

# Buckinghamshire Local Plan

Habitats Regulations Assessment  
Regulation 18

Buckinghamshire Council

July 2025

## Quality information

| Prepared by                | Checked by                             | Verified by                          | Approved by                          |
|----------------------------|--|--------------------------------------|--------------------------------------|
| Simon Gosling<br>Ecologist | Dr Jacqui North<br>Associate Ecologist | Dr James Riley<br>Technical Director | Dr James Riley<br>Technical Director |

## Revision History

| Revision | Revision date | Details                 | Authorized | Name         | Position           |
|----------|---------------|-------------------------|------------|--------------|--------------------|
| 0        | 14/07/25      | Draft                   | JR         | James Riley  | Technical Director |
| 1        | 16/07/25      | Final                   | JR         | James Riley  | Technical Director |
| 2        | 05/08/25      | Updated Final           | JR         | James Riley  | Technical Director |
| 4        | 11/08/25      | Minor amendments- Final | JN         | Jacqui North | Associate Director |

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**Prepared for:**

Buckinghamshire Council

**Prepared by:**

Simon Gosling  
Ecologist

AECOM Limited  
Midpoint, Alencon Link  
Basingstoke  
Hampshire RG21 7PP  
United Kingdom

T: +44(0)1256 310200  
aecom.com

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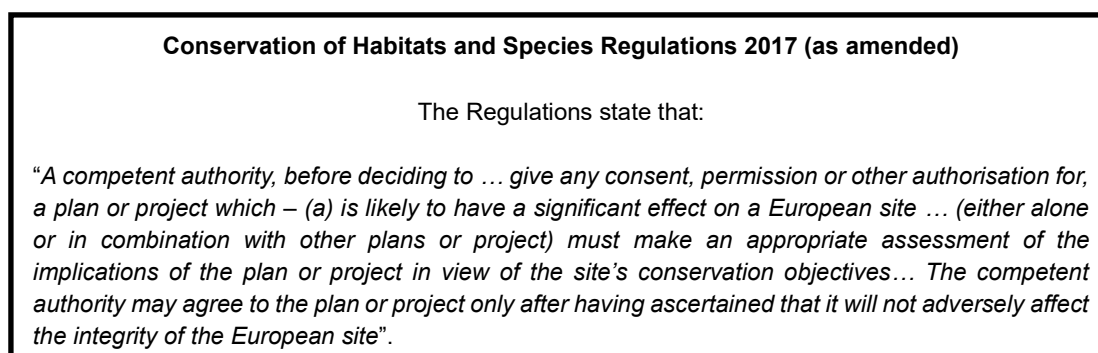
# 1. Introduction

## Background

- 1.1 AECOM was appointed by Buckinghamshire Council to produce a report to inform the Council's Habitats Regulations Assessment (HRA) of the potential effects of the Regulation 18 Local Plan for Buckinghamshire (LPFB) on the National Site Network of Special Areas of Conservation, Special Protection Areas and Ramsar sites. For simplicity these sites are referred to as Habitat sites throughout this report. The objectives of the assessment are to:
  - Identify any aspects of the LPFB that would cause an adverse effect on the integrity of Habitat sites either alone or in combination with other plans and projects; and
  - To advise on appropriate policy mechanisms for delivering mitigation where such effects were identified.
- 1.2 The HRA of the LPFB is required to determine if there are any realistic linking pathways present between a Habitats site and the Local Plan and where Likely Significant Effects cannot be screened out, an analysis to inform Appropriate Assessment is undertaken to determine if adverse effects on the integrity of the Habitats sites will occur as a result of the Local Plan alone or in combination. Note that for this Regulation 18 Local Plan there are no proposed site allocations; those will be included at a later stage of Local Plan development and therefore the HRA will be updated at further stages of Local Plan preparation.

## Legislative Context

- 1.3 The UK left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). While the UK is no longer a member of the EU, a requirement for Habitats Regulations Assessment will continue as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
- 1.4 The HRA process applies the 'Precautionary Principle' to Habitats sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the Habitat (formally "European") site(s) in question. To ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the Plan or project in question. Figure 1 below sets out the legislative basis for Appropriate Assessment.
- 1.5 Plans and projects that are associated with potential adverse impacts on Habitats sites may still be permitted if there are no reasonable alternatives and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.



**Figure 1 The legislative basis for Appropriate Assessment**

- 1.6 Over time the phrase 'Habitats Regulations Assessment' (HRA) has come into wide currency to describe the overall process set out in the Regulations from screening through to IROPI. This has arisen in order to distinguish the process from the individual stage described in the law as an 'Appropriate Assessment'.

- 1.7 In spring 2018 the ‘Sweetman’ European Court of Justice ruling<sup>1</sup> clarified that ‘mitigation’ (i.e., measures that are specifically introduced to avoid or reduce a harmful effect on a Habitats site that would otherwise arise) should not be taken into account when forming a view on Likely Significant Effects. Mitigation should instead only be considered at the Appropriate Assessment stage. This HRA is cognisant of that ruling. Mitigation is not considered at this stage, except where it can be achieved through avoidance of an activity or other legislation provides protection against impacts (e.g. legislation which prevents water pollution from construction).

## Habitats site scope of the project

- 1.8 There is no pre-defined guidance that dictates the physical scope of an HRA of a Plan document in all circumstances. Current guidance suggests that the following Habitats Sites should be included in the scope of an HRA assessment:
- All Habitats Sites within the boundary of the LPFB boundary;
  - Habitats Sites located within 10km of the LPFB boundary; and
  - Habitats Sites located outside of the Council area boundary shown to be linked to a proposed development site through a known ‘pathway’ (discussed below).
- 1.9 Generally, it is uncommon for development plans to be deemed to have significant impacts on Habitats Sites situated more than 10km from areas of growth. For example, most core recreational catchments (except for some coastal sites) are under 10km in size and the average vehicle commuting distance of a UK resident is approx. 16km. However, there are exceptions, and it should be noted that the presence of a conceivable impact pathway linking a Plan to a Habitats Site does not mean that Likely Significant Effects (LSEs) will occur.
- 1.10 In particular, development impacts can extend beyond 10km, particularly where hydrological pathways and surface water catchments are involved, which is why the source-pathway-receptor concept is also used to help determine whether there are potential pathways connecting development to Habitats Sites. This takes site-specific sensitivities into account, including issues such as nutrient neutrality or water levels, quantity and flow. With regard to Local Plan for Buckinghamshire one of the sensitive sites also has a recreational catchment greater than 10km.
- 1.11 Briefly defined, impact pathways are routes by which the implementation of a policy within a Local Plan document can lead to an effect upon a Habitats Site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could affect Habitats Sites through, for example, disturbance of ground-nesting birds. Guidance from the Ministry of Housing, Communities and Local Government (MHCLG, now the Department for Levelling Up, Housing and Communities (DLUHC)) states that the HRA should be ‘proportionate to the geographical scope of the [plan policy]’ and that ‘an AA need not be done in any more detail, or using more resources, than is useful for its purpose’ (MHCLG, 2006, p.6).
- 1.12 This basic principle has also been reflected in court rulings. The Court of Appeal<sup>2</sup> has ruled that provided the Council (competent authority) was duly satisfied that proposed mitigation could be ‘achieved in practice’ to satisfy that the proposed development would have no adverse effect, then this would suffice. This ruling has since been applied to planning permissions (rather than a Plan level document)<sup>3</sup>. In this case the High Court ruled that for ‘a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Reg 61 of the Habitats Regulations’.
- 1.13 Habitats Sites discussed this HRA are shown in **Table 1-1**.

<sup>1</sup> People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

<sup>2</sup>No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17<sup>th</sup> February 2015

<sup>3</sup>High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015

**Table 1-1 Physical Scope of the HRA - Habitats Sites of Interest**

| Habitat Site                                     | Distance to LPFB Boundary   |
|--|---|
| Aston Rowant SAC                                 | Section within the LPFB Boundary  |
| Burnham Beeches SAC                              | Within the LPFB Boundary  |
| Chilterns Beechwoods SAC                         | Multiple areas within LPFB Boundary and within close proximity to the LPFB Boundary |
| South West London and Waterbodies SPA and Ramsar | 2.4km south of the LPFB Boundary  |
| Windsor Forest and Great Park SAC                | 2km south of the LPFB Boundary  |

- 1.14 The distribution of the above Habitats Sites in relation to Buckinghamshire is shown in Figure 4 in Appendix A and an introduction to the qualifying features (species and habitats), Conservation Objectives, and threats and pressures to the integrity of these Habitats Sites are set out in Appendix B.

## Quality Assurance

- 1.15 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS OHSAS 18001:2007. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.
- 1.16 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct<sup>4</sup>.

## 2. Methodology

### Introduction

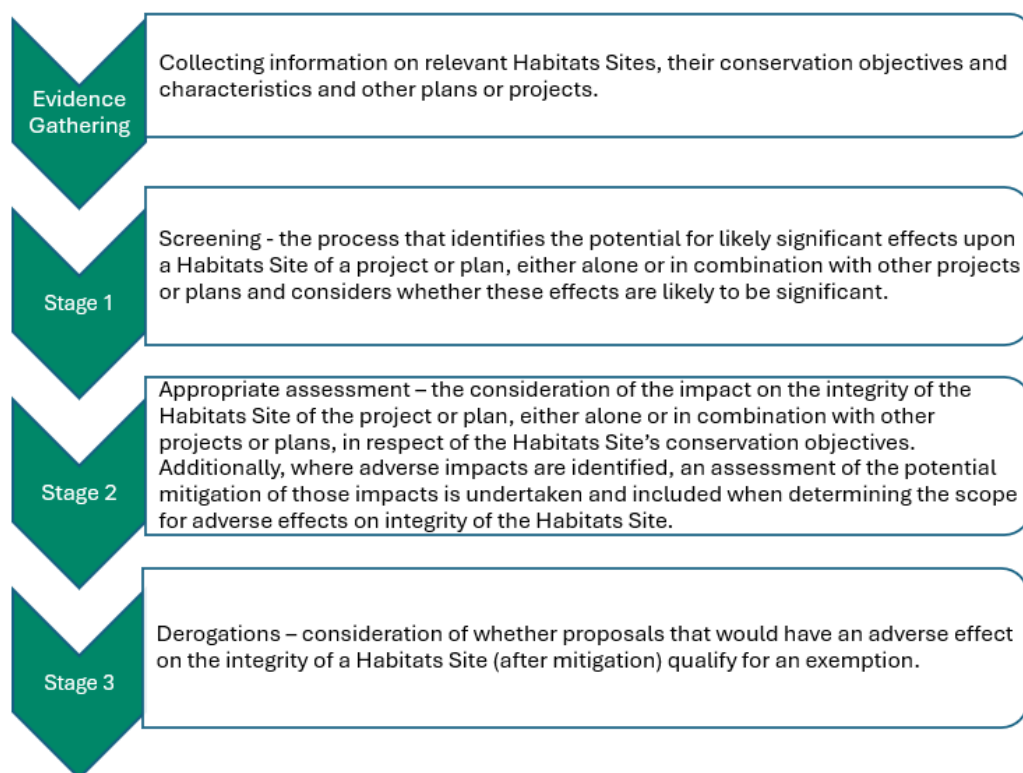
- 2.1 This section sets out the approach and methodology for undertaking the Habitats Regulations Assessment (HRA).

### The Process of HRA

- 2.2 This initial report has been carried out with reference to the general EC guidance on HRA and in accordance with the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, and published guidance from relevant Government departments (referenced when used).

<sup>4</sup> Code of Professional Conduct (CIEEM, 2025) Available at <https://cieem.net/wp-content/uploads/2019/02/Code-of-Professional-Conduct-April-2025.pdf> [Accessed 26/06/2025]





**Figure 2 Three Stage Approach to Habitats Regulations Assessment<sup>5</sup>.**

- 2.3 Figure 2 above outlines the stages of HRA according to current Department for Environment, Food and Rural Affairs (DEFRA) guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations, and any relevant changes to the Plan until no significant adverse effects remain.

## HRA Stage One: Test of Likely Significant Effects

- 2.4 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a Test of Likely Significant Effect (LSEs) - essentially a brief, high-level assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:
- 2.5 “Is the plan, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon Habitat sites?”
- 2.6 The objective is to ‘screen out’ those plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in significant adverse effects upon Habitats sites, usually because there is no mechanism for an adverse interaction.
- 2.7 The LSEs screening is based on identification of the impact source, its pathway to receptors and an appraisal of the specific Habitat site receptors. These are normally designated features but also include habitats and species fundamental for designated features to achieve favourable conservation status (notably functionally linked habitats outside the Habitat site boundary).
- 2.8 In the Waddenzee case<sup>6</sup>, the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:
- An effect should be considered ‘likely’, “if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site” (para 44);

<sup>5</sup> DEFRA 2023 Guidance: Habitats regulations assessments: protecting a European site available at <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site#how-to-carry-out-an-hra>

<sup>6</sup> Case C-127/0216

- An effect should be considered ‘significant’, “if it undermines the conservation objectives” (para 48); and
  - Where a plan or project has an effect on a site “but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned” (para 47).
- 2.9 The LSEs screening consists of two parts: Firstly, it should determine whether there are any policies that could result in negative impact pathways and secondly it establishes whether there are any Habitat sites that might be affected. It identifies Habitat sites that are most likely to be impacted by the Plan and the impact pathways that are most likely to require consideration.
- 2.10 It is important to note that LSEs screening must generally follow the precautionary principle as its main purpose is to determine whether the subsequent stage of AA (i.e., a more detailed investigation) is required.

## HRA Task 2: Appropriate Assessment (AA)

- 2.11 Where it is determined that a conclusion of ‘no likely significant effect’ cannot be drawn, the analysis has proceeded to the next stage of HRA known as Appropriate Assessment. Case law has clarified that ‘Appropriate Assessment’ is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to Appropriate Assessment rather than determination of likely significant effects. It literally means ‘whatever level of further assessment is appropriate to form a conclusion regarding effects on the integrity of relevant European sites’.
- 2.12 In 2018 the Holohan ruling handed down by the European Court of Justice included among other provisions paragraph 39 of the ruling stating that ‘As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, ... typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area’ [emphasis added].
- 2.13 During July 2019 the Department for Levelling Up, Housing and Communities (DLHC) published guidance for Appropriate Assessment (Department for Levelling Up, Housing and Communities, 2019)<sup>7</sup>.
- 2.14 Paragraph: 001 Reference ID: 65-001-20190722 explains: ‘Where the potential for likely significant effects cannot be excluded, a competent authority must make an appropriate assessment of the implications of the plan or project for that site, in view of the site’s conservation objectives. The competent authority may agree to the plan or project only after having ruled out adverse effects on the integrity of the habitats site. Where an adverse effect on the site’s integrity cannot be ruled out, and where there are no alternative solutions, the plan or project can only proceed if there are imperative reasons of over-riding public interest and if the necessary compensatory measures can be secured’.
- 2.15 One of the key considerations during Appropriate Assessment is whether there is available mitigation that would address the potential effect. In evaluating significance, AECOM will rely on professional judgement as well as the results of bespoke studies, supported by appropriate evidence/data within this assessment.

## HRA Task 3 – Derogations

- 2.16 Consideration of whether proposals that would have an adverse effect on the integrity of a Habitats site (after mitigation) qualify for an exemption.

## Confirming Other Plans and Projects That May Act ‘In Combination’

- 2.17 It is a requirement of the Regulations that the impacts and effects of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the Habitat site(s) in question.

<sup>7</sup> Available at: <https://www.gov.uk/guidance/appropriate-assessment>

- 2.18 When undertaking this part of the assessment it is essential to bear in mind the principal intention behind the legislation i.e., to ensure that those projects or plans (which in themselves have minor impacts) are not simply dismissed on that basis but are evaluated for any cumulative contribution they may make to an overall significant effect. In practice, in combination assessment is therefore of greatest relevance when the plan, policy or site allocation would otherwise be screened out because its individual contribution is inconsequential. The overall approach is to exclude the risk of there being unassessed likely significant effects in accordance with the precautionary principle. This was first established in the seminal Waddenzee case.
- 2.19 For the purposes of this HRA, AECOM have determined that the key plans with a potential for in-combination effects are the Local Plans of surrounding authorities, specifically those local plans for:
- Dacorum
  - St Albans
  - Central Bedfordshire
  - West Northamptonshire
  - Milton Keynes
  - Central Bedfordshire
  - Greater London Authority
  - Hillingdon
  - Windsor and Maidenhead
  - Wokingham
  - South Oxfordshire
- 2.20 It should be noted that, while the broad potential impacts of these plans will be considered, this document does not carry out a full HRA of these Plans and projects. Instead, it draws upon existing HRAs that have been carried out on the Plans and projects.

### 3. Background to Impact Pathways

- 3.1 In carrying out an HRA it is important to avoid confining oneself to effectively arbitrary boundaries (such as Local Authority or parish boundaries), but to use an understanding of the various ways in which Land Use Plans can impact Habitat sites to evaluate whether development is connected with Habitat sites, in some cases many kilometres distant. Briefly defined, impact pathways are routes by which a change in activity associated with a development can lead to an effect upon a Habitat site. As highlighted earlier, it is also important to bear in mind MHCLG guidance which states that the AA should be 'proportionate to the geographical scope of the [plan policy]' and that 'an AA need not be done in any more detail, or using more resources, than is useful for its purpose'<sup>8</sup>.
- 3.2 Based upon data available in the Designated Sites View<sup>9</sup> provided by Natural England Site Improvement Plans (SIPs), Supplementary Advice for Conservation Objectives and professional judgement, the impact pathways listed in Table 3-1 require consideration when assessing site allocations in the LPFB.

**Table 3-1. Possible impact pathways**

| Habitat Site     | Possible Impact Pathways  |
|------------------|---|
| Aston Rowant SAC | <ul style="list-style-type: none"> <li>• Air pollution: Impact of atmospheric nitrogen deposition.</li> </ul> |

<sup>8</sup> Ministry of Housing, Communities and Local Government. 2019. *Appropriate Assessment*.

<https://www.gov.uk/guidance/appropriate-assessment#:~:text=an%20appropriate%20assessment%20must%20identify,boundaries%20of%20that%20site%20and>

<sup>9</sup> Available at <https://designatedsites.naturalengland.org.uk/>

| Habitat Site                              | Possible Impact Pathways   |
|---|--|
|   | <ul style="list-style-type: none"> <li>Loss of, and disturbance to, functionally linked habitat (including inappropriate land management)</li> </ul>   |
| Burnham Beeches SAC                       | <ul style="list-style-type: none"> <li>Air pollution: Impact of atmospheric nitrogen deposition,</li> <li>Recreational pressure,</li> <li>Urbanisation, and</li> <li>Water quality</li> <li>Water quantity, level and flow.</li> </ul> |
| Chilterns Beechwoods SAC                  | <ul style="list-style-type: none"> <li>Air pollution: Impact of atmospheric nitrogen deposition,</li> <li>Loss of functionally linked habitat,</li> <li>Recreational Pressure, and</li> <li>Urbanisation.</li> </ul>                   |
| South West London Waterbodies SPA /Ramsar | <ul style="list-style-type: none"> <li>Public access / Disturbance;</li> <li>Loss of functionally linked land;</li> <li>Water quality; and</li> <li>Water quantity, level and flow.</li> </ul>   |
| Windsor Forest and Great Park SAC         | <ul style="list-style-type: none"> <li>Air pollution: Impact of atmospheric nitrogen deposition, and</li> <li>Recreational pressure.</li> </ul>  |

## Background to Atmospheric Pollution

3.3 The main pollutants of concern for Habitats sites are oxides of nitrogen (NO<sub>x</sub>), ammonia (NH<sub>3</sub>) and Sulphur dioxide (SO<sub>2</sub>) and are summarised in Table 3-2.

**Table 3-2. Main sources and effects of air pollutants on habitats and species.**

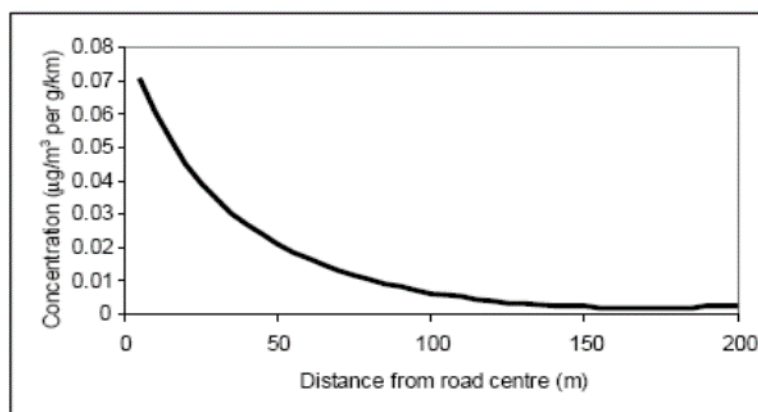
| Pollutant                          | Source   | Effects on habitats and species  |
|------------------------------------|--|--|
| Sulphur dioxide (SO <sub>2</sub> ) | <p>The main sources of SO<sub>2</sub> are electricity generation, and industrial and domestic fuel combustion. However, total SO<sub>2</sub> emissions in the UK have decreased substantially since the 1980's.</p> <p>Another origin of Sulphur dioxide is the shipping industry and high atmospheric concentrations of SO<sub>2</sub> have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO<sub>2</sub> emissions in the UK.</p> | <p>Wet and dry deposition of SO<sub>2</sub> acidifies soils and freshwater and may alter the composition of plant and animal communities.</p> <p>The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species.</p> <p>However, SO<sub>2</sub> background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.</p> |
| Acid deposition                    | <p>Leads to acidification of soils and freshwater via atmospheric deposition of SO<sub>2</sub>, NO<sub>x</sub>, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.</p> <p>Although future trends in Sulphur (S) emissions and subsequent deposition to</p>  | <p>Gaseous precursors (e.g., SO<sub>2</sub>) can cause direct damage to sensitive vegetation, such as lichen, upon deposition.</p> <p>Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants.</p>  |

| Pollutant                          | Source   | Effects on habitats and species   |
|------------------------------------|--|---|
|                                    | terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.  | Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.   |
| Ammonia (NH <sub>3</sub> )         | <p>Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes and from some chemical processes and vehicle exhausts. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock.</p> <p>Ammonia reacts with acid pollutants such as the products of SO<sub>2</sub> and NO<sub>x</sub> emissions to produce fine ammonium (NH<sub>4</sub><sup>+</sup>) - containing aerosol. Due to its significantly longer lifetime, NH<sub>4</sub><sup>+</sup> may be transferred much longer distances (and can therefore be a significant trans-boundary issue).</p> <p>While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.</p> | <p>The negative effect of NH<sub>4</sub><sup>+</sup> may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation.</p> <p>Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen.</p> <p>As emissions mostly occur at ground level in the rural environment and NH<sub>3</sub> is rapidly deposited, some of the most acute problems of NH<sub>3</sub> deposition are for small relict nature reserves located in intensive agricultural landscapes.</p>  |
| Nitrogen oxides (NO <sub>x</sub> ) | Nitrogen oxides are mostly produced in combustion processes. Half of NO <sub>x</sub> emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.   | <p>Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NO<sub>x</sub> for all vegetation types has been set to 30 ug/m<sup>3</sup>.</p> <p>Deposition of nitrogen compounds (nitrates (NO<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>) and nitric acid (HNO<sub>3</sub>)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification.</p> <p>In addition, NO<sub>x</sub> contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.</p> |
| Nitrogen deposition                | <p>The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO<sub>x</sub>) or reduced (e.g. NH<sub>3</sub>) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.</p> <p>The N pollutants together are a large contributor to acidification (see above).</p>   | <p>All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally.</p> <p>Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.</p> <p>N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.</p>   |
| Ozone (O <sub>3</sub> )            | <p>A secondary pollutant generated by photochemical reactions involving NO<sub>x</sub>, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above).</p> <p>Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone</p>  | <p>Concentrations of O<sub>3</sub> above 40 ppb can be toxic to both humans and wildlife and can affect buildings.</p> <p>High O<sub>3</sub> concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest</p>   |

| Pollutant | Source   | Effects on habitats and species   |
|-----------|--|---|
|           | levels rise above 40 parts per billion (ppb) ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone. | production and altered species composition in semi-natural plant communities. |

Source: Information summarised from the Air Pollution Information System (<http://www.apis.ac.uk/>)

- 3.4 SO<sub>2</sub> emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. As such, it is unlikely that material increases in SO<sub>2</sub> emissions will be associated with the LPFB. NH<sub>3</sub> emissions are dominated by agriculture, with some chemical processes also making notable contributions.
- 3.5 NH<sub>3</sub> can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges<sup>10</sup>. NO<sub>x</sub> can also be toxic at high concentrations (far above the annual average Critical Level) but generally only in the presence of elevated SO<sub>2</sub> which is very rare in the UK.
- 3.6 NO<sub>x</sub> emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a 'typical' housing development, by far the largest contribution to NO<sub>x</sub> (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison<sup>11</sup>. Emissions of NO<sub>x</sub> could therefore be reasonably expected to increase as a result of greater vehicle use due to the LPFB. High levels of NO<sub>x</sub> and NH<sub>3</sub> are likely to increase the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This often has adverse effects on community composition and the quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats<sup>12, 13</sup>.
- 3.7 According to the World Health Organisation, the critical NO<sub>x</sub> concentration (critical threshold) for the protection of vegetation is 30 µgm<sup>-3</sup>. In addition, ecological studies have determined 'Critical Loads' (CLs)<sup>14</sup> of atmospheric N deposition (that is, NO<sub>x</sub> combined with ammonia NH<sub>3</sub>) for key habitats within Habitats sites.
- 3.8 According to the Department of Transport's Transport Analysis Guidance, "Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant"<sup>15</sup> (see Figure 3).



<sup>10</sup> [http://www.apis.ac.uk/overview/pollutants/overview\\_NOx.htm](http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm).

<sup>11</sup> Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

<sup>12</sup> Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. **2006**. Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* 38: 161-176

<sup>13</sup> Dijk, N. **2011**. Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation *Global Change Biology* 17: 3589-3607

<sup>14</sup> The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

<sup>15</sup> [www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf](http://www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf)



**Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road<sup>16</sup>**

- 3.9 Where major vehicle commuting routes connect a residential development to within 200m of a Habitats site and increase in traffic needs to be considered. Three quarters of commuters travel less than 10 miles (16km), sites beyond this distance are therefore screened out during the Test of Likely Significant Effects (ToLSE).
- 3.10 The Knight & Bessborough Reservoirs SSSI, a component part of the South West London Waterbodies SPA / Ramsar, is directly adjacent to the A3050 and Wraysbury Reservoir is adjacent to the M25. The interest features of the SPA and Ramsar site (non-breeding gadwall and shoveler ducks) depend on open water. Therefore, their ability to use the site will not be affected by NO<sub>x</sub> or ammonia in atmosphere. With regard to acid deposition, the Air Pollution Information System states 'No expected negative impact on the species due to impacts on the species' broad habitat'. Like most lowland open freshwater environments, the reservoirs and gravel pits are a phosphate limited system rather than a nitrogen limited system. This means that the growth of negative macrophytes and algae primarily depends on the availability of phosphate<sup>17</sup>. Since emissions will not affect phosphate availability within any of the component waterbodies (as this does not derive from atmosphere), no likely significant effects will arise through atmospheric pollution either alone or in combination with other projects and plans.
- 3.11 This conclusion is supported in the Air Pollution Information System (APIS), which highlights that the susceptibility of the SPA to atmospheric pollution depends on whether it is nitrogen or phosphate limited. APIS does not provide a nitrogen Critical Level for open, standing water, which is the habitat present in the South West London Waterbodies SPA / Ramsar. Instead, it states that 'No Critical Load has been assigned to the EUNIS classes for meso/eutrophic systems. These systems are often phosphorus limited; therefore, decisions should be taken at a site-specific level'. Therefore, the SPA / Ramsar should be excluded from further assessment in relation to this impact pathway.

## Background to Loss of Functionally Linked Habitat

- 3.12 While most Habitats sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this is not necessarily the case. A diverse array of qualifying species including birds, bats and amphibians are not always confined to the boundary of designated sites.
- 3.13 For example, the highly mobile nature of both wader and waterfowl species implies that areas of habitat of crucial importance to the integrity of their populations lie outside the physical limits of Habitats sites. Despite not being part of the formal designation, these habitats are integral to the maintenance of the structure and function of the designated site, for example by encompassing important foraging grounds. Therefore, land use plans that may affect such functionally linked habitat require further assessment.
- 3.14 There is now an abundance of authoritative examples of HRA cases on plans affecting bird populations, where Natural England recognised the potential importance of functionally linked habitat. For example, bird surveys in relation to a previous HRA established that approximately 25% of the golden plover population in the Somerset Levels and Moors SPA were affected while on functionally linked land, and this required the inclusion of mitigation measures in the relevant plan policy wording. Another important case study originates from the Mersey Estuary SPA / Ramsar, where adjacently located functionally linked land had a peak survey count of 108% of the 5 year mean peak population of golden plover. This finding led to considerable amendments in the planning proposal to ensure that the site integrity was not adversely affected.
- 3.15 The identification of an area as functionally linked habitat is not always a straightforward process. The importance of non-designated land parcels may not be apparent and thus might require the analysis of existing data sources (e.g. Bird Atlases or data from records centres) to be firmly established. In some instances, data may not be available at all, requiring further survey work.
- 3.16 An area may be considered as functionally linked if:

<sup>16</sup>

<https://webarchive.nationalarchives.gov.uk/ukgwa/20140715150031/http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf>

<sup>17</sup> <http://www.apis.ac.uk/node/983>

- It is of a type likely to be used by a receptor (for example, a bird species) such as grazing salt marsh;
  - The area is within the usual foraging range of the bird species in question (as measured from the habitats site);
  - There is sufficient habitat that the area is of value (the further a species travels to an area, the more energy is expended and therefore the area must provide the possibility of recovering the energy spent to be considered useful);
  - The area conforms to other characteristics required by the receptor species, for example, clear line of site to avoid predation; and
  - There is insufficient equivalent habitat closer to the Habitats site in question.
- 3.17 The following organisations' websites will be reviewed for publicly available information that they may be able to provide on functionally linked habitat:
- British Trust for Ornithology - South West London Waterbodies SPA Wildfowl Population Analysis<sup>18</sup>
  - Birdlife International Data Zone – South-West London Waterbodies<sup>19</sup>; and
  - London Wildlife Trust.
- 3.18 Natural England Impact Risk Zones for each SSSI and guidance that underlies those zones<sup>20</sup> will be utilised.
- 3.19 This identifies the typical distances that wintering waterfowl will travel from their SPAs to forage. Relevant Impact Risk Zones are identified as follows:

**Table 3-3. Main sources and effects of air pollutants on habitats and species.**

| Bird Assemblage   | Impact Risk Zone (foraging distance)   |
|---|--|
| Wintering birds (except wintering waders and grazing wildfowl; wigeon and geese)                                    | Up to 500m   |
| Dabbling ducks such as teal, mallard and gadwall  | Home ranges could extend beyond site boundaries at coastal sites, but less likely to do so at inland water bodies.                   |
| Wintering waders (except golden plover and lapwing), brent goose & wigeon   | Maximum foraging distance is 500m  |
| Wintering lapwing and golden plover   | Maximum foraging distance is 15-20km.  |
| Wintering white-fronted goose, greylag goose, Bewick's swan, whooper swan, pink-footed goose & wintering bean goose | Maximum foraging distance is 10km although studies have shown that pink-footed geese will fly 20km from their roosting site to feed. |

- 3.20 The IRZ data in **Table 3-3** indicates that for wintering birds generally (such as the gadwall and shoveler for which the South West London Waterbodies SPA/ Ramsar is designated) functionally-linked habitat of importance to maintaining the population of the SPA is typically located within 500m of the site. Functionally-linked habitat for gadwall and shoveler will generally consist of other waterbodies (e.g. gravel pits). The functionally-linked waterbodies around the SPA are fairly well understood thanks to research including a PhD thesis<sup>21</sup>. All identified functionally-linked waterbodies are south of the M4.

<sup>18</sup> BTO 2004. South West London Waterbodies SPA Wildfowl Population Analysis [https://www.bto.org/sites/default/files/shared\\_documents/publications/research-reports/2004/rr361.pdf](https://www.bto.org/sites/default/files/shared_documents/publications/research-reports/2004/rr361.pdf) [Accessed 01/07/2025]

<sup>19</sup> BirdLife International (2025) Site factsheet: South-west London Waterbodies. Downloaded from <https://datazone.birdlife.org/site/factsheet/southwest-london-waterbodies> [Accessed on 01/07/2025].

<sup>20</sup> Natural England (2019). Impact Risk Zones Guidance Summary Sites of Special Scientific Interest Notified for Birds. Version 1.1

<sup>21</sup> Briggs, B. Wolfson College, 2007. The use of waterbodies in South-West London by Gadwall and Shoveler; implications for nature conservation. Unpublished PhD dissertation, University of Oxford.



- 3.21 Chilterns Beechwoods SAC is designated for its population of stag beetle. Adult stag beetles do not feed and die shortly after mating, so colony persistence is associated with continued presence of larval dead wood habitat. Colonization of new nest sites is dependent on both reproductive female presence and availability of deadwood habitat for the larvae. In radio-telemetry studies of stag beetle dispersal, the maximum female dispersal distance for an adult female was 727m from her point of emergence. However, once they have mated, female stag beetles generally return to the spot where they emerged to lay their eggs<sup>22</sup>. This behaviour limits stag beetle dispersal and means stag beetle populations from a SAC will be largely restricted to that SAC.

## Background to Recreational Pressure

- 3.22 There is growing concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfil Conservation Objectives while also providing recreational opportunity. Various studies have provided compelling links between increases in housing development and access levels<sup>23</sup>, and resulting impacts in Habitat sites<sup>24 25</sup>.
- 3.23 Recreational use of a site has the potential to:
- Cause disturbance to sensitive species such as ground-nesting birds and wintering wildfowl;
  - Prevent appropriate management or exacerbate existing management difficulties;
  - Cause damage through erosion, trampling and fragmentation; and
  - Cause eutrophication due to dog fouling.
- 3.24 Different types of Habitat sites (e.g., heathland, freshwater, chalk grassland) have a range of vulnerabilities and are sensitive to different types of recreational pressures. Studies across a range of species have shown that the effects from recreation can be complex.

## Bird Disturbance

- 3.25 Disturbance effects can have negative impacts on qualifying birds in various ways, with reduced chick provisioning and increased nest predation due to adults being flushed from the nest and deterred from returning. A literature review on the effects of human disturbance on breeding birds found that 36 out of 40 studies reported reduced breeding success due to disturbance<sup>26</sup>. The main reasons given for the reduction in breeding success were nest abandonment and increased predation of eggs or young. Studies of other species have shown that birds nest at lower densities in disturbed areas, particularly when there is weekday as well as weekend pressure<sup>27</sup>. Recreational disturbance effects on ground-nesting birds are particularly severe, with many studies concluding that urban sites support lower densities of key species, such as stone curlew (*Numenius Arquata*) and nightjar (*Caprimulgus europaeus*)<sup>28 29</sup>.
- 3.26 Furthermore, there are numerous parameters (e.g. seasonality, type of recreational activity) that may reduce or exacerbate the magnitude of bird disturbance. For example, disturbance in winter may be more impactful because food shortages make birds more vulnerable at this time of year. In contrast, this may be counterbalanced by fewer recreational users in the winter months and lower overall sensitivity of birds

<sup>22</sup> <https://ptes.org/campaigns/stag-beetles/stag-beetle-facts/>

<sup>23</sup> Weitowitz D.C., Panter C., Hoskin R. & Liley D. 2019. The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology* 5. <https://doi.org/10.1093/jue/juz019>

<sup>24</sup> Liley D, Clarke R.T., Mallord J.W., Bullock J.M. (2006a). The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Natural England / Footprint Ecology.

<sup>25</sup> Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. (2006b). Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. Footprint Ecology / Dorset County Council.

<sup>26</sup> Hockin D.M., Oundsted M., Gorman D., Hill V. & Barker M.A. (1992). Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management* 36: 253-286.

<sup>27</sup> Van der Zande A.N., Berkhuijsen J.C., van Letesteyn H.C., ter Keurs W.J. & Poppelaars A.J. (1984). Impact of outdoor recreation on the density of a number of breeding bird species in woods adjacent to urban residential areas. *Biological Conservation* 30: 1-39.

<sup>28</sup> Clarke R.T., Liley D., Sharp J.M. & Green R.E. (2013). Building development and roads: Implications for the distribution of stone curlews across the Brecks. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0072984>.

<sup>29</sup> Liley D. & Clarke R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation* 114: 219-230.

outside the breeding season. Evidence in the literature suggests that the magnitude of disturbance clearly differs between different types of recreational activities. For example, dog walking leads to a significantly higher reduction in bird diversity and abundance compared to hiking<sup>30</sup>. Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers<sup>31</sup>. In addition, dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals. A literature review summarised data on the use of semi-natural habitat by dogs<sup>32</sup>, indicating that the proportion of dog walkers using sensitive sites tends to be high (54%).

- 3.27 Direct evidence for bird disturbance has been collected in many field studies. For example, observations of bird disturbance were undertaken by Footprint Ecology in North Kent in 2010 / 2011. The study focused on recreational disturbance to wintering waterfowl on intertidal habitats along the North Kent shoreline, stretching between Gravesend and Whitstable, and encompassing three SPAs. From 1,400 events (records of visitors in the bird survey areas) occurring within 200m of the birds, 3,248 species-specific observations were noted, which included no response (74% of observations), major flight (13%), minor flight (5%), short evasive walks away from the stimulus (5%) and alertness (3%).
- 3.28 Dog walking accounted for 55% of all major flight observations, with a further 15% attributed to walkers without dogs. After controlling for distance, major flights were more likely to occur when activities took place on the intertidal zone (compared to water-based or onshore events), when dogs were present, and a higher number of dogs were present in visitor groups. There were significant differences between species with curlew the species with the highest probability of major flight and teal and black-tailed godwit (*Limosa limosa*) the lowest. Tide state was also significant with major flights more likely at high tide, after controlling for distance. There was a significant interaction between distance and tide, indicating that the way in which birds responded varied according to tide. Inter-species differences in responses to disturbance stimuli are also evident from other studies. For example, one study found that there was a significant negative correlation between the degree of urban development and the number of nightjar territories in Dorset heathland sites, but no such impacts were found for woodlark (*Lullula arborea*) and Dartford warbler (*Curruca undata*)<sup>33</sup>.
- 3.29 However, bird disturbance studies need to be treated with care. For instance, the magnitude of disturbance is not necessarily correlated with the impact of disturbance, i.e., the most easily disturbed species are not necessarily those that will suffer the greatest impacts. For example, it has been shown in some cases, that the most easily disturbed birds simply move to alternative feeding sites, while others remain (likely due to an absence of suitable alternative foraging areas) and thus suffer greater population-level impacts<sup>34</sup>. A recent literature review undertaken for the RSPB<sup>35</sup> also urges caution when extrapolating the results of disturbance studies because responses differ between species and may be impacted by local environmental conditions. This should be considered when predicting the potential impacts of future recreational pressure on Habitat sites.
- 3.30 It should also be emphasised that recreational use is not necessarily a problem. Many Habitat sites are also National Nature Reserves or nature reserves managed by Wildlife Trusts and the RSPB. At these sites, access is encouraged, and resources are deployed to ensure that recreational use is managed appropriately. Bird abundances in many of these sites remain stable or, in some cases, are increasing despite high visitor numbers.

## Trampling Damage

- 3.31 Most terrestrial habitats (including heathland, grassland and woodland) can be affected by trampling and other mechanical damage, which dislodges individual plants, leads to soil compaction and erosion. A

<sup>30</sup> Banks P.B. & Bryant J.Y. (2007). Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* **3**: 14pp.

<sup>31</sup> Miller S.G., Knight R.L. & Miller C.K. (2001). Wildlife responses to pedestrians and dogs. *Wildlife Society Bulletin* **29**: 124-132.

<sup>32</sup> Ibid.

<sup>33</sup> Liley D. & Clarke R.T. (2002). Urban development adjacent to heathland sites in Dorset: The effect on the density and settlement patterns of Annex I bird species. English Nature Research Reports, No 463. English Nature, Peterborough. 33pp.

<sup>34</sup> Gill et al. (2001). Why behavioural responses may not reflect the population consequences of human disturbance. *Biological Conservation* **97**: 265-268.

<sup>35</sup> Woodfield & Langston. (2004). Literature review on the impact on bird population of disturbance due to human access on foot. *RSPB Research Report* No. 9.

general effect of trampling on vegetation is reduced species and structural diversity, since only dominant and tolerant plant species persist<sup>36</sup>. However, many parameters (e.g. vegetation type, recreational activity, weather, and ground conditions) can have marked impacts on the degree of trampling damage. The following provides a brief overview of the impacts of trampling associated with different recreational activities in different habitats:

- A study on experimental trampling of different heathland types under varying weather conditions in Brittany (France) showed that dry heath was more resistant to trampling damage than wet heath<sup>37</sup>. Equally, both heathland habitats showed greater resilience to trampling under dry than wet conditions.
- Wilson & Seney<sup>38</sup> examined the degree of track erosion caused by hikers, motorcyclists, horse riders and cyclists in 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.
- Cole et al<sup>39</sup> conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and a negative correlation with trampling intensity was discovered. This relationship was weaker after one year than two weeks, indicating some vegetation recovery. Differences in plant morphology was found to explain more variation in response than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. The cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were considered least tolerant to regular trampling disturbance.
- Cole<sup>40</sup> conducted a follow-up study (across four vegetation types) in which shoe type (trainers or walking boots) and trampling weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier trampers caused a greater reduction in vegetation height than lighter trampers, but there was no differential impact on vegetation cover.
- Cole & Spildie<sup>41</sup> experimentally compared the effects of off-track trampling by hikers and horse riders (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Generally, it was shown that higher trampling intensities caused greater levels of disturbance. Horse trampling resulted in a larger reduction in vegetation cover than hiking. While the forb-dominated vegetation suffered greater disturbance impacts, it recovered rapidly.

3.32 In heathland sites, trampling damage can affect the value of a site to wildlife. For example, heavy use of sandy tracks loosens and continuously disturbs sand particles, reducing the habitat's suitability for invertebrates<sup>42</sup>. Species that burrow into flat surfaces such as the centres of paths, are likely to be particularly vulnerable, as the loose sediment can no longer maintain their burrow. In some instances,

<sup>36</sup> Santoro R. et.al. (2012). Effects of Trampling Limitation on Coastal Dune Plant Communities. Environmental Management DOI 10.1007/s00267-012-9809-6.

<sup>37</sup> Gallet S. & Roze F. (2002). Long-term effects of trampling on Atlantic heathland in Brittany (France): Influence of vegetation type, season and weather conditions. *Biological Conservation* **103**: 267-275.

<sup>38</sup> Wilson, J.P. & J.P. Seney. (1994). Erosional impact of hikers, horses, motorcycles and off-road bicycles on mountain trails in Montana. *Mountain Research and Development* **14**:77-88.

<sup>39</sup> Cole, D.N. (1995a). Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* **32**: 203-214

Cole, D.N. (1995b). Experimental trampling of vegetation. II. Predictors of resistance and resilience. *Journal of Applied Ecology* **32**: 215-224

<sup>40</sup> Cole, D.N. (1995c). Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.

<sup>41</sup> Cole, D.N., Spildie, D.R. (1998). Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* **53**: 61-71

<sup>42</sup> Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

nature conservation bodies and local authorities resort to hardening paths to prevent further erosion. However, this is concomitant with the loss of habitat used by wildlife, such as sand lizards (*Lacerta agilis*) and burrowing invertebrates.

## Nutrient Enrichment

- 3.33 A major concern for nutrient-poor terrestrial habitats is nutrient enrichment associated with dog fouling, which has been addressed in various reviews (e.g.,<sup>43</sup>). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a spread-out distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually<sup>44</sup>. While there is little information on the chemical constituents of dog faeces, nitrogen is one of the main components<sup>45</sup>. Nutrient levels are the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in the shift to plant communities that are more typical of improved grasslands.
- 3.34 A recent study has published further compelling evidence on the relative impact of nitrogen (N) and phosphorus (P) deposition arising from dogs. Using 487 direct-count censuses from four peri-urban forests and nature reserves, the modelling data suggested that canine fertilisation rates amount to 11 kg N and 5 kg P per hectare per year respectively<sup>46</sup>. These amounts are significant when compared to atmospheric nitrogen deposition rates and the offsetting achievable through traditional habitat management techniques (e.g. cutting and removal of hay). The nitrogen deposition by dogs is particularly significant given the nitrogen Critical Load (CL) of 10-20 kg N/ha/yr provided for European dry heath and Northern Atlantic wet heath (qualifying feature of the Dorset Heaths SAC) on the Air Pollution Information System (APIS). This implies that the minimum CL of a site may be exceeded by N nitrogen deposition from dogs alone, before atmospheric sources are considered. Nutrient availability is the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in a shift towards plant communities that are more typical of improved grasslands.

## Recreational Impact Zones

- 3.35 Increased housing is likely to result in increased recreational usage of green space, including Habitats sites, with the greatest impact being on sites closest to the residential development.
- 3.36 A typical core recreational catchment for inland terrestrial Habitats sites is 5km and this has been used where no specific catchment has been set for a Habitats sites. This is in line with the HRAs for other local plans within the areas, for example the Windsor & Maidenhead Local Plan HRA<sup>47</sup>. Note that where developments are very large, it is reasonable to assume that the impact of increased visitor numbers can be extended beyond that catchment range.

**Table 3-4. Recreational Impact Catchment Zones**

| Habitat Site     | Catchment zone  |
|------------------|---|
| Aston Rowant SAC | Recreational Pressure is not listed as a threat to this site (due to the steep nature of the site limiting off-track activity and the nearby presence of the M40) |

<sup>43</sup> Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. (2005). Dogs, access and nature conservation. English Nature Research Report, Peterborough.

<sup>44</sup> Barnard A. (2003). Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* 11:16-19.

<sup>45</sup> Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

<sup>46</sup> De Frenne P., Cougnon M., Janssens G.P.J. & Vangansbeke P. (2022). Nutrient fertilization by dogs in peri-urban ecosystems. *Ecological Solutions and Evidence* 3, <https://doi.org/10.1002/2688-8319.12128>

<sup>47</sup> Available at:

[https://consult.rbwm.gov.uk/file/4593477?\\_gl=1\\*1q90dm0\\*\\_ga\\*MTA4NDg3NjI2OS4xNzUxOTc5MjAz\\*\\_ga\\_B1S76ZFQXK\\*\\_czE3NTE5NzkyMDIkbzEkZzEkdDE3NTE5NzkyNDAkajlyJGwwJGgw](https://consult.rbwm.gov.uk/file/4593477?_gl=1*1q90dm0*_ga*MTA4NDg3NjI2OS4xNzUxOTc5MjAz*_ga_B1S76ZFQXK*_czE3NTE5NzkyMDIkbzEkZzEkdDE3NTE5NzkyNDAkajlyJGwwJGgw) [Accessed 07/07/2025]

| Habitat Site                              | Catchment zone       |
|---|----------------------|
| Burnham Beeches SAC                       | 5.6km <sup>48</sup>  |
| Chilterns Beechwoods SAC                  | 12.6km <sup>49</sup> |
| South West London Waterbodies SPA /Ramsar | 5km                  |
| Windsor Forest & Great Park SAC           | 5km                  |

## Summary

- 3.37 Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at Habitat sites involves locating new residential development further away (where possible). Strategic plans, such as Local Plans provide the mechanism for this. Where avoidance of impacts is not possible, mitigation will usually involve a mix of access management, habitat management and provision of alternative recreational space.

## Background to Urbanisation

- 3.38 The natural environment is complex; most plants and wildlife rely on either a particular habitat type (e.g. broadleaved woodland, heathland) or a particular combination of habitats (habitat mosaic) to thrive. In addition to habitat type, habitat conditions and structure (e.g. south facing slope, dead standing wood, patches of bare soil, or areas of scrub adjacent to open areas of heathland etc.) are important factors for survival. Smaller organisms' (e.g. insects and fungi) immediate requirements are often on a more localised scale, for example a single tree, whereas other wildlife like birds may need vast areas for foraging in a single night.
- 3.39 Wildlife needs to be able to move around in order to find food and suitable places to live, breed and raise young; they must also be able to move in order to survive changes in their environment, for example disturbances caused by climate change or development. Movement is also important for the exchanging of genes, the building blocks for diversity and survival. Without this, generations of wildlife may become weaker and lack the ability to thrive.
- 3.40 Urbanisation essentially involves development encroaching on open spaces to such an extent that there is a regular background level of impact (whether recreational activity, cat predation, fly tipping of garden waste and other activities) due to the very close proximity of large amounts of housing. This can have a negative effect on wildlife causing them to retreat further into the body of a site and abandon the edge habitats or impacting on their breeding success.
- 3.41 For the purposes of this assessment 'urbanisation' is used to refer to all potential impact pathways that stem from the close proximity new development other than those considered elsewhere in this report e.g. lighting, noise, cat predation, fly tipping, inadvertent arson and other pathways.
- 3.42 A study by Metsers et al (2010)<sup>50</sup> indicated ranges of 2.4km in rural areas and around half that distance in urban fringe areas if the theoretical concept of 'cat exclusion zones' was to be implemented. This was based on the typical distances that cats roam from home. The only European sites designated for birds is South West London Waterbodies SPA and this is designated for wintering birds which are much less susceptible to impacts than nesting birds and associated chicks. In general, it is considered that a zone of 400 m is sufficient for other potential impacts of urbanisation, for example, lighting, sound and fly tipping

<sup>48</sup> The Burnham Beeches SAC Mitigation Strategy Available at <https://buckinghamshire.moderngov.co.uk/documents/s9276/Appendix%201%20for%20Burnham%20Beeches%20Special%20Area%20of%20Conservation%20Mitigation%20Strategy%20Draft%20Supplementar.pdf> [Accessed 25/06/2025]

<sup>49</sup> Chilterns Beechwoods Special Area of Conservation Mitigation Strategy Available at [https://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/new-single-local-plan/chilterns-beechwoods-special-area-of-conservation/chilterns-beechwoods-special-area-of-conservation-\(sac\)-mitigation-strategy](https://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/new-single-local-plan/chilterns-beechwoods-special-area-of-conservation/chilterns-beechwoods-special-area-of-conservation-(sac)-mitigation-strategy) [Accessed 25/06/2025]

<sup>50</sup> Elizabeth M. Metsers, Philip J. Seddon and Yolanda M. van Heezik (2010) Cat-exclusion zones in rural and urban-fringe landscapes: how large would they have to be? Available at: [https://www.academia.edu/download/45459227/Cat-exclusion\\_zones\\_in\\_rural\\_and\\_urban-f20160508-28006-w0u73d.pdf](https://www.academia.edu/download/45459227/Cat-exclusion_zones_in_rural_and_urban-f20160508-28006-w0u73d.pdf) [Accessed 07/07/2025]



impacts. However, to be precautionary at this early stage, a distance of 3km has therefore been used to screen growth areas for LSE's as a result of this pathway.

## Background to Water Quality

3.43 The quality of the water that feeds Habitats sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient, and so eutrophication is associated with discharges containing available nitrogen.
- Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.

3.44 The primary concern in relation to freshwater and freshwater-dependent sites is the discharge of phosphorus in treated sewage effluent into Habitats sites themselves or hydrologically connected waterbodies. Development in Buckinghamshire over the Plan period will cause an increase in wastewater production. Treated wastewater and sewage effluent from these works may be discharged into waterbodies that are potentially hydrologically linked to the South West London Waterbodies SPA / Ramsar.

3.45 Overall, the following Habitats sites within 10km of the LPFB boundary are potentially sensitive to negative changes in water quality:

- Burnham Beeches SAC (from contaminated ground water in the defined catchment area defined by the 2013 Burnham Beeches Hydrology Study<sup>51</sup>)
- South West London Waterbodies SPA / Ramsar (from increases in the discharge of treated sewage effluent from Wastewater Treatment Works (WWTWs))

## Background to Water Quantity, Level and Flow

3.46 The water level, its flow rates and the mixing conditions are important determinants of the condition of Habitats sites and their qualifying features. Hydrological processes are critical in influencing habitat characteristics in wetlands, terrestrial systems that have hydrological associations (e.g. wet heath) and coastal waters, including current velocity, water depth, dissolved oxygen levels, salinity and water temperature. In turn these parameters determine the short- and long-term viability of plant and animal species, as well as overall ecosystem composition.

3.47 A highly cited review paper summarised the ecological effects of reduced flow in rivers and connected water-dependent ecosystems. Droughts (ranging in their magnitude from flow reduction to a complete loss of surface water) have both direct and indirect effects on dependent floral and faunal communities. For example, the unique nature of wetlands combines shallow water and conditions that are ideal for the growth of organisms at the basal level of food webs, which feed many species of birds, mammals, fish and amphibians.

3.48 Maintaining a steady water supply is of critical importance for many hydrologically dependent SPAs, SACs and Ramsars. For example, in many freshwater bodies and wetlands the hydrological regime is essential for sustaining a variety of foraging habitats for SPA / Ramsar waterfowl species. However, different species vary in their requirements for specific water levels. Splash and / or shallow flooding is required to

<sup>51</sup> South Bucks District Council 2013 Burnham Beeches Hydrology Study Available at: [https://www.buckinghamshire.gov.uk/documents/21316/Burnham\\_Beeches\\_Hydrology\\_Study\\_2013\\_1.pdf](https://www.buckinghamshire.gov.uk/documents/21316/Burnham_Beeches_Hydrology_Study_2013_1.pdf) [Accessed 25/06/2029]

provide suitable feeding areas and roosting sites for ducks and waders. In contrast, deeper flooding is essential to provide foraging and loafing habitats for Bewick's swans and whooper swans.

3.49 Wetland habitats rely on hydrological connections with other surface waters, such as rivers, streams and lakes. A constant supply of water is fundamental to maintaining the ecological integrity of sites. However, while the natural fluctuation of water levels within narrow limits is desirable, excess or too little water supply might cause the water level to be outside of the required range of qualifying birds, invertebrate or plant species. This might lead to the loss of the structure and functioning of wetland habitats. There are two mechanisms through which urban development might negatively affect the water level in Habitats Sites:

- The supply of new housing with potable water will require increased abstraction of water from surface water and groundwater bodies. Depending on the level of water stress in the geographic region, this may reduce the water levels in Habitats Sites sharing the same catchment.
- The proliferation of impermeable surfaces in urban areas increases the volume and speed of surface water runoff. As traditional drainage systems often cannot cope with the volume of stormwater, sewer overflows are designed to discharge excess water directly into watercourses. Often this pluvial flooding results in downstream inundation of watercourses and the potential flooding of wetland habitats.

3.50 The Habitats sites relevant to the Local Plan for Buckinghamshire Area which are designated for habitats and species that are sensitive to hydrological change, are Burnham Beeches SAC and the South West London Waterbodies SPA / Ramsar. Burnham Beeches SAC specifically notes sensitivity to hydrological change in the 2013 Burnham Beeches Hydrology Study<sup>52</sup>. This applies to the Wither Stream catchment area, and that of three other watercourses, which are important for the mire and pond systems in the SAC. The catchment area is shown in the Development Management Guidance Note: Hydrology in Burnham Beeches, produced by the former South Bucks Council. The LPFB will likely include an increase in residential development across the county, therefore surface water runoff from impermeable urban surfaces within the four catchments will need to be considered further with regards to Burnham Beeches SAC if any net new development is proposed within this water catchment.

3.51 Unlike Burnham Beeches, South West London Waterbodies SPA/Ramsar is not hydrologically connected to Buckinghamshire, except in as much as the River Colne (forming the eastern county boundary) drains to the River Thames which is a source of water for the Thames Water reservoirs that make up part of the SPA.

## Summary of Impact Pathways to be Taken Forward

3.52 Having considered the impact pathways identified in this chapter, those listed in Table 3-5 will be taken to the next stage in the HRA process, the LSEs screening.

**Table 3-5. Impact pathways and relevant Habitats sites**

| Impact pathway   | Habitats site(s) potentially affected   |
|--|---|
| Air pollution: Impact of atmospheric nitrogen deposition | Aston Rowant SAC<br>Burnham Beeches SAC<br>Chilterns Beechwoods SAC<br>Windsor Forest & Great Park SAC                          |
| Loss of Functionally Linked Habitat                      | South West London Waterbodies SPA /Ramsar   |
| Recreational pressure                                    | Burnham Beeches SAC<br>Chilterns Beechwoods SAC<br>South West London Waterbodies SPA /Ramsar<br>Windsor Forest & Great Park SAC |
| Urbanisation   | Burnham Beeches SAC<br>Chilterns Beechwoods SAC   |

<sup>52</sup> South Bucks District Council 2013 Burnham Beeches Hydrology Study Available at: [https://www.buckinghamshire.gov.uk/documents/21316/Burnham\\_Beeches\\_Hydrology\\_Study\\_2013\\_1.pdf](https://www.buckinghamshire.gov.uk/documents/21316/Burnham_Beeches_Hydrology_Study_2013_1.pdf) [Accessed 25/06/2029]

| Impact pathway                 | Habitats site(s) potentially affected                            |
|--------------------------------|--|
| Water quality                  | Burnham Beeches SAC<br>South West London Waterbodies SPA /Ramsar |
| Water Quantity, Level and Flow | Burnham Beeches SAC  |

## 4. Test of Likely Significant Effects

### Introduction

- 4.1 When seeking to identify relevant Habitat sites, consideration has been given primarily to identified impact pathways and the source-pathway-receptor approach, rather than adopting purely a 'zones'-based approach. The source-pathway-receptor approach is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place, whereas the absence of one or more of the elements means there is no possibility for an effect. Furthermore, even where an impact is predicted to occur, it may not result in significant effects (i.e., those which undermine the Conservation Objectives of a Habitat site).
- 4.2 The likely zone of impact (also referred to as the likely Zone of Influence, Zol) of a plan or project is the geographic extent over which significant ecological effects are likely to occur. The Zol of a plan or project will vary depending on the specifics of a particular proposal and must be determined on a case-by-case basis with reference to a variety of criteria, including:
- the nature, size / scale and location of the plan;
  - the connectivity between the plan and Habitat sites, for example through hydrological connections or because of the natural movement of qualifying species;
  - the sensitivity of ecological features under consideration; and,
  - the potential for in-combination effects.

### Approach to Local Plan for Buckinghamshire Policy Screening

- 4.3 As identified at the start of this report, there are no site allocations made within the Regulation 18 Local Plan. These will be subject to HRA screening at a later date. There are 8 objectives, 65 policies and a number of emerging policies within the LPFB. Policies were screened out of having LSEs on a Habitat site where any of the following reasons applied:
- they are environmentally positive;
  - they will not themselves lead to any development or other change;
  - they make provision for change but could have no conceivable effect on a Habitat site. This can be because there is no pathway between the policy and the qualifying features or a Habitat site, or because any effect would be positive;
  - they make provision for change but could have no significant effect on a Habitat site (i.e., the effect would not undermine the conservation objectives of a Habitat site); or,
  - the effects of a policy on any particular Habitat site cannot be ascertained because the policy is too general. For example, a policy may be screened out if, based on absence of detail in the policy, it is not possible to identify where, when, or how the policy may be implemented, where effects may occur, or which sites, if any, may be affected.



- 4.4 Any 'criteria-based' policy (i.e., those that simply list criteria with which development needs to comply) or other general policy statements that have no spatial element were also screened out. Likewise, policies that simply 'safeguard' an existing resource (e.g., existing green infrastructure or mineral resources) by preventing other incompatible development, were also screened out.
- 4.5 The appraisal therefore focussed on those policies with a definable quantum or spatial component. Having established which policies required scrutiny by virtue of this, consideration was given as to whether LSEs could be dismissed due to a lack of connectivity to any Habitat site for one of the following reasons:
- a potentially damaging activity may occur as a result of the policy but there is no pathway connecting it to a Habitat site (due to distance, for example);
  - there are no Habitat sites vulnerable to any of the activities that the policy will deliver; or,
  - the policy will not result in any damaging activities.

## Results of Policy Screening

- 4.6 The results of the LSEs screening of policies included in the LPFB are presented in Table C.1, Appendix C. Where a policy is shaded green, there are no linking impact pathways to Habitat sites and LSEs can be excluded. Where the screening outcome is shaded orange, LSEs cannot be excluded, and the policy is screened in for AA.
- 4.7 Of the 8 objectives none are considered to result in LSEs. These are strategic objectives which do not specify location or quantum of any development.
- 4.8 Of the 81 LPFB core policies and the emerging policies, seven are considered to have the potential to result in LSEs, alone or in combination with other plans and projects, as such an Appropriate Assessment is required. These are:
- **HO6 Gypsy, Traveller and Travelling Showpeople provision**
  - **EC1 Strategic and Key Employment Sites**
  - **EC5 Silverstone Circuit and Silverstone Park Enterprise Zone**
  - **EC6 Westcott Venture Park Enterprise Zone and Strategic Employment site**
  - **EC7 Pinewood Studios**
  - **Emerging policies: Housing allocations**
  - **Emerging policies: Small Housing Allocations**
- 4.9 The remaining policies do not promote or govern the quantum or location of development and fall into one of the categories described in paragraph 4.3 above.

# 5. Appropriate Assessment

## Introduction

- 5.1 No location information is included in the version of the plan which has been assessed, therefore full appropriate assessment is not available at this stage and will be provided within a future update to the HRA.
- 5.2 A number of alternate approaches have been described in the plan, although specific location information is not included.
- 5.3 This appropriate assessment therefore focuses on high level conclusions that may can be drawn, an indication of considerations when locations are available and where relevant, further information which will

be required. The first section discusses the impact of proposed policies. This is followed by a high level assessment of the growth approaches presented in the Local Plan.

5.4 Table 5-1 lists the policies screened in for appropriate assessment and the identified impact pathways

**Table 5-1. Policies screened in for appropriate assessment**

| <b>Policy</b>   | <b>Potential Impact Pathways</b>   |
|---|--|
| HO3 Gypsy, Traveller and Travelling Showpeople provision                | Loss of functionally linked land<br>Recreational pressure<br>Urbanisation<br>Water quality<br>Water quantity, level and flow |
| EC1 Strategic and Key Employment sites                                  | Atmospheric pollution  |
| EC5 Silverstone Circuit and Silverstone Park Enterprise Zone            | Atmospheric pollution  |
| EC6 Westcott Venture Park Enterprise Zone and Strategic Employment site | Atmospheric pollution<br>Recreational pressure<br>Water quality<br>Water quantity, level and flow                            |
| EC7 Pinewood Studios  | Atmospheric pollution  |
| Emerging policies: Housing allocations                                  | Loss of functionally linked land<br>Recreational pressure<br>Urbanisation<br>Water quality<br>Water quantity, level and flow |
| Emerging policies: Small Housing Allocations                            | Loss of functionally linked land<br>Recreational pressure<br>Urbanisation<br>Water quality<br>Water quantity, level and flow |

5.5 The following policies have been identified as potentially positive with regards to Habitats sites, through the requirements they set for development to be supported:

- Local Plan Objective 1 (conserve and enhance special areas for nature and improve water quality)
- CC1 Flood Risk (water level, quantity and flow)
- CC2 Sustainable Drainage Systems (SuDS) (water level, quantity and flow; water quality)
- NE1 Water Quality (water quality)
- NE2 Watercourses and associated corridors (water level, quantity and flow; water quality)
- NE3 Protection and enhancement of sites of high biodiversity and geodiversity importance (general)
- NE6 Green Infrastructure (recreational pressure)
- NE11 Colne Valley Regional Park
- NE12 Special Areas of Conservation, Special Protection Areas and Ramsar sites (general)
- NE13 Suitable Natural Green Space (recreational pressure)
- NE14 Gateway sites (recreational pressure)
- NE20 Pollution, Air quality and Contaminated Land (air pollution)

## Air Pollution: Impact of atmospheric nitrogen deposition

- 5.6 Policy **NE11 Special Areas of Conservation, Special Protection Areas and Ramsar sites** require the prevention of negative impacts on Habitats sites from urbanisation which requires it to be demonstrated that no adverse effect on a Habitats site would arise from a development. **We recommend that this is changed to ‘no adverse effect on the integrity of a Habitats site either alone or in combination with other plans or projects’ as that is the wording in the legal test.**
- 5.7 Policy NE19 Pollution, Air quality and Contaminated land requires that there potentially polluting developments use appropriate modelling to determine any impacts.
- 5.8 Chilterns Beechwoods SAC, Aston Rowant SAC, Burnham Beeches SAC and Windsor Forest & Great Park SAC are all vulnerable to the impact of atmospheric air pollution.
- 5.9 Chilterns Beechwoods is a SAC consisting of many dispersed component areas and many elements of it can be found within 200m of a major road. Further consideration will be required once site allocations are known since these dictate the distribution of traffic on the road network (and the resulting air quality impact). Air quality modelling is required for appropriate assessment, and this is currently planned for the A4010 (within Buckinghamshire) and the A404 (just beyond Buckinghamshire) within 200m of the SAC. It should be noted that the A40 also runs through part of the SAC as does the B4506 at different locations and these may need to also be included in modelling, depending on the location of housing and employment allocations.
- 5.10 Aston Rowant SAC is adjacent to the M40 on the Buckinghamshire border and as such is potentially impacted by increased traffic flow from developments, air quality modelling will be required to make a full assessment of the impact of the impact of increased traffic. At the same time, attention must be paid to JNCC guidance on the issue<sup>53</sup> which states (pages 20/21) that: *‘The trunk road network forms the core of the national transport system. Trunk roads are central to long distance travel and connectivity across the UK and traffic patterns on trunk roads are a consequence of predicted growth across the UK generally. The effects of development on traffic flows on trunk roads are more appropriately taken into account as part of national and regional strategic plan level HRAs.’*
- 5.11 Burnham Beeches SAC is within 200m of the A355 and as such is potentially impacted by increased traffic flow from developments, air quality modelling will be required to make a full assessment of the impact of the impact of increased traffic.
- 5.12 Windsor Forest & Great Park SAC is outside of the boundary of the LPFB; however it does lie within the potential zone of influence. A number of routes pass through or adjacent to Windsor Great Park, although the M4 forms a dispersal barrier between the SAC and the majority of the LPFB area which will potentially distribute traffic away from the SAC. Similarly, the settlement of Windsor is likely to reduce traffic flowing from the LPFB area to this SAC. It is possible, depending upon the exact location of residential development that there will be no impact on this SAC. This will be revisited once allocations are identified.

## Loss of Functionally Linked Land

- 5.13 Policy **NE11 Special Areas of Conservation, Special Protection Areas and Ramsar sites** requires the prevention of negative impacts on Habitats sites from urbanisation which requires it to be demonstrated that no adverse effect on a Habitats site would arise from a development.
- 5.14 This impact pathway is only relevant to the South West London Waterbodies SPA/ Ramsar and only to developments south of the M4. A small part of the LPFB area is south of the M4 however the species in question (shoveler and gadwall) only use other waterbodies as functionally linked “land” which are highly unlikely to be removed for development and this pathway can therefore be concluded to have no adverse effects on integrity of the Habitats site following appropriate analysis.

<sup>53</sup> [Main Report: Guidance on Decision-making Thresholds for Air Pollution \(jncc.gov.uk\)](https://www.jncc.gov.uk/main-report-guidance-on-decision-making-thresholds-for-air-pollution)

# Recreational Pressure

## General

5.15 The following policies require or support the prevention of negative impacts on Habitats sites from recreational pressure. These are:

- **NE6 Green Infrastructure**, supports the creation of recreational, sporting and other green space which provides a leisure alternative to Habitats sites, this reducing recreational pressure.
- **NE12 Special Areas of Conservation, Special Protection Areas and Ramsar sites** which require it to be demonstrated that no adverse effect on a Habitats site would arise from a development proposal, alone or in combination with other plan or project, that no development occurs within a defined exclusion zone, and that mitigation will be provided in line with defined mitigation strategies
- **NE13 Suitable Natural Green Space** which supports proposals for Suitable Natural Green Space (SANG) to mitigate adverse effect of recreational pressure
- **NE14 Gateway Sites** which supports proposals for Gateway sites to mitigate adverse effect of recreational pressure
- **NE15 Little Marlow Lakes area** is set to provide SANG mitigation towards Burnham Beeches for developments in the 5.6km zone.

## Burnham Beeches SAC

5.16 The Burnham Beeches SAC Strategic Access Management and Monitoring Strategy (SAMMS) Supplementary Planning Document (SPD)<sup>54</sup> provides for mitigation where new development falls within the recreational disturbance impact zone for the SAC.

5.17 The SPD defines 500m and 5.6km buffer zones.

5.18 No new dwelling should be built within 500m of the SAC, as **there is a policy presumption against residential development with 500m of Burnham Beeches SAC**. There is no defined mitigation for homes built within this zone.

5.19 New dwellings built between the 500m zone and the limit of the 5.6km zone will be required to provide a financial contribution (Set out within the SPD for former south and east areas) towards SAMMS at Burnham Beeches SAC.

5.20 Provision of SANG is the strategic solution for properties to the west of the SAC. **Policy NE15 Little Marlow Lakes area** is set to provide SANG mitigation towards Burnham Beeches for developments in the 5.6km zone.

5.21

5.22 If the above payments are secured then impacts from recreational pressure would be suitably mitigated following appropriate assessment. However, an overall conclusion on this is reserved until the site allocations can be assessed.

5.23 The SAMMS allows for a review every six years to consider growth above local plan levels (2020 levels) to ensure that the strategy remains fit for purpose. Significantly large increases on previously planned numbers of dwellings built within the impact zone, are likely to require reconsideration of the SAMMS.

5.24 The Council is currently undertaking a review of the SPD (which only applies to part of Buckinghamshire) in the form of an emerging Burnham Beeches Mitigation Strategy, likely to include both SAMMS and SANG requirements.

<sup>54</sup> Available at: <https://buckinghamshire.moderngov.co.uk/documents/s14649/Statement%20of%20Representations.pdf> [Accessed 01/07/2025]

## Chiltern Beechwoods SAC

- 5.25 The Ashridge Commons and Woods SSSI is the only part of this of this SAC currently identified as being sensitive to recreation based on Natural England advice.
- 5.26 There is a 500m avoidance zone for development around Ashridge Commons and Woods. Natural England (NE) have advised that there is a **presumption against such development being granted** as it is unlikely that any mitigation or avoidance measures would be effective. This is included within policy NE13 which states that sufficient evidence needs to be produced by the applicant to demonstrate how schemes would not result in a net increase in visitors to Ashridge Commons and Woods SSSI. This is then taken into account as part of the planning application Appropriate Assessment undertaken by the Council.
- 5.27 There is a wider zone of influence defined with a large catchment of 12.6km. Natural England has advised that development in this zone (but outside of the avoidance zone) **can be sufficiently mitigated for (or avoided) through the measures define in the Mitigation Strategy for Ashridge Commons and Woods Site of Special Scientific Interest.**
- 5.28 As part of this mitigation strategy a contribution must be made towards Strategic Access Management and Monitoring Strategy (SAMMS) <sup>55</sup> at the current rates (per dwelling) for each home built within the zone. In addition to these payments developments, **all qualifying development must contribute towards either a) a new (bespoke) SANG or b) contribute towards Strategic SANG projects elsewhere.**
- 5.29 It is noted that although the Ashridge Commons and Woods SSSI is currently the only part of the SAC which has recreational disturbance listed as a current threat/pressure, a large number of new dwellings has the potential to cause recreational pressure in other areas. It will be necessary therefore to review any allocations for very large numbers of new dwellings against their proximity to other parts of the SAC and potential to impact the SAC.

## Windsor Forest & Great Park SAC

- 5.30 The recreational impact zone for this SAC is defined as 5km, as used for the HRA of the Windsor & Maidenhead Local Plan.
- 5.31 Windsor Forest and Great Park is an important recreational resource for the local population. There are large areas open to the public, although large tracts are restricted.
- 5.32 The boundary of the LPFB is within 2km of the SAC; however, the distances of site allocations will need to be reviewed,, once available, to complete the HRA process. A relatively small proportion of the LPFB area is within the recreational catchment (5km) for this Habitat site which includes the boating lake at Dorney and the residential areas of Boveney, Dorney, and Dorney Reach.

## South West London Waterbodies SPA /Ramsar

- 5.33 The recreational impact zone for this SPA / Ramsar is defined as 5km as used for the HRA of the Windsor & Maidenhead Local Plan.
- 5.34 The qualifying species make sure of seven discrete SSSI waterbodies that collectively make up the SPA /Ramsar. The different waterbodies have different access arrangements: Some are closed to the public, while others have controlled public access and a minority have unrestricted access. The latter sites are the ones most likely to experience a significant increase in visitor pressure as a result of the proposed Local Plan.
- 5.35 The potential for disturbance may be less in winter than in summer, in that there are often a smaller number of recreational users. In addition, the consequences of disturbance at a population level may be reduced because birds are not breeding. However, winter activity can still cause important disturbance, especially as birds are particularly vulnerable at this time of year due to food shortages, such that

<sup>55</sup> Chilterns Beechwoods Special Area of Conservation Mitigation Strategy Available at [https://www.buckinghamshire.gov.uk/documents/34230/Chiltern\\_Beechwoods\\_SAC\\_Mitigation\\_Strategy\\_-\\_August\\_2024\\_Version\\_2\\_accessibleAH.pdf](https://www.buckinghamshire.gov.uk/documents/34230/Chiltern_Beechwoods_SAC_Mitigation_Strategy_-_August_2024_Version_2_accessibleAH.pdf) [Accessed 25/06/2025]

disturbance which results in abandonment of suitable feeding areas through disturbance can have severe consequences.

- 5.36 The parts of the SPA/Ramsar closest to Buckinghamshire are water supply reservoirs with controlled access.
- 5.37 The boundary of the LPFB is within 2.5km of the SPA / Ramsar, however the distances of agreed site allocations will need to be reviewed, once available, to complete the screening process. A relatively small proportion of the LPFB area is within the recreational catchment for this Habitat site. Coupled with the fact that access to much of the SPA/Ramsar is controlled, it is considered that the Local Plan for Buckinghamshire poses a low risk of significant recreational impacts on the SPA/Ramsar site. However, this will be reviewed when site allocations are available.

## Urbanisation

- 5.38 Policy **NE11 Special Areas of Conservation, Special Protection Areas and Ramsar sites** require the prevention of negative impacts on Habitats sites from urbanisation which requires it to be demonstrated that no adverse effect on a Habitats site would arise from a development.
- 5.39 The potential impact of urbanisation is previously described in this document, site allocations within 400 m of Burnham Beeches SAC and Chiltern Beechwoods SAC may need to undergo appropriate assessment depending on their quantum and nature.
- 5.40 Due to the nature of the qualifying features of the two sites some pathways linked to urbanisation can be ruled out (for example, cat predation, light and noise pollution) as these are highly unlikely to have any impact on the qualifying features.
- 5.41 The sites are however potentially vulnerable to the removal of dead wood (Chiltern Beechwoods, used by stag beetle larva), inadvertent arson and fly tipping.
- 5.42 Natural and man-made barriers can reduce the impact of urbanisation within 400 m by casual access. For example, where a large river or motorway is between the development and the Habitats sites, impacts from urbanisation are unlikely to occur.

## Water Quality

- 5.43 Policy **CC2 Sustainable Drainage Systems (SuDS)** details requirements for the inclusion of Sustainable Drainage Systems (SuDS) to minimise changes to water quality.
- 5.44 Policy **NE1 Water quality** details requirements for the protection of water quality of surface or underground water bodies (including rivers, canals, lakes, reservoirs, drinking water safeguard zones, source protection zones and groundwater aquifers).
- 5.45 Policy **NE11 Colne Valley Regional Park** expects developers to help to reduce pollution to the River Colne, other connected watercourses and elsewhere affecting the Regional Park.
- 5.46 Policy **NE12 Special Areas of Conservation, Special Protection Areas and Ramsar sites** requires the prevention of negative impacts on Habitats sites from urbanisation which requires it to be demonstrated that no adverse effect on a Habitats site would arise from a development.
- 5.47 Poor water quality is a threat to the conservation objectives of the South West London Waterbodies SPA/Ramsar. The River Colne runs along much of the eastern boundary of the county before joining the Thames at Staines. The Colne is therefore hydrologically linked to this Habitats site through this route.
- 5.48 In the winter months gadwall inhabit highly productive, eutrophic lakes. Their diet is almost entirely green plant-based, mainly consisting of submerged or emergent macrophytes<sup>57</sup>. Gadwalls rely on the consumption of large amounts of poor-quality food sources, indicating they are potentially susceptible to pollution and resultant changes in the macrophyte communities.
- 5.49 Shoveler duck have morphological traits that facilitate a different feeding ecology. Their specialised bill enables these ducks to filter out zooplankton, their main food source, mainly caught in productive habitats

bordered by vegetation<sup>58</sup>. Although shoveler are not directly dependent on macrophytes, zooplankton (their main food) depend on macrophytes as a source of food and for their microhabitats<sup>59</sup>.

- 5.50 Several studies have demonstrated that high levels of phosphorus lead to a loss of biodiversity in aquatic macrophytes<sup>60 61</sup>. There is now a scientific consensus that wetland systems operate on an optimum range of nutrient levels, beyond which there might be a reduction in system functionality<sup>62</sup>. Delivery of the Local Plan, and resultant influx of sewage and industrial pollutants, might potentially result in adverse effects on the water quality of the South-West London Waterbodies SPA.
- 5.51 It is the responsibility of the supplier of Waste Water Services (Thames Water for the River Colne catchment) to prevent contamination of water bodies, except under exceptional circumstances. However there is growing concern about the ability of the current infrastructure to support increased population and housing levels, with significant increases in discharges of untreated/partially treated sewage into water bodies in recent years.
- 5.52 An assessment of the number of new dwellings linked to Wastewater Treatment Works (WwTW) within the River Colne catchment is required once sites are available. This can then be assessed against capacity projections in the Thames Water DWMP<sup>56</sup>. This exercise will be undertaken for the Stage 2 Water Cycle Study.
- 5.53 Burnham Beeches SAC is sensitive to changes in water quality in ground water. Measures must be in place to prevent pollution of this nature during construction, as pollution in this way is illegal this is considered sufficient to protect this site from adverse impacts.

## Water Quantity, Level and Flow

- 5.54 Policy **CC2 Sustainable Drainage Systems (SuDS)** details requirements for the inclusion of Sustainable Drainage Systems (SuDS) to minimise changes to water quantity, level and flow.
- 5.55 Policy **NE12 Special Areas of Conservation, Special Protection Areas and Ramsar sites** requires the prevention of negative impacts on Habitats sites from urbanisation which requires it to be demonstrated that no adverse effect on a Habitats site would arise from a development.
- 5.56 Burnham Beeches SAC is susceptible to changes in water quantity, level and flow. The Burnham Beeches Hydrology Study has defined a catchment area within which reductions in permeability may impact the water quantity and level within the SAC.
- 5.57 Allocations within this hydrological catchment will need to be further assessed. Any effects may be minimised by the incorporation of Sustainable Drainage Systems (SuDS) to replicate natural drainage patterns.

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<sup>56</sup> Available at <https://www.thameswater.co.uk/media-library/home/about-us/regulation/drainage-and-wastewater/the-plan.pdf> [Accessed 01/07/2025]



## High-level assessment of growth approaches

- 5.58 The current draft plan for consultation includes seven approaches to the housing spatial strategy. All of these approaches to development will be required to meet the housing need. Site identified in these approaches have been assessed through the Housing and Economic Land Availability Assessment or New and Expanded Settlement Study. These are broad and strategic at this point. Nonetheless, it is considered of value to consider the relative implications to Habitats sites for each growth approach, at a suitably high level. Note that the housing need (i.e. total number of dwellings required) of the county does not vary between scenarios below.
- 5.59 Note that not all impact pathways identified earlier in this report are discussed below, as many cannot be discussed without more information on the location and amount of growth. This is why only recreational pressure and traffic-related air quality are discussed.

**Table 5-2. High-level consideration of the potential implications of each potential growth approach on Habitats sites**

| Approach    | Approach 1: Brownfield sites within existing towns and villages  | Approach 2: Growth on the edges of existing main towns  | Approach 3: New towns  | Approach 4: Development at transport hubs  | Approach 5: Expansion near key employment areas  | Approach 6: Limited expansion of villages  | Approach 7: Expanding urban areas on the edge of Buckinghamshire   |
|-------------|--|---|--|--|--|--|--|
| Description | <p>This approach focuses on brownfield development and regeneration. This will provide more homes and jobs on underused land in town centres and in existing settlements. This could be by building taller buildings and / or redeveloping underused sites at higher densities.</p> <p>This approach considers brownfield sites in our towns and villages. This approach has the potential to deliver 1,500 to 2,500 homes. This provides for a variety of small to medium sized</p> | <p>This approach focuses on the expansion of larger settlements within Buckinghamshire through large scale urban extensions. This focuses on our most sustainable locations for Tier's 1 and 2 settlements. This will provide more homes and jobs in the countryside surrounding existing settlements. They would be integrated into existing settlements and provide new schools, roads and shops.</p> | <p>New towns are standalone settlements outside of existing urban areas. This will provide more homes and jobs in the countryside separate from existing settlements. They would provide their own new schools (primary and secondary), roads and shops. As they would require almost entirely new infrastructure, this would take a number of years to provide and so development from this approach would be slower to commence.</p> | <p>This approach focuses development in close proximity to a high-quality public transport as identified in the Baseline Transport Assessment. This will allow people to make some of their journeys using the train or bus, reducing the impact of new development on the existing road network and helping reduce emissions from vehicles and so address climate change.</p> <p>The approach has the potential to deliver 16,000</p> | <p>This approach identified broad development areas which are near to strategic employment sites and Enterprise Zones (areas where businesses receive incentives to establish or expand operations, aiming to promote economic growth). The Employment Land Review (<a href="#">insert link</a>) provides details on these locations. Providing more housing in these locations could benefit new and existing businesses by providing labour supply in close proximity to businesses.</p> | <p>This approach focuses on development in our more sustainable rural villages both within and outside the Green Belt. This will support the vitality and services within these villages as more residents will be able to use the local pub, school and shops. The scale of growth in these locations is more limit that compared to the other approaches to retain the village</p> | <p>This approach focuses on the expansion of sustainable settlements on the edge outside of Buckinghamshire through large-scale urban extensions into Buckinghamshire.</p> <p>The approach has the potential to deliver 6,000 to 7,000 new housing within the plan period.</p> |



| Approach | Approach 1: Brownfield sites within existing towns and villages   | Approach 2: Growth on the edges of existing main towns                 | Approach 3: New towns  | Approach 4: Development at transport hubs            | Approach 5: Expansion near key employment areas   | Approach 6: Limited expansion of villages  | Approach 7: Expanding urban areas on the edge of Buckinghamshire |
|----------|---|--|--|--|---|--|--|
|          | <p>sites which take less time to deliver than when compared to large strategic extension or new settlement.</p> | <p>This approach provides 23,000 to 28,000 of potential new homes.</p> | <p>The approach has the potential to deliver 11,000 to 13,000 houses within the plan period to 2045. Based on past delivery rates and average lead in times for sites of this size in Buckinghamshire, it is considered a maximum of 3,000 homes per new settlement could be achieved in the plan period (2045). This is an indicative figure, further work will refine delivery and phasing time to implement these new towns, which will need to be support by new infrastructure. Beachampton, Calvert and Cheddington have all been promoted as to the New Towns Taskforce. It has not been concluded whether these will make the New Towns short listing or whether they could be delivered through the Local Plan. If they do make the short listing, each New Town will contain at least 10,000</p> | <p>to 19,000 new housing within the plan period.</p> | <p>The approach has the potential to deliver 5,000 to 6,000 new housing within the plan period.</p> | <p>character and not overload services. The approach has the potential to deliver 13,000 to 15,000 new housing within the plan period.</p> |  |

| Approach  | Approach 1: Brownfield sites within existing towns and villages   | Approach 2: Growth on the edges of existing main towns   | Approach 3: New towns   | Approach 4: Development at transport hubs  | Approach 5: Expansion near key employment areas  | Approach 6: Limited expansion of villages  | Approach 7: Expanding urban areas on the edge of Buckinghamshire   |
|---|---|--|---|--|--|--|--|
|   |   |  | homes and is a requirement in addition to the 91,000 set out in the standard method for calculating housing need.   |  |  |  |  |
| Implications for internationally important wildlife sites | The eastern-most part of Aylesbury town (see Figure A2) lies within the 12.6km recreational pressure mitigation zone for Ashridge Commons & Woods SSSI, as do the settlements of Chesham and Amersham. This means recreational pressure mitigation would be required for net housing growth at these locations.<br><br>Beaconsfield, Chalfont St Peter and Burnham are all within the 5.6km recreational pressure mitigation zone for Burnham Beeches SAC (see Figure A2). As with Ashridge Commons & Woods, this is not necessarily an impediment to development but would | The eastern-most part of Aylesbury lies within the 12.6km recreational pressure mitigation zone for Ashridge Commons & Woods SSSI, as do the settlements of Chesham and Amersham. This means recreational pressure mitigation would be required for net housing growth at these locations.<br><br>Beaconsfield, Chalfont St Peter and Burnham are all within the 5.6km recreational pressure mitigation zone for Burnham Beeches SAC. As with Ashridge Commons & Woods, this is not necessarily an impediment to development but would | In terms of minimising impacts on internationally important wildlife sites this would be the best option and the one requiring the least mitigation, as none of the identified potential new settlement sites lies within a key recreational pressure mitigation zone.<br><br>Delivering less growth within easy reach of the M40 corridor and more growth in the northern part of Buckinghamshire, as per this approach, could have positive implications for Aston Rowant SAC, which lies immediately adjacent to the M40 west of Buckinghamshire and could be negatively affected by any deterioration in traffic-related air quality. It could also have positive | As with Approach 1, the eastern-most part of Aylesbury lies within the 12.6km recreational pressure mitigation zone for Ashridge Commons & Woods SSSI. This means recreational pressure mitigation would be required for net housing growth at these locations.<br><br>Since growth within the southern part of Buckinghamshire would be located within easier reach of the M40 (i.e. within c. 10km) than that in the northern part of the county, this approach does not have the air quality benefits to Aston Rowant SAC (and the Bisham Woods component of Chilterns Beechwoods SAC) of Approach 3. This is | This approach unsurprisingly would involve a concentration of net new housing and employment at Aylesbury (particularly east of the town) and within easy reach of the M40.<br><br>As with Approaches 1, 2 and 4 the eastern-most part of Aylesbury lies within the 12.6km recreational pressure mitigation zone for Ashridge Commons & Woods SSSI. This means recreational pressure mitigation would be required for net housing growth at these locations.<br><br>Since growth within the southern part of Buckinghamshire would be located within easier reach of the M40 (i.e. | No specific growth locations are identified on the associated mapping. Therefore, potential impacts on European sites could be similar to those arising from Approaches 1, 2 and 4, albeit from a greater number of dispersed housing sites. | Urban areas on the edge of Buckinghamshire tend to be in the south or east of the county. Depending on these expansion areas they could be located within the both the 12.6 km recreational pressure mitigation zone around Ashridge Commons & Woods SSSI and the 5.6 km recreational pressure mitigation zone around Burnham Beeches SAC. This may mean recreational pressure mitigation would be required for net housing growth at these locations. |

| Approach | Approach 1: Brownfield sites within existing towns and villages   | Approach 2: Growth on the edges of existing main towns   | Approach 3: New towns   | Approach 4: Development at transport hubs  | Approach 5: Expansion near key employment areas   | Approach 6: Limited expansion of villages | Approach 7: Expanding urban areas on the edge of Buckinghamshire |
|----------|---|--|---|--|---|---|--|
|          | <p>mean specific mitigation would be required.</p> <p>Since growth within the southern part of Buckinghamshire would be located within easier reach of the M40 (i.e. within c. 10km) than that in the northern part of the county, this approach does not have the air quality benefits to Aston Rowant SAC (and the Bisham Woods component of Chilterns Beechwoods SAC) of Approach 3 because it is probable that a greater amount of traffic will commute using that motorway under Approach 1.</p> | <p>mean specific mitigation would be required.</p> <p>In terms of impacts on internationally important wildlife sites, this approach is similar to Approach 1.</p> | <p>implications for the Bisham Woods component of Chilterns Beechwoods SAC, which also lies on the M40.</p> | <p>because it is probable that a greater amount of traffic will commute using that motorway under Approach 4, although the plan would be to encourage the new communities to use public transport, cycling and walking at these locations.</p> | <p>within c. 10km) than that in the northern part of the county, this approach does not have the air quality benefits to Aston Rowant SAC (and the Bisham Woods component of Chilterns Beechwoods SAC) of Approach 3 because it is probable that a greater amount of traffic will commute using that motorway under Approach 5.</p> |   |  |



## In combination assessment

- 5.60 The appropriate assessment of LSEs needs to consider potential impacts both alone for this plan and in combination with other plans and projects. The other plans of most relevance to this are the local plans of neighbouring areas and these are identified in Section 2 of this report.
- 5.61 Once site allocations are available it will be possible to complete both of these aspects of the appropriate assessment. At this stage in the process the following are carried forward for in-combination assessment once site allocations are available:
- Air pollution – Aston Rowant SAC, Burnham Beeches SAC, Chiltern Beechwoods SAC, and Windsor Forest & Great Park SAC.
  - Recreational Pressure – Burnham Beeches SAC, Chiltern Beechwoods SAC, South West London Water Bodies PSA/Ramsar, and Windsor Forest & Great Park SAC.
  - Urbanisation – Burnham Beeches SAC and Chiltern Beechwoods SAC.
  - Water quality – South West London Waterbodies SPA/Ramsar.
  - Water quantity, level and flow – Burnham Beeches

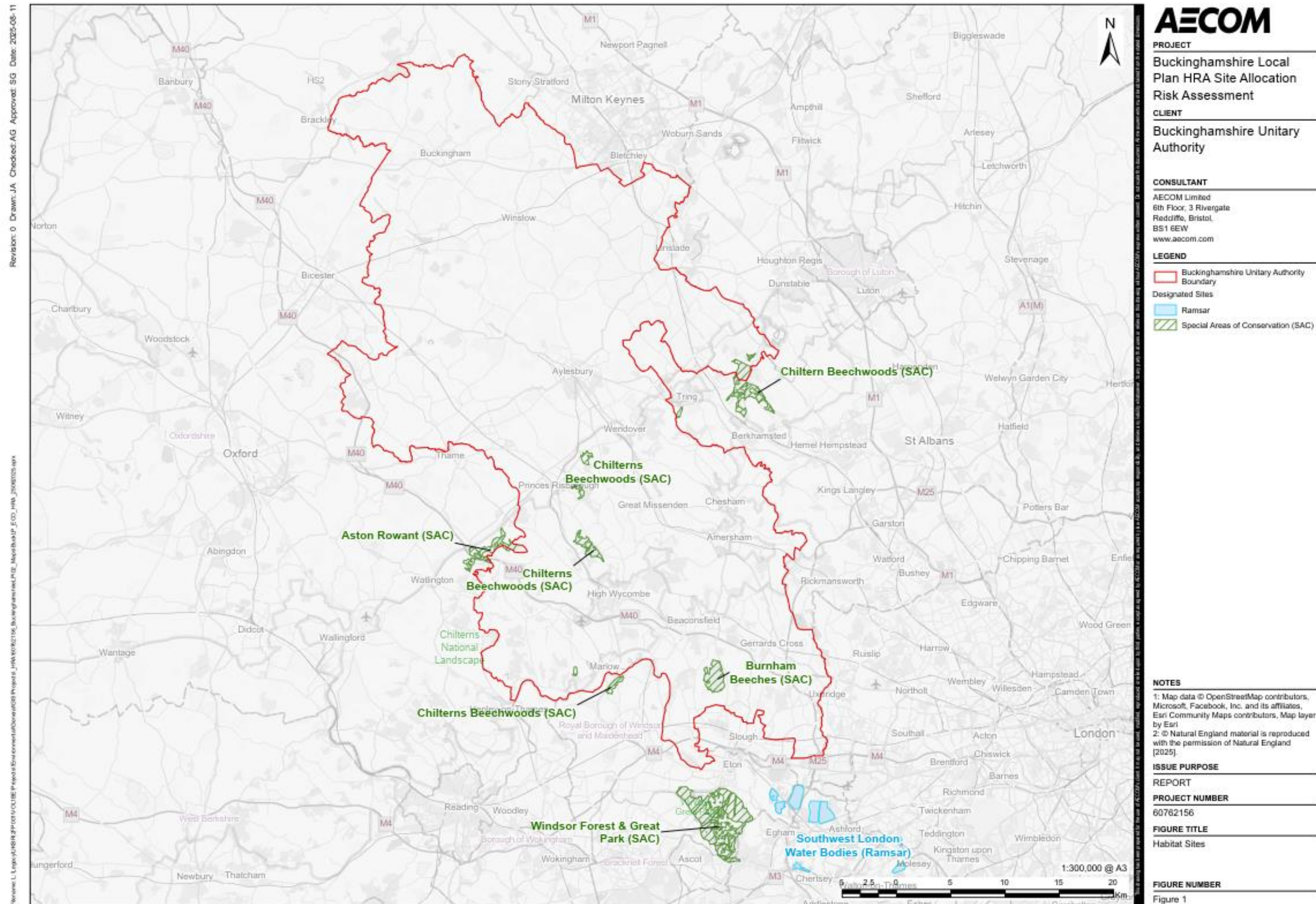
## 6. Summary

- 6.1 An HRA of the LPFB has been carried out to determine if there are any realistic linking pathways present between a Habitats site and the Local Plan and, where Likely Significant Effects cannot be screened out, an analysis to inform Appropriate Assessment has been undertaken to determine if adverse effects on the integrity of the Habitats sites will occur as a result of the Local Plan alone or in combination.
- 6.2 Note that for this Regulation 18 Local Plan there are no proposed site allocations; those will be added at a later date and therefore the HRA will be updated at further stages of Local Plan preparation.
- 6.3 An initial assessment of relevant Habitats sites and possible impact pathways was made and used to determine the policies which may have likely significant effects on Habitats Sites. These policies were:
- HO3 Gypsy, Traveller and Travelling Showpeople provision
  - EC5 Silverstone Circuit and Silverstone Park Enterprise Zone
  - EC6 Westcott Venture Park Enterprise Zone and Strategic Employment site
  - EC7 Pinewood Studios
  - Emerging policies: Housing allocations
  - Emerging policies: Small Housing Allocations
- 6.4 Following appropriate assessment, it was concluded that a conclusion of no adverse effects on integrity could be made with respect to Functionally Linked Land.
- 6.5 This conclusion could not be drawn for the following pathways, either alone or in combination:
- Atmospheric pollution,
  - Recreational Pressure,
  - Urbanisation,
  - Water quality, and Water Quantity Level and Flow/
- 6.6 A further assessment will be made once site allocations are available.

# Appendix A Figures

**Figure 4 Habitats Sites in Relation to the LPFB boundary**





# Appendix B Background to Habitat Sites

## Aston Rowant SAC

### Introduction

Aston Rowant is one of the largest surviving complexes of beech woodland, mixed scrub, juniper and chalk grassland in the Chilterns. The woodland is dominated by beech, together with pedunculate oak *Quercus robur*, wild cherry *Prunus avium*, common whitebeam *Sorbus aria*, ash *Fraxinus excelsior*, hazel *Corylus avellana* and holly *Ilex aquifolium*, particularly on the deeper soils of the plateau.

The ground flora includes sanicle *Sanicula europaea*, dog's mercury *Mercurialis perennis*, sweet woodruff *Galium odoratum*, wood dog-violet *Viola riviniana*, yellow archangel *Lamiastrum galeobdolon* and bramble *Rubus fruticosus* agg. in the open areas. The woods also contain a number of uncommon plants characteristic of the Chilterns beechwoods including violet helleborine *Epipactis purpurata*, white helleborine *Cephalanthera damasonium* and wood barley *Hordelymus europaeus*.

In the dry coombes there are stands of open scrub dominated by juniper *Juniperus communis*, intermixed with grassland. Mixed scrub of elder *Sambucus nigra*, privet *Ligustrum vulgare*, hawthorn *Crataegus monogyna*, wayfaring-tree *Viburnum lantana*, buckthorn *Rhamnus cathartica*, yew *Taxus baccata*, whitebeam, dogwood *Cornus sanguinea* and bramble is present on Beacon Hill and on the margins of the juniper scrub. The scrub also contains heavily rabbit grazed areas with bare ground colonised by wild candytuft *Iberis amara*, a species with a British distribution centred on the Chilterns.

### Qualifying Features<sup>57</sup>

Annex I habitats that are a primary reason for selection of this site:

- *Juniperus communis* formations on heaths or calcareous grasslands. (Juniper on heaths or calcareous grasslands)

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- *Asperulo-Fagetum* beech forests. (Beech forests on neutral to rich soils)

### Conservation Objectives<sup>58</sup>

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species,
- The structure and function (including typical species) of qualifying natural habitats,
- The structure and function of the habitats of qualifying species,
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely,
- The populations of qualifying species, and
- The distribution of qualifying species within the site.

<sup>57</sup> Available at: <https://sac.jncc.gov.uk/site/UK0030082> [Accessed on the 20/06/2025]

<sup>58</sup> Available at: <https://publications.naturalengland.org.uk/file/5085928322498560> [Accessed on the 20/06/2025]

## Threats / Pressures to Site Integrity

The following threats and pressures to the site integrity of the Aston Rowant SAC have been identified in Natural England's Site Improvement Plan<sup>59</sup>:

- Unsustainable on-site population or habitat,
- Changes in species distributions,
- Deer,
- Conflicting Conservation objectives,
- Disease, and
- Air pollution: Impact of atmospheric nitrogen deposition.

## Burnham Beeches SAC

### Introduction

Burnham Beeches occupies an extensive area of the Burnham Plateau where Thames gravels and underlying Reading Beds give rise to acid soils, supporting mature and developing woodland, old coppice, scrub and heath. Burnham Beeches is an example of Atlantic acidophilous beech forests in central southern England. Surveys have shown that it is one of the richest sites for *saproxylic* invertebrates in the UK, including 14 Red Data Book species. It also retains nationally important epiphytic communities (lichens and byophytes growing on other plants), including the moss *Zygodon forsteri*.

Holly and honeysuckle *Lonicera periclymenum* are the main components of the shrub layer of the woodlands, and bracken *Pteridium aquilinum* and brambles frequently dominate the ground flora. However, in places these are lacking and the woodland floor may bear no more than scattered patches of wavy hair-grass *Deschampsia flexuosa* and cushions of the distinctive moss *Leucobryum glaucum*. The site also supports an extensive area of acid mire with several locally uncommon plants including bog pimpernel *Anagallis tenella*, marsh St. John's wort *Hypericum elodes* and royal fern *Osmunda regalis*.

### Qualifying Features<sup>60</sup>

Annex I habitats that are a primary reason for selection of this site

- Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer (*Quercion roboret-petraeae* or *Ilici-Fagenion*). (Beech forests on acid soils)

### Conservation Objectives<sup>61</sup>

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats
- The structure and function (including typical species) of qualifying natural habitats
- The supporting processes on which qualifying natural habitats rely

<sup>59</sup> Available at: <https://publications.naturalengland.org.uk/file/4701146409074688> [Accessed on the 20/06/2025]

<sup>60</sup> Available at: <https://sac.jncc.gov.uk/site/UK0030034> [Accessed on the 20/06/2025]

<sup>61</sup> Available at: <https://publications.naturalengland.org.uk/file/5680758811525120> [Accessed on the 20/06/2025]



## Threats / Pressures to Site Integrity

The following threats and pressures to the site integrity of the Burnham Beeches SAC have been identified in Natural England's Site Improvement Plan<sup>62</sup>:

- Air pollution: Impact of atmospheric nitrogen deposition,
- Public access/disturbance,
- Habitat fragmentation,
- Hydrological impacts,
- Deer,
- Species decline, and
- Invasive species.

## Chilterns Beechwoods SAC

### Introduction

The Chilterns Beechwoods represent a very extensive tract of ancient semi-natural beech *Fagus sylvatica* forests in the centre of the habitat's UK range. The woodland is an important part of a mosaic with species-rich chalk grassland and scrub.

The large population of trees on the site, in combination with the historical continuity of the woodland cover, is the reason for this SAC being listed as the most important site in the UK for fauna associated with decaying timber. A distinctive feature in the woodland flora is the occurrence of the rare coralroot bittercress *Cardamine bulbifera*. Standing and fallen dead timber provide habitat for dead-wood (saproxylic) invertebrates, including stag beetle *Lucanus cervus*.

### Qualifying Features<sup>63</sup>

Annex I habitats that are a primary reason for selection of this site

- *Asperulo-Fagetum* beech forests. (Beech forests on neutral to rich soils)

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*). (Dry grasslands and scrublands on chalk or limestone)

Annex II species that are a qualifying feature, but not a primary reason for selection of this site:

- Stag beetle *Lucanus cervus*

### Conservation Objectives<sup>64</sup>

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species,
- The structure and function (including typical species) of qualifying natural habitats,
- The structure and function of the habitats of qualifying species,

<sup>62</sup> Available at: <https://publications.naturalengland.org.uk/file/5957026125447168> [Accessed on the 20/06/2025]

<sup>63</sup> Available at: [Chilterns Beechwoods - Special Areas of Conservation \(jncc.gov.uk\)](https://publications.naturalengland.org.uk/file/4961243408629760) [Accessed on the 20/06/2025]

<sup>64</sup> Available at: <https://publications.naturalengland.org.uk/file/4961243408629760> [Accessed on the 20/06/2025]

- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely,
- The populations of qualifying species, and
- The distribution of qualifying species within the site.

## Threats / Pressures to Site Integrity

The following threats and pressures to the site integrity of the Chilterns Beechwoods SAC have been identified in Natural England's Site Improvement Plan<sup>65</sup>:

- Forestry and woodland management,
- Deer,
- Changes in species distributions,
- Invasive species,
- Disease,
- Public access/disturbance, and
- Air pollution: Impact of atmospheric nitrogen deposition.

## South West London Waterbodies SPA / Ramsar

### Introduction

The South-West London Water Bodies SPA / Ramsar comprises a series of embanked water supply reservoirs and former gravel pits that provide a range of man-made and semi-natural open water habitats. The reservoirs and gravel pits function as important feeding and roosting sites for wintering wildfowl, in particular gadwall (*Anas strepera*) and shoveler (*Anas clypeata*), both of which occur in numbers of European importance.

### SPA Qualifying Features<sup>66</sup>

The South West London Waterbodies SPA qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European importance of the following species listed in Annex I of the Directive:

Over-winter:

- Gadwall *Anas strepera* - 2.6% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Northern Shoveler *Anas clypeata* - 2.7% of the wintering Northwestern / Central Europe population (5 year peak mean 1991/2 - 1995/6)

### Ramsar Qualifying Features<sup>67</sup>

The South West London Water Bodies are designated as a Ramsar site for the following criteria:

#### Criterion 6:

Species / populations occurring at levels of international importance.

Qualifying species / populations (as identified at designation):

Species with peak counts in spring / autumn

- Northern shoveler *Anas clypeata*, NW & C Europe: 397 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9-2002/3)

<sup>65</sup> Available at: <https://publications.naturalengland.org.uk/file/5908864568393728> [Accessed on the 20/06/2025]

<sup>66</sup> Available at: <https://publications.naturalengland.org.uk/file/6663157678342144> [Accessed on the 20/06/2025]

<sup>67</sup> Available at: <http://jncc.defra.gov.uk/pdf/RIS/UK11065.pdf> [Accessed on the 20/06/2025]

Species with peak counts in winter

- Gadwall *Anas strepera*, NW Europe: 487 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3)

## Conservation Objectives<sup>68</sup>

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features,
- The structure and function of the habitats of the qualifying features,
- The supporting processes on which the habitats of the qualifying features rely,
- The population of each of the qualifying features, and
- The distribution of the qualifying features within the site.

## Threats / Pressures to Site Integrity

The following threats and pressures to the site integrity of the South West London Waterbodies SPA have been identified in Natural England's Site Improvement Plan<sup>69</sup>:

- Public access / Disturbance,
- Changes in species distributions,
- Invasive species,
- Natural changes to site conditions,
- Fisheries: Fish stocking, and
- Inappropriate weed control.

## Windsor Forest & Great Park SAC

### Introduction

The Windsor Forest & Great Park SAC comprises old acidophilous oak woods in its south-east part of its range. It harbours the largest number of veteran oaks (*Quercus* spp.) in Britain, primarily a consequence of its management as wood pasture.

Furthermore, it is of importance for its diversity of saproxylic (dead wood eating) invertebrates, including many rare species (e.g. the beetle *Lacon querceus*) that are only known from this site. Windsor Forest and Great Park SAC is also recognised as being extraordinarily rich in fungal assemblages.

The large population of trees on the site, in combination with the historical continuity of the woodland cover, is the reason for this SAC being listed as the most important site in the UK for fauna associated with decaying timber. For example, the site supports the largest of the known populations of the violet click beetle (*Limoniscus violaceus*).

### Qualifying Features<sup>70</sup>

Annex I habitats that are a primary reason for selection of this site

<sup>68</sup> Available at: <https://publications.naturalengland.org.uk/file/5411059804667904> [Accessed on the 20/06/2025]

<sup>69</sup> Available at: <https://publications.naturalengland.org.uk/file/5135484288237568> [Accessed on the 20/06/2025]

<sup>70</sup> Available at: <https://publications.naturalengland.org.uk/file/6277427382714368> [Accessed on the 20/06/2025]

- Old acidophilous oak woods with *Quercus robur* on sandy plains

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer

Annex II species that are a primary reason for selection of this site

- Violet click beetle *Limoniscus violaceus*:

## Conservation Objectives<sup>71</sup>

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species,
- The structure and function (including typical species) of qualifying natural habitats,
- The structure and function of the habitats of qualifying species,
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely,
- The populations of qualifying species, and
- The distribution of qualifying species within the site.

## Threats / Pressures to Site Integrity

The following threats and pressures to the site integrity of the Windsor Forest & Great Park SAC have been identified in Natural England's Site Improvement Plan<sup>72</sup>:

- Forestry and woodland management,
- Invasive species,
- Disease, and
- Air pollution: Impact of atmospheric nitrogen deposition.

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<sup>71</sup> Available at: <https://publications.naturalengland.org.uk/file/6569964010209280> [Accessed on the 20/06/2025]

<sup>72</sup> Available at: <https://publications.naturalengland.org.uk/file/5411059804667904> [Accessed on the 20/06/2025]



# Appendix C Policy Screening

## Policy Assessment

**Table C.1 Screening of LPFB objectives and policies for Likely Significant Effects requiring Appropriate Assessment**

| Policy Name            | Potential Likely Significant Effect?  |
|------------------------|---|
| Local Plan Objective 1 | <p>No Likely Significant Effect.</p> <p>This is a broad objective policy that sets out protections for natural, historic and built environments. There is no development specified. Elements of the objective are likely to protect or enhance natural resources.</p> <p>There are no linking impact pathways to Habitats sites.</p> <p>The policy is screened out from Appropriate Assessment.</p> |
| Local Plan Objective 2 | <p>No Likely Significant Effect.</p> <p>This is a broad objective policy that sets out sustainability goals. There is no development specified. Elements of the objective are likely to protect or enhance natural resources.</p> <p>There are no linking impact pathways to Habitats sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                                     |
| Local Plan Objective 3 | <p>No Likely Significant Effect.</p> <p>This is a broad objective policy that sets out goals for housing mix and provision, however there is no location or quantum for development specified.</p> <p>There are no linking impact pathways to Habitats sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| Local Plan Objective 4 | <p>No Likely Significant Effect.</p> <p>This is a broad objective policy that sets out goals for spaces to live and work in. There is no development specified.</p> <p>There are no linking impact pathways to Habitats sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| Local Plan Objective 5 | <p>No Likely Significant Effect.</p> <p>This is a broad objective policy that sets out goals for health outcomes. There is no development specified. Elements of the objective are likely to protect or enhance natural resources.</p> <p>There are no linking impact pathways to Habitats sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                                |
| Local Plan Objective 6 | <p>No Likely Significant Effect.</p> <p>This is a broad objective policy that sets out goals for infrastructure. There is no development specified. Elements of the objective are likely to protect or enhance natural resources.</p> <p>There are no linking impact pathways to Habitats sites.</p>  |

| Policy Name                             | Potential Likely Significant Effect?   |
|---|--|
|   | The policy is screened out from Appropriate Assessment.  |
| Local Plan Objective 7                  | No Likely Significant Effect.<br>This is a broad objective policy that sets out goals for the economy. There is no development specified.<br>There are no linking impact pathways to Habitats sites.<br>The policy is screened out from Appropriate Assessment.  |
| Local Plan Objective 8                  | No Likely Significant Effect.<br>This is a broad objective policy that sets out goals for transport and connectivity. There is no development specified. Elements of the objective are likely to protect or enhance natural resources.<br>There are no linking impact pathways to Habitats sites.<br>The policy is screened out from Appropriate Assessment.                 |
| CC1 Flood Risk                          | No Likely Significant Effect.<br>This is a development management policy relating to flood risk that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| CC2 Sustainable Drainage Systems (SuDS) | No Likely Significant Effect.<br>This is a development management policy relating to sustainable drainage systems that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| CC3 Water efficiency standards          | No Likely Significant Effect.<br>This is a development management policy relating to water efficiency that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| HO1 Housing Mix                         | No Likely Significant Effect.<br>This is a development management policy relating to housing mix that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.   |
| HO2 Affordable housing                  | No Likely Significant Effect.<br>This is a development management policy relating to housing mix, specifically to include a required percentage of affordable homes, that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment. |
| HO3 Accessible Housing                  | No Likely Significant Effect.<br>This is a development management policy relating to housing mix, specifically to include a required percentage of accessible homes, that sets out key principles for development. It does not specify any development.  |

| Policy Name   | Potential Likely Significant Effect?   |
|---|--|
|   | There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| HO4 Self and custom-build housing                                   | No Likely Significant Effect.<br>This is a development management policy relating to housing mix that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.   |
| HO5 Houses in multiple occupation                                   | No Likely Significant Effect.<br>This is a development management policy relating to housing mix that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.   |
| HO6 Gypsy, Traveller and Travelling Showpeople provision            | Likely Significant Effect.<br>This policy specifies a quantum of new pitches required to deliver the LPFB.<br>Linking impact pathways are: <ul style="list-style-type: none"> <li>• Atmospheric pollution</li> <li>• Loss of functionally linked land</li> <li>• Recreational pressure</li> <li>• Urbanisation</li> <li>• Water quality</li> <li>• Water quantity, level and flow</li> </ul> The policy is screened in for Appropriate Assessment. |
| HO7 Gypsy, Traveller and Travelling Showpeople Accommodation Policy | No Likely Significant Effect.<br>This is a development management policy relating to gypsy, traveller and travelling showpeople accommodation that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| HO8 - Specialist Housing  | No Likely Significant Effect.<br>This is a development management policy relating to housing mix that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.   |
| HO9- Rural Exception Sites  | No Likely Significant Effect.<br>This is a development management policy relating to rural sites that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.   |
| HO10 - Windfall   | No Likely Significant Effect.  |

| Policy Name                            | Potential Likely Significant Effect?   |
|--|--|
|  | <p>This is a development management policy relating to windfall sites that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>Windfall developments brought forward under this policy will be subject to project level HRAs where it will be necessary to assess possible LSEs via the following impact pathways:</p> <ul style="list-style-type: none"> <li>• Atmospheric pollution</li> <li>• Loss of functionally linked land</li> <li>• Recreational pressure</li> <li>• Urbanisation</li> <li>• Water quality</li> <li>• Water quantity, level and flow</li> </ul> <p>The policy is screened out from Appropriate Assessment.</p> |
| HO11 Residential Annexes               | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to residential annexes that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| EC1 Strategic and Key Employment sites | <p><b>Likely Significant Effect.</b></p> <p>This policy does not specify a quantum of land to be used, however it provides for the expansion of key sites including the enterprise zones for employment uses</p> <p>Linking impact pathways are:</p> <ul style="list-style-type: none"> <li>• Atmospheric pollution</li> </ul> <p>The policy is screened in for Appropriate Assessment.</p>  |
| EC2 Other Employment Sites             | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to employment sites that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| EC3 Skills and Local Employment        | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to skills and local employment that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |

| Policy Name   | Potential Likely Significant Effect?   |
|---|--|
| EC4 Data Centres  | <p>No Likely Significant Effect.</p> <p>This is a development management policy in broad support of the development data centres when conditions are met, it does not specify a location or quantum of development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| EC5 Silverstone Circuit and Silverstone Park Enterprise Zone            | <p><b>Likely Significant Effect.</b></p> <p>This policy does not specify a quantum of land to be used however it provides for the development of Silverstone circuit for employment use.</p> <p>Linking impact pathways are:</p> <ul style="list-style-type: none"> <li>Atmospheric pollution</li> </ul> <p>The policy is screened in for Appropriate Assessment.</p>  |
| EC6 Westcott Venture Park Enterprise Zone and Strategic Employment site | <p><b>Likely Significant Effect.</b></p> <p>This policy does not specify a quantum of land to be used however it provides for the expansion of Westcott Venture Park Enterprise Zone for employment use.</p> <p>Linking impact pathways are:</p> <ul style="list-style-type: none"> <li>Atmospheric pollution</li> <li>Recreational Pressure (if housing is included)</li> <li>Water quality (if housing is included)</li> <li>Water quantity, level and flow (if housing is included)</li> </ul> <p>The policy is screened in for Appropriate Assessment.</p> |
| EC7 Pinewood Studios  | <p><b>Likely Significant Effect.</b></p> <p>This policy does not specify a quantum of land to be used however it provides for the expansion of Pinewood studios for employment use.</p> <p>Linking impact pathways are:</p> <ul style="list-style-type: none"> <li>Atmospheric pollution</li> </ul> <p>The policy is screened in for Appropriate Assessment.</p>   |
| EC8 Rural Diversification   | <p>No Likely Significant Effect.</p>   |

| Policy Name  | Potential Likely Significant Effect?  |
|--|---|
|  | <p>This is a development management policy relating to rural diversification that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| EC9 Tourism  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to Tourism that sets out key principles for development.</p> <p>It does not specify any development.</p> <p>An increase in tourism has the potential to lead to significant effects on Habitats sites through a number of impact pathways, however there is no quantum or location for development specified.</p> <p>Any plans brought forward under this policy will subject to the HRA process. In-combination effects of multiple projects will be a key consideration for assessment.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p> |
| EC10 Retail Hierarchy  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to retail development that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| EC11 Development within Buckinghamshire's centres                            | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to development within town centres that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| EC12 Development for main town centre uses outside Buckinghamshire's centres | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to development outside of main town centres that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE1 Water Quality  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the protection of water quality that sets out key principles for development. It does not specify any development.</p> <p>The policy includes some protections for natural resources and prevents some potentially negative hydrological changes.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE2 Watercourses and associated corridors                                    | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the protection of water courses and corridors that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment and potential negative hydrological changes</p> <p>There are no linking impact pathways to Habitat sites.</p>   |

| Policy Name  | Potential Likely Significant Effect?   |
|--|--|
|  | The policy is screened out from Appropriate Assessment.  |
| NE3 Protection and enhancement of sites of high biodiversity and geodiversity importance | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the protection of biodiversity and geodiversity that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for Habitats sites and the natural environment.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| NE4 Protection and Enhancement of notable species.                                       | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the protection of notable species that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                                      |
| NE5 Biodiversity Gain and Nature Recovery  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to biodiversity gain and nature recovery that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                                  |
| NE6 Green Infrastructure   | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to green infrastructure that sets out key principles for development. It does not specify any development.</p> <p>The policy encourages provision of green infrastructure, recreational and sports facilities which may serve to reduce recreational pressure on Habitats sites.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p> |
| NE7 – Resisting the loss of existing Green Space   | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the protection of existing green space. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE8 Trees, Ancient and Veteran Trees, Woodlands, Orchards                                | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to trees and woodland that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| NE9 Ecological enhancements  | No Likely Significant Effect.  |



| Policy Name   | Potential Likely Significant Effect?  |
|---|---|
|   | <p>This is a development management policy relating to ecological enhancements that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE10 Mitigating light impacts   | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the mitigation of light impacts that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| NE11 Colne Valley Regional Park   | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the Colne Valley regional park that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE12 Special Areas of Conservation, Special Protection Areas and Ramsar sites | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the Habitats sites that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections Habitats sites and the need to demonstrate there will be no negative impacts as a result of a development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE13 Suitable Natural Green Space   | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the provision of SANG that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact on Habitats sites by providing alternate sites for recreational use.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p> |
| NE14 Gateway sites  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the mitigation of light impacts that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the Chilterns Beechwood SAC and is likely to have a positive effect on the site(S).</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE15 Little Marlow Lakes  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the Little Marlow Lakes that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |

| Policy Name  | Potential Likely Significant Effect?   |
|--|--|
| NE16 Protection of the Green Belt                          | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the protection of the green belt that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| NE17 Development in the Countryside outside the Green Belt | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the countryside outside of the green belt that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| Policy NE18 National Landscapes and their setting          | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the Chilterns national landscape that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| NE19 Landscape Character and Visual Amenity                | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to landscape character that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| NE20 Pollution, Air quality and Contaminated Land          | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to pollution, air quality and contaminated land that sets out key principles for development. It does not specify any development.</p> <p>The policy includes protections for the natural environment on which it is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p> |
| TR1 Transport requirements in new developments             | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to transport requirements that sets out key principles for development. It does not specify any development.</p> <p>The policy includes provision for more sustainable transport types which is likely to have a positive impact.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                      |
| TR2 Transport improvements                                 | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to transport improvements that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| TR3 Parking standards                                      | <p>No Likely Significant Effect.</p>   |

| Policy Name   | Potential Likely Significant Effect?   |
|---|--|
|   | <p>This is a development management policy relating to parking that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| TR4 Public Rights of Way                            | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to public rights of way that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| TR5 Freight and logistics                           | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to freight and logistics that is in broad support of the development of freight and logistics facilities when conditions are met, but does not specify a location or quantum of development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p> |
| TR6 Aviation development                            | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to aviation development that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| TR7 East West Rail                                  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the east west rail development that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| TR8 High Speed Two                                  | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to HS2 that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| TR09 Former Bourne End to High Wycombe railway line | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to the former Bourne End to High Wycombe railway line that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| IN1 Infrastructure delivery                         | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to infrastructure delivery that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>  |
| IN2 Water infrastructure                            | <p>No Likely Significant Effect.</p>   |

| Policy Name                           | Potential Likely Significant Effect?   |
|---------------------------------------|--|
|                                       | <p>This is a development management policy relating to water infrastructure delivery that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
| IN3 Telecommunications Infrastructure | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to telecommunications infrastructure delivery that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p> |
| BE1 Sense of place                    | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to a high quality "sense of place" that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>            |
| BE2 Space Standards                   | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to technical housing standards that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                |
| BE3 Conservation Areas                | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to conservation areas that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                         |
| BE4 Heritage Assets                   | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to heritage assets that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                            |
| BE5 Residential amenity               | <p>No Likely Significant Effect.</p> <p>This is a development management policy relating to residential amenity that sets out key principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>                        |
| BE6 Design of developments            | <p>No Likely Significant Effect.</p> <p>This is a development management policy that sets out key design principles for development. It does not specify any development.</p> <p>There are no linking impact pathways to Habitat sites.</p> <p>The policy is screened out from Appropriate Assessment.</p>   |
|                                       |  |

| Policy Name   | Potential Likely Significant Effect?  |
|---|---|
| SE1: Health Impact Assessments  | No Likely Significant Effect.<br>This is a development management policy relating to health outcomes that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| SE2: Fast food outlets and takeaways  | No Likely Significant Effect.<br>This is a development management policy relating to fast food outlets that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| SE3: Community food growing   | No Likely Significant Effect.<br>This is a development management policy relating to community food growing that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.   |
| SE4 Community facilities, infrastructure and assets of community value  | No Likely Significant Effect.<br>This is a development management policy relating to community facilities that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.   |
| SE5 Sport, Leisure and Recreation   | No Likely Significant Effect.<br>This is a development management policy relating to sport, leisure and recreation that sets out key principles for development. It does not specify any development.<br>There are no linking impact pathways to Habitat sites.<br>The policy is screened out from Appropriate Assessment.  |
| Emerging development management Policies<br>Climate Change <ul style="list-style-type: none"> <li>• Sustainable construction – residential development</li> <li>• Sustainable construction – non-residential development</li> <li>• Renewable energy</li> <li>• Renewable energy allocation</li> <li>• Retrofitting and re use of existing buildings</li> <li>• Waste and circular economy</li> </ul> | Likely significant Effect<br>These emergent policies do not contain sufficient detail for full consideration; however, the Housing Chapter includes two policies which relate to housing allocations. Housing allocations have the potential to cause LSEs via the following impact pathways: <ul style="list-style-type: none"> <li>• Atmospheric pollution</li> <li>• Loss of functionally linked land</li> <li>• Recreational pressure</li> <li>• Urbanisation</li> <li>• Water quality</li> <li>• Water quantity, level and flow</li> </ul> Although no locations or quantum of development is specified at this stage, this policy is screened in for appropriate assessment under the precautionary principle |
| Housing Chapter <ul style="list-style-type: none"> <li>• Housing allocations</li> <li>• Small housing allocations</li> </ul>  |   |

| Policy Name  | Potential Likely Significant Effect? |
|--|--------------------------------------|
| <ul style="list-style-type: none"><li>• Community-led housing</li></ul> Infrastructure chapter <ul style="list-style-type: none"><li>• Viability</li></ul> |                                      |

