specified buildings will have to have low levels of illuminance: elevation palettes of stonework, render or dark cladding will have to be adopted
- All external lighting will face away from the boundary wildlife corridors. It is important that wildlife habitats on (and adjacent to) the site remain as dark as possible, such as the wildlife corridor, boundary planting, ponds, streams (at least most sections), walls, etc. Especially because a lot of the wildlife present seems to be nocturnal (e.g. bats, badgers and otters) [Appendix 17: Light, Noise, Air and other pollution].
- The amount of light pollution will be controlled by designing lights to be of low intensity and appropriate to the tasks they are specified to perform and not by designing the number of lights to be minimalised: which results in wasteful bright spill light
- Use will be made of innovative lighting solutions such as Astucia SolarLite solar powered road delineation studs which give ten times the reflective light output of cats eyes whilst reducing skyglow: such solutions are now becoming widely adopted worldwide [Appendix 17: Light, Noise, Air and other pollution].
- Street lighting will be of reduced height, capped to negate direct upward light and will be directional.
- It is not envisaged that the buildings will need façade or bright signage lighting and the extensive proportion of soft landscaping will prevent reflected light being difficult to control.
- The island nature of the site, and new build nature to exemplar modern standards will give the opportunity to specify the latest in energy efficient access road lighting with photocell controls.

The 20 stage methodological requirements of the Scottish Executive Guidance Note are:

Stage	Stage Requirement	Criticality
1	Statement of Client Needs/Operational Statement	Essential
2	Site Survey	Essential
3	Critical Viewpoints analysis	Essential
4	Existing Lighting Conditions assessment	Desirable
5	Baseline Conditions	Desirable
6	Task Analysis	Essential
7	Establishment Environmental Setting	Essential
8	Lighting Design Objectives	Essential
9	Lighting Design Methodology	Desirable
10	Calculated Predictions	Essential
11	Obtrusive Light Calculation	Essential
12	Comparing Design with Baseline Values	Essential
13	Designer's Critique	Desirable
14	Viewpoint Visualisation	Desirable
15	Virtual Walkthrough	Desirable
16	Surface Colour Schedule	Desirable
17	Luminaire Schedule	Essential
18	Energy Usage	Essential
19	Schedule of Luminaire Profiles	Essential
20	Layout Plan	Essential

Chapter 12: Light, Noise, Air and other pollution

Noise
Other than normal construction activity noise, there are no specific noise generating operations envisaged during construction as the development works with, rather than conflicts, the site topography: major cut, fill and rock working will not be necessary. During the operational phase it is not perceived that any occupiers will require the ability to undertake external activities that might cause noise and disturbance. The proposed buildings are to be of new modern standards construction and could be readily conditioned as to their acoustic properties.

Emissions
It is not envisaged that any land use activities will take place on the completed site that would generate emissions: other than the possibility of a biomass power generation plant. Such a plant would have to operate in compliance with the latest European Directives and would not be an environmental hazard.

Air Quality, Ventilation and extraction statement, Odour abatement techniques
It is not envisaged that the operation of the site would materially affect air quality. Building ventilation and extraction would be specified to be in accordance with modern standards including odour abatement techniques.