DRAFT Report to Inform Habitats Regulations Assessment

Cherwell Local Plan Review 2042

Cherwell District Council

Project number: 60684933

November 2024

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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	16/11/22	Draft	JR	James Riley	Technical Director

Distribution List

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1. Introduction

Background to the Project

1.1 AECOM was appointed by Cherwell District Council to produce a report to inform the Council's Habitats Regulations Assessment (HRA) of the potential effects of the Cherwell Local Plan Review on the National Site Network of Special Areas of Conservation, Special Protection Areas and Ramsar sites. For simplicity these sites are referred to as European sites throughout this report. The objectives of the assessment are to:

- Identify any aspects of the Local Plan Review that would cause an adverse effect on the integrity of European 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 Cherwell Local Plan Review is required to determine if there are any realistic linking pathways present between a European site and the Local Plan Review 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 European sites will occur as a result of the Local Plan Review alone or in combination.

Legislation

1.3 The need for HRA is set out within the Conservation of Habitats & Species Regulations 2017 (**Box 1**). European sites (also called the National Site Network) can be defined as actual or proposed/candidate Special Areas of Conservation (SAC) or Special Protection Areas (SPA). It is also Government policy for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to European sites.

Box 1: The legislative basis for Habitats Regulations Assessment

Conservation of Habitats and Species Regulations 2017 (as amended)

"A competent authority, before deciding to … give any consent, permission or other authorisation for a plan or project which… is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects) … must make an appropriate assessment of the implications for that site in view of that site's conservation objectives … The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site …"

1.4 The Habitats Regulations applies the precautionary principle to European sites. Plans and projects can therefore only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. Plans and projects may still be permitted if there are no alternatives to them 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.

1.5 In 2018, the 'People Over Wind' European Court of Justice (ECJ) ruling[1] determined that 'mitigation' (i.e. measures that are specifically introduced to avoid or reduce the harmful effects of a plan or project on European sites) 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. Appropriate assessment is not a technical term: it simply means 'an assessment that is appropriate' for the plan or project in question. As

[1] Case C-323/17

such, the law purposely does not prescribe what it should consist of or how it should be presented; these are decisions to be made on a case by case basis by the competent authority.

1.6 Over the years the phrase 'Habitats Regulations Assessment' has come into wide currency to describe the overall process set out in the Conservation of Habitats and Species Regulations from screening through to Imperative Reasons of Overriding Public Interest (IROPI). This has arisen in order to distinguish the process from the individual stage described in the law as an 'Appropriate Assessment'. Throughout this report we use the term Habitats Regulations Assessment for the overall process.

Report Layout

1.7 **Chapter 2** of this report explains the process by which the HRA has been carried out. **Chapter 3** explores the relevant pathways of impact. **Chapter 4** summarises the Test of Likely Significant Effects of the policies and site allocations of the Plan considered 'alone' and 'in-combination. **Chapter 5** contains the conclusion and a summary of recommendations

2. Methodology

Introduction

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

A Proportionate Assessment

2.2 Project-related HRA often requires bespoke survey work and novel data generation in order to accurately determine the significance of effects. In other words, to look beyond the risk of an effect to a justified prediction of the actual likely effect and to the development of avoidance or mitigation measures.

2.3 However, the draft MHCLG guidance[2] (described in greater detail later in this chapter) makes it clear that when implementing HRA of land-use plans, the Appropriate Assessment (AA) should be undertaken at a level of detail that is appropriate and proportional to the level of detail provided within the plan itself:

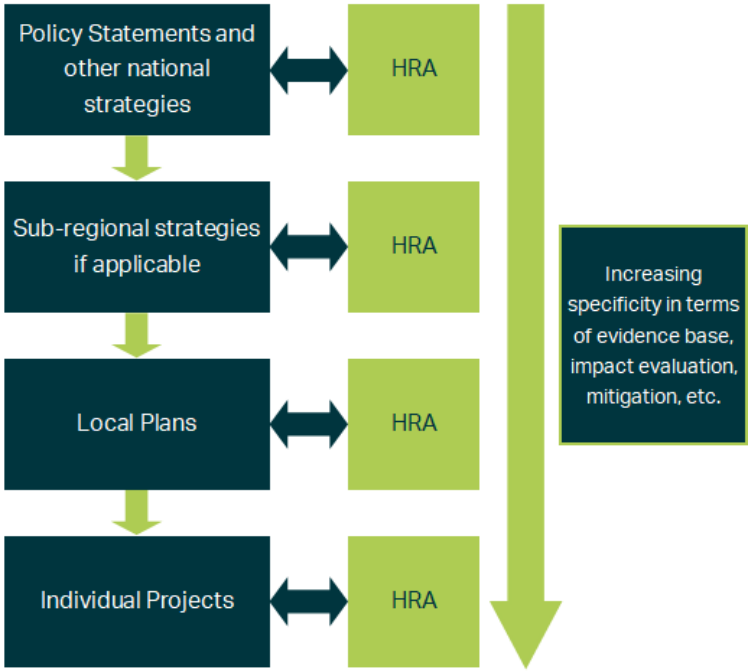
2.4 "The comprehensiveness of the [Appropriate] assessment work undertaken should be proportionate to the geographical scope of the option and the nature and extent of any effects identified. An AA need not be done in any more detail, or using more resources, than is useful for its purpose. It would be inappropriate and impracticable to assess the effects [of a strategic land use plan] in the degree of detail that would normally be required for the Environmental Impact Assessment (EIA) of a project."

2.5 More recently, the Court of Appeal[3] ruled that providing the Council (competent authority) was duly satisfied that proposed mitigation could be "*achieved in practice"* then this would suffice to meet the requirements of the Habitat Regulations. This ruling has since been applied to a planning permission (rather than a Plan document)[4]. 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"*.

2.6 In other words, there is a tacit acceptance that AA can be tiered and that all impacts are not necessarily appropriate for consideration to the same degree of detail at all tiers as illustrated in **Box 2**.

[2] MHCLG (2006) Planning for the Protection of European Sites, Consultation Paper
[3] No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015
[4] High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015

Box 2: Tiering in HRA of Land Use Plans



2.7 At the same time, it is necessary to have confidence that sites allocated in a Local Plan have a reasonable prospect of being deliverable without fundamental Habitats Regulations Assessment issues.

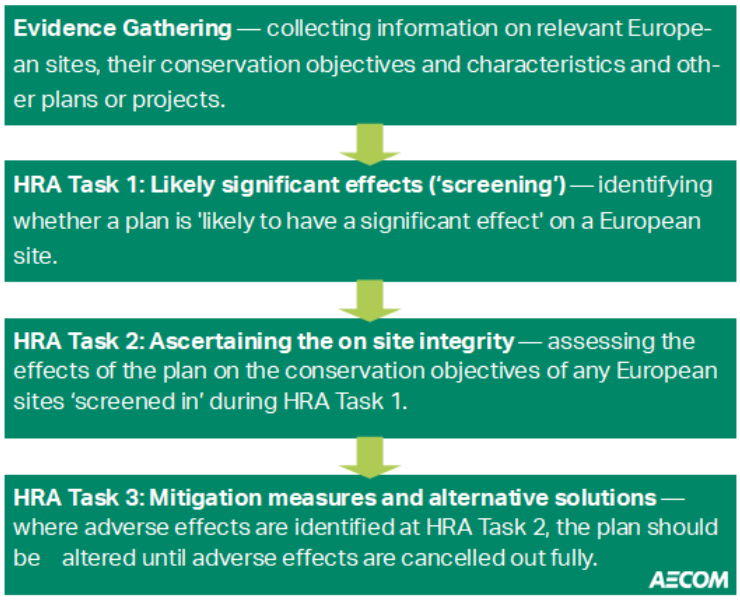
2.8 The most robust and defensible approach to the absence of fine grain detail at this level is to make use of the precautionary principle. In other words, the plan is never given the benefit of the doubt (within the limits of reasonableness); it must be assumed that a policy/measure is likely to have an impact leading to a significant adverse effect upon an internationally designated site unless it can be clearly established otherwise.

The Process of HRA

2.9 Central government have released general guidance on appropriate assessment.[5] **Box 3** outlines the stages of HRA according to 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 likely significant effects remain.

[5] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

Box 3: Four-Stage Approach to Habitats Regulations Assessment



2.10 The following process has been adopted for carrying out the subsequent stages of the HRA.

Task One: Test of Likely Significant Effects

2.11 The first stage of any Habitats Regulations Assessment is a test of Likely Significant Effects - essentially a high-level assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

2.12 "Is the Plan, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?"

2.13 In evaluating significance, AECOM have relied on professional judgment and experience of working with the other local authorities on similar issues. The level of detail concerning developments that will be permitted under land use plans is rarely sufficient to make a detailed quantification of effects. Therefore, a precautionary approach has been taken (in the absence of more precise data) assuming as the default position that if a likely significant effect (LSE) cannot be confidently ruled out, then the assessment must be taken to the next level of assessment Task Two: Appropriate Assessment. This is in line with the April 2018 court ruling relating to 'People Over Wind' where mitigation and avoidance measures are to be included at the next stage of assessment.

Task Two: Appropriate Assessment

2.14 European Site(s) which have been 'screened in' during the previous Task have a detailed assessment undertaken on the effect of the policies on the European site(s) site integrity. Avoidance and mitigation measures to avoid adverse significant effects are taken into account or recommended where necessary.

2.15 As established by case law, 'appropriate assessment' is not a technical term; it simply means whatever further assessment is necessary to confirm whether there would be adverse effects on the integrity of any European sites that have not been dismissed at screening. Since it is not a technical term it has no firmly established methodology except that it essentially involves repeating the analysis for the likely significant effects stage, but to a greater level of detail on a smaller number of policies and sites, this time with a view to determining if there would be adverse effects on integrity.

2.16 One of the key considerations during Appropriate Assessment is whether there is available mitigation that would entirely address the potential effect. In practice, the Appropriate Assessment takes any policies or allocations that could not be dismissed following the high-level Screening analysis and analyse the potential

for an effect in more detail, with a view to concluding whether there would actually be an adverse effect on integrity (in other words, disruption of the coherent structure and function of the European site(s)).

The Geographic Scope

2.17 There is no single guidance document that dictates the physical scope of an HRA of a plan in all circumstances. Therefore, in considering the physical scope of the assessment AECOM was guided primarily by the identified impact pathways rather than by arbitrary "zones", i.e. a source-pathway-receptor approach. Current guidance suggests that the following European sites be included in the scope of assessment:

- All sites within the District; and
- Other sites shown to be linked to development within Cherwell through a known "pathway" (discussed below).

2.18 Briefly defined, impact pathways are routes by which a change in activity within the plan area can lead to an effect upon a European site. In terms of the second category of European site listed above, DLUHC guidance 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*" (MHCLG, 2006, p.6).

2.19 Locations of European designated sites are illustrated in **Appendix A, Figure 1**, and full details of all European designated sites discussed in this document can be found in **Appendix B**. specifying their qualifying features, conservation objectives and pressures and threats to integrity taken from the Site Improvement Plan for each site, although it is noted that the Conservation Objectives and Supplementary Advice on Conservation Objectives take precedence over Site Improvement Plans as they are generally more recent. Table 1 below lists all those European designated sites included in this HRA.

2.20 The Physical scope of this exercise includes all European sites within Table 1 below. Part of Oxford Meadows SAC sits within the Cherwell District and Cothill Fen lies approximately 8km south of the District boundary. All other European sites are relatively remote from Cherwell, the next closest being 17km from the District boundary.

Table 1. Physical scope of the HRA - European sites of interest

European Site	Description	Qualifying Features	Potential Impact Pathways relating to the Plan	Distance from Cherwell District
Oxford Meadows SAC	Oxford Meadows is one of two SACs that represent lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) in the Thames Valley. It includes vegetation communities that are perhaps unique in the world in reflecting the influence of long-term grazing and hay-cutting on lowland hay meadows. The site has benefited from the survival of traditional management, which has been undertaken for several centuries, and so exhibits good conservation of structure and function. The site is selected because Port Meadow is the larger of only two known sites in the UK for creeping marshwort *Apium repens*	– Lowland hay meadows – Creeping marshwort	– Hydrological change – Invasive species	Partially within District boundary
Cothill Fen SAC	Cothill Fen is an exceptionally important site with an outstanding range of nationally rare habitats which support a large number of rare invertebrates and plants. The habitats consist of calcareous fen, calcareous grassland, woodland and scrub of varying degrees of wetness. The habitat supports over 330 species of vascular plant and over 120 nationally scarce or rare	– Calcium-rich springwater-fed fens – Alder woodland on floodplains	– Water pollution – Hydrological changes – Air pollution	8km south of District boundary

European Site	Description	Qualifying Features	Potential Impact Pathways relating to the Plan	Distance from Cherwell District
	invertebrates, including the nationally rare Southern Damselfly *Coenagrion mercuriale*.			

The 'in Combination' Scope

2.21 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 European designated site(s) in question.

2.22 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 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[6] case.

2.23 For the purposes of this HRA, we have determined that the key other documents with a potential for in-combination effects are:

- Cherwell's Air Quality Action Plan[7]
- Oxfordshire's Local Transport and Connectivity Plan[8]
- West Oxfordshire Local Plan (2018)[9]
- Vale of the White Horse Local Plan 2031 (2019)[10]
- South Oxfordshire Local Plan (2020)[11]
- Emerging South Oxfordshire and Vale of White Horse Joint Local Plan 2041[12]
- Oxford Local Plan (2020)[13]
- West Northamptonshire Joint Core Strategy (2014)[14]
- Vale of Aylesbury Local Plan (2021)[15]

2.24 The traffic modelling undertaken for the Oxfordshire authorities does make an expected allowance for growth across all the authorities to 2042. 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.

[6] Waddenzee case (Case C-127/02, [2004] ECR-I 7405)
[7] https://www.cherwell.gov.uk/download/downloads/id/7702/air-quality-action-plan-2017.pdf Accessed 19/11/2024
[8] https://www.oxfordshire.gov.uk/sites/default/files/file/roads-and-transport-connecting-oxfordshire/LocalTransportandConnectivityPlan.pdf Accessed 19/11/2024
[9] https://westoxon.gov.uk/media/feyjmpen/local-plan.pdf Accessed 19/11/2024
[10] Local-Plan-2031-Part-1.pdf Accessed 19/11/2024
[11] SODC-LP2035-Publication-Feb-2021.pdf (southoxon.gov.uk) Accessed 19/11/2024
[12] https://www.southandvale.gov.uk/app/uploads/2024/10/Joint-Local-Plan-2041-Publication-Version_October-2024.pdf
[13] https://www.oxford.gov.uk/downloads/download/1176/oxford_local_plan_2016-2036 Accessed 19/11/2024
[14] https://www.westnorthants.gov.uk/west-northamptonshire-joint-planning-unit-jpu Accessed 19/11/2024
[15] Vale of Aylesbury Local Plan (VALP) (buckinghamshire-gov-uk.s3.amazonaws.com) Accessed 19/11/2024

3. Test of Likely Significant Effects

3.1 This section of the report sets out the Test of Likely Significant Effects, determining whether there is any potential for a significant effect on European sites either alone or 'in combination' with other plans and projects. The potential impact pathways explored, and discussed in detail later in the report, are air quality, recreational pressure, water quality and water levels/flows (water resources) with regard to Oxford Meadows SAC in particular but also considering Cothill Fen SAC.

Policies and Allocations in the Local Plan Review

3.2 Tables 2 and 3 overleaf set out each policy and proposed site allocation in the Cherwell Local Plan Review. For each policy a judgment is made in the last column of the table as to whether it could present any conceivable impact pathway to European sites. Since impact pathways arising from policies depends primarily on the proximity of allocated sites to European sites, Table 3 then identifies each allocation and its proximity to the nearest European site.

Table 2. Likely Significant Effects of Cherwell Local Plan Review policies and allocations.

Note that HRA only concerns itself with negative effects on European sites. Therefore, positive effects policies may have on European sites are not discussed in the table below.

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy SP 1: Settlement Hierarchy	This policy is a policy which sets out the hierarchy of settlements within the district.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 1: Mitigating and Adapting to Climate Change	This is a policy that sets out the criteria required of developments to mitigate and adapt to climate change	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 2: Achieving Net Zero Carbon Development - Residential	This is a policy that sets out the criteria required of residential developments to work towards achieving net zero carbon	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 3: Achieving Net Zero Carbon Development, Non-residential	This is a development management policy that sets out the criteria required of non-residential developments to work towards achieving net zero carbon	**No likely significant effect**

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy CSD 4: Improving energy and carbon performance in existing buildings	This is a development management policy supporting proposals for development which will significantly improve the energy and carbon performance of that building.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 5: Embodied carbon	This is a policy supporting proposals for new development of ≥1 homes or ≥100m2 floor space should include a general narrative on options considered (and where possible, implemented) to minimise embodied carbon.	**No likely significant effect** **No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 6: Renewable Energy	This is a policy that supports renewable and low-carbon energy provisions providing any adverse impacts can be addressed satisfactorily	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 7: Sustainable Flood Risk Management	This is a policy to manage and reduce the risk of flooding in the district.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy CSD 8: Sustainable Drainage Systems (SuDS)	This is a policy which ensures the use of sustainable drainage systems in all major development	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 9: Water Resources and wastewater infrastructure	This is a policy to prevent any development proposals adversely affecting the water quality of surface or underground water bodies, including rivers, canals, lakes, groundwater and reservoirs, or habitats which are water dependent, as a result of directly attributable factors	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 10: Protection of the Oxford Meadows SAC	This is a policy to prevent any obstruction of ground water flows and preserve water quality, to maintain the stability of the hydrological regime within the SAC and therefore its integrity as a site of international importance.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..**This policy also provides specific protection to internationally important sites.**
Policy CSD 11: Protection and Enhancement of Biodiversity	This is a policy to ensure the restoration, protection and enhancement of biodiversity assets and facilitation of their adaptation to climate change wherever possible. It also protects internationally important sites by ensuring that any	**No likely significant effect** This policy does not identify a quantum or location of

Policy Reference	Brief Description	Potential Likely Significant Impact
	development which has the potential to impact an SAC, SPA and/or Ramsar would be subject to an HRA and not permitted unless it could be demonstrated that there will be no likely significant effect or that the effects can be mitigated.	development and therefore provides no link for adverse effects on European sites.**This policy also provides specific protection to internationally important sites.**
Policy CSD 12: Biodiversity Net Gain	This is a policy which ensures the requirement to demonstrate 10% net gain in biodiversity is achieved. Additionally, 20% biodiversity net gain will be sought in the Nature Recovery Network Core and Recovery zone and new urban extensions will also be required to achieve 20% biodiversity net gain.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy CSD 13: Conservation Target Areas	This is a policy which aims to protect and provide biodiversity enhancement to Conservation Target Areas	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 14: Natural Capital and Ecosystem Services	This is a policy which ensures that a natural capital assessment is undertake for each development to demonstrate the impact of the development on the environment and any environmental net gain to be secured.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy CSD 15: Green and Blue Infrastructure	This policy outlines the requirements of development to be required to protect and enhance green and blue infrastructure and assets.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 16: Air Quality	This is a policy which aims to address the impact of poor air quality, to improve air quality and mitigate its impacts.	**No likely significant effect**This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 17: Pollution and Noise	Development will not be permitted if it results in an unacceptable risk to public health or safety, the environment, general amenity or existing uses due to the potential of air pollution, noise nuisance, vibration, odour, light pollution, surface/ground water sources or land pollution. In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other development proposals should manage noise by: i. Avoiding significant adverse noise impacts on health and wellbeing, quality of life and amenity including residential amenity; ii. Mitigating and minimising the existing and potential adverse impacts of noise on, from, within, asa result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses; iii. Separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use, and some types of leisure and recreational uses) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation;	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..

Policy Reference	Brief Description	Potential Likely Significant Impact
	iv. Where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles and design solutions including the use of appropriate materials;, and v. Promoting new technologies and improved practices to minimise noise at source, and on the transmission path from source to receiver receptor..	
Policy CSD 18: Light Pollution	This is a policy which aims to avoid unnecessary light pollution.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..
Policy CSD 19: Soils, Contaminated Land and Stability	Development proposals will not be permitted where the land is contaminated and not capable of appropriate remediation without compromising development viability or the delivery of sustainable development. For sites where land contamination is suspected, an adequate site investigation survey will need to be prepared (by a competent person) to demonstrate that land contamination issues have been fully addressed or can be satisfactorily addressed through the development. Development will not be permitted in locations where there are risks from land instability. Development within areas known or suspected to be at risk of slope instability or poor ground conditions will need to demonstrate the following: i. its structural integrity will not be compromised by slope instability ii. the development does not exacerbate any instability on the site or elsewhere iii. the development can tolerate ground conditions by special design, and iv. there is long-term stability of any structured built on made, filled or mined ground. For sites suspected of land instability, an adequate site investigation survey will need to be prepared (by a competent person) to demonstrates that land instability issues have been fully addressed.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites..

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy CSD 20: Hazardous Substances	This is a policy which relates to the criteria by which the use, movement or storage of hazardous substances will be accepted.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy CSD 21: Waste Collection and Recycling	This policy aims to minimise waste and pollution, and to reduce the impact of waste on climate change. Future developments are expected to support the application of the waste hierarchy of prevention, preparing for re-use, recycling, other recovery then disposal. In order to facilitate the sustainable management of waste in the future it is essential that all developments provide adequate facilities for the separation of waste and recyclables and for its satisfactory storage prior to collection. On-site facilities for separating or storing waste should be adequate to meet the needs of occupiers of any proposed new development. Such facilities should be well-designed so that they do not result in harm to the local environment.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy CSD 22: Sustainable Transport and Connectivity Improvements	This policy is a policy which aims to ensure that transport improvements contribute positively to attractiveness, safety of place, and quality of life in Cherwell and respond sensitively to the natural and historic environment	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy CSD 23: Assessing Transport Impact/Decide and Provide	This is a policy which aims to help the delivery of public transportation and active travel improvements to manage the districts road network in a manner that reduces traffic and congestion.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.

<table>
<tr><th>Policy Reference</th><th>Brief Description</th><th>Potential Likely Significant Impact</th></tr>
<tr><td>Policy CSD 24: Freight</td><td>This is a policy which aims to manage number and intensity of transport movements relating to freight</td><td>No likely significant effect

This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.</td></tr>
<tr><td>Policy CSD 25: The Effective and Efficient Use of Land – Brownfield Land and Housing Density</td><td>Policy that states all new housing developments must have a minimum density of dwellings per hectare (net):
45 dwellings/hectare within existing settlements of Banbury, Bicester, Kidlington, and Heyford Park;
40 dwellings /hectare urban extensions (less than 50 hectares)
35 dwellings /hectare urban extensions (more than 50 hectares), and
35 dwellings /hectare rural and other areas</td><td>No likely significant effect

The density of development (as opposed to the total number of dwellings) does not provide linking impact pathways.</td></tr>
<tr><td>Policy LEC 1 Meeting Business and Employment Needs</td><td>This policy details the area of employment and business land required within the plan period this includes 145.7ha of employment land. 37.38ha of land are remaining to be developed as shown below.

Retained allocations from 2015 Local Plan will provide 37.38 hectares of land as shown below.

<table><tr><th>Location</th><th>Allocation</th><th>Total Allocation Size</th><th>Allocation without planning permission)</th></tr><tr><td>Banbury</td><td>Banbury 6: Employment Land West of the M40</td><td>35 ha</td><td>5.9 ha</td></tr><tr><td>Bicester</td><td>Bicester 4: Bicester Business Park</td><td>29.5 ha</td><td>8.76 ha</td></tr><tr><td>Bicester</td><td>Bicester 11: Employment land at NE Bicester</td><td>15 ha</td><td>2.5 ha</td></tr><tr><td>Bicester</td><td>Bicester 12: South East Bicester</td><td>40 ha</td><td>16.52 ha</td></tr><tr><td>Rural Areas</td><td>Villages 5: Former RAF Upper Heyford</td><td>12 ha</td><td>3.7 ha</td></tr><tr><td>Total</td><td></td><td></td><td>37.38 ha</td></tr></table></td><td>Potential likely significant effects

This policy identifies new highway infrastructure development within the Cherwell District.

This policy may have linkage to the following impact pathways:
Recreational pressure
Water resources, quality and hydrological change
Air quality</td></tr>
</table>

Policy Reference	Brief Description	Potential Likely Significant Impact
	The following parcels of land are identified for future development on the following strategic and retained Local Plan 2015 allocations: **Site name** / **Allocation** / **Total Allocation Size** Banbury M/U1: Canalside / Mixed Use B2, B8, and E(g) / 7.5 Banbury E1: Higham Way / Mixed Use B2, B8 and E (g) / 3 Bicester E1: Land east of M40 J9 and South of Green Lane / Mixed Use B2, B8, and E(g) / 30 Bicester E2: Land south of Chesterton / Mixed Use B2, B8, and E(g) / 9 Bicester E3: Land at Lodge Farm / Mixed Use B2, B8, and E(g) / 25 Bicester 4: Land south west of Graven Hill / Mixed Use B2, B8, and E(g) / 17 Bicester 5: Land adjacent Symmetry Park / Mixed Use B2, B8, and E(g) / 6 Total / / 97.5	
Policy LEC 2: Development at Existing or Allocated Employment Sites	This is a development management policy which aims to protect existing employment sites to ensure an appropriate level of employment provision is provided for over the LP period.	**No likely significant effect** Protection of existing employment sites will not pose likely significant effects on European sites.
Policy LEC 3: New Employment Development on Unallocated Sites	The policy states that new employment development will be supported on unallocated sites The policy does not allocate sites for development in the LP area merely states it will support development where the proposals adhere to the criteria set in the Policy.	**No likely significant effect, but down the line HRA.** Although the policy states the council will support new employment development on unallocated sites, the policy

Policy Reference	Brief Description	Potential Likely Significant Impact
		does not make commitment to locations for these sites. Therefore, impact pathways cannot be assessed for this policy. **Developments proposals providing new employment development on unallocated sites will be required to undergo HRA at the project level where it is determined proposals present a linking impact pathway**.
Policy LEC 4: Ancillary Uses on existing or allocated Employment Sites	This is a policy which provides criteria which the proposal must adhere to be supported with regards to uses on designated employment sites.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy LEC 5: Community Employment Plans	This is policy which seeks to ensure opportunities for local employment apprenticeships and training can be created through proposals for employment/business development.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy LEC 6: Supporting a Thriving and Resilient Farming Sector	This is a policy which seeks to ensure that farms remain or become economically viable, adapt to climate change, reduce pollution and lead to a significant improvement in the appearance or rural character of the area.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy LEC 7: Best and Most Versatile Agricultural Land	This is policy which seeks to ensure that the best and most versatile agricultural land will be protected from unplanned development to maximise opportunities for food and other agricultural production.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy LEC 8: Rural Diversification	This is a policy which provides criteria which proposals must adhere to be supported with regards to proposals for economic activities through diversification of farms.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy LEC 9: Tourism	This is a policy setting out criteria that proposals for new tourist and visitor facilities, including hotels have to adhere to.	**No likely significant effect** Although the policy states that the council will support new tourist and visitor facilities including hotels, the policy does not allocate development it is merely committing to support proposals for development

Policy Reference	Brief Description	Potential Likely Significant Impact
		where they can adhere to certain criteria.
Policy LEC 10 Town Centre Hierarchy and Retail Uses	The policy is a development management policy which focuses on the promotion of the continued role and functions of town/urban centres to positively contribute towards their viability, vitality, character and public realm. The policy does also mention that it will support the provision of new local centres containing retail development within allocated strategic housing sites and any leisure and retail outside of town centres which requires planning permission will be subject to an impact assessment appropriate to its use.	**No likely significant effect** Although the policy states that the council will support new local centres with retail development within and leisure and retail development outside of town centre, the policy does not allocate development it is merely committing to support proposals for development where they can adhere to certain criteria.
Policy LEC 11: Primary Shopping Areas	This policy is a development management policy which focuses on proposals resulting in the loss of an E Class use, setting out criteria where this will be supported by the council.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy LEC 12: Outdoor Markets	This is a policy which sets out criteria that proposals for permanent and temporary street markets and car boot sales must adhere to, to be supported by the council.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.

<table>
<tr><th>Policy Reference</th><th>Brief Description</th><th>Potential Likely Significant Impact</th></tr>
<tr><td>Policy LEC 13: Shopfronts and signage</td><td>This is a policy which sets out criteria that proposals including new or altered shopfronts and advertisement must adhere to, to be supported by the council.</td><td>No likely significant effect

This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.</td></tr>
<tr><td>Policy COM 1: District Wide Housing Distribution</td><td>The identified housing requirement for Cherwell for the 2020 to 2042 period is 20,029 homes.

Development will be permitted in order to achieve the housing supply set out below:
<table><tr><th>Calculation of Need</th><th>Total</th></tr><tr><td>Previous Standard Method 2020 to 2024 (756+713+742+710)</td><td>2,921</td></tr><tr><td>Current Standard Method (706dpa x18 years)</td><td>12,708</td></tr><tr><td>Cherwell Need</td><td>15,629</td></tr><tr><td>Oxford Unmet Need Carried Forward</td><td>4,400</td></tr><tr><td>Total Need (15,629 + 4400)</td><td>20,029</td></tr><tr><td>Annual Need (20,029/22) years</td><td>911</td></tr></table>This means there is a total housing need to plan for of 20,029 homes

The overall housing supply will be as follows
<table><tr><th>Housing Supply</th><th>Total</th></tr><tr><td>Existing Supply</td><td>21402</td></tr><tr><td>Additional Supply</td><td></td></tr><tr><td>Windfalls (2027-2042) 100pa</td><td>1400</td></tr><tr><td>East of Bloxham Road, Banbury (Phase 2)</td><td>600</td></tr><tr><td>Southeast of Woodstock</td><td>450</td></tr><tr><td>Calthorpe Street, Banbury</td><td>170</td></tr><tr><td>Rural Allocation</td><td>565</td></tr><tr><td>Total</td><td>3,185</td></tr><tr><td>Total Supply</td><td>24,587</td></tr></table></td><td>Potential likely significant effects

This policy identifies new highway infrastructure development within the Cherwell District.

This policy may have linkage to the following impact pathways:

• Recreational pressure
• Water resources, quality and hydrological change
• Air quality</td></tr>
</table>

Policy Reference	Brief Description	Potential Likely Significant Impact

Strategic Allocations

Development will be supported at the new strategic site allocations shown below where it meets the requirements set out within the Site Development Templates and in accordance with the policies of the Development Plan taken as a whole. A developer-led, comprehensive master planned approach will be expected with consultation undertaken in accordance with the Council's Statement of Community Involvement.

Cherwell will provide 24,587 homes from 2020 - 2024 as follows

Area	Completions 20/24	Total
Banbury	1632	6477
Bicester	1476	7749
Heyford Park	553	1601
Kidlington/Woodstock	172	622
Rural Areas	644	2338
Partial Review Sites	0	4400
Windfall Projection	0	1400
Totals	4477	24587

Non-Strategic Allocations

Development will also be supported at non-strategic allocations at the Larger Villages where development meets the requirements set out within the Site Development Templates or within Neighbourhood Plans, and in accordance with the Development Plan taken as a whole.

Non-strategic allocations at the Larger Villages will either be identified in this plan, adopted Neighbourhood Plans, or future parts of the Local Plan, in accordance with the identified housing requirement figures for the Larger Villages as shown within the Rural Area Strategy.

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy COM 2: Affordable Housing	This is a policy which details the requirements of developments to provide affordable housing.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 3: Housing Size / Type	This is a policy which details the mix of housing required for developments	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 4: Specialist Housing	This is a policy which defines where and when specialist housing should be included within development proposals.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 5: Residential Space Standards	This is a policy which relates to the required internal and external space for all new dwellings	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy COM 6: Self-Build and Custom-Build Housing	This is a policy which encourages the development of self-build and custom-build housing in appropriate locations.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 7: Sub-Division of Dwellings and Homes in Multiple Occupation	This is a policy which details conversion of existing dwellings to provide two or more self-contained units of accommodation or to a large HMO will be permitted provided that they would be unlikely to cause demonstrable harm to the amenities and privacy of neighbouring properties.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 8: Residential Caravans	This is a policy that details the criteria for granting temporary consent for a residential caravan	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 9: Travelling Communities	This is a policy which details the criteria for which placement of travelling community sites will be considered against.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy COM 10: Protection and Enhancement of the Landscape	This is a policy which aims to preserve the character and appearance of the landscape through restoration, management and enhancement of existing areas, features or habitats and where appropriate the creation of new ones including the planting of woodlands, trees and hedgerows.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 11: Cherwell Local Landscape Designations	This is a policy proposes 7 Cherwell Local Landscape Designations and avoid loss or harm to the aspects of local landscape value and qualities 'above ordinary' value. Cherwell local landscape designations (as shown in the Policies Map) are: • Cherwell Valley; • Ironstone Downs; • Muswell Hill; • North Ploughley; • Otmoor • Thames Valley; and • Upper Cherwell Valley	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 12: The Oxford Green Belt	This is a policy which aims to prevent the continuation of urban sprawl encroaching into the countryside.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 13: Settlement Gaps	This is a policy that aims to ensure that the settlements character is retained and physical and visual separation is maintained between settlements.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore

Policy Reference	Brief Description	Potential Likely Significant Impact
		provides no link for adverse effects on European sites.
Policy COM 14: Achieving Well-Designed Places	This is a policy which details criteria by which development will be accepted in terms of complementing and enhancing its surroundings	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 15: Active Travel – Walking and Cycling	This is a policy which aims to ensure that public realm improvements and infrastructure are designed to create attractive places that make walking and cycling a safer, healthier and more attractive travel choice.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 16: Public Rights of Way	This is a policy which aims to ensure that public rights of way including bridleways and byways are protected and enhanced to maintain connectivity of these networks.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 17: Health Facilities	This policy related to the provision of health facilities. The policy states “the council will support the provision, extension and co-location of health facilities in sustainable locations”. The rest of the policy is development management which provides criteria for which the development of health facilities should be designed based on.	**No likely significant effect** Although the policy states that the council will support provision of healthcare facilities, the policy is merely committing to support proposals for development

Policy Reference	Brief Description	Potential Likely Significant Impact
		where they can adhere to certain criteria.
Policy COM 18: Creating Healthy Communities	This is a policy which details the criteria by which developments must adhere with regards to promoting healthier communities.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 19: Hot Food Takeaways	This is a policy which sets out criteria that proposals for fast food takeaways must adhere to, to be supported by the council.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 20: Providing Supporting Infrastructure and Services	This is a policy which sets out the details on and off-site infrastructure requirements.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 21: Meeting Education Needs	This policy relates to the provision of educational facilities within the Local Plan (LP) area. The policy states that the council, in partnership, will ensure the provision of pre-school, school, community learning and other facilities. However, the policy does not specifically allocate locations for educational facilities within the policy, merely a commitment to provide facilities within the LP area within the LP period. The rest of the policy is development management which provides criteria for which the development of educational facilities should be designed based on.	**No likely significant effect, but down the line HRA** Although the policy states that the council will ensure the provision of educational facilities the policy does not make commitment to

Policy Reference	Brief Description	Potential Likely Significant Impact
		locations for these sites. Therefore, impact pathways cannot be assessed for this policy. **Developments proposals providing educational facilities will be required to undergo HRA at the project level where it is determined proposals present a linking impact pathway**.
Policy COM 22: Public Services and Utilities	This is a policy which aims to improve the public services/utilities within the district through planning proposals and working with Oxfordshire County Council.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 23: Local Services and Community Facilities	This is a policy which relates to the criteria by which the addition or removal of a community facility would be accepted	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 24: Open Space, Sport and Recreation	This is a policy which relates to the criteria by which the addition or removal of open space, sport and recreational facilities would be accepted	**No likely significant effect** This policy does not identify a quantum or location of development and therefore

Policy Reference	Brief Description	Potential Likely Significant Impact
		provides no link for adverse effects on European sites.
Policy COM 25: Local Green Space	This is a policy which relates to the criteria by which the additional green space would be accepted	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 26: Historic Environment	This is a policy which states the need for conservation of our historic environment is key to protecting and enhancing the character of the district	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 27: Conservation Areas	The policy aims to conserve and/or enhance the special character, appearance and setting of Cherwell District's Conservations Areas through development management criteria for all development proposals within Conservation Areas. The policy is a development management policy.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 28: Listed Buildings	This is a policy setting out criteria that proposals on listed building have to adhere to when adding to, altering, and/or changing the use of the listed building.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy COM 29: Registered Parks and Gardens and Historic Battlefields	This is a policy setting out criteria that proposals on registered parks, gardens and historic battlefields should conserve or enhance these areas	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy COM 30: The Oxford Canal	This policy seeks to protect and enhance the Oxford Canal. The policy also states "[the council] will support proposals to promote transport, recreation, leisure and tourism related uses of the canal, as well as supporting enhancement of the canals active role in mixed use development in an urban setting."	**No likely significant effect** Although the policy states that the council will support the provision of recreation, leisure, tourism and mixed use mixed-use development along the canal, the policy does not allocate development. It is merely committing to support proposals for development where they can adhere to certain criteria.
Policy COM 31: Residential Canal Moorings	This is a policy setting out criteria that proposals for permanent residential moorings on the Oxford Canal have to adhere to.	**No likely significant effect** Although the policy states that the council will support permanent residential moorings on the canal, the policy does not allocate development it is merely committing to support proposals for development

Policy Reference	Brief Description	Potential Likely Significant Impact
		where they can adhere to certain criteria.
Policy BAN 1: Banbury Area Strategy	This policy allocates development within the Banbury area both in the form of strategic and non-strategic development. A total of 1670 dwellings will be delivered through strategic allocations. **Allocations - Residential** • East of Bloxham Road (South of Salt Way East - Phase 2) – 600 dwellings • Calthorpe Street – 170 dwellings • Canalside – 700 dwellings • Bolton Road – 200 dwellings **Allocations – Employment** • Higham Way – 3 ha • Canalside Regeneration – 7.5 ha	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment areas within the Cherwell District.** **This policy may have a linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BAN 2: Delivery of Strategic Transport Schemes within the Banbury Area	This policy identifies highway infrastructure which is needed to mitigate the impact of planned growth within the Banbury area and improve active travel and sustainable transport. Transport infrastructure at Banbury will be required as follows: • Delivery of the walking, wheeling and cycling routes identified within the LCWIP; • Delivery of bus service improvement schemes including Tramway Road and Cherwell Street corridors; • Rejuvenating or relocating Banbury Bus Station; • Re-designing Banbury Railway Station forecourt to improve multi-modal interchange; • Provision of additional connections between the east of Banbury and the town centre including: – Provision of a vehicular connection from Cherwell Street to Chalker Way to improve access to main employment area east of Banbury; – Provision of footbridge or crossing improving active travel connections to the Railway Station via Canalside.	**Potential likely significant effects** **This policy identifies new highway infrastructure development within the Cherwell District.** **This policy may have a linkage to the following impact pathways:** • Recreational pressure

Policy Reference	Brief Description	Potential Likely Significant Impact
	• Improving accessibility of north - south routes with a particular emphasis on sustainable modes including: – Ruscote Avenue/Queensway; – North Bar/South Bar and the – Cherwell Street/ Windsor Street corridor; • Delivering improvements to the east-west strategic routes to support sustainable travel including: – Hennef Way A422 corridor; – Warwick Road Corridor; – Review of Banbury Town Centre traffic circulation to reduce through movements and improve the safety of active travel modes including bus routeing and improving walking routes to the railway station; • Measures within the Market Place and immediate area to provide an improved community place; • Provision of more direct transport links between the south of the town and the north- east area of employment, including bus and active travel connectivity, and new spine road and increased level of bus service between the A361 and A4260	• Water resources, quality and hydrological change • Air quality
Policy BAN3: Development in the Vicinity of Banbury Railway Station	This policy identifies the need for Tramway Road improvements that will support an improved road layout and facilities around the train station, improve bus journey reliability into the town centre from southern areas of the town, and reduce trips taken using the A4260/Bridge Street junction.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy BAN 4: Green and Blue Infrastructure in the Banbury Area	This policy sets out a list of green and blue infrastructure priorities, including: i. the need for an improved interface between Spiceball Park and the canal/river green corridor linking with the town centre. This should be delivered as part of the town centre enhancements and form a fundamental part of any development proposals ii. the continued development of the country park extending the green corridor to the north of the town connecting the urban area with the rural hinterland beyond iii. the greening of the town centre, improving east – west connectivity from People's Park to an enhanced green corridor along the river/canal corridor iv. the greening of the primary north – south vehicular route along the South Bar Street/ Horsefair corridor in conjunction with improved traffic solutions to ease congestion in these areas	**No likely significant effect** This is a policy that promotes delivery and safeguarding of green and blue infrastructure. Banbury is remote from European sites with the Oxford Meadows SAC being over 26km to the south.

Policy Reference	Brief Description	Potential Likely Significant Impact
	v. the development of a new green, accessible link along the southern edge of the development to the south of Salt Way connecting new development and associated open space adjacent to the Bloxham Road in the west and Longford Park in the east, and vi. the connection of Salt Way to the improved north – south green corridor along the canal/ river corridor.	
Policy BAN 5: Horton Hospital Site	The policy supports the redevelopment of the site for hospital related uses and medical services. The policy requires improved public transport and measures to ensure no increase on parking pressures on nearby residents. Also requires conservation and enhancement of the grade II listed hospital buildings.	**Potential likely significant effects** **This policy allows for the development of new dwellings health care facilities or education facilities within the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BAN 6: Banbury Opportunity Areas	This policy outlines redevelopment proposal locations • Bridge Street/Concorde Avenue • George Street/Cherwell Street/ Bridge Street	**No likely significant effect** This is a policy that promotes opportunity for redevelopment of areas within Banbury

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy BAN M/U 1: Banbury Canalside	This policy is a site allocation for Banbury Canalside. The allocation is for a mixed use redevelopment of land to provide housing, employment, commercial, recreational and community uses adjacent to Banbury Town Centre. The policy sets out key delivery requirements, key constraints and additional requirements for large complex sites. Banbury Strategy Area Policy sets out an allocation of 700 dwellings and 7ha of employment for this site.	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment area within the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change Air quality
Policy BAN H2: East of Bloxham Road, Banbury Policy BAN H3: Calthorpe Street	This policy is a Site allocation for housing on the southern periphery of Banbury. The policy sets out key delivery requirements, key constraints and additional requirements for large complex site. Land at east of Bloxham Road, Banbury is allocated as an extension to on-going development to the south of Salt Way. It will accommodate approximately 600 dwellings at a density of 38 dwellings per hectare.	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment area within the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy BAN H3: Calthorpe Street	This policy is for residential-led redevelopment for Calthorpe Street. It will accommodate 170 dwellings for housing as well as: • The Calthorpe Street and Marlborough Road frontages being rebuilt. • A pedestrian and cycling link is provided between Calthorpe Street and Marlborough Road.	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment area within the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BAN M/U2: Bolton Road	This policy is for residential-led redevelopment for Bolton Road. It will accommodate 200 dwellings for housing in a 2ha development area.	**Potential likely significant effects** **This policy allocates net new dwellings area within the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality

<table>
<tr><th>Policy Reference</th><th>Brief Description</th><th>Potential Likely Significant Impact</th></tr>
<tr><td>Policy BAN E1: Land at Higham Way</td><td>This policy is for employment-led development of a former waste management facility with a 3ha development area potential</td><td>Potential likely significant effects

This policy allocates net new employment area within the Cherwell District.

This policy may have linkage to the following impact pathways:
• Recreational pressure
• Water resources, quality and hydrological change
• Air quality</td></tr>
<tr><td>Policy BIC 1: Bicester Area Strategy</td><td>This policy allocates development within the Bicester area both in the form of strategic and non-strategic development.

7,750 homes will be delivered at Bicester between 2020 and 2042 including the following strategic site allocations:

<table><tr><th>Site</th><th colspan="2">Housing Numbers</th><th></th></tr><tr><td></td><td>2020 - 2042</td><td>Post 2042</td><td></td></tr><tr><td>North West Bicester</td><td>3,200</td><td>4,300</td><td>Site Allocation replacing Policy Bicester 1 to provide an additional 1500 homes at NW Bicester</td></tr></table>
The following existing strategic site policies are retained and will not be replaced:</td><td>Potential likely significant effects

This policy allocates net new dwellings and net new employment area within the Cherwell District.

This policy may have linkage to the following impact pathways:
• Recreational pressure
• Water resources, quality and hydrological change
• Air quality</td></tr>
</table>

Policy Reference	Brief Description	Potential Likely Significant Impact
	• Policy Bicester 2: Graven Hill • Policy Bicester 3: SW Bicester • Policy Bicester 12: SE Bicester • Policy Bicester 13: Gavray Drive Employment: 87 hectares of employment land will be provided for business and employment growth on the following strategic employment sites: **Site** / **Employment Hectares** Land East of M40 J9 and South of Green Lane / 30 Land Adjacent to Symmetry Park, North of A41, South East Bicester / 6 Bicester 4 (Bicester Business Park) / 3.3 Land South of Chesterton / 9 Land at Lodge Farm, Chesterton / 25 Land SW of Graven Hill / 17 TOTAL / 87	
Policy BIC 2: Delivery of Strategic Transport Schemes within the Bicester Area	This policy outlines the information from The new Oxfordshire Local Transport and Connectivity Plan (LTP5) 2022) which identifies a number of key projects in the Bicester Area Strategy: • '*A south-east peripheral link road north of Wendlebury*; • *Improvements associated with London Road level crossing changes;* • *A cycle route along the A41 from J9/M40 to Bicester town centre;* • *A bus priority route adjacent to the A41, on the Banbury Road,* • *The realignment of Howes Lane.*	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment area within the Cherwell District.**

Policy Reference	Brief Description	Potential Likely Significant Impact
	• *High quality walking, wheeling and cycling network throughout the town,* • *Corridor improvements on the eastern peripheral roads, Skimmingdish Land and Charbridge Lane, and Corridor improvements along the B4100 between Banbury Road junction and Baynards Green*.'	**This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BIC 3: Safeguarding of Land for Strategic Transport Schemes in the Bicester Area	This policy outlines areas that are safeguarded from additional development to support delivery for the following transport schemes: • Land for a south-east link road north of Wendlebury; • A bus priority route adjacent to the A41, on the Banbury Road, and • The realignment of Howes Lane.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy BIC 4: Delivery of Green and other Strategic Infrastructure in the Bicester Area	This policy outlines the requirements of development to be required to protect and enhance green and blue infrastructure and assets in the Bicester area.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy BIC 5: Bicester Opportunity Areas	This policy outlines redevelopment proposal locations • Site 1: Bure Place/ Wesley Lane/Sheep Street • Site 2: Market Place (Square) • Site 3: London Road Area • Site 4: Bicester Depot	**No likely significant effect** This is a policy that promotes opportunity for redevelopment of areas within Bicester

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy BIC 6: Former RAF Bicester	Conservation-led proposals for the former RAF Bicester site will be encouraged that help to secure a long-lasting, economically viable future for the technical site and flying field. Proposals for heritage tourism uses leisure, recreation, employment and community uses will be particularly encouraged. The development of hotel and conference facilities will also be supported as part of a wider package of employment uses.	**Potential likely significant effects** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BIC H1: Land at North West Bicester	This policy outlines a new Site development area of 549 hectares which is allocated to accommodate approximately 7,500 dwellings and 10ha of employment. 40% of the area with comprise of green space. This will also include additional works for the southwest of Bicester on the A41 corridor	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment area within the Cherwell District** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BIC E1: Land East of J9, M40	This policy outlines a site area of 45.80ha that is allocated to accommodate 30ha of employment land. '*The land east of Junction 9, M40 is a greenfield site which lies at the motorway junction and A41 and has a key frontage at this location. The site itself is comprised of two distinct parcels either side of an already permitted employment development. Planning permission has been granted for a large-scale employment unit on land between the two parcels which make up*	**Potential likely significant effects**

Policy Reference	Brief Description	Potential Likely Significant Impact
	this proposed allocation. This permitted development provides an access from the A41 which will need to be used to access the two parcels of land.'	**This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BIC E2: Land South of Chesterton	This policy outlines the Land south of Chesterton is allocated to accommodate at least 9ha of employment land.	**Potential likely significant effects** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BIC E3: Land at Lodge Farm, Chesterton	This policy outlines a site area of 40ha that is allocated to accommodate 25ha of employment land. '*Land at Lodge Farm is a greenfield site and relatively flat. It lies to the southeast of the village of Chesterton and southwest of Bicester. It comprises a number of agricultural fields with Lodge Farm at its centre. The site will need to be accessed through the adjacent employment allocation. This will minimise the total number of access points being created directly onto the A41. The access will be provided into the adjacent site so that the alignment of the road is in a better location for linking to the proposed south east peripheral road*'	**Potential likely significant effects** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change Air quality

Policy Reference	Brief Description	Potential Likely Significant Impact
Policy BIC E4: Land South West of Graven Hill	This policy outlines a site area of 36ha that is allocated to accommodate 17ha of employment land. '*This site is a greenfield site to the south west of the development at Graven Hill. Its delivery is reliant on the provision of the south east peripheral road to provide an appropriate access. The site is approximately 3 kilometres south of the centre of Bicester and is relatively flat. The site comprises three agricultural fields and green space along the railway line. it is surrounded by agricultural fields to the north, west and south and by the railway line and industrial land to the east. The Gagle Brook provides a landform feature along the eastern boundary'*	**Potential likely significant effects** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy BIC E5: Land adjacent to Symmetry Park	This policy outlines a site area of 6.32ha that is allocated to accommodate 6ha of employment land. '*This site is generally flat and lies adjacent to a permitted waste facility – A metal recycling facility. Whilst the land is currently agricultural, the rural character is influenced by adjacent development at Symmetry Park. Development on this proposed strategic employment allocation should not prejudice the use of the adjacent safeguarded waste management site*.'	**Potential likely significant effects** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy KID 1: Kidlington Area Strategy	This policy allocates development within the Kidlington area both in the form of strategic and non-strategic development. 5,022 homes will be delivered at Kidlington between 2020 and 2042 including the following strategic site allocations: **Site** | **Housing Numbers**	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment area within the Cherwell District**

Policy Reference	Brief Description	Potential Likely Significant Impact
	<table><tr><td></td><td>**2020 - 2042**</td><td></td></tr><tr><td>**South-east of Woodstock**</td><td>**450**</td><td>**New Site Allocation**</td></tr></table> The following existing strategic site policies are retained and will not be replaced: • Policy PR6a – Land East of Oxford Road • Policy PR6b – Land West of Oxford Road • Policy PR6c – Land at Frieze Farm • Policy PR7a – Land Southeast of Kidlington • Policy PR7b – Land at Stratfield Farm 1 • Policy PR8 – Land East of the A44 • Policy PR9 – Land West of Yarnton Employment: 14.7 hectares of employment land will be provided for business and employment growth within Policy PR8 – Land East of the A44 for the expansion of Begbroke Science Park	**This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy KID 2: London-Oxford Airport	This policy outlines the support of the continued use of London Oxford Airport for commercial aviation and ancillary uses. This results in areas included in airport safeguarding areas being protected from development, and sensitive uses such as housing, education and hospitals are not located in areas significantly affected by aircraft noise without acceptable mitigation measures.	**No likely significant effect** This is a policy that expresses support for the continued use of an existing airport and safeguards the airport but does not allocate new development.
Policy KID 3: Delivery of Transport Schemes within the Kidlington Area	This policy outlines the major travel routes for the area and how currently ongoing works on the A44 are nearing completion. This policy also highlights the high use of public transport and cycle lanes within the Kidlington area.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore

Policy Reference	Brief Description	Potential Likely Significant Impact
		provides no link for adverse effects on European sites.
Policy KID 4: Kidlington Area Strategy - Green and Blue Infrastructure	This policy outlines development requirement to require to protect and enhance green and blue spaces and infrastructure including: • Expanding and enhancing the network of footpaths and trails; • Enhancing the Oxford Canal and River Cherwell blue corridors; • New and enhanced access to the canal and river, and • Greening Kidlington village centre and supporting walking and cycling	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy KID 5: Development within and adjoining Kidlington Village Centre	This is a development policy for development requirements within or close to the centre of Kidlington.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy KID H1: South-East of Woodstock	This policy outlines the Land south-east of Woodstock is allocated to accommodate 450 dwellings in a Site area of 48.7ha with 16ha of developable area.	**Potential likely significant effects** **This policy allocates net new dwellings and net new employment area within the Cherwell District** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change

Policy Reference	Brief Description	Potential Likely Significant Impact
		• Air quality
Policy HEY 1: Heyford Area Strategy	This policy outlines the priority for this area is to secure the delivery of the adopted 2015 retained Policy Villages 5. This will be achieved by aligning the delivery of housing and employment with the infrastructure required to achieve sustainable development, whilst sustaining the site's heritage significance. Approximately 1,100 homes have been delivered (553 since the start of the Plan period in 2020) and a further 1048 homes are committed. In addition to the housing proposes the approved masterplan includes 8.3 ha of employment floorspace including a 'Creative City' area..	**Potential likely significant effects** **This policy identifies residential new development within rural areas in the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change • Air quality
Policy RUR 1: Rural Areas Strategy	This policy allocates 565 dwellings in non-strategic housing developments across the rural area distributed throughout the larger villages as in the table below: **Area** / **Housing allocated** Adderbury: 75 Bletchingdon, Hampton Gay & Poyle: 50 Bloxham: 75 Bodicote: 75 Deddington: 90 Hook Norton: 75 Mid Cherwell: 100 Milcombe: 25 **TOTAL**: **565**	**Potential likely significant effects** **This policy identifies new residential developments within rural areas in the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure

Policy Reference	Brief Description	Potential Likely Significant Impact
		• Water resources, quality and hydrological change • Air quality
Policy RUR H1: Land west of Springwell Hill, Bletchingdon	This policy describes a possible 2.9ha greenfield development site allocated to accommodate 44 dwellings as an extension of the existing built form of Bletchingdon.	**Potential likely significant effects** **This policy identifies new residential developments within rural areas in the Cherwell District.** **This policy may have linkage to the following impact pathways:** • Recreational pressure • Water resources, quality and hydrological change Air quality
Policy RUR 2: Rural Exception Sites	This is a policywhich sets out criteria for which affordable housing only will be supported as an exception in rural areas.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy RUR 3: New Dwellings in the Countryside	This is a policythat the council will only permit the development of a rural worker's dwelling if there is an essential need for a rural worker to live permanently at or near their place of work in the countryside	**No likely significant effect** This policy does not identify a quantum or location of development and therefore

Policy Reference	Brief Description	Potential Likely Significant Impact
		provides no link for adverse effects on European sites.
Policy RUR 4: Conversion of a Rural Building to a Dwelling	This is a policythat sets the criteria for which a rural building can be converted into a residential dwelling	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy RUR 5: Community-led housing development	This is a policypolicy that outlines the criteria for when community-led housing developments would be supported.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy RUR 6: Replacement Dwellings in the Countryside	This is a policy that outlines the criteria for when replacement developments would be supported.	**No likely significant effect** This policy does not identify a quantum or location of development and therefore provides no link for adverse effects on European sites.
Policy IMP 1: Delivery and Contingency	This policy states that the Council will monitor progress towards the achievement of indicators and targets set out within the Monitoring Framework and sets out a broad indication of the contingency approach to be taken if monitoring shows targets are not being met.	**No likely significant effect** This is a commitment to monitoring and does not provide linking impact pathways. No specific details are provided on contingency measures, and if they

Policy Reference	Brief Description	Potential Likely Significant Impact
		involved allocating additional sites, this would be picked up through Local Plan Review or the application-level development management process.

Table 3. New Strategic Housing Site Allocations in Cherwell Local Plan Review

Site Reference	Site Address	Residential Units (where relevant)	Distance from Oxford Meadows SAC (m)
BAN H2	East of Bloxham Road, Banbury	600	27,474
BAN M/U1	Canalside, Banbury	700 (Replaced)	29,196
KID H1	South East of Woodstock	450	5,201
BIC H1	Land at North West Bicester, Bicester	1,500 extension to 7,500 dwelling (Replaced)	16,160

Summary of Policy and Allocations Screening

3.3 A total of 24 policies within the Cherwell Local Plan Review have been highlighted within the screening table as having potential likely significant effects on Oxford Meadows SAC with regards to recreational pressure, hydrology and/or air quality.

4. Appropriate Assessment

Recreational Pressure

4.1 Recreational use of a European site has the potential to:

- Cause disturbance to sensitive species, particularly ground-nesting birds and (where relevant) wintering wildfowl.
- Cause damage through erosion and fragmentation;
- Cause eutrophication as a result of dog fouling; and
- Prevent appropriate management or exacerbate existing management difficulties;

4.2 Different types of European sites are subject to different types of recreational pressures and have different vulnerabilities. Studies across a range of species have shown that the effects from recreation can be complex.

4.3 It should be emphasised that recreational use is not inevitably a problem. Many European sites also contain nature reserves managed for conservation and public appreciation of nature.

4.4 HRAs of Local Plans tend to focus on recreational disturbance as a result of new residents[16].

Mechanical/abrasive damage and nutrient enrichment

4.5 Most types of aquatic or terrestrial European site can be affected by trampling, which in turn causes soil compaction and erosion:

- Wilson & Seney (1994)[17] examined the degree of track erosion caused by hikers, motorcycles, horses and cyclists from 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 (1995a, b)[18] conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each tramped between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different vegetation types 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. 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 least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.
- Cole (1995c)[19] conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with

[16] The RTPI report 'Planning for an Ageing Population '(2004) which states that 'From being a marginalised group in society, the elderly are now a force to be reckoned with and increasingly seen as a market to be wooed by the leisure and tourist industries. There are more of them and generally they have more time and more money.' It also states that 'Participation in most physical activities shows a significant decline after the age of 50. The exceptions to this are walking, golf, bowls and sailing, where participation rates hold up well into the 70s'.
[17] 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
[18] 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
[19] 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.

walking boots, there was no significant difference after one year. Heavier tramplers caused a greater reduction in vegetation height than lighter tramplers, but there was no difference in effect on cover.

- Cole & Spildie (1998)[20] experimentally compared the effects of off-track trampling by hiker and horse (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). Horse traffic was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance but recovered rapidly. Higher trampling intensities caused more disturbance.

4.6 Walkers with dogs contribute to pressure on sites through nutrient enrichment via dog fouling.

Cothill Fen SAC

4.7 Many European sites are National Nature Reserves (e.g., Cothill Fen) or nature reserves managed by wildlife trusts or nature conservation charities, at which access is encouraged and resources are available to ensure that recreational use is managed appropriately. Cothill Fen comprises terrain that on the whole is of an inaccessible nature away from designated paths. At Parsonage Moor the habitat is extremely wet off-path, whilst footpaths through other parts of the SAC are lined by dense growth of reedbeds. The SAC is part designated for its 'alder woodland on floodplains' and theoretically in places visitors and dogs could stray from the designated paths into this habitat.

4.8 However, access overall is limited by a minimal number of off-road parking spaces (approximately 10-15 at Cothill, close to Parsonage Moor and only 3-4 at Lashford Lane), though parking on residential streets and other public areas is possible. The majority of access is however likely to be through walking or cycling. Where footpaths exist at Parsonage Moor and Lashford Lane, off-path access is restricted in places by fencing, whilst Parsonage Moor has signs and gates/stiles restricting access for dog walkers. Parsonage Moor also lacks a circular walk, with only a small section of board walk over marshy ground which again limits the number of people likely to enter the Fen.

4.9 Part of the SAC is a National Nature Reserve so access is managed. Natural England and the Oxford Conservation Volunteers undertake footpath management/improvement specifically to ensure that people are discouraged from travelling 'off-track'. Moreover, under-grazing and a lack of trampling appear to have historically been more of a problem at this site than excessive trampling. Recreational pressure is not recognised as a threat to the site under its Site Improvement Plan. Considering the limited access, marshy ground off track and the distance between Cothill Fen SAC and Cherwell District growth within Cherwell District would not contribute to an adverse effect on the integrity of Cothill Fen SAC either alone or in combination with other plans or projects.

Oxford Meadows SAC

4.10 Oxford Meadows SAC contains unique vegetation communities. These reflect the long-term grazing and hay-cutting practices on lowland hay meadows. The site has benefited from the survival of traditional management, which has been undertaken for several centuries, and so exhibits good conservation of structure and function.

4.11 Cassington Meadows are a cluster of neutral hay meadows and fen, which are surviving remnants of semi-natural vegetation in an area now characterised by intensive arable farming and gravel extraction. Cassington Meadows is located within West Oxfordshire District. Port Meadow is a classic site for studying the effects of grazing on plant communities. The site consists of a series of neutral grasslands situated in the Thames floodplain. Despite the generally low species-diversity of Port Meadow compared with adjoining hay fields a total of 178 flowering plants have been recorded. These include the Red Data Book species creeping marshwort *Apium repens*, for which Port Meadow is now one of only two sites in Britain. Wolvercote Meadows, bordering the River Thames consists of unimproved and semi-improved neutral grassland that continues to be managed traditionally for hay and pasture and support a rich flora. Pixey and Yarnton Meads are unimproved floodplain meadows on alluvium over calcareous gravel on the first terrace bordering the River Thames and are internationally renowned. They are amongst the best remaining examples of neutral grassland in lowland England. Oxford Meadows SAC is within and adjacent to the southern boundary of Cherwell District.

4.12 Creeping marshwort, part of the designation of Oxford Meadows SAC is susceptible to recreational pressure through dog fouling and possibly trampling if pressure is sufficiently great. Dogs on site can also potentially

[20] 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

interfere with the aftermath grazing regime. An increase in recreational pressure could cause an adverse effect on the plant community and affect the conservation status of this plant.

4.13 Recreational pressure is an inherently in-combination impact pathway as small developments can build to make a much larger impact together. Recreational pressure is also generally quantified using a core recreational catchment which look at the effects of all development within the recreational catchment collectively together, in-combination.

4.14 The Supplementary Advice on Conservation Objectives (SACO)[21] does not state that there is a current issue with recreational pressure upon the SAC, although *Apium repens* and hay meadows are somewhat sensitive to changes in nitrogen. The main driver of change with regards to nitrogen within this SAC is likely to be habitat management and inundation flooding from the river. The SACO states that "*Too little flooding may compromise the necessary management due to reduced nutrient inputs which will reduce hay yields, making hay management less viable and sustainable whilst summer flooding may prevent hay cutting and grazing. Prolonged summer flooding can also have damaging effects on soils and can affect vegetation composition by encouraging the spread of weedy species and by washing away the seeds of plants*" additionally it says for *Apium repens* "*The availability of bare ground present as small gaps in the turf created by grazing animals and as more extensive areas created by flooding is important for the survival of Apium repens. These areas provide opportunities for seeding establishment early in the year before other competing plants have fully developed. However, Apium repens often inhabits a narrow zone around hollows at the site as larger bare areas may be utilised as 'dust bath' type features by grazing stock, so it is important that a range of bare ground features are available in suitable areas across the site.*" Given that inundation by flooding is a necessary part of maintenance of the hay meadows and the *Apium repens* populations at the site and as inundation also plays a major part in controlling nutrient levels at the site, it is likely this is a larger driver for change in the *Apium repens* population than dog fouling.

4.15 However, to understand if recreational pressure, namely dog fouling, does put additional pressure on nutrient levels on the site, the level of recreation currently felt on the SAC was quantified for the Oxford Meadows SAC as part of the Oxford Local Plan 2036[22]. The visitor survey was undertaken in 2017 and was an update of a previous visitor survey in 2011. The results of the 2017 survey were reported within the Habitats Regulations Assessment Report for the Local Plan[23]. The visitor survey noted that 66.7% of the visits over the survey period were from within Oxford City itself (OX1 and OX2 postcodes) with 55% coming from postcodes within OX2. The area for which OX2 postcodes are located is the section of Oxford immediately adjacent to the east side of the Port Meadow. Outside of these two postcodes the only other postcodes with visitor numbers above 1% were OX3 at 4.0%, OX4 at 5.8% and OX5 at 6.3% of visitors. Clearly the majority of visitors to Oxford Meadows SAC are coming from within Oxford itself with only a small percentage coming from a Cherwell District postcode (e.g. OX5), which encompasses areas including Yarnton in the south up to Tackley and Northbrook in the north and east to Murcott. Therefore, approximately 67% of visitors to the SAC are from Oxford City, with only 6% from Cherwell.

4.16 The main potential impact from recreational pressure on the SAC has been identified in the Oxford City Local Plan HRA to be eutrophication from dog fouling. From the visitor survey 47% of all visitors came with a dog to the SAC and the majority arrived by either walking (43.3%) or by car (43%). The proportion of visitors who walk to site is unusually high and reflects the large residential population very close to the SAC at Oxford City. With regards to assessing Oxford Local Plan's contribution to recreational impact on the SAC a public consultation was undertaken as part of "Oxford City Green Space Study" which revealed that Oxford residents would walk approximately 1.9km to large greenspaces. This is the distance which the Oxford Local Plan utilised within the HRA to assess contribution to recreational pressure. All residential sites outside of the 1.9km distance were screened out from impact. This distance was used as it is the most likely distance at which residential development would materially increase the number of dog-walkers utilising the site. In combination with the Northern Gateway Site this increase was predicted to be 4.5% increase in visitor numbers over the plan period.

4.17 The Oxford Local Plan 2036 HRA was able to conclude that "*There is no indication that current visitor numbers have a detrimental effect on the condition of Apium repens at Oxford Meadows SAC. Indeed, the JNCC listing for the SAC shows the Apium repens to have excellent population, conservation status and global grade. As such recreational (dog-fouling) impacts on the SAC will be minimal and will not affect the*

[21] http://publications.naturalengland.org.uk/file/6544105484320768 Accessed 21/10/2022
[22] https://www.oxford.gov.uk/download/downloads/id/7380/adopted_oxford_local_plan_2036.pdf Accessed 21/10/2022
[23] https://www.oxford.gov.uk/download/downloads/id/5105/habitats_regulations_assessment_-_appropriate_assessment.pdf Accessed 21/10/2022

integrity of the SAC". The conclusion of the HRA backs up the findings of the SACO, which highlight management and inundation as greater agents of change for the hay meadows and A*pium repens* population.

4.18 Any increase in visitor numbers coming from development presented within the Cherwell Local Plan Review would be significantly smaller than that predicted for Oxford itself as just 6.3% come from a Cherwell postcode (OX5). Additionally, the majority of development within Cherwell will be at a distance greater than 5km from the site. Five kilometres is the general figure utilised for inland SACs to define the area in which it is likely for significant numbers of recreational visits by car. As parking at the SAC is very limited (2 parking sites one in the north – Godstow Car Park, and one in the south – Port Meadow South Car Park) this will also restrict numbers of visitors arriving by car. Any development within Cherwell within 1.9km of the SAC would also face barriers to walking to site. Anyone attempting to walk to the SAC would be cut off by both the A40 and the A34 (dual carriageway) as well as the rail line from both Tackley and Hanborough into Oxford, significantly restricting visits by foot.

4.19 Additionally, there is a policy within the Cherwell Local Plan Review which aims to ensure protection and enhancement of biodiversity across the district. The Core Policy CSD 11: Protection and Enhancement of Biodiversity states that "*Any development with the potential to impact on a SAC, SPA and/or Ramsar site within the district will be subject to Habitats Regulations Assessment and will not be permitted unless it can be demonstrated that there will be no adverse effects on the integrity of the international site, either alone or in combination with other plans and projects, or that effects can be mitigated to avoid any effect on integrity'.*

4.20 As 66% of visitors are from Oxford itself and only 6.3% of visitors come from a postcode within the Cherwell District, the likely increase from either car or foot from Cherwell district being minimal, it is likely that the conclusion of the Oxford Local Plan HRA would also hold true in-combination with development within the SAC. This is also supported by the fact that the main driver for biological change in the SAC is management the habitats and flooding inundation altering nutrient input. With the addition of the protective policy regarding all development ensuring no likely significant effects (or effective mitigation) on European sites, it can be concluded that development within Cherwell, would not cause an adverse effect on the integrity of the SAC alone or in-combination with other plans and projects.

Water Quality and Resources

4.21 Increased amounts of housing or business development can lead to reduced water quality of rivers and estuarine environments. Sewage and industrial effluent discharges can contribute to increased nutrients on European sites leading to unfavourable conditions. In addition, diffuse pollution, partly from urban run-off has been identified during an Environment Agency Review of Consents process and a joint Environment Agency and Natural England evidence review, as being a major factor in causing unfavourable condition of European sites.

4.22 The quality of the water that feeds European 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; and
- Increased discharge of treated sewage effluent can result both in high levels of macroalgal growth, which can smother the mudflats of value to SPA birds and in greater scour (as a result of greater flow volumes).

4.23 At sewage treatment works (called Water Recycling Centres by Anglian Water), additional residential development increases the risk of effluent escape into aquatic environments in addition to consented discharges to the catchment. In many urban areas, sewage treatment and surface water drainage systems are combined, and therefore a predicted increase in flood and storm events could increase pollution risk.

4.24 Thames Water supply area extends from Cirencester in the west to Dartford in the east and from Banbury in the north to Guilford in the south and covers 5,000 square miles. Thames Water is the sole supplier of clean drinking water to the Cherwell District as well as treating the district's sewage. Water supplies are derived from a mixture of surface (storage reservoirs supplied from the River Thames and River Lee) and ground water sources. Thames supply is split into 6 water resource zones (WRZ). Cherwell is based in the second largest WRZ the Swindon and Oxfordshire WRZ (SWOX). This WRX relies primarily on abstraction of water from the River Thames for drinking water.

Cothill Fen SAC

4.25 Cothill Fen SAC is vulnerable to hydrological change; however, the site has a small surface water hydrological catchment area which is well outside of the Cherwell District and not connected to surface water of the Thames River, which is likely where effluent would be discharged once treated. Therefore, Cothill fen can be screened out of further discussion with regards to water quality. Additionally, the Cothill Fen SAC is within Thames Catchment (the Ock catchment) the SAC is upstream of the River Thames, abstraction within the Thames itself is unlikely cause hydrological changes SACs which are upstream of the River Thames, therefore, Cothill Fen can also be screened out of further discussion with regards to water resources.

Oxford Meadows SAC

4.26 With regards to Oxford Meadows the main pressure with hydrology according to the Site Improvement Plan is that "*it is considered that [a declining population of creeping marshwort] may be associated directly or indirectly with hydrological changes, possibly deeper, more prolonged and frequent flood events*" rather than through a lowering of the water table which excessive abstraction can cause.

4.27 A review of consents process was undertaken by the Environment Agency in 2008 to determine the impact of continued and increase abstraction licences on the environment. This underpins the Thames Water WRMPs test of likely significant effects. The consents process concluded after appropriate assessment that no adverse impacts on Oxford Meadows would occur with regards to the flow of the River Thames or the inundation pattern on the Oxford Meadows SAC. Additionally, the HRA of the Thames Water WRMP included an assessment of impacts of public water supply abstraction on the Oxford Meadows SAC both alone and in combination with other plans and projects and, with mitigation for some options, the HRA could conclude that no adverse effect on integrity would occur due to the Thames Water WRMP either alone or in combination with other plans and projects. This is fundamental to the HRA of the Cherwell Local Plan Review because the WRMP goes well beyond the end date of the Local Plan Review and is based on robust population growth projections. There is therefore no basis to conclude that the delivery of Cherwell Local Plan Review would result in an increase in abstraction for public water supply that would be detrimental to Oxford Meadows SAC.

4.28 Development within the hydrological catchment of a European site could affect water levels, flows and quality, although this is far more likely for sub-surface extractive processes such as minerals development that operate below the water table than for housing and employment development that will generally only affect the surface ground layers. The nearest new allocation to the Oxford Meadows SAC is an employment development at Kidlington (2 Begbroke Science Park Reserved Land), approximately 2.7km from the SAC and almost 3km north of the River Thames and the immediate surface and groundwater catchment of the SAC. Additionally, within the Cherwell Local Plan Review there is a policy specifically protecting the Oxford Meadows SAC with regards to water quality and hydrological change. Core Policy 55: Protection of the Oxford Meadows SAC states: "*Developers will be required to demonstrate that:*

- *during construction of the development there will be no adverse effects on the water quality or quantity of any adjacent or nearby watercourse*
- *during operation of the development any run-off of water into adjacent or surrounding watercourses will meet Environmental Quality Standards (and where necessary oil interceptors, silt traps and Sustainable Drainage Systems will be included)*

- *new development will not significantly alter groundwater flows and that the hydrological regime of the Oxford Meadows SAC is maintained in terms of water quantity and quality, and*
- *run-off rates of surface water from the development will be maintained at greenfield rates.*"

4.29 Given the WRMP concerning the Oxford Meadows SAC could conclude no adverse effects on integrity and with the specific protection policy within the Cherwell Local Plan Review itself and that Cothill Fen is outside the district and upstream of any development and the River Thames, it can be concluded that the Cherwell Local Plan Review will not have an adverse effect on the integrity of either Cothill Fen or Oxford Meadows SAC either alone or in combination with other plans and projects.

Atmospheric Pollution (Atmospheric Nitrogen Deposition)

4.30 The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH_3) and sulphur dioxide (SO_2). NO_x can have a directly toxic effect upon vegetation. In addition, greater NO_x or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.

Table 4: Main sources and effects of air pollutants on habitats and species

Pollutant	Source	Effects on habitats and species
Acid deposition	SO_2, NO_x and ammonia all contribute to acid deposition. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased nitrogen emissions may cancel out any gains produced by reduced sulphur levels.	Can affect habitats and species through both wet (acid rain) and dry deposition. Some sites will be more at risk than others depending on soil type, bed rock geology, weathering rate and buffering capacity.
Ammonia (NH_3)	Ammonia is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with expansion in numbers of agricultural livestock. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4^+) containing aerosol which may be transferred much longer distances (can therefore be a significant trans-boundary issue.)	Adverse effects are direct toxicity and as a result of nitrogen deposition leading to eutrophication. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides NO_x	Nitrogen oxides are mostly produced in combustion processes. About one quarter of the UK's emissions are from power stations.	Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) can lead to both soil and freshwater acidification. In addition, NO_x can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species.
Nitrogen (N) deposition	The pollutants that contribute to nitrogen deposition derive mainly from NO_X and NH_3 emissions. These pollutants cause acidification (see also acid deposition) as well as eutrophication.	Species-rich plant communities with relatively high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication, due to its promotion of competitive and invasive species which can respond readily to elevated levels of N. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions from NO_x and volatile organic compounds	Concentrations of O_3 above 40 ppb can be toxic to humans and wildlife and can affect buildings.

	(VOCs). These are mainly released by the combustion of fossil fuels. The increase in combustion of fossil fuels in the UK has led to a large increase in background ozone concentration, leading to an increased number of days when levels across the region are above 40ppb. Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.	Increased ozone concentrations may lead to a reduction in growth of agricultural crops, decreased forest production and altered species composition in semi-natural plant communities.
Sulphur Dioxide SO_2	Main sources of SO_2 emissions are electricity generation, industry and domestic fuel combustion. May also arise from shipping and increased atmospheric concentrations in busy ports. Total SO_2 emissions have decreased substantially in the UK since the 1980s.	Wet and dry deposition of SO_2 acidifies soils and freshwater and alters the species composition of plant and associated animal communities. The significance of impacts depends on levels of deposition and the buffering capacity of soils.

4.31 Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. Ammonia emissions are dominated by agriculture, with some chemical processes and some vehicle exhaust emissions also making notable contributions. As such, it is unlikely that material increases in SO_2 emissions will be associated with Local Plans. NO_x emissions are dominated by the output of vehicle exhausts. Within a 'typical' housing development, by far the largest contribution to NO_x (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[24]. Emissions of NO_x could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the Local Plan Review.

4.32 According to the World Health Organisation, the critical NO_x concentration (critical threshold) for the protection of vegetation is 30 μgm^{-3}; the threshold for sulphur dioxide is 20 μgm^{-3}. In addition, ecological studies have determined 'Critical Loads'[25] of atmospheric nitrogen deposition (that is, NO_x combined with ammonia NH_3) for key habitats within European sites.

4.33 According to the Department of Transport's Transport Analysis Guidance, "*Beyond 200 m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant*"[26].

[24] 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
[25] The Critical Load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[26] www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

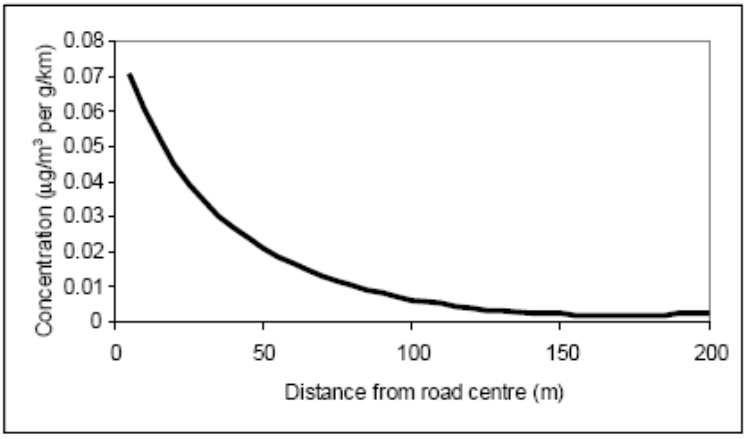


Plate 1. Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)

4.34 This is therefore the distance that is used throughout the HRA process in order to determine whether a European site is likely to be significantly affected by development under a Plan.

4.35 There are no major roads within 200m of Cothill Fen SAC and none of the minor roads would serve as significant routes associated with journeys to work arising in Cherwell District. Therefore this impact pathway can be screened out from further discussion for this SAC.

4.36 With regards to Oxford Meadows SAC, the A34 and the A40, major A roads, are located within 200m of the SAC. Increasing net residential and business development by at least 24,587 new dwellings (including over 4,477 existing commitments) within Cherwell District by 2042, in combination with increases in adjacent districts such as Oxford, Vale of White Horse and West Oxfordshire, could potentially significantly increase the number of car journeys within 200m of the SAC and this may increase nitrogen deposition therefore traffic and air quality modelling was undertaken (external of AECOM) for the Cherwell Local Plan Review contribution alone and in-combination with other plans and projects.

4.37 To understand if there would be an adverse effect upon the Oxford Meadows SAC a test of whether the contribution from the Cherwell Local Plan Review either alone or (if not alone) then in combination with other plans and projects would exceed 1% of the critical load is applied e.g. 3ug/m^3 for NO_x (oxides of nitrogen) and 0.3 ug/m^3 for NH_3 (ammonia).

4.38 To understand this we first look at Total Annual Mean NO_x. The assessment focusses on comparing 2042 without the Local Plan (Do Minimum), with 2042 with the Cherwell Local Plan (Do Something). Tables showing the full modelling results can be seen in Appendix B. Five transects were modelled across the A40 and A34. T4 which is located at its closest point 5.72m from the SAC, has the largest concentrations of NO_x present (Shown in Table 5). The DM 2042 includes all predicted background growth, including background growth in Cherwell and growth in other surrounding authorities taken from TEMPro, but excluding the effects of the Cherwell Local Plan Review. At T4 5.72m from the SAC 2042 NOx concentrations in a Do Minimum scenario are modelled at 27.52ug/m^3 and are therefore forecast to be below the Critical Load of 30ug/m^3. The DS 2042 scenario which builds on the DM 2024 with the addition of the Cherwell Local Plan reduces this further to 27.41ug/m^3 a reduction of 0.11ug/m^3 from the DM 2042 scenario. Therefore, with the Cherwell Local Plan there is an improvement in air quality compared with all growth without the Cherwell Local Plan.

4.39 NO_x is only one part of air quality impacts and NH_3 (ammonia) and nitrogen deposition (made up of NO_x and NH_3) also need to be examined to determine overall significant effect. The below table shows the air quality modelling results for NO_x and NH_3 and for total nitrogen deposition at transect T4 5.72m from the SAC.

Table 5. Air quality modelling results for transect T4 at 5.72m from the SAC showing oxides of nitrogen, ammonia and combined nitrogen deposition

Pollutant	2042 DM	2042 DS	DS-DM	Over Critical Load
NO_x (ug/m^3)	27.52	27.41	-0.11	No
NH_3 (ug/m^3)	5.59	5.55	-0.04	Yes

Nitrogen Deposition (kg N/ha/yr)	43.86	43.38	-0.48	Yes

4.40 As can be seen from Table 5 above, ammonia (NH_3) follows a similar pattern as NO_x. The only difference between NO_x and ammonia is a smaller reduction. This is because improvements in emissions technology are focused on oxides of nitrogen as these are believed to be the most damaging pollutants to human health. Improvements in emissions technology do not currently include ammonia. Note that because the data in Table 5 do not present the 2019 baseline the reduction shown due to Cherwell Local Plan is not necessarily a net reduction but a reduction compared to a situation without the Cherwell Local Plan. The Local Plan is therefore forecast to have a positive effect. As with NO_x at T4 5.72m from the SAC, ammonia in the 2042 DS scenario is reduced when looking at the 2042 DM (all growth but without the Cherwell Local Plan) by 0.04 ug/m^3. This again means that when all traffic changes (including the Cherwell Local Plan Review) is taken into consideration at the locations where growth is proposed in the Local Plan, there would be an improvement in ammonia concentrations compared to a situation without the Cherwell Local Plan. The Cherwell Local Plan Review will therefore not cause an adverse effect on integrity either alone or in combination with regards to ammonia concentrations on the SAC.

4.41 Finally, the modelling looks at the overall Total Annual Mean Nitrogen (N) deposition, this is made up of the background deposition as well as the concentrations of NO_x and NH_3. Again, in Table 5 there is a reduction between the DS and DM. The reductions in between DS and DM mirror both the NO_x and NH_3 results, as these are the two pollutants that cause nitrogen deposition. It can be seen that when the Cherwell Local Plan is taken into consideration the Total Annual Mean Nitrogen Deposition at T4 5.72m from the SAC is -0.48 kg N/ha/yr. This is calculated by comparing the 2042 DS scenario to the 2042 DM scenario. The criteria which shows a significant impact on a European site is 1% of the critical load, which in the case of nitrogen deposition is +0.2 Kg N/ha/yr. As the actual forecast change is a negative number (a reduction), this is a positive improvement in air quality within the boundaries of the SAC. Tables 6-8 within Appendix B shows the DS-DM change (or the alone impact) for each of the modelling component (NOx, NH3 and N dep). Within this table the modelling shows a negative (i.e. improved) in-combination (DS-DM) contribution across all transects and road links.

4.42 There are several possible explanations for the reduction due to the Local Plan. It could be that the distribution of growth in the Local Plan Review reduces traffic on the A40 and A34 compared to a situation without the Local Plan where certain highway improvements are not delivered and where growth could arise anywhere in the District (since without a Local Plan there is no control over where growth will arise). However, with the forecast improvement in traffic flows due to the Cherwell Local Plan, it can be concluded that the Cherwell Local Plan Review will not cause an adverse effect upon the integrity of Oxford Meadows SAC either alone or in combination with other plans and projects. This assessment will be reviewed for the Regulation 22 Local Plan HRA following Reg 19 consultation and engagement with Natural England.

5. Conclusions

5.1 The Cherwell Local Plan Review will not have an adverse effect on the integrity of any European sites either alone or in combination with other plans and projects.

Appendix A Background to European Sites and Map

A.1 Oxford Meadows SAC

Conservation Objectives

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.

Qualifying Features

The site is designated as a SAC for the following 'Qualifying Features':

- Lowland hay meadows: for which the site is considered to be one of the best areas in the United Kingdom.
- Creeping marshwort *Apium repens*: for which the site is the only known outstanding locality in the United Kingdom. The plant is known from 15 or fewer 10 x 10 km squares in the United Kingdom.

Environmental Vulnerabilities

The Site Improvement Plan for Oxford Meadows[27] indicates the following threats that, at the least, are identified as requiring investigation:

- Hydrological changes; and
- Invasive species.

The Site Improvement Plan does not specifically identify recreational pressure or air quality as a significant current or expected future threat; although that does not mean that no risk is presented via either pathway. However, they are clearly not the main focus of concern.

A.2 Cothill Fen SAC

Conservation Objectives

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, and
- The supporting processes on which qualifying natural habitats rely

Qualifying Features

The site is designated as a SAC for the following 'Qualifying Features':

[27] http://publications.naturalengland.org.uk/publication/4942743310696448?category=4981459005734912

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia)
- Alkaline fens; Calcium-rich springwater-fed fens
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*); Alder woodland on floodplains
- Southern Damselfly *Coenagrion mercurial*

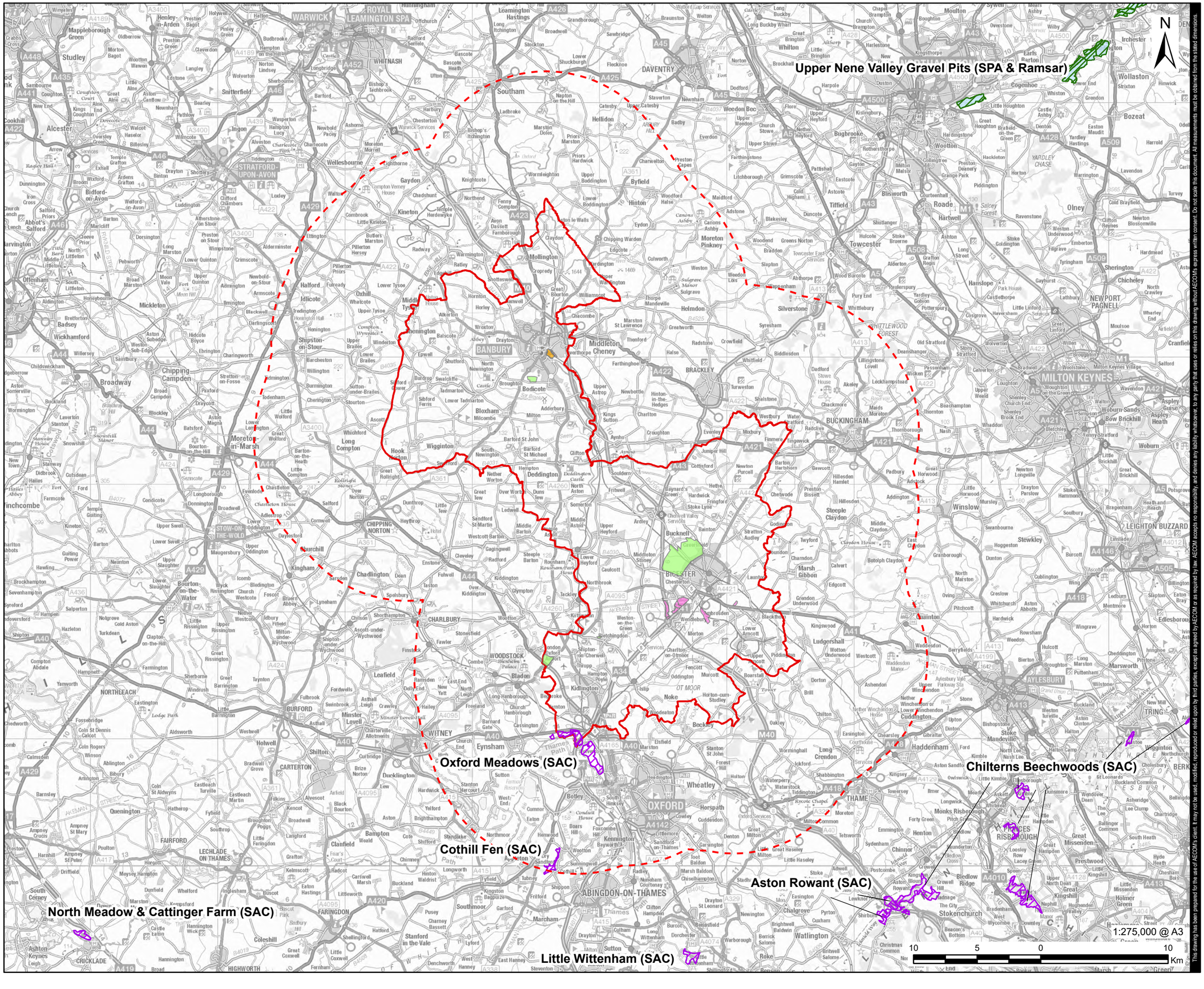
Environmental Vulnerabilities

The Site Improvement Plan for Cothill Fen[28] indicates the following threats that, at the least, are identified as requiring investigation:

- Hydrological changes;
- Water pollution; and
- Air pollution.

[28] http://publications.naturalengland.org.uk/publication/6482436405854208?category=4981459005734912

Revision: 0 Drawn: JA Checked: AG Approved: XX Date: 2024-11-20



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AECOM

PROJECT

Cherwell HRA

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LEGEND

- Cherwell District
- 10km Site Boundary
- Regulation 19 Residential Sites
- Regulation 19 Mixed-Use Sites
- Regulation 19 Employment Sites

Designated Assets

- Special Areas of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar

NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60684933

FIGURE TITLE

Cherwell Site Allocations and Habitat Sites

FIGURE NUMBER

Figure 1

Appendix B Air Quality Modelling Results (see separate report for methodology)

Table 6. Total Annual Mean NO_x (ug/m^3) for Transect T1 – T5

5.2 (Red numbers denote values over relevant critical load)

Transect ID	Road Link	Distance From Road (m)	2040 DM	2040 DS
T1	T1_181.54m	181.54m	10.85	10.84
T1	T1_190m	190m	10.83	10.83
T1	T1_200m	200m	10.82	10.82
T2	T2_77.21m	77.21m	11.18	11.17
T2	T2_80m	80m	11.16	11.16
T2	T2_90m	90m	11.11	11.10
T2	T2_100m	100m	11.07	11.06
T2	T2_110m	110m	11.03	11.02
T2	T2_120m	80m	11.00	10.99
T2	T2_130m	90m	10.97	10.97
T2	T2_140m	100m	10.95	10.94
T2	T2_150m	110m	10.93	10.92
T2	T2_160m	80m	10.91	10.91
T2	T2_170m	90m	10.89	10.89
T2	T2_180m	100m	10.88	10.88
T2	T2_190m	110m	10.87	10.86
T2	T2_200m	80m	10.86	10.85
T3	T3_9.17m	9.17m	17.37	17.35
T3	T3_10m	10m	17.26	17.23
T3	T3_20m	20m	16.46	16.44
T3	T3_30m	30m	16.09	16.08
T3	T3_40m	40m	15.88	15.87
T3	T3_50m	50m	15.74	15.73
T3	T3_60m	60m	15.64	15.64
T3	T3_70m	70m	15.57	15.57
T3	T3_80m	80m	15.52	15.51
T3	T3_90m	90m	15.47	15.47
T3	T3_100m	100m	15.44	15.43
T3	T3_110m	110m	15.41	15.40
T3	T3_120m	120m	15.39	15.38

T3	T3_130m	130m	15.37	15.36
T3	T3_140m	140m	15.35	15.34
T3	T3_150m	150m	15.33	15.33
T3	T3_160m	160m	15.32	15.32
T3	T3_170m	170m	15.31	15.31
T3	T3_180m	180m	15.30	15.30
T3	T3_190m	190m	15.29	15.29
T3	T3_200m	200m	15.28	15.28
T4	T4_5.72m	5.72m	27.52	27.41
T4	T4_10m	10m	24.55	24.46
T4	T4_20m	20m	21.23	21.18
T4	T4_30m	30m	19.63	19.59
T4	T4_40m	40m	18.67	18.64
T4	T4_50m	50m	18.02	18.00
T4	T4_60m	60m	17.56	17.54
T4	T4_70m	70m	17.21	17.19
T4	T4_80m	80m	16.93	16.91
T4	T4_90m	90m	16.71	16.69
T4	T4_100m	100m	16.53	16.51
T4	T4_110m	110m	16.38	16.36
T4	T4_120m	120m	16.25	16.23
T4	T4_130m	130m	16.14	16.13
T4	T4_140m	140m	16.04	16.03
T4	T4_150m	150m	15.96	15.95
T4	T4_160m	160m	15.89	15.88
T4	T4_170m	170m	15.82	15.81
T4	T4_180m	180m	15.76	15.76
T4	T4_190m	190m	15.71	15.71
T4	T4_200m	200m	15.67	15.66
T5	T5_10.33m	10.33m	25.97	25.88
T5	T5_20m	20m	22.69	22.62
T5	T5_30m	30m	20.88	20.83
T5	T5_40m	40m	19.76	19.72
T5	T5_50m	50m	18.99	18.95
T5	T5_60m	60m	18.43	18.39
T5	T5_70m	70m	17.99	17.96
T5	T5_80m	80m	17.64	17.62
T5	T5_90m	90m	17.36	17.34
T5	T5_100m	100m	17.13	17.11

T5	T5_110m	110m	16.93	16.91
T5	T5_120m	120m	16.76	16.74
T5	T5_130m	130m	16.61	16.59
T5	T5_140m	140m	16.48	16.46
T5	T5_150m	150m	16.36	16.35
T5	T5_160m	160m	16.26	16.25
T5	T5_170m	170m	16.17	16.15
T5	T5_180m	180m	16.08	16.07
T5	T5_190m	190m	16.01	16.00
T5	T5_200m	200m	15.94	15.93

Table 7. Total Annual Mean NH3 (ug/m3) for Transect T1 - T5

5.3 (Red numbers denote values over relevant critical load)

Transect ID	Road Link	Distance From Road (m)	2040 DM	2040 DS
T1	T1_181.54m	181.54m	1.48	1.48
T1	T1_190m	190m	1.48	1.48
T1	T1_200m	200m	1.47	1.47
T2	T2_77.21m	77.21m	1.60	1.60
T2	T2_80m	80m	1.59	1.59
T2	T2_90m	90m	1.57	1.57
T2	T2_100m	100m	1.56	1.56
T2	T2_110m	110m	1.55	1.54
T2	T2_120m	80m	1.53	1.53
T2	T2_130m	90m	1.53	1.52
T2	T2_140m	100m	1.52	1.52
T2	T2_150m	110m	1.51	1.51
T2	T2_160m	80m	1.50	1.50
T2	T2_170m	90m	1.50	1.50
T2	T2_180m	100m	1.49	1.49
T2	T2_190m	110m	1.49	1.49
T2	T2_200m	80m	1.48	1.48
T3	T3_9.17m	9.17m	2.23	2.22
T3	T3_10m	10m	2.19	2.18
T3	T3_20m	20m	1.91	1.90
T3	T3_30m	30m	1.78	1.77
T3	T3_40m	40m	1.70	1.70
T3	T3_50m	50m	1.65	1.65
T3	T3_60m	60m	1.62	1.62

T3	T3_70m	70m	1.59	1.59
T3	T3_80m	80m	1.57	1.57
T3	T3_90m	90m	1.56	1.56
T3	T3_100m	100m	1.55	1.54
T3	T3_110m	110m	1.54	1.53
T3	T3_120m	120m	1.53	1.53
T3	T3_130m	130m	1.52	1.52
T3	T3_140m	140m	1.51	1.51
T3	T3_150m	150m	1.51	1.51
T3	T3_160m	160m	1.50	1.50
T3	T3_170m	170m	1.50	1.50
T3	T3_180m	180m	1.50	1.50
T3	T3_190m	190m	1.49	1.49
T3	T3_200m	200m	1.49	1.49
T4	T4_5.72m	5.72m	5.59	5.55
T4	T4_10m	10m	4.58	4.55
T4	T4_20m	20m	3.46	3.45
T4	T4_30m	30m	2.93	2.92
T4	T4_40m	40m	2.61	2.60
T4	T4_50m	50m	2.39	2.39
T4	T4_60m	60m	2.24	2.23
T4	T4_70m	70m	2.12	2.12
T4	T4_80m	80m	2.03	2.03
T4	T4_90m	90m	1.96	1.95
T4	T4_100m	100m	1.90	1.89
T4	T4_110m	110m	1.85	1.84
T4	T4_120m	120m	1.81	1.80
T4	T4_130m	130m	1.77	1.77
T4	T4_140m	140m	1.74	1.74
T4	T4_150m	150m	1.71	1.71
T4	T4_160m	160m	1.69	1.68
T4	T4_170m	170m	1.67	1.66
T4	T4_180m	180m	1.65	1.64
T4	T4_190m	190m	1.63	1.63
T4	T4_200m	200m	1.62	1.61
T5	T5_10.33m	10.33m	5.04	5.01
T5	T5_20m	20m	3.99	3.97
T5	T5_30m	30m	3.41	3.39
T5	T5_40m	40m	3.04	3.03

T5	T5_50m	50m	2.79	2.78
T5	T5_60m	60m	2.61	2.60
T5	T5_70m	70m	2.47	2.46
T5	T5_80m	80m	2.36	2.35
T5	T5_90m	90m	2.26	2.26
T5	T5_100m	100m	2.19	2.18
T5	T5_110m	110m	2.12	2.12
T5	T5_120m	120m	2.07	2.06
T5	T5_130m	130m	2.02	2.01
T5	T5_140m	140m	1.97	1.97
T5	T5_150m	150m	1.94	1.93
T5	T5_160m	160m	1.90	1.90
T5	T5_170m	170m	1.87	1.87
T5	T5_180m	180m	1.85	1.84
T5	T5_190m	190m	1.82	1.82
T5	T5_200m	200m	1.80	1.79

Table 8. Total Annual Mean Nitrogen Deposition (kg N/ha/yr) for Transect T1 – T5

5.4 (Red numbers denote values over relevant critical load)

Transect ID	Road Link	Distance From Road (m)	2040 DM	2040 DS
T1	T1_181.54m	181.54m	12.68	12.68
T1	T1_190m	190m	12.66	12.66
T1	T1_200m	200m	12.64	12.64
T2	T2_77.21m	77.21m	13.30	13.29
T2	T2_80m	80m	13.27	13.26
T2	T2_90m	90m	13.17	13.16
T2	T2_100m	100m	13.09	13.08
T2	T2_110m	110m	13.02	13.01
T2	T2_120m	80m	12.96	12.96
T2	T2_130m	90m	12.91	12.91
T2	T2_140m	100m	12.87	12.87
T2	T2_150m	110m	12.83	12.83
T2	T2_160m	80m	12.80	12.80
T2	T2_170m	90m	12.77	12.77
T2	T2_180m	100m	12.75	12.74
T2	T2_190m	110m	12.72	12.72

T2	T2_200m	80m	12.70	12.70
T3	T3_9.17m	9.17m	16.73	16.69
T3	T3_10m	10m	16.52	16.48
T3	T3_20m	20m	15.04	15.01
T3	T3_30m	30m	14.36	14.34
T3	T3_40m	40m	13.97	13.95
T3	T3_50m	50m	13.71	13.70
T3	T3_60m	60m	13.54	13.53
T3	T3_70m	70m	13.41	13.40
T3	T3_80m	80m	13.31	13.30
T3	T3_90m	90m	13.23	13.22
T3	T3_100m	100m	13.16	13.15
T3	T3_110m	110m	13.11	13.10
T3	T3_120m	120m	13.07	13.06
T3	T3_130m	130m	13.03	13.02
T3	T3_140m	140m	13.00	12.99
T3	T3_150m	150m	12.97	12.96
T3	T3_160m	160m	12.95	12.94
T3	T3_170m	170m	12.93	12.92
T3	T3_180m	180m	12.91	12.90
T3	T3_190m	190m	12.90	12.89
T3	T3_200m	200m	12.88	12.88
T4	T4_5.72m	5.72m	34.20	34.00
T4	T4_10m	10m	28.94	28.79
T4	T4_20m	20m	23.14	23.04
T4	T4_30m	30m	20.36	20.29
T4	T4_40m	40m	18.70	18.64
T4	T4_50m	50m	17.58	17.53
T4	T4_60m	60m	16.78	16.74
T4	T4_70m	70m	16.17	16.14
T4	T4_80m	80m	15.70	15.67
T4	T4_90m	90m	15.32	15.29
T4	T4_100m	100m	15.00	14.98
T4	T4_110m	110m	14.74	14.72
T4	T4_120m	120m	14.52	14.50
T4	T4_130m	130m	14.33	14.31
T4	T4_140m	140m	14.17	14.15
T4	T4_150m	150m	14.03	14.01
T4	T4_160m	160m	13.90	13.89

T4	T4_170m	170m	13.79	13.78
T4	T4_180m	180m	13.69	13.68
T4	T4_190m	190m	13.61	13.59
T4	T4_200m	200m	13.53	13.52
T5	T5_10.33m	10.33m	31.55	31.41
T5	T5_20m	20m	26.08	25.97
T5	T5_30m	30m	23.05	22.96
T5	T5_40m	40m	21.16	21.09
T5	T5_50m	50m	19.86	19.80
T5	T5_60m	60m	18.91	18.85
T5	T5_70m	70m	18.17	18.12
T5	T5_80m	80m	17.58	17.54
T5	T5_90m	90m	17.11	17.07
T5	T5_100m	100m	16.71	16.67
T5	T5_110m	110m	16.37	16.34
T5	T5_120m	120m	16.08	16.05
T5	T5_130m	130m	15.83	15.80
T5	T5_140m	140m	15.61	15.58
T5	T5_150m	150m	15.41	15.38
T5	T5_160m	160m	15.23	15.21
T5	T5_170m	170m	15.08	15.05
T5	T5_180m	180m	14.93	14.91
T5	T5_190m	190m	14.81	14.78
T5	T5_200m	200m	14.69	14.67

Table 9. Change in the DS-DM Scenarios – Alone Impact

Transect ID	Road Link	Distance From Road (m)	Annual Mean NO_X (ug/m^3)	Annual Mean NH_3 (ug/m^3)	Total Annual Mean N Dep (Kg N/ha/yr)
T1	T1_181.54m	181.54m	0.00	0.00	0.00
T1	T1_190m	190m	0.00	0.00	0.00
T1	T1_200m	200m	0.00	0.00	0.00
T2	T2_77.21m	77.21m	-0.01	0.00	0.00
T2	T2_80m	80m	-0.01	0.00	0.00
T2	T2_90m	90m	-0.01	0.00	0.00
T2	T2_100m	100m	0.00	0.00	0.00
T2	T2_110m	110m	0.00	0.00	0.00
T2	T2_120m	80m	0.00	0.00	0.00
T2	T2_130m	90m	0.00	0.00	0.00
T2	T2_140m	100m	0.00	0.00	0.00

T2	T2_150m	110m	0.00	0.00	0.00
T2	T2_160m	80m	0.00	0.00	0.00
T2	T2_170m	90m	0.00	0.00	0.00
T2	T2_180m	100m	0.00	0.00	0.00
T2	T2_190m	110m	0.00	0.00	0.00
T2	T2_200m	80m	0.00	0.00	0.00
T3	T3_9.17m	9.17m	-0.03	-0.01	0.00
T3	T3_10m	10m	-0.02	-0.01	0.00
T3	T3_20m	20m	-0.02	0.00	0.00
T3	T3_30m	30m	-0.01	0.00	0.00
T3	T3_40m	40m	-0.01	0.00	0.00
T3	T3_50m	50m	-0.01	0.00	0.00
T3	T3_60m	60m	-0.01	0.00	0.00
T3	T3_70m	70m	-0.01	0.00	0.00
T3	T3_80m	80m	-0.01	0.00	0.00
T3	T3_90m	90m	-0.01	0.00	0.00
T3	T3_100m	100m	0.00	0.00	0.00
T3	T3_110m	110m	0.00	0.00	0.00
T3	T3_120m	120m	0.00	0.00	0.00
T3	T3_130m	130m	0.00	0.00	0.00
T3	T3_140m	140m	0.00	0.00	0.00
T3	T3_150m	150m	0.00	0.00	0.00
T3	T3_160m	160m	0.00	0.00	0.00
T3	T3_170m	170m	0.00	0.00	0.00
T3	T3_180m	180m	0.00	0.00	0.00
T3	T3_190m	190m	0.00	0.00	0.00
T3	T3_200m	200m	0.00	0.00	0.00
T4	T4_5.72m	5.72m	-0.12	-0.04	-0.10
T4	T4_10m	10m	-0.09	-0.03	-0.06
T4	T4_20m	20m	-0.06	-0.02	-0.02
T4	T4_30m	30m	-0.04	-0.01	-0.01
T4	T4_40m	40m	-0.03	-0.01	-0.01
T4	T4_50m	50m	-0.03	-0.01	-0.01
T4	T4_60m	60m	-0.02	-0.01	0.00
T4	T4_70m	70m	-0.02	-0.01	0.00
T4	T4_80m	80m	-0.02	-0.01	0.00
T4	T4_90m	90m	-0.02	-0.01	0.00
T4	T4_100m	100m	-0.01	0.00	0.00
T4	T4_110m	110m	-0.01	0.00	0.00

T4	T4_120m	120m	-0.01	0.00	0.00
T4	T4_130m	130m	-0.01	0.00	0.00
T4	T4_140m	140m	-0.01	0.00	0.00
T4	T4_150m	150m	-0.01	0.00	0.00
T4	T4_160m	160m	-0.01	0.00	0.00
T4	T4_170m	170m	-0.01	0.00	0.00
T4	T4_180m	180m	-0.01	0.00	0.00
T4	T4_190m	190m	-0.01	0.00	0.00
T4	T4_200m	200m	-0.01	0.00	0.00
T5	T5_10.33m	10.33m	-0.09	-0.03	-0.07
T5	T5_20m	20m	-0.07	-0.02	-0.03
T5	T5_30m	30m	-0.05	-0.02	-0.02
T5	T5_40m	40m	-0.04	-0.01	-0.01
T5	T5_50m	50m	-0.04	-0.01	-0.01
T5	T5_60m	60m	-0.03	-0.01	-0.01
T5	T5_70m	70m	-0.03	-0.01	-0.01
T5	T5_80m	80m	-0.03	-0.01	0.00
T5	T5_90m	90m	-0.02	-0.01	0.00
T5	T5_100m	100m	-0.02	-0.01	0.00
T5	T5_110m	110m	-0.02	-0.01	0.00
T5	T5_120m	120m	-0.02	-0.01	0.00
T5	T5_130m	130m	-0.02	-0.01	0.00
T5	T5_140m	140m	-0.02	-0.01	0.00
T5	T5_150m	150m	-0.02	-0.01	0.00
T5	T5_160m	160m	-0.01	0.00	0.00
T5	T5_170m	170m	-0.01	0.00	0.00
T5	T5_180m	180m	-0.01	0.00	0.00
T5	T5_190m	190m	-0.01	0.00	0.00
T5	T5_200m	200m	-0.01	0.00	0.00

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