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Habitats Regulations Assessment of the Epsom and Ewell Local Plan

Final Habitats Regulations Assessment Report

February 2025

LEPUS CONSULTING
LANDSCAPE, ECOLOGY, PLANNING & URBAN SUSTAINABILITY

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Acronyms & Abbreviations

AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
A-dep	Acid deposition
ALS	Abstraction License Strategy
APIS	Air Pollution Information System
CAMS	Catchment Abstraction Strategy
CIEEM	Chartered Institute of Ecology and Environmental Management
CJEU	Court of Justice of the European Union
CSZ	Core Sustenance Zone
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DTA	David Tyldesley and Associates
EA	Environment Agency
EP	Environmental Permits
FLL	Functionally Linked Land
GCN	Great Crested Newt
GIS	Geographic Information System
HDV	Heavy Duty Vehicle
HRA	Habitats Regulations Assessment
IAQM	Institute of Air Quality Management
IROPI	Imperative Reasons of Overriding Public Interest
IRZ	Impact Risk Zone
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
LDF	Local Development Framework
LGW	London Gatwick
LPA	Local Planning Authority
LSE	Likely Significant Effect
N-dep	Nitrogen deposition
NH_3	Ammonia
NOx	Nitrogen oxides
NPPF	National Planning Policy Framework
PEBR	Planning Evidence Base Review
ppSPA	Possible Potential Special Protection Area
PRoW	Public Right of Way

pSAC	Potential Special Area of Conservation
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SAMMS	Strategic Access Management and Monitoring Strategy
SES	Sutton and East Surrey
SIP	Site Improvement Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
STW	Sewerage Treatment Works
SuDS	Sustainable Urban Drainage
SWMC	Surface Water Management Catchment
TW	Thames Water
UK	United Kingdom
WFD	Water Framework Directive
WRMP	Water Resource Management Plan
WRSE	Water Resources South East
WRZ	Water Resource Zone
WwTW	Wastewater Treatment Works
ZOI	Zone of Influence

Executive Summary

Introduction

E1. Lepus Consulting has been appointed, on behalf of Epsom and Ewell Council to undertake a Habitats Regulations Assessment (HRA) in compliance with the Habitats Regulations (as amended)[1] of the Epsom and Ewell Local Plan.

E2. This report provides the outputs of the HRA process which has been undertaken alongside preparation of the Local Plan. It provides an update to the Interim HRA report which accompanied the Regulation 19 consultation.

Screening Outcomes (HRA Stage 1)

E3. The Local Plan is not directly connected with or necessary to the management of any European site. Consideration was therefore given to potential links or causal connections between the effects of the Local Plan and European sites within the study area to identify Likely Significant Effects (LSEs). This exercise was undertaken through the collation of information for each European site and application of a 'source-pathway-receptor' model.

E4. Taking no account of mitigation measures, the screening stage concluded that the Local Plan has the potential to have LSEs at the following European sites:

- Mole Gap to Reigate Escarpment SAC – air quality and recreational pressure LSEs;
- South West London Waterbodies SPA – water quantity LSEs;
- South West London Waterbodies Ramsar – water quantity LSEs; and
- Wimbledon Common SAC – water quantity LSEs.

E5. The identification of LSEs at the screening stage triggered the requirement for an Appropriate Assessment (AA), stage 2 of the HRA process.

Appropriate Assessment Outcomes (HRA Stage 2)

Air Quality Appropriate Assessment

E6. Air quality dispersion modelling has been undertaken to inform the air quality AA. This modelling provides detailed locally based and spatial air quality data for a number of air pollutants including nitrogen oxides, ammonia, nutrient nitrogen deposition and acid deposition.

E7. Natural England's guidance to Local Planning Authorities on the assessment of road traffic emissions under the Habitats Regulations was applied in the Air Quality AA. This took into consideration modelled pollutant levels in relation to the distribution of qualifying features across the SAC, the SAC's conservation objectives, background pollution levels and

[1] The Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents [Accessed: 14/12/22] as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573 [Date Accessed: 10/02/25].

pollutant trends. The AA concludes that there would be no adverse impact on site integrity as a result of the Local Plan either alone or in-combination.

Water Quality and Water Quantity Appropriate Assessment

E8. The potential effects of a change in water quantity due to Local Plan development on the South West London Waterbodies SPA, South West London Waterbodies Ramsar and Wimbledon Common SAC were evaluated as part of the appropriate assessment. This took into account the high-level regulatory water quantity protective frameworks which address Local Plan and in-combination growth in neighbouring areas such as Water Resource Management Plans and Drought Plans. It also took into consideration Local Plan requirements for new development set out in policy wording. This information was analysed in the context of the conservation objectives for each European site. It was concluded that no adverse impacts on the site integrity at any European site due to a change in water quantity will arise as a result of the Local Plan either alone or in-combination.

Recreation Pressure Appropriate Assessment

E9. The effects of increased recreational pressure upon the Mole Gap to Reigate Escarpment SAC due to Local Plan growth were evaluated as part of the appropriate assessment. This took into consideration the availability of alternative recreational space locally, barriers to movement and Local Plan policy requirements in terms of open spaces. Taking these factors into consideration it was concluded that no adverse impacts on the site integrity at any European site due to an increase in recreational pressure as a result of the Local Plan either alone or in-combination.

Conclusions

E10. The AA concluded no adverse impacts on the site integrity of any European site due to a change in air quality, water quality, or quantity or an increase in recreational pressure, as a result of the Local Plan either alone or in-combination.

E11. Epsom and Ewell Council must 'have regard' to Natural England's representations under the provisions of Habitats Regulations prior to making a final decision as to whether they will 'adopt' the conclusions set out within this report as their own.

1 Introduction

1.1 Background

1.1.1 Epsom and Ewell Borough Council (the Council) is currently preparing a new Epsom and Ewell Local Plan, hereafter referred to as the 'Local Plan'. The Local Plan will contain strategic and non-strategic planning policies and site allocations intended to support growth in Epsom and Ewell over the plan period to 2040. The Local Plan contains a Vision for Epsom and Ewell which is underpinned by strategic objectives and priorities. Planning policies set out in the Local Plan will guide land use and development across the Borough and set standards for growth and transformation.

1.1.2 The Local Plan will cover the Council's administrative area including the main conurbations of Epsom and Ewell. This area is hereafter referred to as the 'Plan area' and is illustrated in **Figure 1.1**.

1.1.3 Once adopted, the Local Plan will replace and update the following:

- Epsom and Ewell Core Strategy (adopted 2007)[2]
- Plan E – An Area Action Plan for Epsom Town Centre (adopted 2011)[3]
- Development Management Policies (adopted 2015)[4]

1.1.4 From February to March 2023, the Council consulted on the Regulation 18 Draft Local Plan: Preferred Options[5] as part of the plan making process. Responses to this consultation have informed the Plan. Consultation on the Regulation 19 Proposed Submission Local Plan was undertaken from December 2024 to February 2025[6]. This is the version of the Local Plan that the Council will be submitting for independent examination, and which has been assessed in this report.

[2] Epsom and Ewell Borough Council (2007) Core Strategy 2007. Available at: https://www.epsom-ewell.gov.uk/sites/default/files/documents/residents/planning/planning-policy/Core%20Strategy%202007.pdf [Date Accessed: 10/02/25].

[3] Epsom and Ewell Borough Council (April 2011) Plan E Epsom Town Centre Area Action Plan. Available at: https://www.epsom-ewell.gov.uk/sites/default/files/documents/residents/planning/planning-policy/Plan%20E%20final%20version.pdf [Date Accessed: 10/02/25].

[4] Epsom and Ewell Borough Council (September 2015) Development Management Policies Document. Available at: https://www.epsom-ewell.gov.uk/sites/default/files/documents/residents/planning/planning-policy/Development%20Management%20Policies%20Document%20Final%20Version.pdf [Date Accessed: 10/02/25].

[5] Epsom and Ewell Borough Council (February 2023) Epsom and Ewell Local Plan 2022-2040 – Draft Local Plan Regulation 18 Consultation. Available at: https://epsom-ewell.gov.uk/sites/default/files/documents/residents/planning/planning-policy/epsom-and-ewell-local-plan/EPSOM%20AND%20EWELL%20DRAFT%20LOCAL%20PLAN%20V2.pdf [Date Accessed: 10/02/25].

[6] Epsom and Ewell Borough Council. Proposed Submission Local Plan. Available at: https://www.epsom-ewell.gov.uk/regulation19 [Date Accessed: 10/02/25].

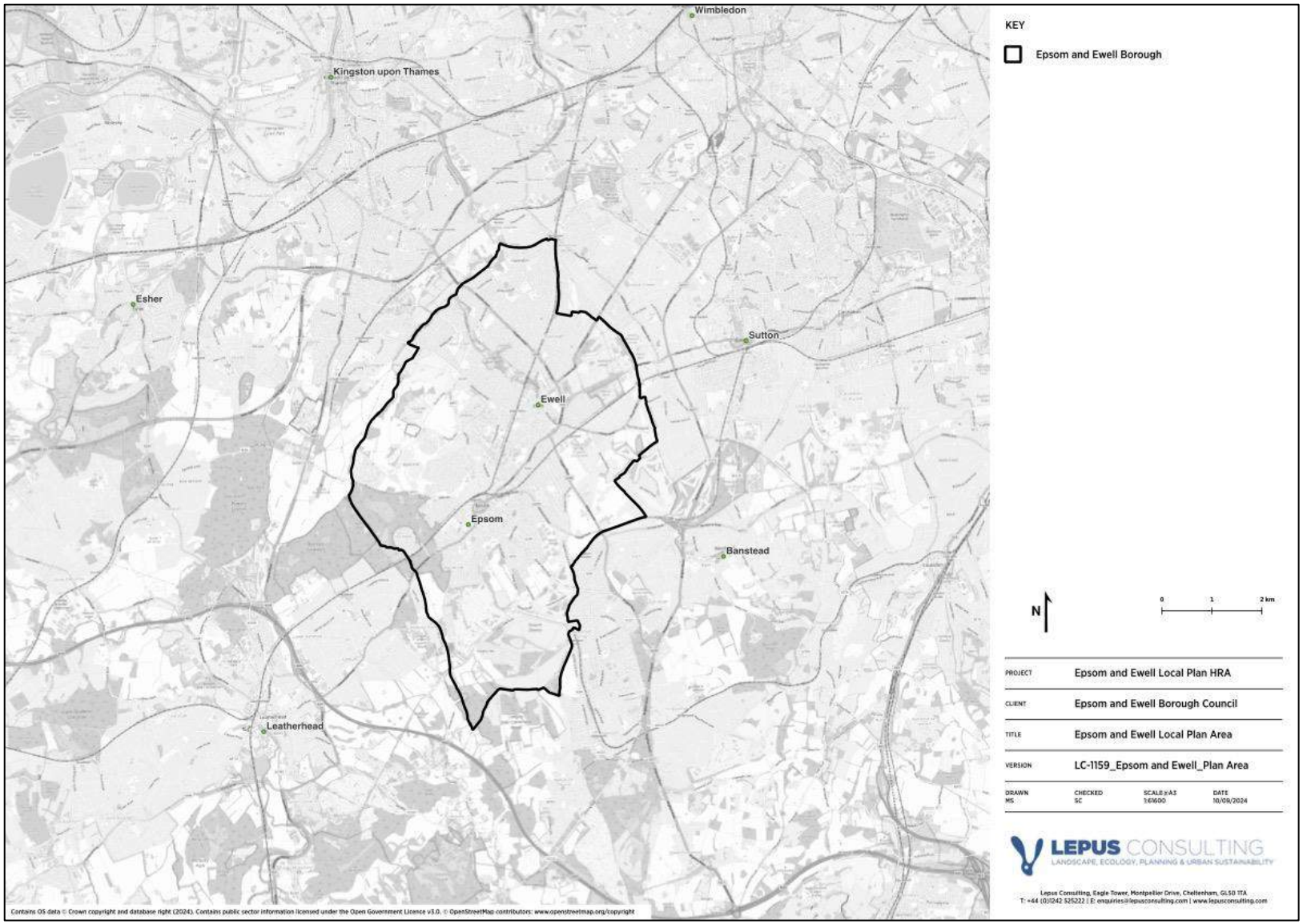

Figure 1.1: *Epsom and Ewell Local Plan Area*

1.2 Habitats Regulations Assessment

1.2.1 The application of HRA to land-use plans is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended)[7]. HRA applies to plans and projects, including all Local Development Documents in England and Wales.

1.2.2 Where a plan is likely to have a significant effect on a European site (either alone or in-combination) and is not directly connected with or necessary to the management of the European site, Regulation 105 of the Habitats Regulations notes that the plan making authority for that plan must, before the plan is given effect, make an Appropriate Assessment (AA) of the implications for the site in view of that site's conservation objectives. These tests are referred to collectively as a Habitats Regulations Assessment (HRA).

1.2.3 The Habitats Regulations[8] provide a definition of a European site at Regulation 8. These sites include Special Areas of Conservation (SAC), Sites of Community Importance, Special Protection Areas (SPA) and sites proposed to the European Commission in accordance with Article 4(1) of the Habitats Directive. In addition, policy in England and Wales notes that the following sites should also be given the same level of protection as a European site[9]:

- A potential SPA (pSPA)
- A possible / proposed SAC (pSAC)
- Listed and proposed Ramsar Sites (wetland of international importance)
- In England, sites identified or required as compensation measures for adverse effects on statutory European sites, pSPA, pSAC, and listed or proposed Ramsar sites.

1.3 Previous HRA work

1.3.1 In January 2023, Lepus Consulting prepared an HRA[10] of the Draft Local Plan: Preferred Options at Regulation 18. This included a scoping assessment of European sites and an initial screening assessment of Local Plan policies.

1.3.2 An interim HRA was submitted to support the Regulation 19 proposed submission consultation. This HRA identified LSEs at the following European sites which triggered the need for an Appropriate Assessment (AA)[11]:

- Mole Gap to Reigate Escarpment SAC – air quality and recreational pressure LSEs;

[7] The Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London, as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

[8] Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London, as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

[9] Department for Levelling up, Housing and Communities & Local Government (2023). National Planning Policy Framework. Para 187.

[10] Lepus Consulting (January 2023) Habitats Regulations Assessment of the Epsom and Ewell Draft Local Plan. Public Consultation: Regulation 18.

[11] Lepus Consulting (November 2024) Publication Plan Regulation 19 Interim Habitats Regulations Assessment Report.

- South West London Waterbodies SPA – water quantity LSEs;
- South West London Waterbodies Ramsar – water quantity LSEs; and
- Wimbledon Common SAC – water quantity LSEs.

1.3.3 The Interim HRA AA concluded no adverse impacts on the site integrity of any European site due to a change in water quality, or quantity or an increase in recreational pressure, as a results of the Local Plan either alone or in-combination. It was however not able to reach a conclusion regarding potential adverse air quality impacts upon the site integrity of Mole Gap to Reigate Escarpment SAC.

1.3.4 A response to the Regulation 19 consultation was received by Natural England on 5th February 2025. In this response, Natural England stated that: *'We are currently working with Epsom and Ewell on their Interim HRA which was provided in support of the Local Plan Regulation 19. However, we are not currently able to confirm whether we consider the Plan to meet the tests of soundness or legal compliance until we have seen and agreed the final Air Quality conclusions presented in an updated HRA. We're liaising with Epsom and Ewell to agree these AQ points, and once agreed will work with the council to agree a statement of common ground. The air quality impacts that are being discussed at present are our only outstanding concern and we are in agreement with all the other matters set out in the Interim Regulation 19 HRA Report, November 2024.'*

1.3.5 Since publication of the Interim HRA, further air quality modelling work has been commissioned by the Council which has been evaluated within this HRA report. In addition, a Statement of Common Ground (SoCG) has been prepared with Natural England to reflect the conclusions of this final HRA report.

1.4 Purpose of this report

1.4.1 Lepus Consulting has prepared this report to inform the HRA of the Local Plan on behalf of the Council. The Council, as the Competent Authority, will have responsibility to make the Integrity Test. This can be undertaken in light of the conclusions set out in this report, having regard to representations made by Natural England under the provisions of the Habitats Regulations.

1.4.2 This HRA report has been prepared in accordance with the Habitats Regulations and has been informed by the following guidance:

- Planning Practice Guidance: Appropriate Assessment[12]; and
- The Habitat Regulations Assessment Handbook - David Tyldesley and Associates (referred to hereafter as the DTA Handbook), 2013 (in particular Part F: 'Practical Guidance for the Assessment of Plans under the Regulations')[13].

[12] Department for Levelling Up, Housing and Communities (July 2019) Planning Practice Guidance Note, Appropriate Assessment, Guidance on the use of Habitats Regulations Assessment.

[13] Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook (June) (2024) edition UK: DTA Publications Limited.

2 Methodology

2.1 Overview

2.1.1 HRA is a rigorous precautionary process centred around the conservation objectives of a European site's qualifying interests. It is intended to ensure that European sites are protected from impacts that could adversely affect their integrity. A step-by-step guide to the methodology followed for the HRA is illustrated in **Figure 2.1**. This HRA report provides outputs from Stage 1 and Stage 2 of the HRA process.

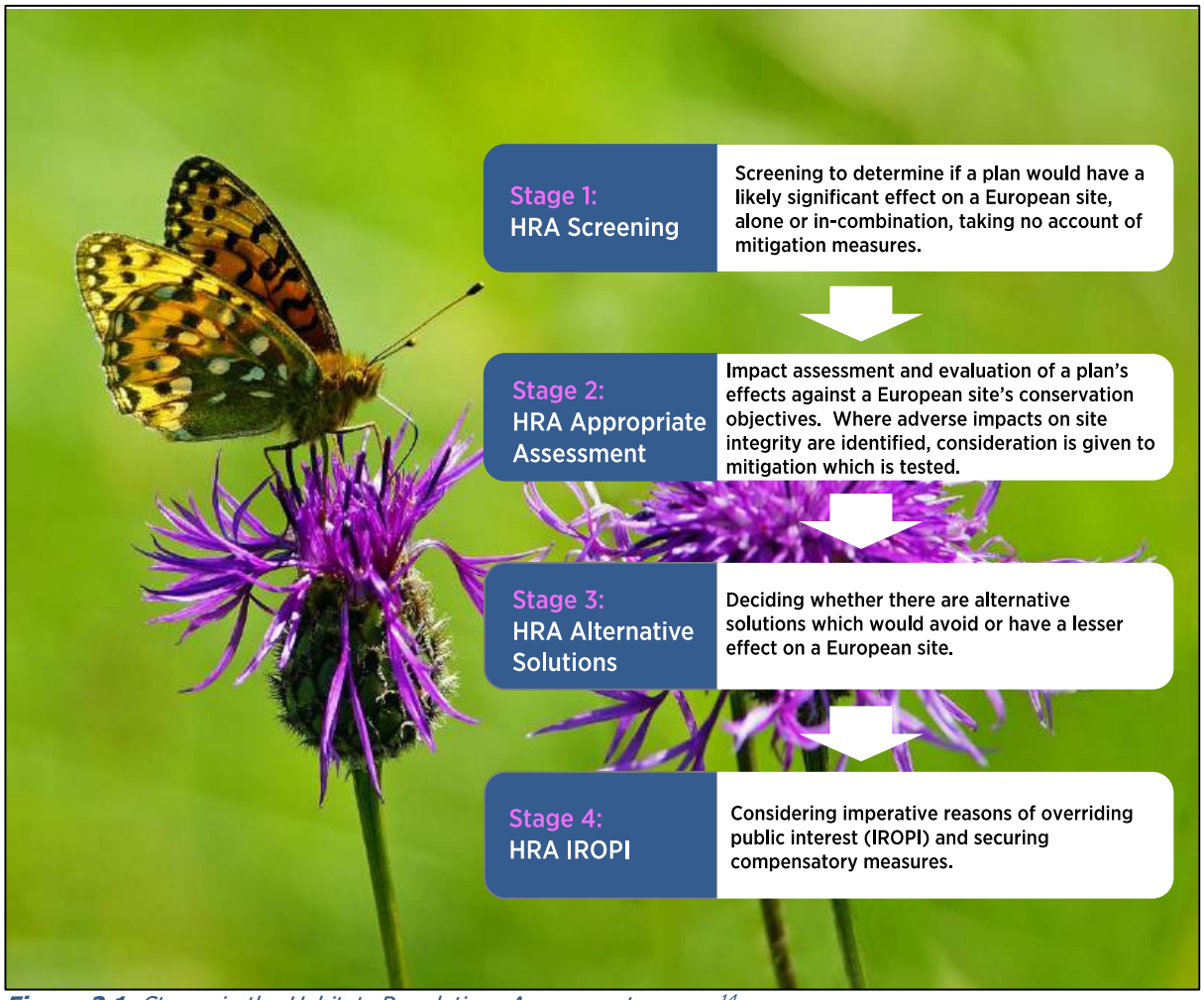

Figure 2.1: *Stages in the Habitats Regulations Assessment process*[14]

[14] Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook (January) (2021) edition UK: DTA Publications Limited.

2.2 Stage 1: Screening for Likely Significant Effects

2.2.1 The first stage in the HRA process comprises the screening stage (see **Figure 2.1**). The purpose of the screening process is to firstly determine whether a plan is either (1) exempt (because it is directly connected with or necessary to the management of a European site), (2) whether it can be excluded (because it is not a plan), or (3) eliminated (because there would be no conceivable effects), from the HRA process. If none of these conditions apply, it is next necessary to identify whether there are any aspects of the plan which may lead to an LSE at a European site, either alone or in-combination with other plans or projects.

2.2.2 All elements of the Local Plan have been screened to determine whether they are likely to have an LSE alone or in-combination. The codes set out in **Table 2.1** are used to inform the formal screening decision (Column 2). The results of this re-screening exercise are presented in **Chapter 4** of this report.

Table 2.1: *Screening evaluation categories from Part F of the DTA Handbook*[15]

Screening evaluation and reasoning categories from Chapter F of the Habitats Regulations Assessment Handbook (DTA Publications, 2013):		Screen in / screen out
A.	General statements of policy / general aspirations	Screen Out
B.	Policies listing general criteria for testing the acceptability / sustainability of proposals.	Screen Out
C.	Proposal referred to but not proposed by the Plan.	Screen Out
D.	General plan-wide environmental protection / designated site safeguarding / threshold policies.	Screen Out
E.	Policies or proposals that steer change in such a way as to protect European sites from adverse effects.	Screen Out
F.	Policies or proposals that cannot lead to development or other change.	Screen Out
G.	Policies or proposals that could not have any conceivable or adverse effect on a site.	Screen Out
H.	Policies or proposals the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in-combination with other aspects of this or other plans or projects).	Screen Out
I.	Policies or proposals with a Likely Significant Effect on a site alone.	Screen In
J.	Policies or proposals unlikely to have a significant effect alone.	Screen Out
K.	Policies or proposals unlikely to have a significant effect either alone or in-combination.	Screen Out
L.	Policies or proposals which might be likely to have a significant effect in-combination.	Screen In
M.	Bespoke area, site or case-specific policies or proposals intended to avoid or reduce harmful effects on a European site.	Screen In

15 Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook (December) (2019) edition UK: DTA Publications Limited. Available at: http://www.dtapublications.co.uk/ [Date Accessed: 10/02/25].

2.2.3 The judgement by the European Court of Justice on the interpretation of the Habitats Directive in the case of People Over Wind and Sweetman vs Coillte Teoranta (Case C-323/17[16]) determined that mitigation measures are only permitted to be considered as part of the AA stage of the HRA process. The HRA screening process has therefore taken no account of incorporated mitigation or avoidance measures that are intended to avoid or reduce harmful effects on a European site when assessing the LSEs of the Local Plan on European sites. These are measures which, if removed (i.e. should they no longer be required for the benefit of a European site), would still allow the lawful and practical implementation of a plan.

2.3 In-combination effects

2.3.1 If the conclusion of the screening exercise indicates that there are no LSEs from the Local Plan alone, it is necessary to then consider whether the effects of the Local Plan in-combination with other plans and projects would combine to result in an LSE on any European site. It may be that the Local Plan alone will not have an LSE but could have a residual effect which may contribute to in-combination LSEs on a European site. The in-combination assessment that has been prepared in this report is compliant with the Wealden Judgement (2017)[17].

2.3.2 Plans and projects which are considered to be of most relevance to the in-combination assessment of the Local Plan include those that have similar impact pathways (see **Appendix A**). These include those plans and projects which have the potential to increase development in the HRA study area including the following Local Planning Authority (LPA) local development plans:

- Croydon Council[18]
- Elmbridge Borough Council[19]
- Guildford Borough Council[20]
- Lambeth Council[21]
- London Borough of Richmond upon Thames[22]
- Merton Council[23]

[16] InfoCuria (2018) Case C-323/17. Available at: http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN [Date Accessed: 10/02/25].

[17] Wealden District Council & Lewes District Council before Mr Justice Jay. Available at: http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html [Date Accessed: 10/02/25].

[18] Croydon Council. Croydon Local Plan review. Available at: https://www.croydon.gov.uk/planning-and-regeneration/planning-policy/local-plan-review/croydon-local-plan-review [Date Accessed: 10/02/25].

[19] Elmbridge Borough Council. New Local Plan. Available at: https://www.elmbridge.gov.uk/planning/new-local-plan [Accessed 10/09/24].

[20] Guildford Borough. Local Plan. Available at: https://www.guildford.gov.uk/localplan [Date Accessed: 10/02/25].

[21] Lambeth Council. Lambeth Local Plan 2021. Available at: https://www.lambeth.gov.uk/planning-building-control/planning-policy-guidance/lambeth-local-plan-2021 [Date Accessed: 10/02/25].

[22] London Borough of Richmond upon Thames. Local Plan. Available at: https://www.richmond.gov.uk/local_plan [Date Accessed: 10/02/25].

[23] London Borough of Merton. New Local Plan. Available at: https://www.merton.gov.uk/planning-and-buildings/planning/local-plan/newlocalplan [Date Accessed: 10/02/25].

- Mole Valley District Council[24]
- Reigate and Banstead Council[25]
- Spelthorne Borough Council[26]
- Sutton Council[27]
- Tandridge District Council[28]
- The Royal Borough of Kingston upon Thames[29]
- Wandsworth Borough Council[30]

2.3.3 In addition, other plans and projects with the potential to increase traffic across the study area have the potential to act in-combination with the Local Plan such as the Surrey County Council development plans[31] which includes waste, mineral and transport plans. Plans which allocate water resources or are likely to influence water quality in the study area have also been considered, including the Thames River Basin Management Plan (RBMP)[32], Thames Water Resources Management Plan (WRMP)[33] and Sutton and East Surrey Water (SES) WRMP[34] (**Appendix A**).

[24] Mole Valley District Council. Future Mole Valley (Local Plan 2020-2037). https://www.molevalley.gov.uk/planning-building/local-plan-and-other-adopted-planning-policy-documents/ [Date Accessed: 10/02/25].

[25] Reigate and Banstead Council. Local Plan. Available at: https://www.reigate-banstead.gov.uk/info/20271/local_plan [Date Accessed: 10/02/25].

[26] Spelthorne Borough Council. Emerging Local Plan 2022-2037. Available at: https://www.spelthorne.gov.uk/article/17619/Emerging-Local-Plan-2022-2037 [Date Accessed: 10/02/25].

[27] Sutton Council. The Local Plan. Available at: https://www.sutton.gov.uk/w/the-local-plan [Date Accessed: 10/02/25].

[28] Tandridge District Council. Emerging policies. Available at: https://www.tandridge.gov.uk/Planning-and-building/Planning-strategies-and-policies/Emerging-policies [Date Accessed: 10/02/25].

[29] The Royal Borough of Kingston upon Thames. Local Plan. Available at: https://www.kingston.gov.uk/policy/new-local-plan [Date Accessed: 10/02/25].

[30] Wandsworth Borough Council. The Local Plan. Available at: https://www.wandsworth.gov.uk/localplan [Date Accessed: 10/02/25].

[31] Surrey County Council. Development plans. Available at: https://www.surreycc.gov.uk/land-planning-and-development/planning/introduction-to-planning/development-plans [Date Accessed: 10/02/25].

[32] Environment Agency (2022) Thames river basin district river basin management plan: updated 2022. Available at: https://www.gov.uk/guidance/thames-river-basin-district-river-basin-management-plan-updated-2022 [Date Accessed: 10/02/25].

[33] Thames Water (April 2020) Shape your future: Our Water Resources Management Plan 2020-2100. Available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/water-resources/water-resources-management-plan-overview.pdf [Date Accessed: 10/02/25].

[34] SES Water (2022) Our Water Resources Management Plan. Available at: https://seswater.co.uk/about-us/publications/our-water-resources-management-plan [Date Accessed: 10/02/25].

2.4 Stage 2: Appropriate Assessment and Integrity Test

2.4.1 Stage 2 of the HRA process comprises the AA and Integrity Test. The purpose of the AA is to undertake an assessment of the implications of a plan for a European site in light of its conservation objectives[35].

2.4.2 As part of this process, plan makers should take account of the potential consequences of no action, the uncertainties inherent in scientific evaluation and they should consult interested parties on the possible ways of managing the risk, for instance, through the adoption of mitigation measures. Mitigation measures should aim to avoid, minimise or reduce significant effects on European sites. Mitigation measures may take the form of policies within the Local Plan, or mitigation proposed through other plans or regulatory mechanisms. All mitigation measures must be deliverable and able to mitigate the adverse effects for which they are targeted.

2.4.3 The AA aims to present information in respect of all aspects of the Local Plan and ways in which it could, either alone or in-combination with other plans and projects, impact a European site. The plan making body (as the Competent Authority) must then ascertain, based on the findings of the AA, whether the Local Plan will adversely affect the integrity of a European site either alone or in-combination with other plans and projects. This is referred to as the Integrity Test.

2.5 Dealing with uncertainty

2.5.1 Uncertainty is an inherent characteristic of an HRA, and decisions can be made using currently available and relevant information. This concept is reinforced in the 7th September 2004 'Waddenzee' ruling[36]:

2.5.2 'However, the necessary certainty cannot be construed as meaning absolute certainty since that is almost impossible to attain. Instead, it is clear from the second sentence of Article 6(3) of the Habitats Directive that the competent authorities must take a decision having assessed all the relevant information which is set out in particular in the AA. The conclusion of this assessment is, of necessity, subjective in nature. Therefore, the competent authorities can, from their point of view, be certain that there will be no adverse effects even though, from an objective point of view, there is no absolute certainty.'

2.6 The Precautionary Principle

2.6.1 The HRA process is characterised by the Precautionary Principle which is embedded in the Integrity Test. The Precautionary Principle aims to ensure a higher level of environmental protection through preventative decision-taking in the case of risk[37].

[35] Department of Levelling Up, Housing and Communities (July 2019) Planning Practice Guidance Note, Appropriate Assessment, Guidance on the use of Habitats Regulations Assessment.

[36] EC Case C-127/02 Reference for a Preliminary Ruling 'Waddenzee' 7th September 2004 Advocate General's Opinion (para 107).

[37] EUR-Lex. The Precautionary Principle. Available at: https://eur-lex.europa.eu/EN/legal-content/summary/the-precautionary-principle.html [Date Accessed: 10/02/25].

3 Scoping of threats and pressures at European sites

3.1 Introduction

3.1.1 An important initial stage of the screening process is gathering information on European sites which may be affected by the Local Plan. This is informally known as scoping and provides an understanding of potential impact pathways from the Local Plan and connections to European sites and their vulnerabilities. This information is then used to inform the screening assessment (**Chapter 4**). A scoping exercise was undertaken at Regulation 19 as part of the Interim HRA. This chapter therefore presents an update to baseline information for each European site and their associated threats and pressures in the context of potential impacts from the Local Plan at Submission.

3.2 Identification of a HRA study area

3.2.1 Each European site has its own intrinsic qualities, besides the habitats or species for which it has been designated, that enables the site to support its particular ecosystems. An important aspect of this is that the ecological integrity of each site can be vulnerable to change from natural and human induced activities in the surrounding environment (known as pressures and threats). For example, sites can be affected by land use plans in a number of different ways, including the direct land take of new development, the type of use the land will be put to (for example, an extractive or noise-emitting use), or the pollution / threat a development generates (air pollution, water pollution or increased recreational pressure), and the resources used (for example water abstraction).

3.2.2 An intrinsic quality of any European site is its functionality at the landscape ecology scale. This refers to how the site interacts with its immediate surroundings as well as the wider area. This is particularly the case where there is potential for development resulting from a plan to generate water or air-borne pollutants, use water resources or otherwise affect water levels. Adverse effects may also occur via impacts to mobile species occurring outside a designated site boundary, but which are qualifying features of the site. For example, there may be effects on protected birds, bats and fish which use land outside a designated site for foraging, feeding, roosting, breeding or other activities.

3.2.3 There is no guidance that defines the study area for inclusion in an HRA. Planning Practice Guidance for AA[38] indicates that: 'The scope and content of an appropriate assessment will depend on the nature, location, duration and scale of the proposed plan or project and the interest features of the relevant site. 'Appropriate' is not a technical term. It indicates that an assessment needs to be proportionate and sufficient to support the task of the competent authority in determining whether the plan or project will adversely affect the integrity of the site'.

[38] Department for Levelling Up, Housing and Communities (July 2019) Planning Practice Guidance Note, Appropriate Assessment, Guidance on the use of Habitats Regulations Assessment.

3.2.4 This scoping exercise will help to determine the HRA study area and therefore which European sites will be considered in the HRA process.

3.3 Scoping impact pathways

3.3.1 Threats and pressures to which European sites are vulnerable have been identified through reference to data held by the JNCC and Natural England and through reference to Ramsar Information Sheets and Site Improvement Plans (SIPs). This information provides current and predicted issues at each European site and is summarised in **Appendix B.**

3.3.2 Supplementary advice notices prepared by Natural England often provide more recent information on threats and pressures upon European sites than SIPs and have therefore also been reviewed. A number of threats and pressures are unlikely to be exacerbated by the Local Plan and have therefore not been considered.

3.3.3 Sites of Special Scientific Interest (SSSIs) are protected areas in the United Kingdom designated for conservation. SSSIs are the building blocks of site-based nature conservation in the UK. A SSSI will be designated based on the characteristics of its fauna, flora, geology and/or geomorphology. Whilst typically analogous in ecological function, the reasons for its designation can be entirely different to those for which the same area is designated as a SAC, SPA or Ramsar.

3.3.4 Natural England periodically assesses the conservation conditions of each SSSI unit, assigning it a status. The conservation status of each SSSI highlights any European site that is currently particularly vulnerable to threats/pressures. Conservation status is defined as follows:

- Favourable;
- Unfavourable – recovering;
- Unfavourable – no change; or
- Unfavourable – declining.

3.3.5 SSSI units in either an 'Unfavourable – no change' or 'Unfavourable – declining' condition indicate that the European site may be particularly vulnerable to certain threats or pressures. It is important to remember that the SSSI may be in an unfavourable state due to the condition of features unrelated to its designation. However, it is considered that the conservation status of SSSI units that overlap with European sites offer a useful indicator of habitat / species health at a particular location.

3.3.6 Natural England defines zones around each SSSI which may be at risk from specific types of development, known as Impact Risk Zones (IRZ). IRZs are 'a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts. The IRZs also cover the interest features and sensitivities of European sites, which are underpinned by the SSSI designation and "Compensation Sites", which have been secured as compensation for impacts on Natura 2000/Ramsar sites'[39]. The location of IRZs has been taken into consideration in this assessment as they provide a useful guide as to the location of functionally linked land (defined in **paragraph 3.3.7**) and likely vulnerabilities to development proposed within the Local Plan.

3.3.7 Based on the previous HRA work undertaken at Regulation 19, the following potential impact pathways are considered to be within the scope of influence of the Local Plan. Land use planning also has the potential to result in impacts upon qualifying features when located outside a designation boundary, known as functionally linked land (FLL)[40]. This HRA therefore also considers effects upon FLL or mobile species within the following topic assessments:

- **Air pollution:** Land use planning has the potential to increase atmospheric emissions of pollutants to the air. These can result in adverse effects at European sites such as eutrophication (nitrogen), acidification (nitrogen and sulphur) and direct toxicity (ozone, ammonia and nitrogen oxides)[41].
- **Water resources and water levels:** Urban development can change run off rates from urbanised areas to European sites or watercourses which run through them. An increase in housing provision can also influence supply and demand for water within the region which may impact water levels.
- **Water quality:** Surface water run-off from urban areas has the potential to reduce the quality of water entering a catchment. Water quality may also be reduced through point source effluent discharges from new development at Wastewater Treatment Works (WwTWs) and other controlled discharge sources. Changes in water quality also have the potential to affect FLL (land or watercourses outside a designated site boundary).
- **Recreational pressure:** New housing development has the potential to increase recreational pressure upon European sites which are accessible to the public.

[39] Natural England (2019) Natural England's Impact Risk Zones for Sites of Special Scientific Interest User Guidance. Available at: https://magic.defra.gov.uk/Metadata_for_magic/SSSI%20IRZ%20User%20Guidance%20MAGIC.pdf [Date Accessed: 10/02/25].

[40] "The term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a European site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the European site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status". Source: Natural England (2016) Commissioned Report. NECR207. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions.

[41] APIS (2016) Ecosystem Services and air pollution impacts.

- **Urbanisation effects:** Urban development has the potential to result in disturbing activities (such as noise, lighting, cat predation and visual disturbance). Disturbance effects may impact upon European sites themselves and also their qualifying features when outside a designated site boundary. It may also result in the fragmentation of connecting habitats and corridors which could hinder the movement of mobile qualifying species when located outside a designated site boundary.

3.4 Air quality

3.4.1 Natural England has developed a standard methodology for the assessment of traffic related air quality impacts under the Habitats Regulations which is relevant to the HRA of land use plans[42]. This guidance sets a methodology and thresholds for screening of Likely Significant (air quality) Effects at the HRA screening stage (Stage 1 of the HRA process).

3.4.2 Natural England's guidance (in the form of a series of questions below) has been applied to determine potential air quality impact pathways to European sites:

- Does the Local Plan give rise to emissions which are likely to reach a European site?
- Are the qualifying features of sites within 200m of a road sensitive to air pollution?
- Could the sensitive qualifying features of the site be exposed to emissions?
- Application of screening thresholds (alone and then, if necessary, in-combination).

Does the Local Plan give rise to emissions which are likely to reach a European site?

3.4.3 The Local Plan will trigger housing and employment development and consequently increase traffic-related emissions. Air quality impacts have been shown to typically affect European sites within 10km of a plan boundary[43]. Campman and Kite (2021) note that 'this zone is based on professional judgment recognising that the effects of growth from development beyond 10km will have been accounted for in the Nitrogen Futures modelling work business as usual scenario'[44]. This 10km distance threshold can be a useful guide to identify the broad areas that may be impacted by air quality. However, it is noted that consideration should also be given to larger residential or commercial allocations and their wider potential for air quality impacts in the context of the local and regional road network.

[42] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824 [Date Accessed: 10/02/25].

[43] Chapman, C and Kite, B. (2021) Main Report. Guidance on Decision-making Thresholds for Air Pollution. JNCC Report No. 696. Available at: https://hub.jncc.gov.uk/assets/6cce4f2e-e481-4ec2-b369-2b4026c88447 [Date Accessed: 10/02/25].

[44] JNCC. Nitrogen Future. Available at: https://jncc.gov.uk/our-work/nitrogen-futures/ [Date Accessed: 10/02/25].

3.4.4 Data has therefore also been obtained from the Office for National Statistics. This data highlights the most common destinations for journeys to work undertaken by car or van arising from and finishing in the Plan area[45]. The key traffic destinations / origins include neighbouring authority areas such as Sutton, Reigate and Banstead, Mole Valley and Kingston upon Thames.

3.4.5 European sites beyond 10km of the Plan area, but within the key commuting areas outlined in **paragraph 3.4.4,** are therefore also considered within this HRA where they are linked to the Plan area via key strategic road links. Key strategic road links provide a clear route linking residential and employment areas to / from the Plan area**.**

Are the qualifying features of sites within 200m of a road sensitive to air pollution? And could the sensitive qualifying features of the site be exposed to emissions?

3.4.6 It is widely accepted that air quality impacts are greatest within 200m of a road source, decreasing with distance[46,47,48]. Baseline mapping data has been used to determine the proximity of European sites, and their qualifying features, to roads (within 200m) which may result in an exceedance of Natural England's screening thresholds (in particular A and B roads and motorways) within a 10km buffer from the Plan area and within the key commuting area[49] (**paragraphs 3.4.3** and **3.4.4**). As noted above, the Local Plan will trigger housing and employment development and therefore has the potential to increase traffic related emissions along road links.

3.4.7 The UK Air Pollution Information System (APIS) provides information on all European sites and the sensitivity of their qualifying features (habitats and / or species) to air pollution. This data has been interrogated, alongside a desk-based review of site-based data (**Appendix B**) and distribution of qualifying habitat to determine whether there may be impact pathways from the Local Plan to any European site through a change in atmospheric emissions. Consideration has also been given to the location of each European site and connectivity of road links to the Plan area (as set out in **paragraph 3.4.5).**

[45] Office for National Statistics (2011) Location of usual residence and place of work by method of travel to work (2011 census data). Travel by car or van only. Available at: https://www.nomisweb.co.uk/census/2011/WU03UK/chart/1132462281 [Date Accessed: 10/02/25].

[46] The Highways Agency, Transport Scotland, Welsh Assembly Government, The Department for Regional Development Northern Ireland (2007) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1: Air Quality.

[47] Natural England (2016) The ecological effects of air pollution from road transport: an updated review. Natural England Commissioned Report NECR 199.

[48] Bignal, K., Ashmore, M. & Power, S. (2004) The ecological effects of diffuse air pollution from road transport. English Nature Research Report No. 580, Peterborough.

[49] As per Nitrogen Futures Modelling Work – see Paragraph 5.4.8.

Mole Gap to Reigate Escarpment SAC

3.4.8 Mole Gap to Reigate Escarpment SAC is located wholly within 10km of the Plan area and within the key commuting area. The SAC is located within 200m of the A24, A25, M25, B2033, B2209, B2032 and A217 as illustrated on **Figure 3.1**.

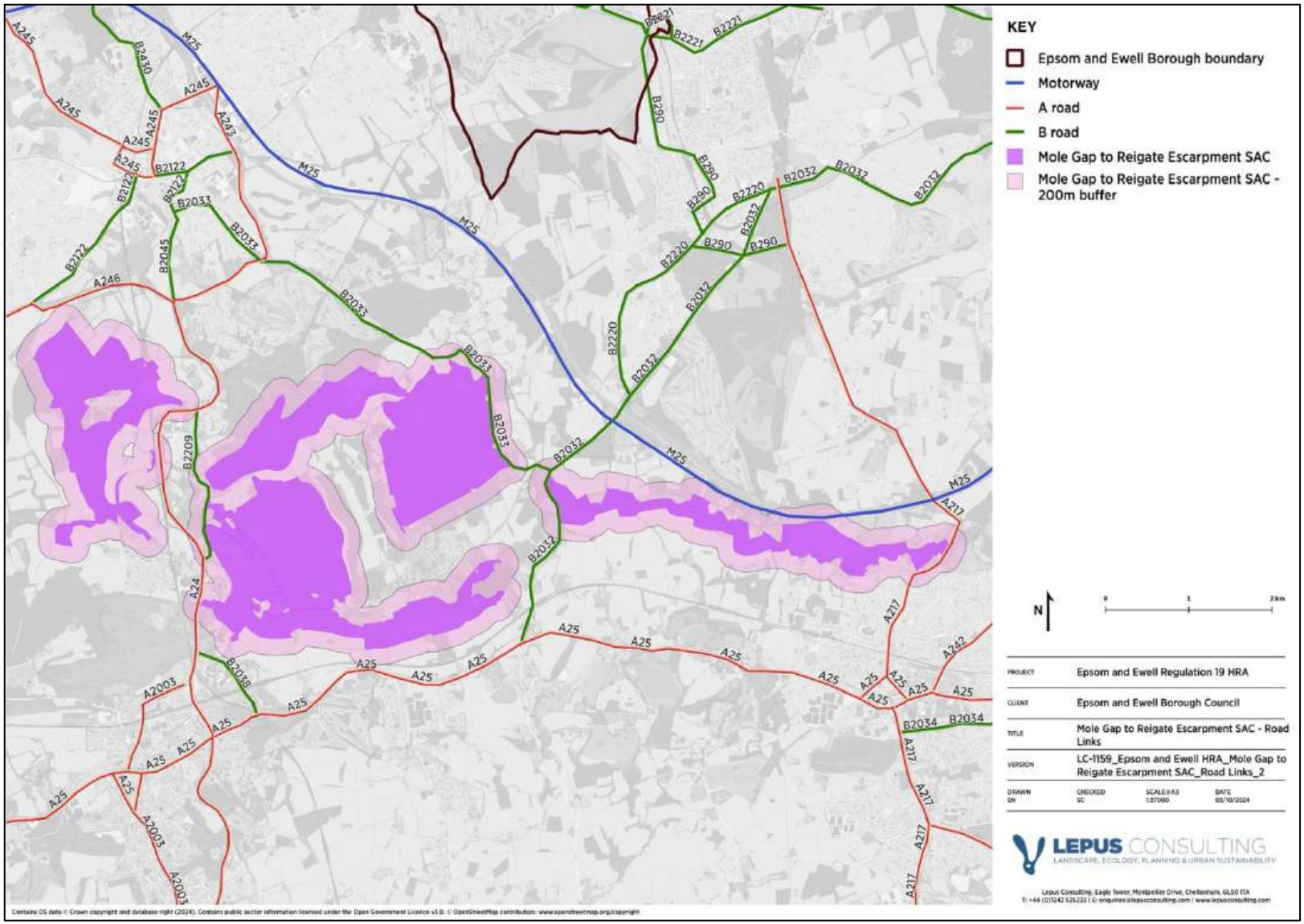

Figure 3.1: *Strategic road links within 200m of the Mole Gap to Reigate Escarpment SAC component*

3.4.9 The qualifying features of the SAC include a number of habitats (listed below) and two species which include Great Crested Newts (GCN, *Triturus cristatus*) and Bechstein's Bat (*Myotis bechsteinii).*

- *Stable xerothermophilous* formations with Buxus sempervirens on rock slopes (*Berberidion p.p.*) *Sclerophyllous scrub* (matorral);
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (this includes the priority feature "important orchid rich sites");
- *Taxus baccata* woods of the British Isles;
- European dry heaths; and
- *Asperulo-Fagetum* beech forests.

3.4.10 At its nearest point, the M25 is located within 67m of the SAC, with an area of approx. 5.5ha of the SAC located within 200m (the SAC covers approx. 892.3ha in size in total[50]) located in SSSI management units 24 and 23. SSSI unit condition data indicates that unit 24 is dominated by deciduous woodland, and unit 23 by lowland calcareous grassland. RPS undertook an HRA screening assessment for the Gatwick Runway 2 project[51]. This drew on the findings of an ecological survey that was undertaken to determine the presence or absence of priority habitat within 200m of the M25 by directly examining the distribution of the priority habitat in that area. It concluded that "*the grassland within 200 m of the M25 is of a condition unlikely to support SAC quality orchidaceous rich grasslands. There are no plans to change the management of the area in the foreseeable future. Therefore, there is no potential for an increase in traffic on the M25, as a result of LGW-2R, to have a significant effect with respect to the Annex 1 priority habitat calcareous grasslands with 'important orchid sites'*. The report also notes that correspondence with Natural England has confirmed that box scrub and Yew-woodland does not occur within 200m of the M25 (within management Unit 23). This was used as a basis to screen out air quality impacts of traffic growth on the M25 on the qualifying features of the SAC. Taking into consideration the distribution of SAC features, habitats within 200m of the M25, it is not considered that traffic growth from the Local Plan, alone or in-combination, will have an adverse effect on the integrity of the SAC at this location and therefore the M25 can be screened out.

3.4.11 The A25 is located on the immediate edge of the 200m buffer and is therefore scoped out of any assessment due to its distance from the SAC.

3.4.12 A review of priority habitat mapping data indicates that habitat within 200m of the A24, B2033, B2209, B2032 and A217 comprises a mixture of broadleaved woodland, deciduous woodland, lowland heathland and calcareous grassland. APIS data indicates that the qualifying habitats (listed in **paragraph 3.2.9**) are sensitive to changes in levels of ammonia, nitrogen oxides, nitrogen deposition and acid deposition[52].

[50] JNCC. Mole Gap to Reigate Escarpment SAC. Available at: https://sac.jncc.gov.uk/site/UK0012804 [Date Accessed: 10/02/25].

[51] RPS. 2017. Gatwick Runway 2. Mole Gap to Reigate Escarpment SAC and Ashdown Forest SPA/SAC. Revised Habitats Regulations Assessment Report Stage 1 (Screening).

[52] APIS https://www.apis.ac.uk/app

3.4.13 The SAC is underpinned by the Mole Gap to Reigate Escarpment SSSI. This is comprised of 37 SSSI units, of which 22 are in a 'favourable' condition, 13 are in an 'unfavourable – recovering' condition, one is in an 'unfavourable – no change' condition and one in an 'unfavourable – declining' condition.

3.4.14 In an attempt to manage the negative consequences of atmospheric pollution at designated sites, CLos and CLes have been established for ecosystems across Europe. Each European site is host to a variety of habitats and species with different sensitivities to different levels of air pollution. The CLo of pollutants are defined as a "…quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge"[53]. CLe are defined as "concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge"[54].

3.4.15 The target for air quality for all habitat types (with the exception of natural box scrub) is to 'maintain or restore as necessary the concentrations and deposition of air pollutants to 'at or below' the site-relevant CLo or CLe values given for the qualifying features of the site on the APIS'. For natural box scrub the target is to 'restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant CLo or CLe values given for this feature of the site on the APIS'.

3.4.16 The CLo for nitrogen deposition for all qualifying features (with the exception of heath) is 10-20kg/N/ha/yr. For heaths the CLo range is 5-15kg/N/ha/yr. Current average levels of nitrogen deposition across the SAC are 13.503kg/N/ha/yr[55]. This exceeds the lower range for nitrogen deposition for all features. Data taken from APIS indicates that current levels of acid deposition are within or below the lower CLo range for the SAC.

3.4.17 Given the location of the SAC within 10km of the Plan area, within the key commuting area and the presence of qualifying habitat within 200m of strategic road links it can be concluded that there is potential for qualifying features of the SAC to be exposed to traffic emissions associated with the Local Plan. The next stage of the screening process is to apply screening thresholds to changes in traffic flows on the A24, B2033, B2209, B2032 and A217 (see **Table 3.2**).

[53] Coordination Centre for Effects (CCE). Critical load and level definitions. Available at: https://www.umweltbundesamt.de/en/Coordination_Centre_for_Effects [Date Accessed: 10/02/25].

[54] Coordination Centre for Effects (CCE). Critical load and level definitions. Available at: https://www.umweltbundesamt.de/en/Coordination_Centre_for_Effects [Date Accessed: 10/02/25].

[55] Nitrogen deposition levels area taken for moorland short vegetation from APIS.

Richmond Park SAC

3.4.18 Whilst Richmond Park SAC is located within 10km of the Plan area, no current threats or pressures were identified in the SIP for Richmond Park SAC (**Appendix B)** or on the Natura 2000 data form for this SAC. In addition, data taken from APIS concludes that, whilst woodland which support the Stag Beetle (*Lucanus cervus*) for which the SAC is designated, is vulnerable to nitrogen deposition, the Stag Beetle itself if not sensitive to nitrogen impacts on broad habitat types. This European site has therefore been scoped out of the assessment.

South West London Waterbodies SPA and Ramsar

3.4.19 The Kempton Park Reservoir SSSI and Knight & Bessborough Reservoir SSSI components of the South West London Waterbodies SPA and Ramsar are located within 10km of the Plan area and with the key commuting area.

3.4.20 There is no strategic road link located within 200m of Kempton Park Reservoir. The A3050 and B369 lie within 200m of the Knight & Bessborough Reservoir SSSI component as illustrated on **Figure 3.2**.

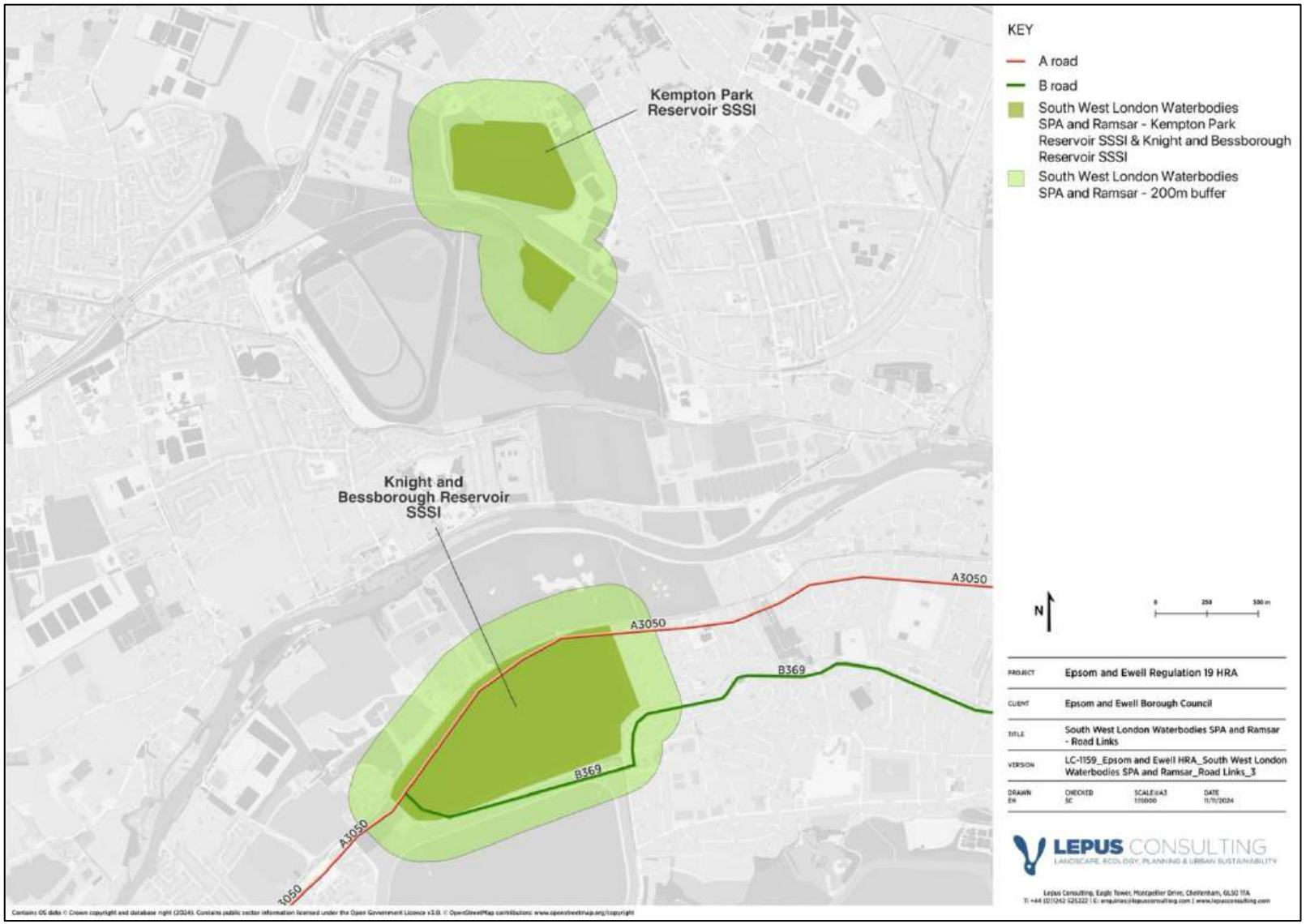

Figure 3.2: *Strategic road links within 200m of the South West London Waterbodies SPA and Ramsar*

3.4.21 The qualifying features of the South West London Waterbodies SPA and Ramsar designations are non-breeding Gadwall (*Anas strepera*) and Northern Shoveler (*Anas clypeata*). The waterbodies which support these species of bird are located within 200m of the A3050 and B369.

3.4.22 Given the location of the SPA and Ramsar within 10km of the Plan area, within the key commuting area and the presence of qualifying habitat within 200m of strategic road links it can be concluded that there is potential for qualifying features of the SPA and Ramsar to be exposed to traffic emissions associated with the Local Plan. The next stage of the screening process is to apply screening thresholds to changes in traffic flows on the A3050 and B369 (see **Table 3.2**).

Thames Basin Heaths SPA

3.4.23 Only one component of the Thames Basin Heaths SPA is located within 10km of the Plan area and within the key commuting area. This is the component which is underpinned by Ockham and Wisley Commons SSSI. Only a very small portion of eastern section of this SSSI is located within 10km of the Plan area (**Figure 3.3**). The remaining area of this SSSI is beyond the air quality study area for this HRA. Only the northern section of the A3 (where it is not located within 200m of the SPA) and the eastern section of the M25, are located within 10km of the Plan area (**Figure 3.3**). The southern section of the A3 and the western section of the M25 sit outside a 10km buffer zone from the Plan area

3.4.24 This component of the SPA is located at Junction 10 of the M25 and A3, as illustrated on **Figure 3.3**. The M25 provides an east to west strategic route to the south west of the Plan area but does not connect directly to it. The A3 runs through Ockham and Wisley Commons SSSI, providing a north to south strategic route to the north west of the Plan area but does not connect directly to it.

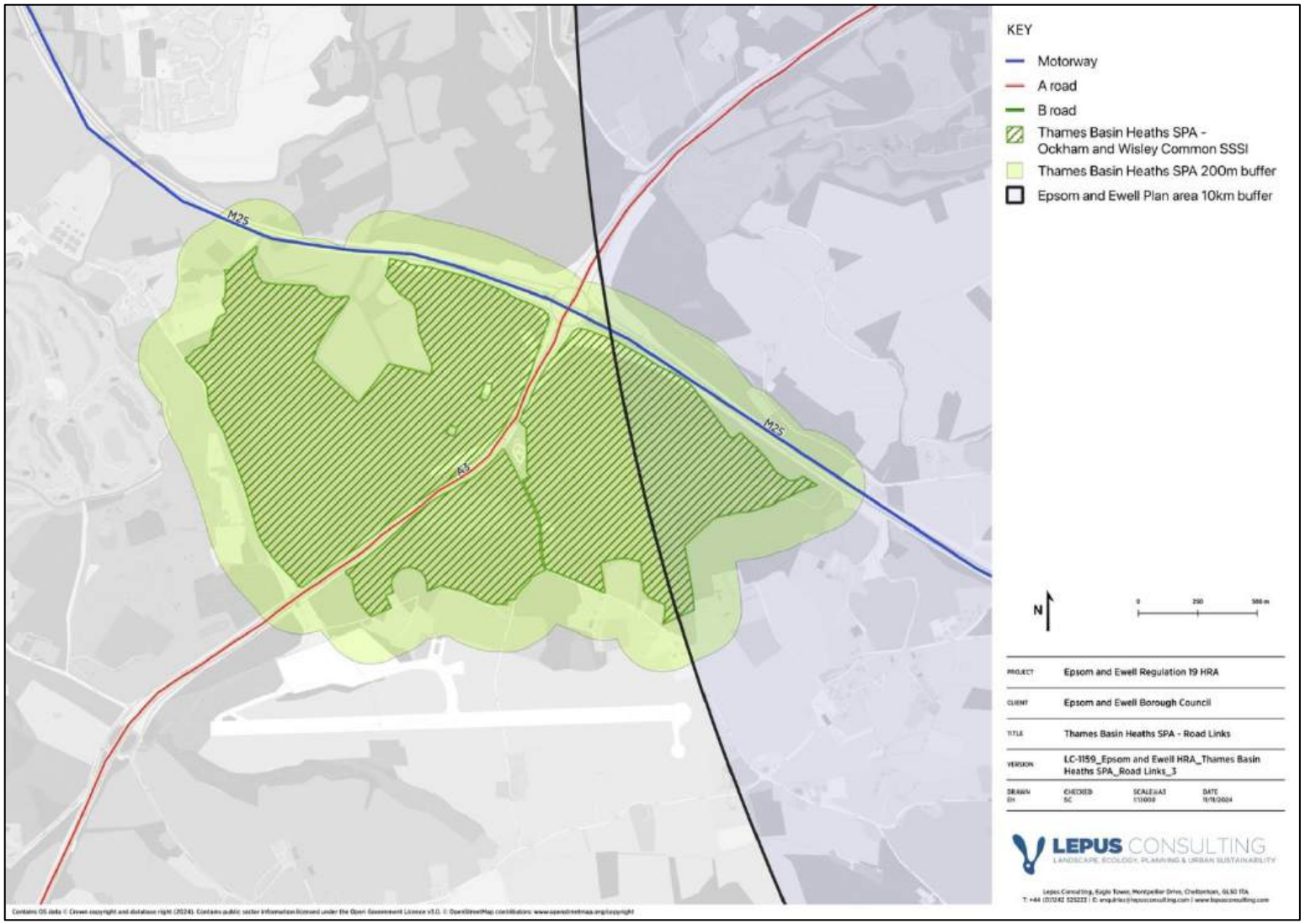

Figure 3.3: *Strategic road links within 200m of the Thames Basin Heaths SPA (Ockham and Wisley Commons SSSI component)*

3.4.25 The Thames Basin Heaths SPA is designated for European Nightjar (*Caprimulgus europaeus*), Woodlark (*Lullula arborea*) and Dartford Warbler (*Sylvia undata*). These species rely on broad habitat types as set out in **Table 3.1**.

Table 3.1: *Thames Basin Heaths SPA qualifying features and their suitable habitats*

Species	Habitat
European nightjar (*Caprimulgus europaeus*)	The Nightjar is a ground-nesting summer migrant which feeds on moths and other flying insects at night, mainly at dusk and dawn. They predominantly feed over heathland and along forest rides but are most successful at feeding when there is range of food-rich habitats present[56]. Nightjars' nests are usually located within gaps in dry lowland heathland, coppice woods or forest clearings with limited tree canopy cover. During the day the nightjar is found on open ground habitats and often use trees as song or lookout posts[57]. They require an open mosaic of habitats to meet all lifecycle stages. The height, cover, variation and composition of vegetation and characteristics of habitat are important to support breeding and successful nesting, rearing of young, concealment from predators and movement along flight lines and roosting. Nightjar feed primarily on flying insects, such as moths and beetles. Requirements for a nightjar include[58]: • Heathland; • Open woodland; • Clearings; • Recently felled conifer plantations; and • Heterogenous and semi-open natural habitats.
Woodlark (*Lullula arborea*)	Woodlarks are a ground nesting bird which feeds predominantly on beetles, caterpillars and spiders foraged from the soil or from short turf[59]. During the winter, they change their diet to feed on seeds and often join flocks of finches, skylarks and buntings on stubbles and set-aside fields and therefore agricultural fields may become an important habitat type at this time of the year. Similarly to nightjar, woodlark require an open mosaic structure of habitat to support all life cycle stages. Occasional trees around woodland edges or scattered trees provide song and lookout posts. Their habitat requirements include: • Lowland heathland with short, sparse, natural developed turf interspersed with tussocky vegetation; • A high abundance of invertebrate prey on bare ground; • Winter fields (stubbles and set-aside); and • Heterogeneous land type with two to four land cover types suitable for foraging and nesting.
Dartford warbler (*Sylvia undata*)	The Dartford Warbler is a ground nesting bird associated with lowland heathland[60]. This species favours dense, homogenous scrub, that is dominated by species such as gorse (*Ulex*), heath (*Erica*), brooms (*Cytisus scoparius*) and oak (*Quercus*). These species provide safe nesting places, hunting ground and signing platforms[61]. The Dartford Warbler feeds on a diet mainly of beetles, spider, caterpillars and bugs.

[56] RSPB. All about Nightjars. Available at: https://www.rspb.org.uk/whats-happening/news/all-about-nightjars [Date Accessed: 10/02/25].

[57] Cornish, C., Lowe, A., Wilkinson, C., Lucas, E and Wotton, S. 2018. A report by RSPB for the Sherwood Habitats Strategy Group.

[58] Sierro, Antoine, et al. "Habitat use and foraging ecology of the nightjar (Caprimulgus europaeus) in the Swiss Alps: towards a conservation scheme." Biological conservation 98.3 (2001): 325-331.

[59] RSPB (2021) The woodlark… January's joy. Available at: https://community.rspb.org.uk/placestovisit/pulboroughbrooks/b/pulboroughbrooks-blog/posts/the-woodlark-january-s-joy [Date Accessed: 10/02/25].

[60] The Wildlife Trusts. Dartford warbler. Available at: https://www.wildlifetrusts.org/wildlife-explorer/birds/tits-crests-and-warblers/dartford-warbler [Date Accessed: 10/02/25].

[61] RSPB. Dartford Warbler. Available at: https://www.rspb.org.uk/birds-and-wildlife/dartford-warbler [Date Accessed: 10/02/25].

3.4.26 Whilst these species of bird and supporting habitats are not sensitive to changes in levels of nitrogen oxides, ammonia or acid deposition, they may be sensitive to changes in nitrogen deposition due to potential negative impacts upon heathland and rotationally managed coniferous woodland. Current levels of nitrogen deposition (maximum deposition of 21.3kg/N/ha/yr to woodland and 11.3kg/N/ha/yr to short vegetation[62]) exceed the lower CLo range for the SPA for both heathland and woodland habitat (nitrogen CLo ranges from 5–15kg/N/ha/yr)[63].

3.4.27 Ockham and Wisley Common SSSI is comprised of nine SSSI units, of which six are in a 'favourable' condition and three are in an 'unfavourable – recovering' condition. Monitoring of key bird species indicates that the SSSI provides very good supporting habitat conditions for its qualifying bird species when compared to previous survey results[64].

3.4.28 The air quality objective for Nightjar is to 'restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant CLo or CLe values given for this feature of the site on the APIS'. The air quality objective for both Woodlark and Dartford Warbler is to 'maintain or restore as necessary concentrations and deposition of air pollutants to at or below the site-relevant CLo or CLe values given for this feature of the site on the APIS'[65].

[62] Data taken from APIS. https://www.apis.ac.uk/srcl [[Date Accessed: 10/02/25].

[63] Air Pollution Information System (2024) https://www.apis.ac.uk/srcl

[64] Natural England Designated Site Viewer. https://designatedsites.naturalengland.org.uk/SiteUnitList.aspx?SiteCode=S1001052&SiteName=Thames%20Basin%20Heaths&countyCode=&responsiblePerson=&unitId=&SeaArea=&IFCAArea=

[65] Natural England (2016) European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Thames Basin Heaths Special Protection Area (SPA) Site Code: UK901214.

3.4.29 The M25 Junction 10 / A3 Wisley interchange is currently subject to a Highways England major infrastructure project which involves construction of four new slip roads at Junction 10 of the M25, increasing the capacity of the roundabout and widening of the A3 to four lanes either side of the junction. These road works coincide with the Thames Basin Heaths SPA where it is underpinned by the Ockham and Wisley Common SSSI and require land take from the SPA. This scheme has been granted consent under the provisions of the Habitats Regulations; because it has demonstrated that no alternative solutions exist, imperative reasons of overriding public interest (IROPI) and compensation measures have been secured. The scheme will result in the permanent loss of 5.9ha of the SPA and temporary loss of 8.7ha which will be confined to the woodland edge of the SPA. The scheme will provide 8.1ha of SPA compensation land immediately adjacent to the Ockham and Wisley Common SSSI component of the SPA[66] and enhancement across 47.4ha of the SPA to benefit the qualifying species[67]. Compensation Area 1 will not be located within 200m of the M25 or A3. Compensation Area 2 at Wisley is located within 200m of the M25[68] but outside of the 10km buffer from the Plan area and outside the key commuting area.

3.4.30 Surveys were undertaken across Ockham and Wisley Common SSSI to support the HRA for the road works project[69]. The outputs from these surveys indicate that heathland habitats occur at a distance of 150m or greater from the M25 and A3, and any points closer than 150m fall within a 'woodland buffer' which does not provide nesting or roosting habitat for any of the qualifying bird species. The survey data also indicates that there are no areas of rotationally felled and replanted woodland within the woodland buffer area and that it comprises mature woodland several decades in age. The work undertaken in support of the HRA for the road works does however note the importance of this buffer area, which is within the SPA designation boundary, for providing invertebrate food resource, specifically for Nightjar. Data provided on the APIS website notes that Nightjar are not sensitive to impacts on species broad habitat type as identified as coniferous woodland.

3.4.31 The traffic modelling used to support the M25 Junction 10 / A3 Wisley interchange sets out major land use developments from neighbouring LPA local plans[70]. It is noted that development within the Epsom and Ewell administrative area has been scoped out as it is not considered to be within the influence of the scheme.

[66] Old Lane SPA compensation land and Wisley SPA compensation land.

[67] Highways England (2020) 5.3 HABITATS REGULATIONS ASSESSMENT STAGES 3-5: ASSESSMENT OF ALTERNATIVES, CONSIDERATION OF IMPERATIVE REASONS OF OVERRIDING PUBLIC INTEREST (IROPI) AND COMPENSATORY MEASURES.

[68] Highways England (2023) M25 junction 10/A3 Wisley Interchange Improvement. Environmental Management Plan. RHS Wisley HE551522-BBA-EGN-SCC_LR_WISLEY-RP-LM-000001

[69] Secretary of State for Transport (2022) HABITATS REGULATIONS ASSESSMENT FOR AN APPLICATION UNDER THE PLANNING ACT 2008 M25 Junction 10/A3 Wisley Interchange

[70] Highways England (2019) M25 junction 10/A3 Wisley interchange TR010030 9.13 Traffic Forecasting Report Rule 8(1)(c)(i) Infrastructure Planning (Examination Procedure) Rules 2010 Planning Act 2008.

3.4.32 A Strategic Transport Model Assessment Report[71] has been undertaken to support the plan-making process. This notes that changes in flows on the strategic road network (which includes the A3 and M25) are largely a result of rerouting and displacement of existing trips rather than trips generated by the Local Plan itself. The Strategic Transport Model Assessment also notes that a considerable volume of trips made by residents in Epsom and Ewell use existing public transport services which reflects the proximity of the Plan area to London and connectivity via railway.

3.4.33 On the basis of the above information, it is considered unlikely that qualifying habitat within 200m of the M25 and A3 will be exposed to traffic emissions associated with the Local Plan. The SPA can therefore be scoped out and not be considered further in the HRA process. This approach is consistent with neighbouring LPAs which are located closer to the SPA, such as Mole Valley[72].

Wimbledon Common SAC

3.4.34 Wimbledon Common SAC is located within 10km of the Plan area and within the key commuting area. Wimbledon Common is located within 200m of the A3, A219 and B281 as illustrated on **Figure 3.4**. The A3 runs adjacent to the north of the SAC providing a north to south strategic route. The A219 abuts the east boundary of the SAC, forming a north to south route. However, the A219 does not connect to the Plan area but connects to the A24, a strategic route into the centre of the Plan area. In addition, a number of smaller roads that form part of the minor road network lie within 200m of the SAC including the B281, B351 and B321 – these are not connected directly to the Plan area.

3.4.35 The two qualifying habitats of Wimbledon Common SAC, European dry heaths and Northern Atlantic wet heaths with *Erica tetralix*, are both sensitive to atmospheric pollution. In terms of the qualifying species, Stag Beetle, APIS indicates that there is 'no expected negative impact on species due to impacts on the species' broad habitat'. The nitrogen deposition CLo for both dry and wet heaths is 5–15kg/N/ha/yr and 10-15kg/N/ha/yr for Stag Beetle. Current average levels of nitrogen deposition are 11.831kg/N/ha/yr[73]. These levels do not exceed the maximum CLo for these habitat types or the Stag Beetle but exceed the lower range. APIS data also shows that current levels of acid deposition are within the CLo range for both habitats.

3.4.36 Wimbledon Common SAC is underpinned by Wimbledon Common SSSI. This SSSI is comprised of five SSSI units, of which four are in an 'unfavourable – recovering' condition and one in an 'unfavourable – no change' condition. The A219 falls within 200m of Units 001 (Putney Heath) and 002 (Hookhamslade).

[71] Surrey County Council (2024) Strategic Transport Model Assessment Report.

[72] AECOM (2019) Habitat Regulations Assessment of the Mole Valley Draft Local Plan. Mole Valley District Council.

[73] Data taken from APIS as a grid average. https://www.apis.ac.uk/srcl [Date Accessed: 10/02/25].

3.4.37 A review of the Land Management Plan for Wimbledon and Putney Commons[74] indicates that a small area of heathland is located within 200m of the A219, with none located within 200m of the A3. The majority of the heathland habitat at the SAC is therefore located outside a 200m buffer from both road links. This is reflected in neighbouring LPA HRA work, such as that prepared for the Croydon Council Local Plan[75].

3.4.38 Given the location of the SAC within 10km of the Plan area, within the key commuting area and the presence of small areas of qualifying habitat within 200m of strategic road links it can be concluded that there is potential for qualifying features of the SAC to be exposed to traffic emissions associated with the Local Plan. Changes in traffic flows on the A3 and A219 are compared to screening thresholds in **Table 3.2**.

[74] Wimbledon and Putney Commons Board of Conservators (2024) Conserving the Commons A Land Management Plan for Wimbledon and Putney Commons 2024 to 2034. Available at: https://www.wpcc.org.uk/downloads/land-management-plan/land-management-plan-final---february-2024-final-for-website.pdf [Date Accessed: 10/02/25].

[75] AECOM (2021) Habitats Regulations Assessment of the Croydon Local Plan Review.

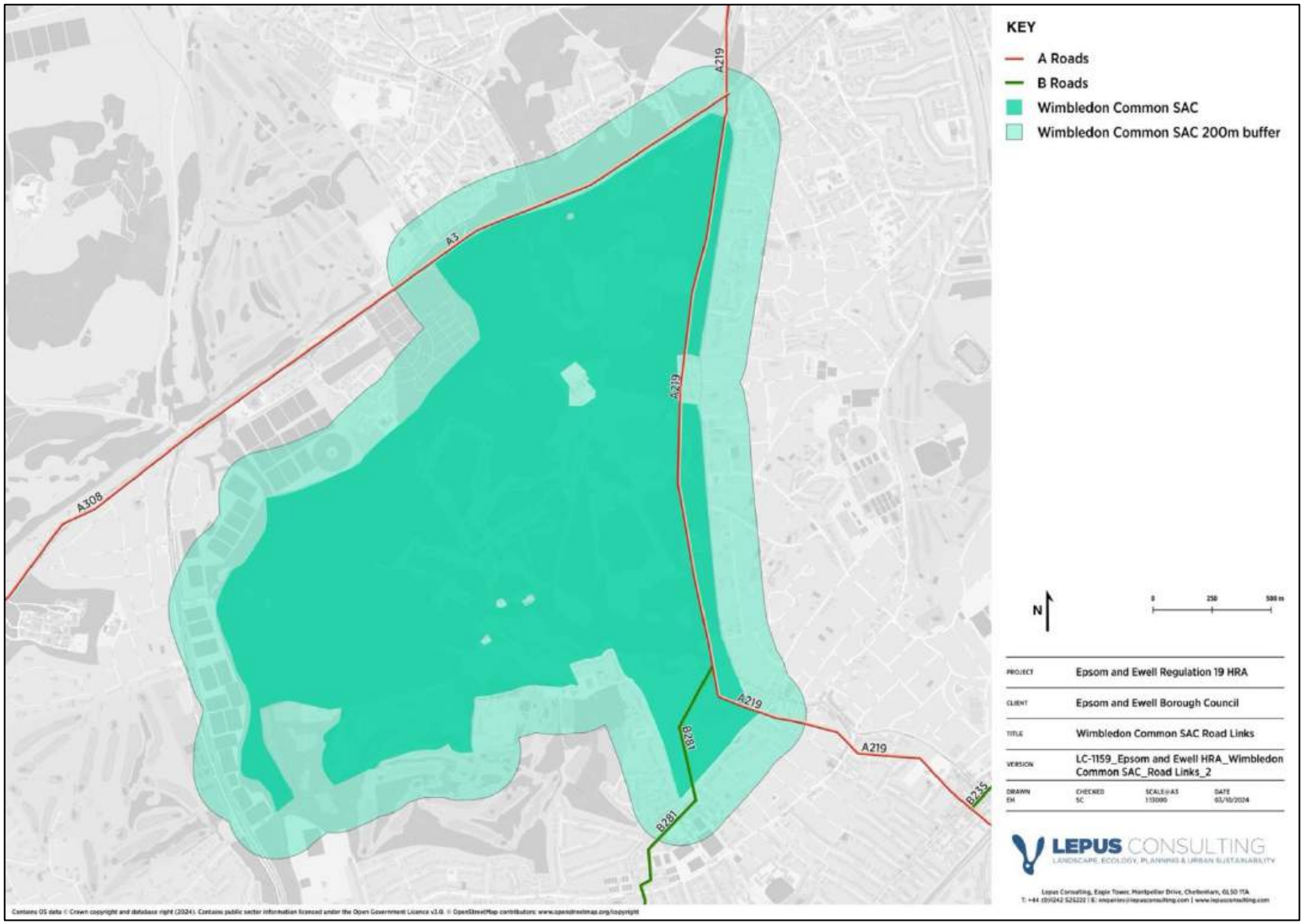

Figure 3.4: *Strategic road links within 200m of Wimbledon Common SAC*

Application of screening thresholds (alone and then if necessary in-combination)

3.4.39 Natural England's advice on the assessment of air quality impacts under the Habitats Regulations states that consideration should be given to the risk of road traffic emissions associated with a Local Plan[76]. This advice states that an assessment of the risks from road traffic emissions can be expressed in terms of the average annual daily traffic flow (AADT) (as a proxy for emissions)). The use of the AADT screening threshold is advocated by Highways England in their Design Manual for Roads and Bridges (DMRB). This screening threshold is intended to be used as a guide to determine whether a more detailed assessment of the impact of emissions from road traffic is required. This non-statutory or guideline threshold is based on a predicted change of daily traffic flows of 1,000 AADT or more (or heavy-duty vehicle (HDV) flows on motorways change by 200 AADT or more).

3.4.40 The AADT thresholds do not themselves imply any intrinsic environmental effects and are used solely as a trigger for further investigation. Widely accepted environmental benchmarks for imperceptible impacts are set at 1% of the CLo or CLe, which is considered to be roughly equivalent to DMRB thresholds for changes in traffic flow of 1,000 AADT and for HDV of 200 AADT. This has been confirmed by modelling using the DMRB Screening Tool that used average traffic flow and speed figures from the Department for Transport (DfT) data to calculate whether the nitrogen oxides (NOx) outputs could result in a change of >1% of CLo or CLe on different road types. A change of >1,000 AADT on a road was found to equate to a change in traffic flow which might increase emissions by 1% of the CLo or CLe and might consequentially result in an environmental effect nearby (e.g. within 10 metres of roadside).

3.4.41 The AADT thresholds and 1% of CLo or CLe are considered by Natural England to be suitably precautionary as any emissions below this level are widely considered to be imperceptible and, in the case of AADT, undetectable through the DMRB model. There can, therefore, be a high degree of confidence in its application to screen for risks of an effect.

3.4.42 This traffic data was derived from the SINTRAM74 Transport model. This is an OmniTRANS based variable demand model. Traffic data was provided as AADT movement for the following three scenarios which allowed consideration of both alone and in-combination effects:

- 2019 Base year
- 2040 Do Minimum. This includes completions and commitments within the borough since 2019, significant recent completions and commitments outside of the borough, and natural traffic growth.

[76] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824 [Date Accessed: 10/02/25].

- 2040 Do Something. This is a copy of the 2040 Do Minimum scenario plus Local Plan development sites and windfalls.

3.4.43 Further details can be found in the Strategic Transport Model Assessment[77].

3.4.44 The L1 (inner) model comprises the master model covering all of Surrey, and the L2 (outer) model is a smaller cordoned model of the study area which comprises Epsom and Ewell Borough plus a buffer.

3.4.45 The results for the Do-Minimum and Do-Something scenarios were compared against one-another to show the impacts of the Local Plan in-isolation (alone). The in-combination assessment was completed by comparing the results of the Base and the Do-Something scenarios. The traffic modelling takes into consideration commitments outside of the borough alongside natural traffic growth. This allows the impact of the Local Plan in-combination with all neighbouring LPA and wider growth to be taken into consideration accurately.

3.4.46 An average AADT has been calculated for all road links that comprise each strategic road where it falls within 200m of each European site, **Table 3.2**. This data was assessed against Natural England's 1,000 AADT screening threshold for LSEs. Where the 1,000 AADT for the Local Plan alone or the Local Plan in-combination is exceeded, this is highlighted in red.

Table 3.2: *Summary of average change in AADT from the Local Plan alone and the Local Plan in-combination with other plans and projects for road links within 200m of European sites*

Road Name / Number	Local Plan Change in AADT (alone)	Local Plan Change in AADT (In-combination)	Does the change in AADTs exceed NE screening threshold? i.e. 1,000 AADT
Mole Gap to Reigate Escarpment SAC			
B2033	50	353	No
B2032	235	3,729	Yes
A217	-127	4,276	No. As there is a reduction in flows from Epsom & Ewell Local Plan alone.
A24	-56	1,235	No. As there is a reduction in flows from Epsom & Ewell Local Plan alone.
B2209	38	534	Screen out
South West London Waterbodies SPA and Ramsar			
A3050	8	692	No
B369	61	990	No
Wimbledon Common SAC			

[77] Surrey County Council (2024) Strategic Transport Model Assessment Report.

Road Name / Number	Local Plan Change in AADT (alone)	Local Plan Change in AADT (In-combination)	Does the change in AADTs exceed NE screening threshold? i.e. 1,000 AADT
A3	-247	3,924	No. As there is a reduction in flows from Epsom & Ewell Local Plan alone.
A219	115	8,632	Yes
B281	-103	3,019	No. As there is a reduction in flows from Epsom & Ewell Local Plan alone.

Mole Gap to Reigate Escarpment SAC

3.4.47 Traffic modelling for the A24, B2033, B2209, B2032 and A217 shows no exceedances of the 1,000 AADT screening thresholds for a Local Plan alone scenario along any of these road links.

3.4.48 Given there is no alone exceedance of thresholds, it is necessary to next consider effects in-combination. Whilst there are in-combination exceedances of the screening threshold along the B2033, A24 and A217, the contribution to these flows from the Epsom and Ewell Local Plan is negative, showing a reduction of traffic from the Local Plan on these links where they run within 200m of the SAC. These links can therefore be screened out. There are however in-combination exceedances of the 1,000 AADT screening thresholds on the B2032 within 200m of the SAC.

3.4.49 Given the identified exceedances of 1,000 AADT along the B2032, air quality dispersion modelling was commissioned to better define air quality impacts associated with an increase in traffic from the B2032. The output from the air quality modelling is reported upon in the Air Quality Assessment Report[78] which is provided in **Appendix C**. The air quality modelling results allow a comparison of the change in emissions against 1% of the individual pollutant CLo or CLe.

3.4.50 The air quality modelling was undertaken at set distances across three transects (transects A, B and C) which run perpendicular to the B2032 and also across a grid at the SAC within 200m of the modelled road link. The extent of receptors modelled is illustrated in Figure 2 and Figure 3 of **Appendix C**.

3.4.51 The air quality modelling focused on the following pollutants which are associated with traffic related emission sources:

- Nitrogen oxides (NOx)
- Ammonia (NH_3)
- Nutrient nitrogen deposition (N-dep)
- Acid deposition (A-dep)

[78] AQC (2024) Air Quality Modelling Technical Report.

3.4.52 Nitrogen oxides (NOx) are produced during the combustion processes, partly from nitrogen compounds in the fuel, but mostly by direct combination of atmospheric oxygen and nitrogen in flames[79]. Road transport emissions of NOx in 2018 were the largest contributor to UK total emissions of NOx with most emissions related to diesel vehicles[80]. The introduction of catalytic converters has seen an overall reduction in emissions since 1990. NOx has the potential to impact habitats through direct toxicity and through their contribution to nitrogen deposition. The CLe for all vegetation types from the direct toxic effects of NOx has been set at 30 μg/m^3.

3.4.53 As set out in Section 4 of the Air Quality Report (**Appendix C**), the 1% NOx threshold in-combination was not exceeded for the Local Plan alone. The 1% screening threshold was however exceeded for the Local Plan in-combination within 17m of the B2032.

3.4.54 Ammonia (NH_3) originates from both natural and anthropogenic sources, with the main man-made source being agriculture. Other man-made sources of NH_3 include industrial processes and vehicular emissions (from catalyst-equipped petrol vehicles and selective catalytic reduction on light and heavy goods diesel fueled vehicles). As with NOx, elevated levels of NH_3 can be directly toxic to plants and can also enrich a system with nitrogen causing eutrophication and acidification effects on habitats.

3.4.55 Lichen species can be sensitive to even small increases in NH_3 (1 μg/m^3)[81]. As such, there are two CLe for NH_3, 1 μg/m^3 for lower plants (lichens and bryophytes[82]) and 3 μg/m^3 for higher level plants (all other vegetation). Each qualifying feature of the SAC has a different sensitivity to NH_3 depending on the presence of lichens and bryophytes. **Table 3.3** sets out the NH_3 CLe for each qualifying feature of the SAC.

3.4.56 The adopted CLe of NH_3 applied in the air quality assessment was based on the lowest range to ensure a precautionary approach to screening (i.e. 1 μg/m^3).

3.4.57 In terms of NH_3, contributions from the Local Plan alone were above 1% of the CLe at the transect points closer to the road. In-combination contributions were above 1% of the CLe at the majority of transect points.

Table 3.3: *Ammonia CLe for the qualifying features of the Mole Gap to Reigate Escarpment SAC*

Qualifying Feature	Ammonia (μg/m^3)
European dry heaths	1
Asperulo-Fagetum beech forests	1 or 3

[79] Air Pollution Information Systems (2017) Pollutants, available at: https://www.apis.ac.uk/ [Date Accessed: 10/02/25].

[80] National Atmospheric Emissions Inventory. Available at: https://naei.beis.gov.uk/overview/pollutants?pollutant_id=6 [Date Accessed: 10/02/25].

[81] Air Pollution Information Systems. Pollutants. Available at: https://www.apis.ac.uk/ [Date Accessed: 10/02/25].

[82] *Lichens and mosses are at most risk as they have limited detoxification capacity relative to their uptake potential and a large surface area relative to mass.* Source: Air Pollution Information Systems. Pollutants. Available at: http://www.apis.ac.uk/overview/pollutants/overview_NH3.htm [Date Accessed: 10/02/25].

Qualifying Feature	Ammonia (μg/m^3)
Semi-natural dry grasslands and scrubland facies on calcareous substrates	1
Stable xerothermophilous formations with Buxus sempervirens on rock slopes	1 or 3
Taxus baccata woods of the British Isles	3

3.4.58 APIS describes nitrogen deposition as 'the input of reactive nitrogen from the atmosphere to the biosphere both as gases, dry deposition and in precipitation as wet deposition[83]'. Anthropogenic sources of enhanced reactive nitrogen deposition come from emissions of oxidised nitrogen (NOx) and fossil fuel combustion and reduced nitrogen from agricultural sources.

3.4.59 Nitrogen is a major growth nutrient for plants. An increase in nitrogen can be toxic to plants and can lead to eutrophication which can cause species loss and changes in the structure and function of ecosystems. Nitrogen can also cause acidification of soils, the effects of which are discussed in more detail below (see acidification in **paragraph 3.4.62**). Traffic related inputs of NOx and NH_3 have an impact on the rates of nitrogen deposition (N-dep). N-dep rates are habitat specific as different habitats have different tolerances to different levels. The N-dep CLo for each qualifying feature of the SAC is shown in **Table 3.4**.

3.4.60 Where a CLo range is provided, the lower end of the range has been used in the screening assessment to ensure a precautionary approach has been applied.

3.4.61 In terms of N-dep, the alone contributions were above 1% of the CLo at the transect points closer to the road. The in-combination contributions were above 1% of the CLo at the majority of transect points.

Table 3.4: *N-dep critical levels for the qualifying features of the Mole Gap to Reigate Escarpment SAC*

Qualifying Feature	N-dep (kgN/ha/yr)
European dry heaths	5-15
Asperulo-Fagetum beech forests	10-15
Semi-natural dry grasslands and scrubland facies on calcareous substrates	10-20
Stable xerothermophilous formations with Buxus sempervirens on rock slopes	10-20
Taxus baccata woods of the British Isles	10-15

[83] APIS. Nitrogen Deposition. Available at: https://www.apis.ac.uk/ [Date Accessed: 10/02/25].

3.4.62 Acidification comprises the deposition of pollutants to soils which changes the pH level causing acidification. The contribution of SO_2 to acid deposition has reduced since the 1980s, with controls on transboundary emissions, so that the main contribution to acidification is from sources of oxidised and reduced nitrogen. The effect of acid deposition (acid-dep) is indirect and related to the lowering of soil pH leading to reduced fertility and nutrient deficiencies, the release of toxic metals and changes in microbial transformations[84]. As with N-dep, acid-dep rates are habitat specific. **Table 3.5** shows acid-dep CLes for each qualifying habitat of the SAC

3.4.63 In terms of acid-dep, the alone contributions were all below 1% of the CLo but the in-combination contributions were all above 1% of the CLo at the points closer to the road.

Table 3.5: *Acid-dep critical levels for the qualifying features of the Mole Gap to Reigate Escarpment SAC*

Qualifying Feature	Acid-dep (keq/ha/yr)
European dry heaths	1.449
Asperulo-Fagetum beech forests	1.623
Semi-natural dry grasslands and scrubland facies on calcareous substrates	4.852
Stable xerothermophilous formations with Buxus sempervirens on rock slopes	4.852
Taxus baccata woods of the British Isles	1.623

3.4.64 Based on a review of air quality modelling data against Natural England's 1% significance screening threshold for each pollutant (**Appendix C**), air quality pathways of impacts at the Mole Gap to Reigate Escarpment SAC have been screened in for further consideration in the HRA process in terms of NOx, NH_3, nitrogen deposition and acid deposition.

3.4.65 At the AA stage, Natural England recommends that the 1% threshold (used in screening) is treated as a proxy value, and not be relied upon in isolation to determine whether there is an adverse effect on site integrity from plan or project. Other factors are relevant which may mean that a plan or project which exceeds the 1% screening threshold can still demonstrate no adverse effect on site integrity through an AA.

Wimbledon Common SAC

3.4.66 Traffic modelling for the A3 and B281 shows no exceedances of the 1,000 AADT screening thresholds for a Local Plan alone scenario along any of these road links.

[84] The APIS. Acid Deposition. Available at: http://www.apis.ac.uk/overview/pollutants/acid-deposition [Date Accessed: 10/02/25].

3.4.67 Given there is no exceedance of thresholds for the Local Plan alone, it is next necessary to consider effects from the Local Plan in-combination with other plans and projects. Whilst there are in-combination exceedances of the screening threshold along the A3 and B281, the contribution to these flows from the Epsom and Ewell Local Plan is negative. This shows a reduction of traffic from the Local Plan on the A3 and B281 where they run within 200m of Wimbledon Common SAC. These road links can therefore be screened out.

3.4.68 There are however in-combination exceedances of the 1,000 AADT screening threshold on the A219 road link within 200m of the SAC. The A219 connects the Harrow Road in Harlesdon to the A24 in South Wimbledon. A219 does not link strategically to Plan area. As shown in **Table 3.2**, contributions of traffic flows from the Epsom and Ewell Local Plan are very low (on average across this link a change of 115 AADT from the Local Plan alone in comparison to an in-combination change in AADT of 3,924). This small contribution from Epsom and Ewell is considered to be so small as to not be meaningful when taking into consideration the location of strategic road link connectivity to the Plan area and the location of the SAC on the edge of the traffic model area.

3.4.69 It can therefore be concluded that the Local Plan is unlikely to have an air quality LSE upon Wimbledon Common SAC and can be scoped out of the assessment process.

South West London Waterbodies SPA and Ramsar

3.4.70 Traffic modelling shows that there are no exceedances of the 1,000 AADT screening threshold for a Local Plan alone scenario along either the A3050 or B369.

3.4.71 Given there is no alone exceedance of thresholds, it is next necessary to consider effects from the Local Plan in-combination with other plans and projects. The traffic modelling data (**Table 3.2**) shows no exceedance of the 1,000 AADT screening threshold in-combination on either road link when considered in combination with other plans and projects.

3.4.72 The qualifying features of the SPA and Ramsar, Gadwall and Northern Shoveler, will not be directly affected by changes in air quality. However, atmospheric pollution has the potential to impact upon their broad habitat type which is open water. Data available on APIS indicates that decisions on sensitive are to be taken at a site-specific level since habitat sensitivity depends on N or P limitation. APIS does not provide a nitrogen CLe for open, standing water, which is the habitat present in the South West London Waterbodies SPA / Ramsar.

3.4.73 As emissions from traffic generated from the Local Plan alone and in-combination with other plans and projects will not affect phosphate availability within this component waterbody (as this does not derive from atmosphere), and as the 1,000 AADT screening threshold (alone or in-combination) is not exceeded, it can be concluded that no LSEs will arise through atmospheric pollution either alone or in combination with other projects and plans. The SPA and Ramsar can therefore be screened out of any further assessment in the HRA process.

3.5 Water quality and water quantity

3.5.1 Development proposals associated with the Local Plan have the ability to affect water-dependent European sites through a number of impacts as listed below. These impacts have the potential to change the water balance (levels) and quality of water entering European sites:

- Change in surface permeability and run off rates
- Increased water demand to supply new homes and businesses
- Reduce quality of surface water run off
- Increased effluent discharge for treatment

3.5.2 There are no European sites located within the Plan area. Water sensitive European sites located outside the Plan area can however also be affected by changes in water supply and quality where they are hydrologically linked to development in the Local Plan.

3.5.3 Decisions relating to water abstraction for supply and disposal of water are controlled through a number of licensing mechanisms and a high-level water planning framework which is subject to HRA. This ensures the protection of the water environment and compliance with the Water Framework Directive (WFD).

3.5.4 The WFD provides an indication of the health of the water environment and whether a water body is at good status or potential. This is determined through an assessment of a range of elements relating to the biology and chemical quality of surface waters and quantitative and chemical quality of groundwater. To achieve good ecological status or potential, good chemical status or good groundwater status every single element assessed must be at good status or better. If one element is below its threshold for good status, then the whole water body's status is classed below good. Surface water bodies can be classed as high, good, moderate, poor or bad status. Natural England considers that Good Ecological Status under the WFD is an appropriate standard for functionally linked watercourses[85].

3.5.5 The Hogsmill River rises in Ewell and flows through the centre of the Plan area in a northerly direction. It leaves Epsom and Ewell to the north west before joining the River Thames at Kingston upon Thames. The River Thames ultimately flows into the Thames Estuary.

[85] Defra (2014) Water Framework Directive implementation in England and Wales: new and updated standards to protect the water environment (publishing.service.gov.uk). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/307788/river-basin-planning-standards.pdf [Date Accessed: 10/02/25].

3.5.6 The Plan area is located within the Thames River Basin District. The Thames River RBMP[86] provides a framework for protecting and enhancing the benefits provided by the water environment (see **Appendix A**). To achieve this, and because water and land resources are closely linked, it also informs decisions on land-use planning. RBMPs provide strategic level policy guidance in relation to baseline classification of water bodies, statutory objectives for protected areas and water bodies, and a summary of measures to achieve statutory protection. The Thames RBMP sets out the priority management issues within the catchment, including the poor water quality due to diffuse pollution from road run-off, point source pollution from misconnected pipes, and phosphate from the Hogsmill Sewage Treatment Works (STW) to which the majority of the Plan area drains.

3.5.7 River basin districts are managed through division into Surface Water Management Catchments (SWMCs). SWMCs outline the preferred surface water management strategy alongside establishing a long-term action plan for surface water. The Plan area predominantly coincides with the London SWMC, with a small section to the south-west of the Plan area within the Mole SWMC, as illustrated in **Figure 3.5.**

3.5.8 Thames Water is the statutory sewerage undertaker for Epsom and Ewell. The role of the sewerage undertaker includes the collection and treatment of wastewater from domestic and commercial premises, and in some areas, it also includes the drainage of surface water from building curtilages to combined or surface water sewers. The Hogsmill STW discharges into the Hogsmill River. In 2019 the Hogsmill catchment was classed as being of an overall moderate ecological quality[87]. Consultation with Thames Water has indicated that a project is proposed in the eight Asset Management Period (AMP8) to quadruple storm tank capacity by 2031. This will reduce spills from the STW and would also reduce the effect of new development on discharges from the works. The Thames Water Drainage and Wastewater Management Plan[88] sets out how Thames Water will maintain, improve and extend robust and resilient drainage wastewater systems over a 25-year period. The Plan area falls within the Beddington and Hogsmill System Catchment Strategic Plan[89], which sets out a preferred plan to address the challenges each area faces and a mix of high-level solutions and approximate costs to address these.

[86] Environment Agency (2022) Thames river basin district river basin management plan: updated 2022. Available at: https://www.gov.uk/guidance/thames-river-basin-district-river-basin-management-plan-updated-2022 [Date Accessed: 10/02/25].

[87] Environment Agency. Catchment Data Search. Available at: https://environment.data.gov.uk/catchment-planning/WaterBody/GB106039017440 [Date Accessed: 10/02/25].

[88] Thames Water (2023) Shaping our wastewater future Our Drainage and Wastewater Management Plan 2025 – 2050.

[89] Thames Water (2023) Catchment Strategic Plan Part of our Drainage and Wastewater Management Plan (DWMP). Co-creating resilient wastewater catchment. A long-term Strategic Plan for the Beddington and Hogsmill System.

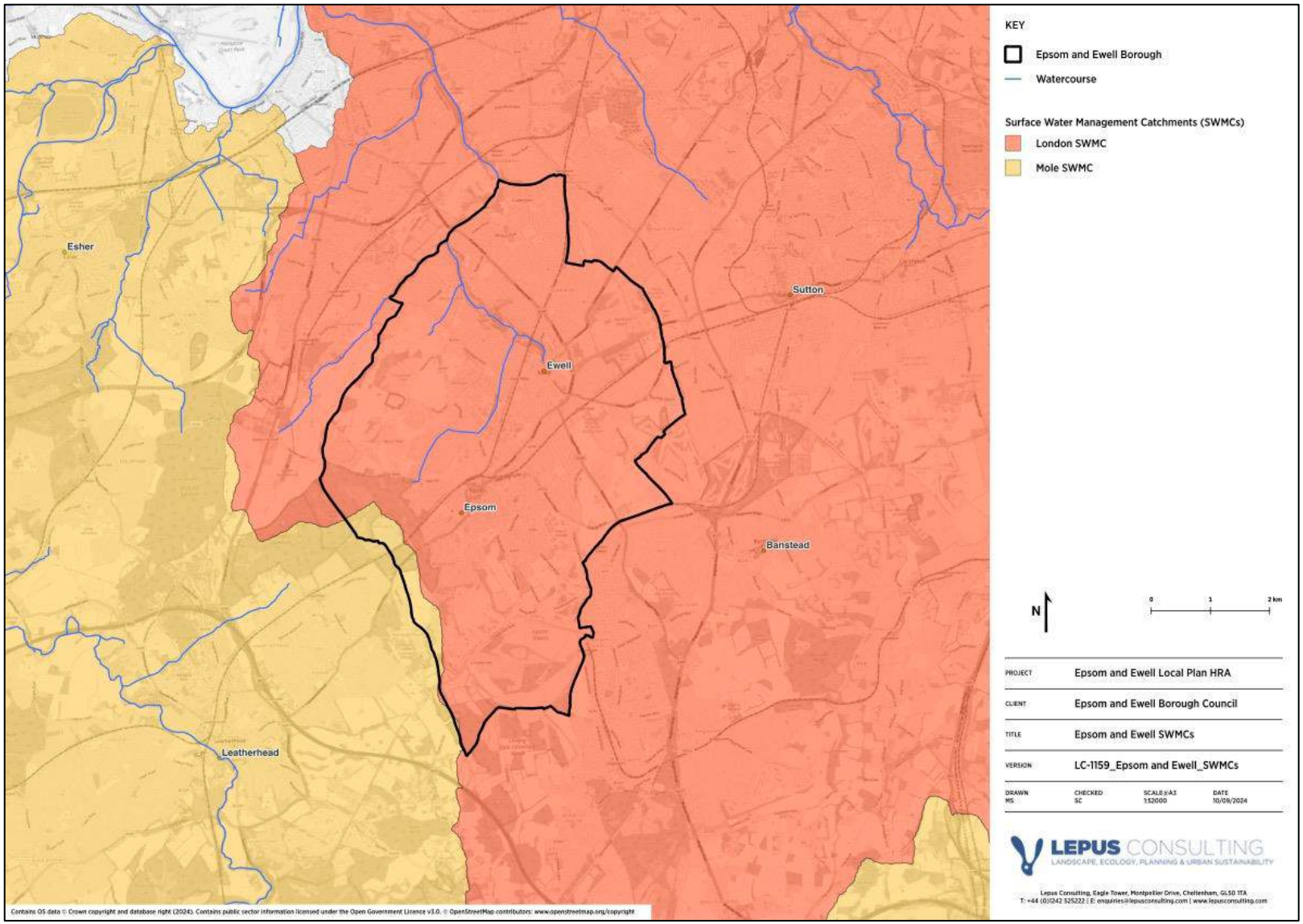

Figure 3.5: *Surface Water Management Catchments (SWMCs) within the Plan area*

3.5.9 For the purposes of water resource planning, the area is divided into Water Resource Zones (WRZs). WRZs are defined by the EA as the 'largest possible zone in which customers share the same risk of a resource shortfall'[90]. These WRZs have been amalgamated into larger sub-regional supply areas. The Plan area is served by the SES Water Company Wide Zone WRZ as supplied by SES Water and the London WRZ as supplied by Thames Water (see **Figure 3.6**). Water abstraction occurs within these WRZs and therefore any hydrologically sensitive European sites within the same WRZ as the Plan area have the potential to be affected by changes in water levels due to water abstraction.

[90] Severn Trent. A1 Water Resource Zones. Available at: https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.severntrent.com/content/dam/stw/ST_Corporate/About_us/Docs/Appendix-A-How-much-water-do-we-have-available.pdf&ved=2ahUKEwiY8ei5gu2GAxXkZ0EAHUC5D_kQFnoECB0QAQ&usg=AOvVaw3uO8-LrFuwvJ2kHu2ixaCT [Date Accessed: 10/02/25].

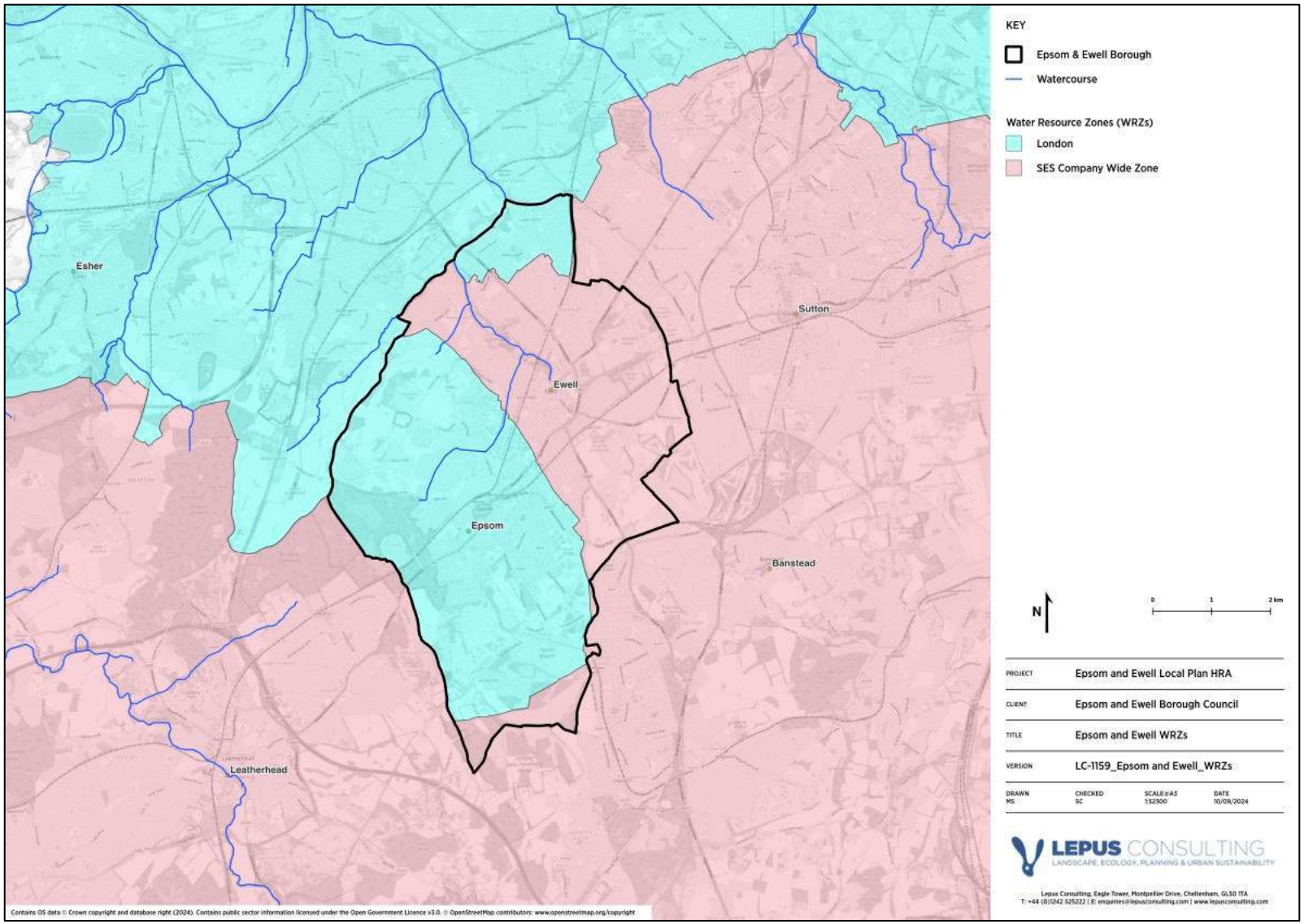

Figure 3.6: *Water Resource Zones (WRZs) in relation to the Plan area*

3.5.10 **Table 3.4** identifies European sites which are both hydrologically connected to the Plan area, and which were identified through a detailed review of site information as being vulnerable to hydrological impacts.

Table 3.6: Review of hydrological impact pathways to hydrologically sensitive European sites within the influence of the Local Plan

Hydrologically sensitive European site with hydrological links to the Plan area	Potential for water quality LSEs	Potential for water quantity impacts LSEs	Will the European site be scoped in for further assessment in the HRA process?
Mole Gap to Reigate Escarpment SAC	The Plan area is located downstream of the Mole Gap to Reigate Escarpment SAC and therefore it is not likely to be affected by changes in water quality as a result of the Local Plan.	Mole Gap to Reigate Escarpment is not considered to be at risk of hydrological impacts[91]. A qualifying feature of the SAC is however the GCN which relies on waterbodies to breed. The ponds at Headley Heath support a major population of GCN. These ponds at are largely fed by rainfall and surface flow and therefore are unlikely to be affected by changes in water quantity due to water abstraction from the Local Plan.	No
South West London Waterbodies SPA and Ramsar	South West London Waterbodies SPA and Ramsar is located approx. 8km to the east of the Plan area at its closest point. The River Thames runs within 430m of the SPA and Ramsar where it is underpinned by the Knight and Bessborough Reservoir SSSI. This SSSI is however not located within the River Thames floodplain and therefore it is unlikely to be hydrologically connected or affected by a change in water quality from growth in the Plan area.	South West London Waterbodies SPA and Ramsar is located within the London WRZ. The components of the SPA and Ramsar underpinned by Kempton Park Reservoirs SSSSI and Knight & Bessborough Reservoirs SSSI lie within 15km of the Plan area. Kempton Park Reservoir has been decommissioned and therefore water abstraction for supply is unlikely to occur. However, abstraction for water supply may occur from Knight & Bessborough Reservoirs SSSI. Therefore, there is potential for water quantity impacts as a result of the Local Plan and associated water abstraction for new development.	Yes
Thames Basin Heaths SPA	Thames Basin Heaths SPA is located approx. 9.4km to the west of the Plan area at its closest. The SPA site is not hydrologically connected to the Plan area. Therefore, it is unlikely to be affected by a change in water quality from growth in the Plan area.	The features of the SPA are not directly sensitive to hydrological changes[92]. Therefore, it is unlikely that water quantity impacts as a result of the Local Plan and associated water abstraction for new development will result in an adverse effect.	No

[91] Natural England (2014) Site Improvement plan. Mole Gap to Reigate Escarpment SAC.

[92] Natural England (2014) Site Improvement Plan Thames Basin Heaths.

Hydrologically sensitive European site with hydrological links to the Plan area	Potential for water quality LSEs	Potential for water quantity impacts LSEs	Will the European site be scoped in for further assessment in the HRA process?
Wimbledon Common SAC	Wimbledon Common SAC is located approx. 5km to the north of the Plan area. Whilst the Plan area is located within the same operational catchment as the SAC (Beverley Brook catchment) there are no watercourses in the Plan area that provide hydrological connectivity to the SAC. Therefore, this SAC is unlikely to be affected by a change in water quality from growth in the Plan area.	Hydrological changes have been identified as a threat to the 'wet heathland with cross-leaved heath' qualifying feature on Wimbledon Common SAC[93]. Of particular concern is the change to source, depth, frequency and magnitude of water supply that can have significant implications on the assemblage of characteristic plants and animals present. Maintenance or restoration of the hydrological regime is required to sustain the wet heath habitat. Both the SAC and the Plan area lie within the same WRZ (London WRZ). Therefore, there is potential for water quantity impacts as a result of the Local Plan and associated water abstraction for new development.	Yes

3.5.11 In summary, the following European sites have been scoped in for further consideration of water quantity impacts in the AA:

- South West London Waterbodies SPA
- South West London Waterbodies Ramsar
- Wimbledon Common SAC

3.6 Recreational pressure

3.6.1 Increased recreational pressure at European sites can result in damage to habitats through erosion and compaction, troubling of grazing stock, causing changes in behaviour to animals such as birds at nesting and feeding sites, spreading invasive species, dog fouling and tree climbing etc.

[93] Natural England (2016) European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Wimbledon Common Special Area of Conservation (SAC) Site Code: UK0030301.

3.6.2 A common approach taken across the UK to address recreational impacts at European sites is to establish a Zone of Influence (ZOI) based on detailed visitor survey data. The ZOI is the area within which there are likely to be significant effects arising from recreational activities undertaken by additional residents due to growth. This is often calculated by taking the distance at which 75% of interviewees surveyed have travelled to reach a particular site (based on a review of visitor survey data). Where available, buffer distances have been applied to determine potential pathways of recreational and urbanisation effects from the Local Plan.

3.6.3 The broad principle of buffer zones is one component of the HRA screening process for recreational pressures. The recreational draw of a European site depends on a number of factors. These include the extent and range of facilities provided (in particular parking), accessibility both within the European site and links to the wider area, incorporation of a European site as part of a wider designation, such as a National Park, and the site's promotion.

3.6.4 A review of recreational impact assessments undertaken for other European sites across the UK indicates visitors typically live within 4.2 km (overall median value) of nature conservation sites and that the majority (75%) live within 12.6 km[94]. However, this review recognises that some visitors are prepared to travel longer distances to visit particular sites, for instance coastal and wetland sites.

3.6.5 As such, a precautionary distance of 15km has been applied to the scoping of European sites at which there may be potential recreational impact pathways. This scoping exercise is detailed in the following paragraphs and draws on a review of Natural England data which identifies vulnerabilities at each European site (**Appendix B**).

Mole Gap to Reigate Escarpment SAC

3.6.6 Mole Gap to Reigate Escarpment SAC is located approximately 2km to the south of the Plan area. The SAC is designated for, among others features, its European dry heaths, natural box scrub, dry grasslands and scrublands on chalk or limestone, Beech forests on neutral to rich soils and Yew-dominated woodland[95]. It is also designated for two species which include GCN and Bechstein's Bat.

[94] Weitowitz, D, C. Panter, C. Hoskin, R. and Liley, D. (October 2019) The effect of urban development on visitor numbers to nearby protected nature conservation sites. Journal of Urban Ecology, Volume 5, Issue 1.

[95] Natural England (2019) Mole Gap to Reigate Escarpment SAC Conservation Objectives Supplementary Advice. http://publications.naturalengland.org.uk/file/6354450398838784 [Date Accessed: 10/02/25].

3.6.7 Natural England's SIP identifies public access and disturbance impacts as a threat, in particular the trampling of orchid-rich grasslands and repetitive disturbance to GCN breeding ponds[96]. In addition, a guidance note prepared by Mole Valley District Council acknowledges that there is already considerable recreational pressure, requiring high levels of management[97].

3.6.8 As part of the 2008 Mole Valley Local Development Framework (LDF) Appropriate Assessment[98] a review of visitor surveys undertaken in 2004 by the National Trust and in 2005 and 2006 by Bournemouth University was undertaken (see Appendix C of the Mole Valley Appropriate Assessment). The outputs of the Bournemouth surveys indicate that the majority of people coming to the SAC (to key honeypot sites) were from further afield, with over 80% (82% at Headley, rising to some 93% at Reigate Hill/Gatton originating from over 5 miles away and over 54% (Headley), rising to 81% (Reigate Hill/Gatton) originating from over 15 miles away. The Mole Valley LDF Appropriate Assessment concluded that, on the basis of these surveys, recreational pressure at the Mole Gap to Reigate Escarpment SAC is focused mainly on honeypot sites[99], with the majority of impact being within a small radius of the car parks. The outputs of the studies also showed that, although there are local visitors to the sites, large numbers originate from over 15 miles (24.14km) and therefore the majority of recreational pressure is caused by visitors travelling from further afield.

[96] Natural England. 2014. Site Improvement Plan. Mole Gap to Reigate Escarpment SAC. https://publications.naturalengland.org.uk/publication/5966636066537472#:~:text=This%20SIP%20includes%20the%20priorities,Management%20Plan%20and%20its%20consultation. [Date Accessed: 10/02/25].

[97] Mole Valley District Council (2012) Mole Gap to Reigate Escarpment SAC Guidance Notice, Available at: https://www.molevalley.gov.uk/planning-building/supplementary-planning-documents-guidance-and-policy-statements/ [Date Accessed: 10/02/25].

[98] Mole Valley District Council. 2008. Mole Valley Local Development Framework Mole Valley Appropriate Assessment.

[99] Honeypot sites include: Headley Heath; Box Hill and Reigate Hill/Gatton Park (Wray Lane).

3.6.9 A guidance note prepared by Mole Valley District Council acknowledges that there is already considerable recreational pressure, requiring high levels of management[100]. Further development beyond the borough boundary may increase the volume of visitors to the site, requiring careful management to ensure that no significant damage is caused to the important features of this European Site. As a result of the Appropriate Assessment undertaken in support of Mole Valley's Local Development Framework (LDF), Policy CS15 of the LDF safeguards a buffer zone of 800m around the SAC. Within this area there is a presumption "*against any increase in residential or employment related development…unless its impact is mitigated*". Large development outside the 800m buffer zone is likely to attract significant visitor numbers and should consider the impacts upon the SAC and provide suitable mitigation[101]. It is noted that the Mole Valley Local Plan is currently under review and in September 2024 the Planning Inspector confirmed that subject to Main Modifications the Mole Valley Local Plan is sound and legally compliant.

3.6.10 At its closest point the Plan area lies within 2km of the SAC and therefore outside the safeguarding buffer. However, as outlined in **paragraph 3.6.9**, large development outside the 800m buffer zone has the potential to attract significant visitor numbers. Given the location of the SAC in relation to the Plan area, Mole Gap to Reigate Escarpment SAC will be considered further in the HRA for recreation LSEs.

Richmond Park SAC

3.6.11 Richmond Park SAC is located approximately 4.8km to the north of the Plan area. Natural England's SIP[102] for the SAC does not identify recreational impacts as a threat or pressure. Therefore, the SAC will not be considered further in the HRA in terms of recreation LSEs.

The South West London Waterbodies SPA and South West London Waterbodies Ramsar

3.6.12 All qualifying features of South West London Waterbodies SPA and South West London Waterbodies Ramsar, namely the habitats and non-breeding populations of Gadwall and Shoveler, are recognised as being under threat from public access associated disturbances (**Appendix B**).

3.6.13 A key environmental condition of South West London Waterbodies SPA and Ramsar is a lack of disturbance during the winter months of October to March. Disturbances of sufficient extent, intensity or duration can cause the Gadwall and Shoveler populations to abandon the site. Different waterbodies of the SPA offer different levels of access to the public, with some more restricted than others.

[100] Mole Valley District Council (2012) Mole Gap to Reigate Escarpment SAC Guidance Notice, Available at: https://www.molevalley.gov.uk/planning-building/supplementary-planning-documents-guidance-and-policy-statements/[Date Accessed: 10/02/25].

[101] Mole Valley District Council (2012) Mole Gap to Reigate Escarpment SAC Guidance Notice, Available at: https://www.molevalley.gov.uk/planning-building/supplementary-planning-documents-guidance-and-policy-statements/ [Date Accessed: 10/02/25].

[102] Natural England (2014) Site Improvement Plan: Richmond Park. Available at: https://publications.naturalengland.org.uk/file/4641498714865664 [Date Accessed: 10/02/25].

3.6.14 The components of the SPA and Ramsar which are located within 15km of the Plan area include Knight and Bessborough Reservoirs SSSI and Kempton Park Reservoirs SSSI. Knight and Bessborough Reservoirs SSSI is an operational site belonging to Thames Water and public access is prevented and therefore there is no opportunity for recreational activities. Kempton Park Reservoirs is actively managed for wildlife and fenced off from public access to reduce disturbance of waterfowl. The 'Friends of Kempton Nature Reserve' scheme restricts access to only educational and recreational bird watching and general nature study to prevent public disturbance at the reservoir.

3.6.15 Given the location of these designations from the Plan area, limited public access and the environmental controls currently in place, recreational pathways of impact at the South West London Waterbodies SPA and South West London Waterbodies Ramsar can be scoped out.

Thames Basin Heaths SPA

3.6.16 The Thames Basin Heaths SPA covers an area of 8,275ha across Hampshire, Berkshire and Surrey. The SPA is designated as being of international importance due to breeding populations of Dartford Warbler, Nightjar and Woodlark. The potential effects of residential development upon the integrity of the SPA as a result of increased recreational disturbance and pressure led to the development of a strategic framework for mitigation across the Thames Basin Heaths Area known as the TBH SPA Delivery Framework[103]. Based on this framework, the Council adopted the Thames Basin Heaths Avoidance Strategy[104] in 2009. This strategy sets an area over which recreational impacts upon the SPA are likely from new development, known as the recreation ZOI. The strategy does not permit residential development within 400m of the SPA as the impact of additional residential development is likely to be such that it is not possible to conclude no adverse impact on the SPA. This area is known as the 'exclusion zone'. Additionally, development within 5km must provide appropriate contributions, including: SANGs, Strategic Access Management and Monitoring (SAMM)[105], or a "*bespoke solution to provide adequate mitigation measures to avoid any potential adverse effects*". Development between 5km and 7km from the SPA is considered on a case-by-case basis. Any new residential development within these ZOI has the potential to have likely significant recreational impacts upon the SPA.

[103] Thames Basin Heaths Joint Strategic Partnership Board (2009) Thames Basin Heaths Special Protection Area Delivery Framework.

[104] Waverley Borough Council. (Updated April 2024) Thames Basin Heaths Special Protection Area Avoidance Strategy Review 2016. Available at: https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning%20policy/SPA_Avoidance_Strategy_Review_Update%20April%202024%202.0.pdf?ver=MmR4IY0l7YquGS0Yd_X9hg%3d%3d [Date Accessed: 10/02/25].

[105] SAMM aims to protect European sites from recreational pressure associated with new housing development. SAMM measures achieve this through education, guidance and raising awareness of the sensitivities of the sites, access management, on-site management and ongoing monitoring projects. – Lepus Consulting (2024) Natural England SANG Catchment Analysis and Review.

3.6.17 As the Plan area is located approximately 9.7km to the east of the SAC, and outside the maximum 7km ZOI where new development would be expected to contribute towards recreational LSEs, it will not be considered further in the HRA in terms of recreational impacts.

Wimbledon Common SAC

3.6.18 Wimbledon Common SAC is located approximately 4.8km to the north of the Plan area and is protected by an act which ensures it remains open to the public and unenclosed[106]. It provides recreational facilities such as playing fields and a golf course. Wimbledon Common SAC is designated for the Stag Beetle, European dry heaths and Northern Atlantic wet heaths. The Stag Beetle is indirectly sensitive to potential threats from recreational pressures associated with the removal of dead wood by visitors which could adversely affect the ability of the SAC to provide habitat which supports the Stag Beetle[107]. However, this action is not a direct result of increased residential growth and an increased number of visitors to the SAC but relates instead to individual decisions to collect fallen wood. As such recreational impacts from growth in the Local Plan upon Stag Beetle can be scoped out of the HRA process.

3.6.19 The heathlands of Wimbledon Common SAC are also potentially vulnerable to recreational pressures as Wimbledon Common is an unfenced common, with the whole area is open to the public throughout the year[108]. Heathland habitat is located in the north of the SAC[109] and is managed by the Wimbledon and Putney Commons Conservators[110]. This management helps to maintain the status of this habitat through clearance of scrub and monitoring the wildlife through volunteers and programmes such as BioBlitz[111]. The key areas of recreational usage of the SAC do not correspond with the heathland habitat and recreational pressures predominantly relate to grassland impacts which do not comprise qualifying features of the SAC. It is therefore considered unlikely that the Local Plan will cause increases in visitor pressures at the SAC and this site has been scoped out of the HRA process.

[106] The Wimbledon and Putney Commons Act, 1971. Available at: https://www.wpcc.org.uk/downloads/publications/1871-act-amended2.pdf [Date Accessed: 10/02/25].

[107] Natural England. 2014. Wimbledon Common SAC Site Improvement Plan. Available at: https://publications.naturalengland.org.uk/publication/563851255244390 [Date Accessed: 10/02/25].

[108] Annual Conservation Report (2017) Wimbledon and Putney Commons, Available at: https://www.wpcc.org.uk/downloads/nature/annual-conservation-report-.pdf[Date Accessed: 10/02/25].

[109] MAGIC (2019) Defra, Available at: https://magic.defra.gov.uk/ [Date Accessed: 10/02/25].

[110] Wimbledon and Putney Commons Board of Conservators (2024) Conserving the Commons A Land Management Plan for Wimbledon and Putney Commons 2024 to 2034. Available at https://www.wpcc.org.uk/downloads/land-management-plan/land-management-plan-final---february-2024-final-for-website.pdf [Date Accessed: 10/02/25].

[111] Ecological and Environmental Monitoring Report (2018) Wimbledon and Putney Commons, Available at: https://www.wpcc.org.uk/downloads/nature/ecological-and-monitoring-report-final-for-publication2019.pdf [Date Accessed: 10/02/25].

Summary

3.6.20 In summary, Mole Gap to Reigate Escarpment SAC has been screened in for further consideration of recreational impacts in the AA.

3.7 Urbanisation effects

3.7.1 Urbanisation effects typically occur when development is located close to a European site boundary. These may include impacts such as noise disturbance, lighting effects, cat predation, fly-tipping, wildfire, littering and vandalism. Strategic mitigation schemes elsewhere in the UK have set a presumption against development (i.e. no net increase in residential dwellings) on the basis of site-specific evidence to safeguard against these impacts.

3.7.2 As with recreational impacts, urbanisation mitigation strategies have been implemented across the UK through the establishment of buffer zones. Commonly applied urbanisation Zones of Influence extend around 400 – 500m from the edge of a designation as this reflects likely impacts from pets (e.g. cat predation) and the distance from which people access a site on foot.

3.7.3 No European sites are located within the Plan area or within 500m of the Plan area. Therefore, direct urbanisation LSEs are not considered further in this HRA.

3.8 Functionally Linked Land

3.8.1 There are no European sites located within the Plan area and therefore the Local Plan will not result in the direct loss of land within an area designated as a European site. However, there is potential for the Local Plan to result in the loss / disturbance to habitat outside a designation boundary. Supporting habitat, also referred to as FLL (as defined in **paragraph 3.3.7**), may be located some distance from a European site. The fragmentation of habitats through the loss of connecting corridors would have the potential to hinder the movement of qualifying species.

3.8.2 A review of the qualifying features for which a European site is designated identifies a number of mobile qualifying features within the study area at Mole Gap to Reigate Escarpment SAC, Thames Basin Heaths SPA, and Wimbledon Commons SAC.

Mole Gap to Reigate Escarpment SAC

3.8.3 A review of background data has highlighted the sensitivities of Bechstein Bat roosting habitat at Mole Gap to Reigate Escarpment SAC to disturbance effects and the importance of maintaining community routes from roost into surrounding habitat and foraging areas.

3.8.4 The Bat Conservation Trust (BCT) notes that Bechstein's Bat is a species that is predominantly associated with broadleaved woodlands using stream corridors and hedgerows to commute to foraging areas[112]. The BCT has defined a number of species-specific Core Sustenance Zones (CSZ). These refer to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the reliance and conservation status of the colony using the roost. For Bechstein's Bat a CSZ of 1km is identified with moderate confidence. The BCT guidance therefore suggests that this CSZ should be increased to at least 3km to reflect the bat's specific habitat requirements (see **Figure 3.8**)[113]. As the Plan area is located approximately 2km to the north of the Plan area, it is therefore considered that functionally linked Bechstein's Bat habitat may be affected by the Local Plan.

3.8.5 It is noted that the adoption of a 3km buffer for CSZ is precautionary. The Mole Valley Local Plan review (Future Mole Valley[114]) requires development located within 1.5km of the SAC to take into consideration impacts upon functionally linked Bechstein's Bat habitat under Policy EN9: Natural Assets.

3.8.6 GCNs are another of the qualifying species for the Mole Gap to Reigate Escarpment SAC. Whilst GCNs rely on water bodies to breed and during the aquatic stages of their life cycle, they are known to travel approximately 500m from their breeding pond habitat during the terrestrial phase of their lifecycle[115,116]. Depending on the location of the ponds within the SAC terrestrial habitat may include land outside the SAC boundary. The Plan area is located at its closest point 2km from the Mole Gap to Reigate Escarpment SAC. It is therefore considered that functionally linked GCN habitat will not be affected by development set out in the Local Plan and can be scoped out.

[112] Bat Conservation Trust. 2016. Bat Surveys for Professional Ecologist. Good Practice Guidelines. Third Edition.

[113]Bat Conservation Trust. 2016. Core Sustenance Zone. https://cdn.bats.org.uk/pdf/Resources/Core_Sustenance_Zones_Explained_04.02.16.pdf?mtime=20190219173135&focal=none

[114] Mole Valley District Council (2021) DRAFT MOLE VALLEY LOCAL PLAN 2020-2037 PROPOSED SUBMISSION VERSION. It is noted that following an examination, in 2024 the Inspector concluded that subject to Main Modifications the Mole Valley Plan is sound and legally compliant.

[115] Natural England (2015) Great crested newts: protection and licences. Available at: https://www.gov.uk/guidance/great-crested-newts-protection-surveys-and-licences [Accessed: 15/09/24].

[116] Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook, Froglife, Halesworth.

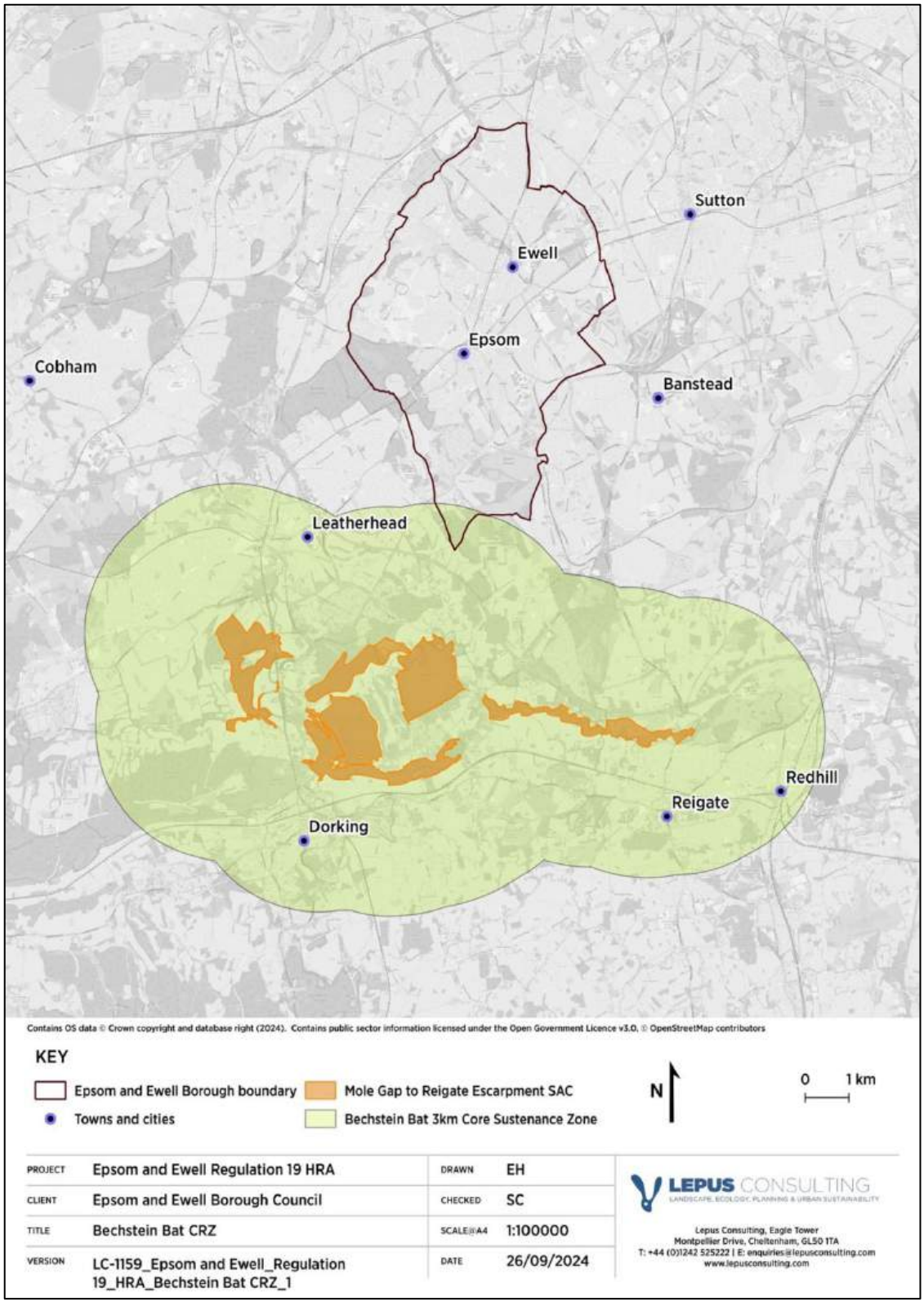

Figure 3.7: *Bechstein's Bat a CSZ from Mole Gap to Reigate Escarpment SAC*

Thames Basin Heaths SPA

3.8.7 As set out in **Section 3.4**, Thames Basin Heaths SPA is designated for the populations of breeding birds it supports, including European Nightjar, Woodlark and Dartford Warbler. **Table 3.2** outlines the habitat requirements for these qualifying features.

3.8.8 Given the distance of the Plan area from the SPA (9km to the east) and urban development between the Plan are and SPA including the M25 which acts as a barrier to movement, it is unlikely development set out in the Local Plan will impact the qualifying bird species of the SPA and therefore this pathway of impact is scoped out.

Wimbledon Common SAC

3.8.9 The qualifying species of the Wimbledon Common SAC is the Stag Beetle. The Stag Beetle is a saproxylic invertebrate which relies on moist decaying woodland. The population of Stag Beetles within the SAC is unlikely to be supported by habitat located within the Plan area due its distance from the SAC (approximately 4.9km to the south of the SAC) and presence of urban development in between which creates a barrier to movement. It is therefore considered unlikely that the Local Plan will have an LSE upon functionally linked habitat for this qualifying feature and this pathway of impact can be scoped out.

3.9 Local Plan pathways of impact to European sites

3.9.1 **Figure 3.8** illustrates the location of European sites scoped into the HRA process for further consideration in the screening assessment (**Chapter 4**).

3.9.2 The Local Plan impact pathways which have the potential to affect these European sites are summarised in **Table 3.4**. These will form the basis of the HRA screening assessment.

Table 3.7: *Scoped in pressures and threats from the Local Plan at European sites*

European site	Air quality LSE	Water quality and/or quantity changes LSE	Functionally linked land LSE	Recreation pressure LSE
Mole Gap to Reigate Escarpment SAC	Yes	No	Yes	Yes
South West London Waterbodies SPA	No	Yes	No	No
South West London Waterbodies Ramsar	No	Yes	No	No
Thames Basin Heaths SPA	No	No	No	No
Wimbledon Common SAC	No	Yes	No	No

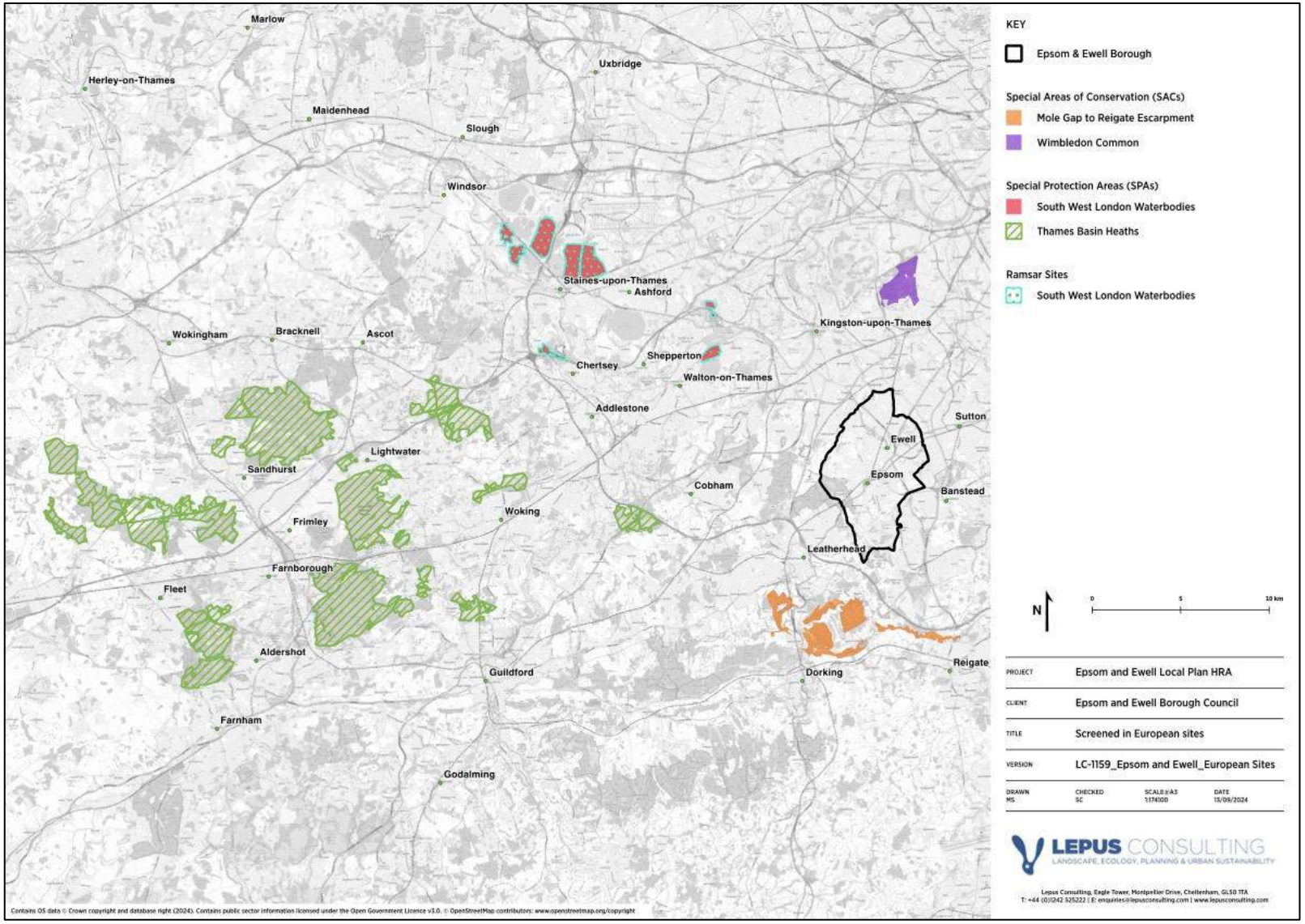

Figure 3.8: *Screened in European sites to the HRA process in relation to Epsom and Ewell Borough*

4 Screening of the Local Plan

4.1 Introduction

4.1.1 Each policy and allocation which forms the Local Plan has been appraised against the HRA screening criteria (see **Table 2.1**), taking into consideration case law and best practice. **Appendix D** provides the output of this screening exercise. This detailed assessment has informed the test of likely significance i.e. will the Local Plan have an LSE, alone or in-combination, at a European site.

4.2 Consideration of in-combination effects

4.2.1 Where alone LSEs have not been identified, the screening assessment has assessed the impact of residual effects in-combination with other plans and projects listed in **Appendix A** and as outlined in **Section 2.3**.

4.3 Policies screened out of HRA process

4.3.1 It is concluded that LSEs, either from the Local Plan alone or in-combination with other plans or projects, could be screened out for some policies (**Appendix D**). This is because the policies fall into the following categories:

- Category A: General statements of policy / general aspirations;
- Category B: General criteria for testing the acceptability / sustainability;
- Category D: Environmental protection / site safeguarding; and
- Category F: Policies or proposals that cannot lead to development or other change.

4.4 Policies screened into the HRA process

Air Quality

4.4.1 A review of traffic data indicates that, whilst the Local Plan alone will not trigger an exceedance of Natural England's 1,000 AADT or 1% of CLe or CLo screening threshold, this threshold will be exceeded for all Local Plan allocations cumulatively and in-combination with neighbouring LPA growth (set out in **Appendix A**) at the Mole Gap to Reigate Escarpment SAC on the B2032.

4.4.2 Therefore, all polices which trigger growth within the Plan area have been screened into the HRA process for further consideration of in-combination air quality impacts as set out in **Table 4.1**.

Table 4.1: *Screened in policies for air quality LSEs*

Policy / site number	Policy Name	Screening Category
Policy S1	Spatial Strategy	L
Policy DM7	Employment Land	L
Site SA1	Southern Gas Network Site	L
Site SA2	Hook Road Car Park	L
Site SA3	Solis House, 20 Hook Road	L

Policy / site number	Policy Name	Screening Category
Site SA4	Bunzl, Hook Road	L
Site SA5	Epsom Town Hall	L
Site SA6	Hope Lodge Car Park	L
Site SA7	Former Police and Ambulance Station Sites	L
Site SA8	Epsom Clinic	L
Site SA9	Depot Road and Upper High Street Car Park	L
Site SA10	79-85 East Street	L
Site SA11	Finachem House, 2-4 Ashley Road	L
Site SA12	Global House	L
Site SA13	Swail House	L
Site SA14	60 East Street	L
Site SA15	Corner of Kiln Lane and East Street (101b East Street)	L
Site SA16	Land at Kiln Lane	L
Site SA17	Hatch Furlong Nursery	L
Site SA18	Land to the Rear of Rowe Hall	L
Site SA19	7 Station Approach	L
Site SA20	Esso Express, 26 Reigate Road	L
Site SA21	Richards Field Car Park	L
Site SA22	Etwelle House, Station Road	L
Site SA23	140-142 Ruxley Lane	L
Site SA24	Garages at Somerset Close and Westmorland Close	L
Site SA25	64 South Street Epsom	L
Site SA26	35 Alexandra Road	L
Site SA27	22-24 Dorking Road	L
Site SA28	63 Dorking Road	L
Site SA29	65 London Road	L
Site SA30	Epsom General Hospital	L
Site SA31	Land at West Park Hospital (South)	L
Site SA32	Land at West Park Hospital (North)	L
Site SA33	Land at Chantily Way	L
Site SA34	Hook Road Arena	L
Site SA35	Land at Horton Farm	L

Water Quantity

4.4.3 The scoping assessment (**Chapter 3**) provides a review of hydrological connectivity between water sensitive European sites and identifies water quantity pathways of impact at the South West London Waterbodies SPA and Ramsar and Wimbledon Common SAC and the Local Plan. All policies which trigger growth and which therefore will require water supply (including those listed in **Table 4.1**) have the potential to result in LSEs at these European sites and have been screened into the HRA process.

Recreational Pressure

4.4.4 The scoping assessment (**Chapter 3**) provides a review of public access and disturbance pathways of impact to European sites and scopes in Mole Gap to Reigate Escarpment SAC. All policies which trigger residential growth have the potential to increase recreational pressure including all those policies / sites listed in **Table 4.1** which allocate residential development (i.e. excluding Site SA28: 63 Dorking Road and Site SA29: 65 London Road which allocate care home facilities) will result in LSEs at these European sites.

Functionally Linked Land

4.4.5 A review of all allocations proposed in the Local Plan indicates that there are no allocations located within the Bechstein's Bat a CSZ of 3km (**Appendix D**). The scoping assessment (**Chapter 3**) identified no other links between functionally linked land associated with European sites and the Local Plan. As such LSEs upon FLL can be screened out of the HRA process.

4.5 Screening conclusion

4.5.1 The Local Plan is not directly connected with or necessary to the management of any European site. As required under Regulation 105 of the Habitats Regulations, an assessment of LSEs of the Local Plan upon European sites has therefore been undertaken. The screening checks (**Appendix D**) indicate that the Local Plan has the potential to have LSEs (listed below) on a number of European sites for a number of policies and allocations in-combination with other plan and projects listed in **Appendix A**.

- Mole Gap to Reigate Escarpment SAC – air quality and recreational pressure LSEs;
- South West London Waterbodies SPA – water quantity LSEs;
- South West London Waterbodies Ramsar – water quantity LSEs;
- Wimbledon Common SAC – water quantity LSEs.

4.5.2 The screening assessment takes no account of mitigation measures that the Local Plan may incorporate to mitigate adverse impacts upon European sites.

4.5.3 It is therefore concluded that the Local Plan will be screened into the HRA process. The next stage of the HRA process will be Stage 2 - AA.

5 Air Quality Appropriate Assessment

5.1 Introduction

5.1.1 Policy S1 (Spatial Strategy) and Policy DM7 (Employment Land) together with all policies which allocate sites for development (**Table 4.1**) site allocations set out in the Local Plan have the potential to act cumulatively and in-combination with neighbouring growth to increase traffic flows on the local and wider road network. The following section of the AA focuses on assessing more precisely the ecological impacts of air pollution on the qualifying features of Mole Gap to Reigate Escarpment SAC.

5.2 Appropriate Assessment - Mole Gap to Reigate Escarpment SAC

5.2.1 Section 5 of Natural England's guidance[117] recommends that the following factors are taken into consideration in an AA:

1 Consider whether the sensitive features of the site would be exposed to emissions.
2 Consider the European site's conservation objectives.
3 Consider the spatial scale and duration of the predicted impact and the ecological functionality of the affected area[118].
4 Consider background pollution.
5 Consider designated site in national context.
6 Consider best available evidence on small incremental impacts from nitrogen deposition.
7 Consider site survey information.
8 Consider national, regional or local initiatives or measures which can be relied upon to reduce background levels at the site.
9 Consider measures to avoid or reduce the harmful effects of the plan or project on site integrity.
10 Consider any likely in-combination effects with other live plans and projects from other sources.

Consider whether the sensitive qualifying features of the site would be exposed to emissions

5.2.2 The Conservation Objectives for the SAC and its qualifying features are set out in **Box 1.**

Box 1: Mole Gap to Reigate Escarpment 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;

[117] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824 [Accessed: 13/01/25]

[118] Note – order has been altered slightly in this report.

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

This document should be read in conjunction with the accompanying Supplementary Advice document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:
H4030. European dry heaths
H5110. *Stable xerothermophilous* formations with *Buxus sempervirens* on rock slopes (*Berberidion p.p.*); Natural box scrub
H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco Brometalia*) (important orchid sites); Dry grasslands and scrublands on chalk or limestone (important orchid sites)*
H9130. *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils
H91J0. *Taxus baccata* woods of the British Isles; Yew-dominated woodland*
S1166. *Triturus cristatus*; Great crested newt
S1323. *Myotis bechsteinii*; Bechstein`s bat

* Priority natural habitats or species
Some of the natural habitats and species for which UK SACs have been selected are considered to be particular priorities for conservation at a European scale and are subject to special provisions in the Habitats Regulations. These priority natural habitats and species are denoted by an asterisk (*) in Annex I and II of the Habitats Directive. The term 'priority' is also used in other contexts, for example with reference to particular habitats or species that are prioritised in UK Biodiversity Action Plans. It is important to note however that these are not necessarily the priority natural habitats or species within the meaning of the Habitats Regulations.

5.2.3 A review of mapping data indicates that the B2032 (Pebblehill Road) runs to the immediate west of the Mole Gap to Reigate Escarpment SAC boundary.

5.2.4 The area of the SAC located within 200m of the B2032 at this location is underpinned by the Mole Gap to Reigate Escarpment SSSI and the following two SSSI units (**Figure 5.1**):

- Unit 35 – Dawcombe Wood – Broadleaved, Mixed and Yew Woodland
- Unit 36 – Dawcombe – Calcareous Grassland – Lowland

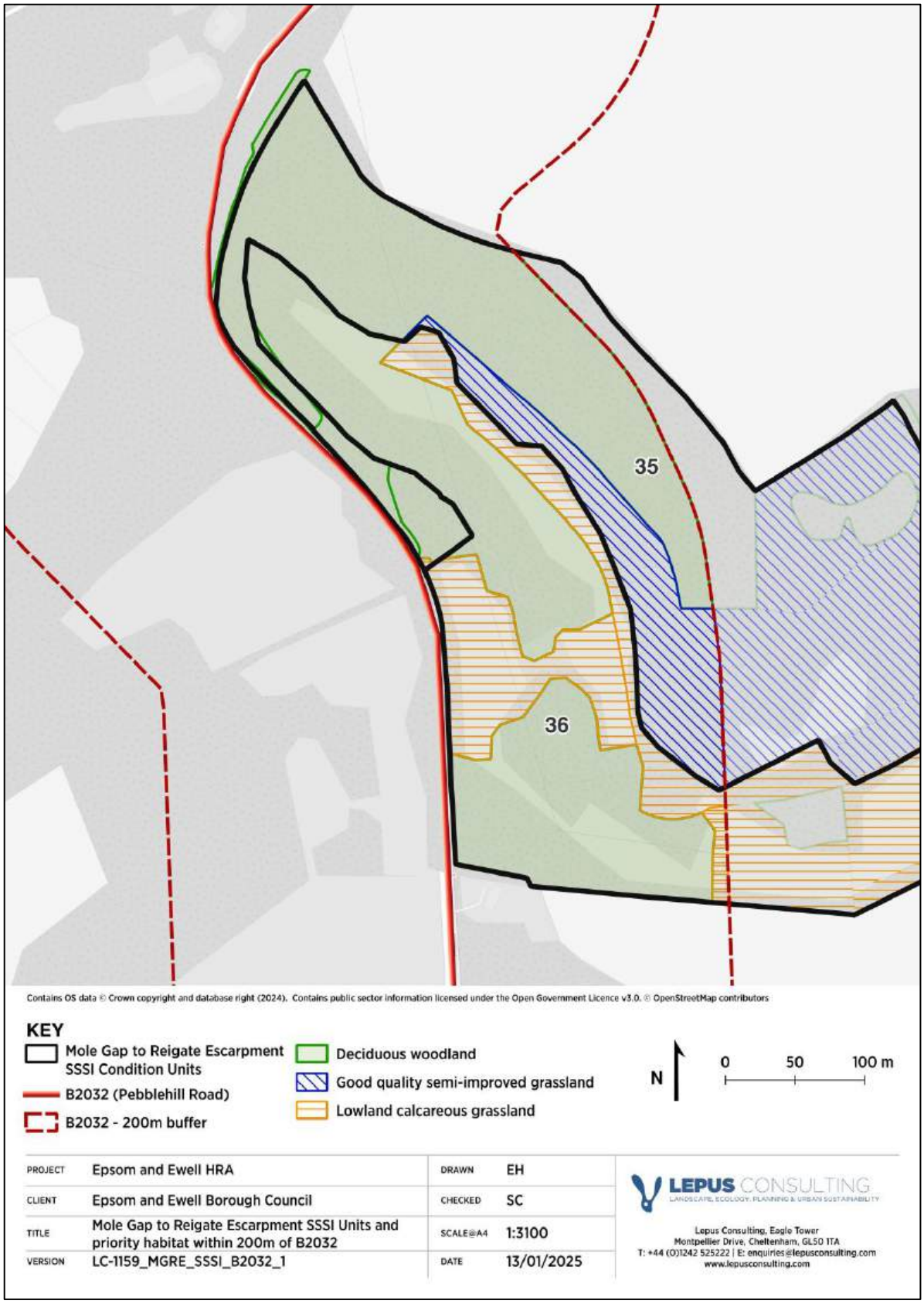

Figure 5.1: *Mole Gap to Reigate Escarpment SSSI Units within 200m of B2032 and priority habitat types*

5.2.5 A review of priority habitat mapping data for the area of the SAC within 200m of the B2032 indicates the presence of deciduous woodland, lowland calcareous grassland and good quality semi-improved grassland, **Figure 5.1.**

5.2.6 Based on a review of mapping data, it is considered possible that the following qualifying features of the SAC are located within 200m of the B2032. A review of APIS data indicates that all of these features are sensitive to NH_3, NOx, N-dep and acid-dep. GCN and Bechstein's Bat are not considered to be directly sensitive to N-dep or acid-dep. However, impacts may affect the broad habitat types they rely upon (respectively, freshwater and broadleaved deciduous woodland).

- *Asperulo-Fagetum* beech forests
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites)
- Stable *xerothermophilous* formations with *Buxus* sempervirens on rock slopes (*Berberidion pp*)
- *Taxus baccata* woods of the British Isles

5.2.7 It is noted that European dry heath habitat is not shown on NE SSSI designated site viewer or priority habitat mapping data in SSSI unit 35 or 36 and, whilst a qualifying feature of the SAC, is not included in the list above.

5.2.8 APIS provides CLo and CLe for each habitat type present within 200m of the B2032 as summarised in **Table 5.1**.

Table 5.1: *Critical Loads and Critical Levels for the qualifying features of the Mole Gap to Reigate Escarpment SAC within 200m of the B2032*

Qualifying Feature	NOx (µg/m3)	Ammonia (µg/m3)	N-Dep (kgN/ha/yr)	Acid-Dep (keq/ha/yr)
Asperulo-Fagetum beech forests	30	1 or 3	10-15	1.623
Semi-natural dry grasslands and scrubland facies on calcareous substrates	30	1	10-20	4.852
Stable xerothermophilous formations with Buxus sempervirens on rock slopes	30	1 or 3	10-20	4.852
Taxus baccata woods of the British Isles	30	3	10-15	1.623

Consider the European Site's Conservation Objectives

5.2.9 The conservation objectives for the SAC are set out in **Box 1**. The conservation objectives for the above qualifying features of the SAC in relation to air quality are further defined in the supplementary advice (insert reference). This notes that the air quality target is to:

5.2.10 'Maintain or restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant CLo or CLe values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).

5.2.11 This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.

5.2.12 CLo or CLe are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are CLe for ammonia (NH_3), oxides of nitrogen (NOx) and sulphur dioxide (SO_2), and CLo for nutrient nitrogen deposition and acid deposition. There are currently no CLo or CLe for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis.

5.2.13 Ground level ozone is regionally important as a toxic air pollutant but flux-based CLes for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.'

5.2.14 The 'restore' objective is applied in circumstances where a site is not currently considered to be achieving its conservation objectives and active restoration is required to address this.

5.2.15 The APIS website provides baseline air quality information for the whole SAC in 1km grid squares. Data for the 1km grid square which is located within 200m of the B2032 shows that levels of N-dep to short vegetation are currently 13.7 kgN/ha/y. This exceeds the lower CLo for all qualifying habitats (see **Table 5.1**) and upper range for heath, beech forest and yew woods. Acid-dep is 1 keq/ha/yr to short vegetation which is below the CLo for all qualifying habitats. NH_3 is 0.9 $\mu g/m^3$ and NOx is 13.2 $\mu g/m^3$ which are below the CLe for all qualifying habitats.

5.2.16 It is therefore likely that the 'restore' objective relates specifically to nitrogen deposition and the 'maintain' objective relates to NH_3, NOx and acid-dep.

5.2.17 The Air Quality Modelling Report provides baseline air quality data in Table 3 for both 2019 and 2040 (**Appendix C**). This data shows that background concentrations of NOx and acid-dep are predicted to be well below the CLe and CLo in both 2019 and 2040. Predicted background concentrations of NH_3 are above the CLe of 1 $\mu g/m^3$. Predicted background N-dep rates exceed the CLo in both years.

5.2.18 As background levels at the SAC are already exceeding thresholds for N-dep, they will be undermined by any proposal that will result in emissions which will compromise the ability of other national or local measures and initiatives to reduce background levels. The extent to which the Local Plan will undermine the conservation objectives of the SAC to restore air quality therefore requires further consideration in this AA.

5.2.19 Natural England's guidance notes that this is a judgement to be taken by the competent authority (the Council) which '*should be informed by, amongst others, the extent to which any declining national trends in air pollution or strategic work to tackle emissions affecting the site more locally might otherwise lead to improvements, the rate at which such improvement are anticipated to be delivered, any credible evidence on the extent of the impacts of a plan or project and whether those impacts can properly be considered temporary and reversible.'*

5.2.20 As set out above, the background N-dep levels show the site is already exceeding relevant air quality benchmarks and the conservation objectives are to 'restore the concentrations and deposition of air pollutants to within benchmarks'.

5.2.21 The supplementary advice note for the SAC indicates that achievement of air quality objectives will require wider consideration including the '*availability and effectiveness of abatement technology and measures to tackle diffuse air pollution.'*

5.2.22 An effect will be significant if it undermines the conservation objectives of the SAC. It is therefore necessary to determine whether a deterioration of air quality caused by increased traffic flows on the B2032 will undermine the achievement of the restore or maintain objectives for the SAC.

5.2.23 **Figure 5.2** shows that 12.2% of nitrogen deposition contributions at the SAC come from road traffic, in comparison to 35.51% from agricultural sources. Measures required to achieve air quality conservation objectives at the SAC would therefore need to target agricultural activities.

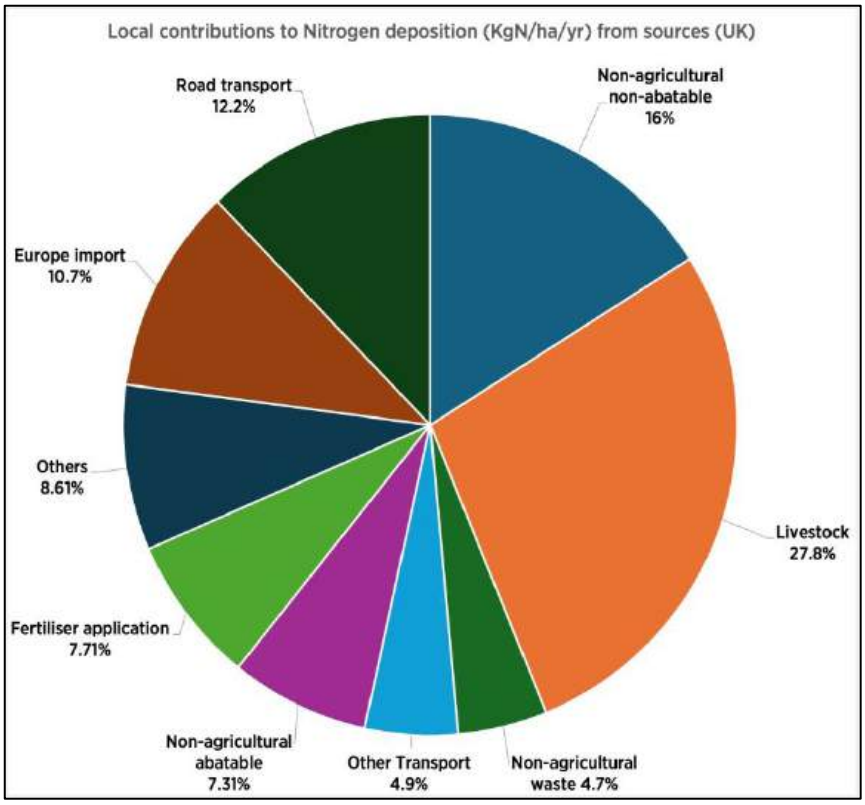

Figure 5.2: *Local Contributions to N-dep at Mole Gap to Reigate Escarpment SAC*

Consider the spatial scale and duration of the predicted impact and the ecological functionality of the affected area and 4) Background pollution and trends

5.2.24 The air quality dispersion modelling predicts concentrations of NOx and NH_3 along with nitrogen and acid deposition within the SAC within 200m of the B2032 – refer to **Section 3.4** for details regarding the transport and air quality modelling methodologies. This section of the AA therefore considers the spatial scale of changes for each pollutant in comparison to CLes and CLos in the context of background pollution and trends.

Oxides of nitrogen

5.2.25 In all future year scenarios, at all locations, the total concentration of NOx is well below the CLe. As the CLe will not be exceeded, no adverse impacts upon site integrity will arise as a direct result of elevated NOx from the Local Plan, either alone or in combination.

Ammonia

5.2.26 The air quality modelling has taken a precautionary approach and applied the lower CLe which is applicable to habitat containing lichen and bryophyte (as discussed in **Section 3.4**).

5.2.27 Habitats within 200m of the B2032 (within SSSI units 35 and 36, **Figure 5.1**) are predominantly woodland with a small area of calcareous grassland. Woodland at the Mole Gap to Reigate Escarpment SAC comprise beech forest or yew woodland. The CLe for beech forest is 1 – 3 μg/m^3 depending on the presence of lichen and bryophyte and for yew woodland is 3 μg/m^3. A review of the SSSI citation for the site does not suggest that beech forest at the SAC is associated with lichen or bryophyte interest and therefore the higher CLe is appropriate for the woodland features.

5.2.28 APIS sets a CLe of 1 μg/m^3 for calcareous grassland as lichen is likely to be associated with this type of grassland[119]. A Natural England publication provides details on the key habitat requirement for lichen within this habitat type which include the maintenance of open conditions either through disturbance generated by grazing, especially rabbits, or some other form of disturbance which can be anthropogenic (military training for example). Natural processes such as landslips or extreme environmental conditions (for example, a combination of very shallow infertile soil coupled with high temperatures on south-facing slopes). A review of the SSSI citation indicates that the calcareous grassland within the Mole Gap to Reigate Escarpment SSSI is associated with higher plants such as orchids. The SSSI citation notes that 'areas of open turf at Burford Bridge Ridge and Juniper Top support a rich lichen flora with many noteworthy species including *Toninia caeruleonigricans* and *Verrucaria mutabilis*'. These areas are not located within 200m of the B2032. As such, the higher CLe can be applied to calcareous grassland.

5.2.29 The higher NH_3 CLe (3 μg/m^3) is exceeded within 2-3m of the road edge only. A review of aerial photography and google mapping data indicates that habitat within 2-3m of the road comprises habitat associated with the road verge – see **Figure 5.3**. This road verge habitat is considered to be site fabric[120]. Total concentrations of NH_3 for all modelled scenarios do not exceed the higher CLe beyond 2-3m.

5.2.30 It is therefore considered that no adverse impacts on site integrity will arise as a direct result of elevated NH_3 from the Local Plan, either alone or in combination.

[119] Natural England. 2024. Definition of Favourable Conservation Status for lowland calcareous grassland.

[120] 'Site-fabric' is a general term used by Natural England to describe land and/or permanent structures present within a designated site boundary which are not, and never have been, part of the special interest of a site, nor do they contribute towards supporting a special interest feature of a site in any way, but which have been unavoidably included within a boundary for convenience or practical reasons. Areas of site-fabric will be deliberately excluded from condition assessment and will not be expected to make a contribution to the achievement of conservation objectives. Natural England (2018). Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. NE Internal Guidance, V1.4 Final, June 2018.

Figure 5.3: *Street map view of B2032 adjacent to the Mole Gap to Reigate Escarpment SAC (left hand side of photo)*[121]

Nitrogen deposition

5.2.31 The air quality modelling shows that total N-dep concentrations exceed the lower CLo for both beech forest, yew woodland and calcareous grassland (10 kgN/ha/yr) at all locations modelled. The higher CLo for beech forest and yew woodland is exceeded at all modelled locations (15 kgN/ha/yr). The higher CLo for calcareous grassland (20 kgN/ha/yr) is exceeded within 5m of the B2032 only.

5.2.32 It is noted that an exceedance of the CLo does not mean that an adverse impact upon site integrity will occur as other factors will have an influence.

5.2.33 Table 7 of the Air Quality Report (**Appendix C)** provides local baseline nitrogen deposition levels in 2019 and 2040. This data shows that the lower N-dep CLo will be exceeded for beech forest, yew woodland and calcareous in a baseline scenario at all locations modelled.

5.2.34 The 2040 Do Minimum scenario shows total N-dep without the Local Plan in place but with all other plans and projects in place. The 2040 Do Something scenario shows total deposition from the Local Plan in-combination with all other plans and projects. A comparison of these two scenarios allows the contribution of the Local Plan to N-dep to be explored. Data contained in Table 7 of the Air Quality report shows that at Transect A within 17m from the road edge, the Local Plan contributes 0.1 kgN/ha/yr to the total N-dep level, and beyond this distance the Local Plan contributes 0.0 kgN/ha/yr. At Transect B and C the a total N-dep contribution from the Local Plan is 0.1 kgN/ha.yr within 9m of the road edge and beyond this distance is 0.0 kgN/ha/yr.

5.2.35 The Air Quality Report provides an estimated background N-Dep concentration in 2040 (end plan year) of 15kgN/ha/yr *(*without the proposal alone and in combination*)*. This is a reduction from a 2019 baseline (16.1kgN/ha/yr) of 1.1kgN/ha/yr.

[121] Google Maps (2023) Street View.

5.2.36 Background concentrations of nitrogen deposition fluxes quoted in the Air Quality Report, have been taken from APIS. The concentrations and deposition fluxes represent 1 km x 1 km averages. APIS currently presents 3-year mean values centred on the calendar year of 2019. These have been adjusted to represent 3-year averages centred on 2040 using the rate of change predicted for this area using the Business-as-Usual assumptions of JNCC's Nitrogen Futures project. Nitrogen Futures only predicts changes to 2030, so the background values for 2030 have been used to represent 2040. It is not currently possible to reliably predict any subsequent changes to local background conditions between 2030 and 2040.

5.2.37 Therefore, assuming this reduction covers an 11-year period (2019 to 2030), cleaner vehicle technology will result in an average year on year reduction in N-dep of 0.1kgN/ha/yr without the Local Plan in place.

5.2.38 When the contribution from the Local Plan (total 0.1kgN/ha/yr) is taken into consideration, there would be a reduction of 1.2kgN/ha/yr over the period of 11 years. This would mean that to get the same reduction of 0.1kgN/ha/yr with the Local Plan in place, it would take 12 years (1.2 divided by 0.1). This means that the Local Plan would retard background improvements by a year exactly (up to 2030).

Table 5.2: *N-dep total contributions in all scenarios*

Distance from road edge (m)	Total deposition Flux (kgN/ha/yr)				
	2019 Baseline	2040 Do Nothing	2040 Do Minimum	2040 Do Something	Total Contribution from Local Plan
Transect A					
2	24.3	22.3	23..9	23.9	0.1
3	23.5	21.6	22.9	23.0	0.1
5	22.3	20.4	21.5	21.6	0.1
9	20.8	19.0	19.8	19.9	0.1
17	19.3	17.6	18.1	18.2	0.0
33	18.0	16.5	16.8	16.8	0.0
65	17.2	15.8	16.0	16.0	0.0
129	16.7	15.4	15.5	15.5	0.0
Transect B					
2	24.5	22.6	24.1	24.2	0.1
3	23.6	21.7	23.1	23.2	0.1
5	22.4	20.5	21.6	21.7	0.1
9	20.8	19.0	19.8	19.9	0.1
17	19.2	17.5	18.1	18.1	0.0
33	17.9	16.4	16.7	16.7	0.0
65	17.0	15.7	15.9	15.9	0.0
129	16.5	15.3	15.4	15.4	0.0
200	16.4	15.2	15.3	15.3	0.0
Transect C					

Distance from road edge (m)	Total deposition Flux (kgN/ha/yr)				
	2019 Baseline	2040 Do Nothing	2040 Do Minimum	2040 Do Something	Total Contribution from Local Plan
3	23.3	21.4	22.7	22.8	0.1
5	22.1	20.2	21.3	21.4	0.1
9	20.6	18.8	19.6	19.6	0.0
17	19.0	17.4	17.9	17.9	0.0
33	17.8	16.3	16.6	16.6	0.0
65	17.0	15.7	15.8	15.8	0.0
129	16.5	15.3	15.4	15.4	0.0
200	16.3	15.2	15.2	15.2	0.0

5.2.39 In addition to the assessment of modelled air quality data, Natural England's guidance recommends that consideration be given to background pollution trend data.

5.2.40 For the 1km grid square adjacent to the B2032 APIS data shows that N-Dep fell for short vegetation (grassland) from 18.25 kg N/ha/year in 2003 to 13.6 kg N/ha/year in 2021. N Dep fell for forest (woodland) from 32.4 kg N/ha/year in 2003 to 24.7 kg N/ha/year in 2021, as shown in **Figure 5.4**.

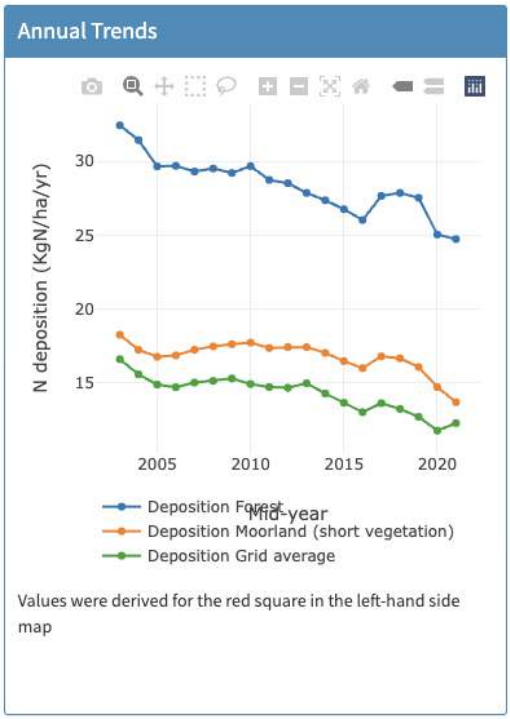

Figure 5.4: *Annual N-dep trends for the 1km grid square within 200m of the B2032: source APIS*

5.2.41 This AA has taken into consideration the current background concentrations of N-dep, the predicted reducing trends in N-dep at the SAC and the small-scale retardation effect of the Local Plan on N-dep levels (one year). It is therefore concluded that no likely adverse impact on site integrity will arise as a direct result of elevated N-dep from the Local Plan, either alone or in combination.

Acid deposition

5.2.42 Habitats within 200m of the B2032 (within SSSI Units 35 and 36) are predominantly woodland with a small area of calcareous grassland, see **Figure 5.1**. Woodlands at the Mole Gap to Reigate Escarpment SAC comprise beech forest or yew woodland. The CLo for beech forest and yew woodland is 1.623 Keq/ha/yr. The CLo for calcareous grassland is 4.852 Keq/ha/yr.

5.2.43 Table 8 of the Air Quality Report (**Appendix C**) indicates that the woodland CLo is exceeded only within 3m of the road verge and the calcareous grassland CLo is not exceeded at any location.

5.2.44 A review of aerial photography and Google Map data indicates that habitat within 2-3m of the road verge comprises habitat associated with the road verge, which is considered to be site fabric. Total concentrations of acid-dep for all modelled scenarios do not exceed the higher CLo beyond 3m. In addition, a comparison of modelling outputs between a Do Minimum and Do Something scenario indicates that there is no contribution from the Local Plan beyond 5m of the B2032 at any transect modelled.

5.2.45 It is therefore considered that no adverse impact on site integrity will arise as a direct result of elevated acid-dep from the Local Plan, either alone or in combination.

Consider designated site in national context

5.2.46 Mole Gap to Reigate Escarpment SAC makes an important contribution to the achievement of the conservation status of lowland calcareous grasslands and lowland mixed deciduous woodland in the UK.

Consider best available evidence on small incremental impacts from nitrogen deposition

5.2.47 Given the conclusions set out above, it is not necessary to consider small incremental impacts of nitrogen deposition upon the SAC.

Consider site survey information

5.2.48 Detailed site survey information has been taken into consideration in the above assessment.

Consider national, regional or local initiatives or measures which can be relied upon to reduce background levels at the site

5.2.49 Whilst there are national and local initiatives and measures in place to promote a modal shift away from the private car, promote the use of electric vehicles and uptake of active travel which will have a positive impact upon local air quality, there are no local initiatives to reduce air pollution levels within the SAC specifically.

Consider measures to avoid or reduce the harmful effects of the plan or project on site integrity

5.2.50 Given the conclusions set out above is not considered necessary to consider mitigation measures.

Consider any likely in-combination effects with other live plans and projects from other sources.

5.2.51 The air dispersion modelling has been informed by a traffic modelling prepared for the Local Plan. The traffic model is described in **Section 3.4**. This modelling takes into consideration baseline traffic flows which may act in-combination with the Local Plan. In addition, the air quality dispersion modelling incorporates background air quality concentration from all other sectors.

Summary of air quality AA findings

5.2.52 Qualifying features of the SAC are located within 200m of the B2032.

5.2.53 There is a restore air quality objective at the SAC for N-dep and a 'maintain objective' for all other pollutants.

5.2.54 Air quality dispersion modelling was undertaken to spatially describe the impact of pollutants associated with vehicle emissions as a result of the Local Plan alone and in combination.

5.2.55 Total concentration of NOx does not exceed the CLe at any receptor modelled.

5.2.56 Total NH_3 concentrations do not exceed the higher CLe of 3 $\mu g/m^3$ at any location beyond 3m of the B2032. The area of habitat within 3m of the road verge is considered to be part of the SAC's site fabric.

5.2.57 Baseline levels of N-dep exceed CLo for all qualifying features of the SAC within 200m of the B2032 (yew woodland, beech forest and calcareous grassland). The contribution of the Local Plan alone to total N-dep is zero (0 kgN/ha/yr) beyond 17m of the road verge along Transect A and zero beyond 9m of the road verge along Transect B and C. At locations closer to the road, N-dep contributions from the Local Plan are 0.1 kgN/ha/yr or less.

5.2.58 Baseline trends show improvements in N-dep within the study area. The Local Plan will retard the achievement of N-dep restore conservation objectives by a year. This contribution from the Local Plan to N-dep is not considered to be meaningful and will therefore not have an adverse impact upon the site integrity of the SAC or the achievement of its conservation objectives.

5.2.59 The total acid-dep woodland CLo is exceeded only within 3m of the road verge. The area of habitat within 3m of the road verge is considered to be part of the site fabric. The calcareous grassland CLo is not exceeded at any location.

5.2.60 It can be concluded that emissions from the Local Plan will not undermine the achievement of air quality objectives for the SAC and therefore there will be no adverse impact upon site integrity from traffic flows alone or in-combination.

6 Water Quantity Appropriate Assessment

6.1 Introduction

6.1.1 Development can reduce catchment permeability, and the presence of drainage networks may be expected to remove runoff from urbanised catchments. This may result in changes in run off rates from urbanised areas to European sites or watercourses which connect to them and therefore a change in water levels. Water mains leakage and sewer infiltration may also affect water levels. In addition, supply to meet water demand associated with new development (supported by the Local Plan) also has the potential to affect water balances at hydrologically sensitive European sites which are connected to the Plan area.

6.1.2 The HRA screening process in **Chapter 4** concluded that Policy S1 (Spatial Strategy), Policy DM7 (Employment Land) and all policies which allocate sites for development (**Table 4.1**) have the potential to result in likely significant water quantity effects at the following European sites (**Appendix D**):

- South West London Waterbodies SPA
- South West London Waterbodies Ramsar
- Wimbledon Common SAC

6.1.3 This chapter therefore provides an AA which assesses more precisely the ecological impacts associated with changes in water quantity due to Local Plan growth at each European site in view of its qualifying features and conservation objectives.

6.2 Baseline information

South West London Waterbodies SPA and South West London Waterbodies Ramsar

6.2.1 The South West London Waterbodies SPA and South West London Waterbodies Ramsar comprise a series of embanked water supply reservoirs and former gravel pits which support a range of man-made and semi-natural still, open-water habitats[122]. These vary in character depending on their use and management. This complex is situated to the west of London on the broad floodplain of the River Thames and is located within the Environment Agency's Flood Zone 2 mapping area.

6.2.2 The SPA and Ramsar are designated for internationally important non-breeding numbers of Gadwall and Shoveler that the waterbodies support (**Appendix B**).

[122] Natural England (2014) South West London Waterbodies SPA Citation. Available at: https://publications.naturalengland.org.uk/file/6663157678342144 [Date Accessed: 10/02/25].

6.2.3 The Knight & Bessborough Reservoirs SSSI component of the SPA and Ramsar was screened into the AA process for further consideration of potential water quantity impacts due to its proximity to the Plan area, location within the London WRZ and hydrological sensitivity. The SSSI is located approximately 9.6km to the north west of the Plan area at its closest point and consists of two connected embanked water storage reservoirs which are operated by Thames Water. The SSSI comprises one SSSI unit which is in a 'favourable' condition[123].

6.2.4 Water quantity has been identified as a threat to the Gadwall and Shoveler qualifying features of the South West London Waterbodies SPA[124]. Whilst no threats or pressures are listed on the Ramsar information sheet, given it is designated for the same features and taking a precautionary approach, it has been assumed that changes in water quantity is also likely to be a threat at the Ramsar site. Natural England's Supplementary Advice[125] notes that the target is to 'ensure water quality and quantity is maintained to a standard which provides the necessary conditions to support Gadwall / Shoveler during the non-breeding season'. This 'maintain' target provides a useful indication that overall, water is currently of a quantity which is allowing the site to achieve favourable conservation status for the qualifying features.

Wimbledon Common SAC

6.2.5 Wimbledon Common SAC comprises a large area of uncultivated land in London and lies approximately 4.8km to the north of the Plan area and within the London WRZ. It supports a mosaic of broadleaved woodland, acid grassland, dry and wet heath, scrub and mire[126]. The underlying soils are mostly sands, gravels and silty clays which give rise to poorly-drained, nutrient-poor and acid conditions. The strata at the SAC results in acidic, nutrient-poor springs which create gullies and pools on the underlying clay[127]. Several streams rise at the boundary of the gravels and clays and the Beverley Brook runs along the western edge of the SAC[128]. Its qualifying habitats are dry and wet heaths and qualifying species, the Stag Beetle (**Appendix B**).

[123] Natural England. Designated Site Viewer. Available at: https://designatedsites.naturalengland.org.uk/

[124] Natural England (2018) South West London Waterbodies SPA Conservation Objectives Supplementary Advice. Available at: https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK9012171.pdf [Date Accessed: 10/02/25].

[125] Natural England (2018) South West London Waterbodies SPA Conservation Objectives Supplementary Advice. Available at: https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK9012171.pdf [Date Accessed: 10/02/25].

[126] Natural England. 2016. European Site Conservation Objectives: Supplementary advice on conserving and restoring site features. Wimbledon Common SAC. Available at: http://publications.naturalengland.org.uk/publication/5706571287887872 [Date Accessed: 10/02/25].

[127] London Wildlife Trust. Farm Bog. Information available at: https://www.wildlondon.org.uk/nature-reserves/farm-bog [Date Accessed: 10/02/25].

[128] Natural England Wimbledon Common SSSSI Citation. Available at : https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004317.pdf [Date Accessed: 10/02/25].

6.2.6 Information presented in Supplementary Advice Note (Natural England, 2016) indicates that the SAC is vulnerable to hydrological changes on the 'wet heathland with cross-leaved heath' qualifying feature of the SAC[129]. Of particular concern is the change to source, depth, frequency and magnitude of water supply that can have significant implications on the assemblage of characteristic of the wet heathland. Maintenance or restoration of the hydrological regime is required to sustain this habitat type.

6.2.7 The Land Management Plan for the SAC indicates that areas of wet heath are vulnerable to drying out and that management techniques to control water loss are being implemented by blocking drainage channels[130].

6.2.8 The SAC is underpinned by Wimbledon Common SSSI. Wimbledon Common SSSI comprises five SSSI units, four of which are in an 'unfavourable – recovering' condition and the fifth is in an 'unfavourable – no change' condition. Reasons for the unfavourable conditions included recreational pressure, high footfall, encroachment of scrub and other species and low structural and age diversity of the heathland habitat.

6.3 Appropriate Assessment

6.3.1 Together the Government, the EA and the water companies are responsible for preparing plans and strategies and implementing a regulatory framework to ensure there is enough water for the future needs of both people and the environment. This is undertaken through a catchment-based approach and provides protection for European sites and ensures compliance with the WFD[131].

6.3.2 Thames Water and SES Water supply water to Epsom and Ewell. The area supplied by both water companies was defined in 2021 as being under 'serious water stress' by the Environment Agency[132].

6.3.3 It is a statutory requirement that every five years water companies produce and publish a WRMP. A WRMP demonstrates long term plans to accommodate the impacts of population growth, drought, environmental obligations, and climate change uncertainty in order to balance supply and demand. The revised draft Thames Water WRMP[133] and revised draft SES Water WRMP[134] estimate future water demands, based on forecast future LPA growth, and plan how these levels will be achieved.

[129] Natural England (2016) European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Wimbledon Common Special Area of Conservation (SAC) Site Code: UK0030301.

[130] Wimbledon and Putney Commons (2024) Conserving the Commons A Land Management Plan for Wimbledon and Putney Commons 2024 to 2034.

[131] European Commission. Water Framework Directive. Available at: https://environment.ec.europa.eu/topics/water/water-framework-directive_en [Date Accessed: 10/02/25].

[132] Environment Agency (2021) Water stressed areas – final classification 2021.

[133] Thames Water (2024) Revised Draft Water Resources Management Plan 2024. Available at https://www.thameswater.co.uk/about-us/regulation/water-resources [Date Accessed: 10/02/25].

[134] SES Water (2022) Revised Draft Our Water Resources Management Plan 2025-2075. Available at: https://seswater.co.uk/about-us/publications/our-water-resources-management-plan [Date Accessed: 10/02/25].

6.3.4 Thames Water WRMP indicates that the London WRZ (within which the Plan area lies) is supplied mainly by surface water resources, with water from the River Thames and River Lee being abstracted into large reservoirs in west London and north east London[135]. In order to meet demand, the revised draft WRMP24[136] sets out a series of proposed measures to address use of water through metering, reductions in leakages and promotion of water efficiency measures. The revised draft WRMP also identifies supply schemes to meet additional demand in the short, medium and long-term taking into consideration the effects of climate change. A review of the supporting HRA for the WRMP indicates that these projects, following implementation of mitigation measures, will not have an adverse impact on the site integrity of the South West London Waterbodies SPA, South West London Waterbodies Ramsar or Wimbledon Common SAC either alone or in-combination[137].

6.3.5 SES Water operate across six river catchments including the Hogsmill, the Wandle, the Darent, the Eden, the Mole and Beverley Brook, with 85% of the water supply coming from underground chalk and greensand sources[138]. The SES Water WRMP also sets out a series of proposed measures to address use of water through metering, reductions in leakages and promotion of water efficiency measures. These measures sit alongside four new transfers planned through the Water Resources South East (WRSE) and potential new supplies from increased groundwater abstraction and increased reservoir capacity. An HRA screening assessment was undertaken on behalf of WRSE in support of the WRMP which concluded no LSEs, either alone or in-combination, at any European site from the supply options[139].

[135] Thames Water (2024) Revised Draft Water Resources Management Plan 2024. Section 4 – Current and Future Water Supply. Available at: https://dn9cxogfaqr3n.cloudfront.net/revised-draft/Technical+Report/rdWRMP24+-+Section+4+-+Current+and+Future+Water+Supply.pdf [Date Accessed: 10/02/25].

[136] Thames Water (2024) Revised Draft Water Resources Management Plan 2024. Section 11 – The Overall Best Value Plan. Available at https://dn9cxogfaqr3n.cloudfront.net/revised-draft/Technical+Report/rdWRMP24+-+Section+11+-+The+Overall+Best+Value+Plan+(1).pdf [Date Accessed: 10/02/25].

[137] Thames Water (2024) Revised Draft Water Resources Management Plan 2024. Appendix C: Habitats Regulations Assessment Report. Available at https://dn9cxogfaqr3n.cloudfront.net/revised-draft/Technical+Appendices/rdWRMP24+-+Appendix+C+-+HRA.pdf [Date Accessed: 10/02/25].

[138] SES Water (2022) Revised Draft Our Water Resources Management Plan 2025-2075. Available at: https://seswater.co.uk/about-us/publications/our-water-resources-management-plan [Date Accessed: 10/02/25].

[139] Atkins (2022) Appendix F – Habitats Regulations Assessment.

6.3.6 The Water Industry Act 1991, as amended by the Water Act 2003, made it a statutory requirement for water companies to produce and maintain a Drought Plan every 5 years. A Drought Plan sets out the framework for a water company to follow in times of drought and dry weather to maintain water supply and links strategically with the WRMPs. The Thames Water Drought Plan[140] tests a number of drought / dry weather scenarios under different climatic conditions to show that supply can be maintained. It concludes that security of supply is considered to be robust for the next 5 years to achieve protection for its customers. The SES Water Drought Plan[141] describes how SES Water will supply adequate quantities of water, at an appropriate quality, with as little recourse as possible to drought orders or permits, during times of drought.

6.3.7 The Environment Agency prepares Abstraction Licensing Strategies (ALS) through its Catchment Abstraction Management Strategy (CAMS) process. These ALSs are prepared for each sub-catchment within a river basin. The CAMS process aims to assess the amount of water available for further abstraction licensing, taking into account environmental needs and implementation of the RBMPs and water abstraction plans[142]. The CAMS process is published in a series of ALSs for each river basin. ALS are important in relation to the RBMP as they assist in determining current and future pressures on water resources and how the supply and demand will be managed by the relevant water companies through WRMPs.

6.3.8 Local policy will work together with this high-level water regulatory framework to ensure sufficient water is available for both the environment and people. Policy DM11 – Sustainable Water Use – of the Local Plan recognises that the Plan area is located within an area classified as being seriously water stressed. This policy therefore requires all homes to meet water efficiency targets to achieve sustainable water use. Policy S16 – Flood Risk and Sustainable Drainage – requires development to use nature-based solutions such as Sustainable Drainage Systems to reduce surface run off. Policy DM18 – Pollution and Contamination – requires incorporation of good design in new development in relation to water discharges. Other policies such as Policy S3 – Climate Change – also set out requirements for new development to maximise sustainable water use.

6.3.9 In summary, water supply issues will be addressed through the higher-level water planning framework and licencing process (RBMP, WRMP, Drought Plans and CAMS). Local Plan policies to improve water efficiency (Policy DM11) will also ensure water supplies to meet the requirements of European sites can be met.

6.3.10 Taking into consideration the high-level protective water planning framework and protective Local Plan policies, it can be concluded that there will be no AIOSI on the South West London Waterbodies SPA, South West London Waterbodies Ramsar or Wimbledon Common SAC either alone or in-commination due to a change in water quantity as a result of the Local Plan.

[140] Thames Water (2022) Drought Plan 2022. Available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/drought-plan/drought-plan-2022/thames-water-drought-plan-2022.pdf [Date Accessed: 10/02/25].

[141] SES Water (2022) Drought Plan 2022. Available at: https://seswater.co.uk/about-us/publications/our-water-resources-management-plan [Date Accessed: 10/02/25].

[142] DEFRA (2021) Policy Paper: Water Abstraction Plan.

7 Recreational Pressure Appropriate Assessment

7.1 Introduction

7.1.1 Increased recreational pressure at European sites can result in damage to habitats and changes in behaviour to animals such as birds at nesting and feeding sites. This can be caused by erosion and compaction, troubling of grazing stock, spreading of invasive species, dog fouling, and tree climbing among other recreational impacts. Typically, disturbance of habitat and species is the unintentional consequence of people's presence which can impact distribution of habitat types and breeding success and survival. Increased development has the potential to increase recreational pressures upon European sites which are accessible to the public.

7.1.2 The HRA screening process in **Chapter 4** concluded that Policy S1 (Spatial Strategy) and all policies which allocate sites for residential development (**Table 4.1**) have the potential to result in likely significant recreational effects at Mole Gap to Reigate Escarpment SAC (**Appendix D**):

7.1.3 This chapter therefore provides an AA which assesses more precisely the ecological impacts associated with increased recreational pressure due to Local Plan growth cumulatively and in-combination with neighbouring LPA growth (**Appendix A**) on the SAC in view of its qualifying features and conservation objectives.

7.2 Baseline information

7.2.1 Mole Gap to Reigate Escarpment SAC is located approximately 2km to the south of the Plan area. The SAC is designated for, among others features, its European dry heaths, natural box scrub, dry grasslands and scrublands on chalk or limestone, Beech forests on neutral to rich soils and Yew-dominated woodland[143]. It is also designated for two species which include GCN and Bechstein's Bat.

7.2.2 Mole Gap to Reigate Escarpment SAC is predominantly within the ownership of the National Trust and Surrey County Council and is also within the Surrey Hills National Landscape which is subject to a management plan[144]. The SAC is crossed by a number of PRoW, with the North Downs Way National Trail running in an east to west direction through the south of the SAC. There are a number of car parks across the SAC, including Box Hill Café and visitor centre. A large area of the SAC has open public access and is used by walkers and cyclists. Two smaller parts of the SAC are managed by the Surrey Wildlife Trust, Dawcome and Fraser Down, and have no public access without prior permission.

[143] Natural England (2019) Mole Gap to Reigate Escarpment SAC Conservation Objectives Supplementary Advice. http://publications.naturalengland.org.uk/file/6354450398838784 [Date Accessed: 10/02/25].

[144] Surrey Hills (2020) Surrey Hills Area of Outstanding Natural Beauty Surrey Hills Management Plan 2020 – 2025. Available at: https://surreyhills.org/wp-content/uploads/2022/11/Surrey-Hills-Management-Plan-Web-72-SP-1-2.pdf [Date Accessed: 10/02/25].

7.2.3 The SAC is underpinned by Mole Gap to Reigate Escarpment SSSI which is comprised of 37 SSSI units, 22 of which are in a 'favourable' condition, 13 are in an 'unfavourable – recovering' condition, one is in an 'unfavourable – no change' condition and one is in an 'unfavourable – declining condition'. The unfavourable status of some units is attributed to the invasion of scrub and reduction of open grassland habitat. The condition surveys note that some areas of the chalk grassland are well used by walkers.

7.2.4 Work undertaken as part of the Bournemouth Study[145] (**paragraph 3.6.9**) showed that, although there are local visitors to honeypot sites across the SAC, large numbers originate from over 15 miles (24.14km) and therefore the majority of recreational pressure is caused by visitors travelling from further afield. As outlined in **paragraph 3.6.10**, large development outside an 800m buffer zone established in support of Mole Valley's Local Development Framework (LDF), in-combination with growth in neighbouring areas, has the potential to increase recreational pressures on the SAC, particularly at honeypot sites[146], and undermine its ability to achieve relevant conservation objectives.

7.3 Appropriate Assessment

7.3.1 The conservation target for the SAC is to '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'. Recreational pressure is identified in Natural England's SIP as being a threat due to trampling of orchid-rich grasslands, repetitive disturbance to GCN breeding ponds, and spread of disease (such as box blight)[147].

7.3.2 There are several road links which provide a barrier to the movement of people between the Plan area and the SAC including the M25.

7.3.3 There are a number of alternative recreational options located within close proximity to site allocations proposed in the Local Plan. These include Epsom and Walton Downs and a Woodland Trust site (Langley Vale Wood)[148] to the south of the Plan area. These sites comprise chalk grassland and woodland with facilities including viewpoints, picnic tables, toilets, play areas, walking routes and car parking. Epsom Common is an area of open access land to the south west of the Plan area. Epsom Common is designated as a SSSI and a Local Nature Reserve. Ashtead Common lies beyond Epsom Common and is also an area of open access land and designated as a SSSI and National Nature Reserve. Further to the west of the Plan area is Prince's Coverts, a site owned and manged by the Crown Estates and accessible to the public.

[145] Mole Valley District Council. 2008. Mole Valley Local Development Framework Mole Valley Appropriate Assessment.

[146] Honeypot sites include: Headley Heath; Box Hill and Reigate Hill/Gatton Park (Wray Lane).

[147] Natural England (2014) Site Improvement Plan Mole Gap to Reigate Escarpment SAC https://publications.naturalengland.org.uk/publication/5966636066537472 [Date Accessed: 10/02/25].

[148] Woodland Trust. Langley Vale Wood. https://www.woodlandtrust.org.uk/visiting-woods/woods/langley-vale-wood/?gad_source=1&gclid=EAIaIQobChMI8YmqlqyQiQMVJpJQBh3VaASpEAAYASAAEgIeavD_BwE&gclsrc=aw.ds [Date Accessed: 10/02/25].

7.3.4 Policy DM19 (Open Space, Sport and Recreation) of the Local Plan requires all development which would result in a net increase in residential units to contribute towards open space, sport and recreation either through financial contributions or on site provisions. Where open space is provided through a development site, Policy DM19 requires that it include long term stewardship arrangements to secure the quality of open space in perpetuity. Policy DM19 also safeguards local green space from development. Policy S18 (Green and Blue Infrastructure) requires development to contribute towards an accessible and integrated green and blue infrastructure network to improve wellbeing of new residents.

7.3.5 At a more strategic level, the Surrey Hills National Landscape management plan[149] sets out measure to manage recreational impacts. These measures include education for users to raise awareness of the importance of biodiversity within this National Landscape.

7.3.6 Taking into consideration barriers to movement of people to the SAC from the Plan area, Local Plan mitigation policy in terms of open green space provision, alternative recreational destinations in closer proximity to the Plan area and strategic level recreational management, it is concluded that the Local Plan will have no AIOSI in-combination with other plans and projects (**Appendix A**) due to increased recreational pressure.

[149] Surrey Hills (2020) Surrey Hills Area of Outstanding Natural Beauty Surrey Hills Management Plan 2020 – 2025. Available at: https://surreyhills.org/wp-content/uploads/2022/11/Surrey-Hills-Management-Plan-Web-72-SP-1-2.pdf [Date Accessed: 10/02/25].

8 Conclusion and next steps

8.1 Summary

8.1.1 The Local Plan is not directly connected with or necessary to the management of any European site. A screening assessment was therefore undertaken which identified a number of LSEs associated with the Local Plan. Taking no account of mitigation measures, the Local Plan has the potential to affect the following European sites:

- Mole Gap to Reigate Escarpment SAC – air quality and recreational pressure;
- South West London Waterbodies SPA – water quantity;
- South West London Waterbodies Ramsar – water quantity;
- Wimbledon Common SAC – water quantity.

8.1.2 The HRA therefore progressed to the next stage of the HRA process: AA. The following matters were explored in more detail:

- Impacts on designated features affected by a possible deterioration in air quality;
- Impacts on water quantity associated with increased levels of built development; and
- Impacts associated with increased recreational pressure,

8.1.3 A range of potential threats and pressures that might be exacerbated by the Local Plan were identified through the assessment process. The Precautionary Principle has been used in circumstances where likely effects were considered to be uncertain. The protective policies set out in the Local Plan, alongside existing protection measures in existing high level strategic and planning policy frameworks, have been factored into the assessment process.

8.1.4 The AA has concluded no adverse impacts on the site integrity of any European site due to a change in air quality, water quality or quantity or an increase in recreational pressure as a result of the Local Plan either alone or in-combination.

8.2 Next steps

8.2.1 The purpose of this report is to inform the HRA of the Local Plan using best available information. The Council, as the Competent Authority, has responsibility to make the Integrity Test, which can be undertaken in light of the conclusions of the Regulation 19 HRA report.

8.2.2 The HRA report will be submitted to Natural England, the statutory nature conservation body, for formal consultation as part of the Regulation 19 consultation. The Council must 'have regard' to Natural England's representations under the provisions of the Habitats Regulations prior to making a final decision as to whether they will 'adopt' the conclusions set out within this report as their own.

Appendix A: In-Combination Assessment

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
Croydon Council	The Croydon Local Plan 2018[1] was adopted in 2018 by the Council. The Council are currently working on the Croydon Local Plan review. Consultation on the Proposed Submission draft[2] of the Croydon Local Plan at Regulation 19 has now concluded. Following this consultation, the submission will be made before the end of 2024.	The Local Plan review sets out targets for growth including a minimum of 34,145 new homes (2019-2040).	The Local Plan review was supported by an HRA[3]. The HRA conducted an AA of Wimbledon Common SAC, Mole Gap to Reigate Escarpment SAC and Richmond Park SAC. It concluded that there will be no AIOSI alone or in-combination.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
Elmbridge Borough Council	The Elmbridge Local Plan[4] was adopted in 2015. The Council is working on a new Local Plan. Following its approval in July 2023, the	The Draft Local Plan sets out the delivery of at least 6,785 net additional homes between 2021 and 2037.	The Draft Local Plan was supported by an HRA[6]. The HRA concluded no AIOSI alone or in-combination at any European sites.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination

[1] Croydon Council (2018) Croydon Local Plan 2018. Available at: https://www.croydon.gov.uk/sites/default/files/Planning/Regeneration/Croydon_Local_Plan_2018.pdf [Date Accessed: 11/02/25].

[2] Croydon Council (2024) Croydon Local Plan 2018- Revised. Available at: https://www.croydon.gov.uk/sites/default/files/2024-07/croydon-local-plan-%20detailed-policies-and-proposals-proposed-submission-draft-part-1.pdf [Date Accessed: 11/02/25].

[3] AECOM (2021) Habitats Regulations Assessment of the Croydon Local Plan Review. London Borough of Croydon. Available at: https://www.croydon.gov.uk/sites/default/files/2024-06/habitats-regulations-assessment.pdf [Date Accessed: 11/02/25].

[4] Elmbridge Borough Council (2015) Elmbridge Local Plan: Development Management Plan. Available at: https://www.elmbridge.gov.uk/sites/default/files/2023-05/Development%20Management%20Plan.pdf [Date Accessed: 11/02/25].

[6] AECOM (2022) Habitats Regulations Assessment of the Elmbridge Local Plan. Available at: https://www.elmbridge.gov.uk/sites/default/files/2023-08/CD004%20-%20Habitats%20Regulations%20Assessment%20-%20June%202022.pdf [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
	Elmbridge Draft Local Plan[5] was submitted in August 2023. The submission of the Draft Local Plan to examination has been paused and following advice from the Inspector, the Council will make a decision whether to withdraw the plan from examination on 26 February 2025.			recreational, urbanisation, air quality, and hydrology LSEs.
Guildford Borough Council	The Local Plan: Strategy and Sites[7] was adopted in 2019. A review of the Local Plan was considered by Council in February 2024 and concluded that it should be updated. The Council is in the early stages of the Local Plan review.	The Local Plan sets out the delivery of at least 10,678 additional homes and up to 11ha of employment land by 2034.	An HRA[8] was conducted in support of the Local Plan: Strategy and Sites. It concludes no AIOSI alone or in-combination at any European sites.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
Lambeth Council	The Lambeth Local Plan 2021[9] was adopted in September 2021.	The Local Plan sets out the delivery of at least 13,350 net additional dwellings and 24ha of employment land by 2028/9.	An HRA[10] was conducted in support of the Local Plan. The screening assessment on the Draft Revised Lambeth Local Plan Proposed	This plan has the potential to act in-combination with the Local Plan through increased residential and employment

[5] Elmbridge Borough Council (2022) Regulation 19 Draft Elmbridge Local Plan 2037. Available at: https://www.elmbridge.gov.uk/sites/default/files/2023-08/CD001%20-%20Draft%20Elmbridge%20Local%20Plan%202037.pdf [Date Accessed: 11/02/25].

[7] Guildford Borough (2019) Guildford Borough Local Plan: Strategy and Sites 2015-2034. Available at: https://www.guildford.gov.uk/media/29891/The-Guildford-borough-Local-Plan-strategy-and-sites-2015-2034/pdf/Guildford_LPSS_-_LPDMP_Update_08.08.23.pdf?m=1691506802143 [Date Accessed: 11/02/25].

[8] Guildford Borough Council. Habitat Regulations Assessment (HRA). Available at: https://www.guildford.gov.uk/localplan/hra [Date Accessed: 11/02/25].

[9] Lambeth Council (2021) Lambeth local Plan 2020-2035 Adopted September 2021. Available at: https://www.lambeth.gov.uk/sites/default/files/2021-09/Lambeth%20Local%20Plan%202021.pdf [Date Accessed: 11/02/25].

[10] Lambeth Council (2019) Habitat Screening Assessment on Draft Revised Lambeth Local Plan Proposed Submission Version January 2020. Available at: https://www.lambeth.gov.uk/sites/default/files/pl_Habitat_Regulations_Assessment_DRLLP_PSV_2020.pdf [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
			Submission Version 2020 did not identify AIOSI alone or in-combination at any European site. Therefore, an AA was not required.	development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
London Borough of Richmond upon Thames	The Council adopted the Local Plan[11] in July 2018. The Council is currently preparing a new Local Plan and is undergoing examination with consultation on main modifications to be undertaken in early 2025.	The housing target for the borough is identified at 315 dwellings per annum from 2015 to 2025. However, the Mayor of London will expect the Council to exceed this target. Therefore, the Local Plan identifies opportunities for development to come forward by optimising the use of sites.	An HRA was prepared in support of the Local Plan review in 2024[12]. Following an AA this HRA concluded that there would be no recreation AIOSI at Wimbledon Common SAC or water quantity AIOSI at the South West London Waterbodies SPA/Ramsar from the Local Plan alone or in-combination.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
Merton Council	The Merton Local Plan was adopted in November 2024[13].	The New Local Plan sets out the delivery of 5,000 new homes in the Opportunity Area, 2,000 in the Morden Regeneration Zone (town centre).	An HRA[14] was conducted in support of the New Local Plan. It concluded no AIOSI alone or in-combination at any European site.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.

[11] London Borough of Richmond Upon Thames. Local Plan. Available at: https://www.richmond.gov.uk/media/15935/adopted_local_plan_interim.pdf [Date Accessed: 11/02/25].

[12] Land Use Consultants (2024) Richmond Upon Thames: Regulation 19 Local Plan Habitat Regulations Assessment. Available at: https://www.richmond.gov.uk/media/d50pkhrm/sd_004a_hra_of_the_reg_19_richmond_upon_thames_local_plan_accessible.pdf [Date Accessed: 11/02/25].

[13] London Borough of Merton (2021) New Local Plan Stage 3: Whole Local Plan document. Available at: https://www.merton.gov.uk/planning-and-buildings/planning/newlocalplan [Date Accessed: 11/02/25].

[14] Merton London Borough (2024) LBM33 Habitat Regulations Assessment Report on the Post Hearings Main Modification of the draft Local Plan. Available at: https://www.merton.gov.uk/system/files/LBM33%20Habitats%20Regulations%20Assessment%20of%20Merton's%20Local%20Plan%20dated%20January%202024.pdf [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
Mole Valley District Council	The Council adopted the new Local Plan, the Mole Valley Local Plan 2020-2039 in October 2024[15].	The Local Plan sets out the delivery of 353 new homes per year, at least 6,000 homes over the plan period 2020-2037.	An HRA[16] was conducted in support of the new Local Plan. It concluded no AIOSI alone or in-combination at any European site.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
Reigate and Banstead Council	The current development plan consists of the Core Strategy and Development Management Plan (DMP). The Core Strategy was adopted in 2014 and reviewed in 2019 and 2024[17]. The Council is in the early stages of producing a new local plan.	The adopted Core Strategy plans for 6,900 homes over the plan period from 2012-2027.	An HRA[18] was conducted in support of the DMP. It concluded no AIOSI alone or in-combination at any European site.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
Spelthorne Borough Council	The Council is currently working on the Emerging Local Plan 2022-2037 which, once adopted, will replace the 2009 Development Plan. The council is currently at examination with	The Local Plan submitted for examination indicates that the housing requirement for Spelthorne is 6189 dwellings per annum over the plan period (2022 – 2037), a total of 9,270. Economic growth in Spelthorne will be supported by maintaining and	An HRA[20] was conducted in support of the Emerging Local Plan. It concluded that an AA was required.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination

[15] Future Mole Valley. Draft Mole Valley Local Plan 2020-2039. Available at: https://www.molevalley.gov.uk/planning-building/local-plan-and-other-adopted-planning-policy-documents/ [Date Accessed: 11/02/25].

[16] AECOM (2023) Mole Valley Local Plan Main Modifications Habitats Regulations Assessment. Available at: https://futuremolevalley.org/wp-content/uploads/2024/02/ED76-Habitats-Regulations-Assessment-on-the-Main-Modifications.pdf [Date Accessed: 11/02/25].

[17] Reigate & Banstead Borough Council (2024) Review of Reigate & Banstead Local Plan: Core Strategy. Available at: https://reigate-banstead.moderngov.co.uk/documents/s31510/Annex%201%20Local%20Plan%20Core%20Strategy%20Review.pdf [Date Accessed: 11/02/25].

[18] Reigate & Banstead Borough Council (2019) Habitats Regulation Assessment & Appropriate Assessment Addendum. Development Management Plan: Main Modifications.

[20] WSP (2022) Local Plan Habitats Regulations Assessment – Stage 1 Screening. Available at: https://www.spelthorne.gov.uk/media/25391/Habitats-Regulations-Assessment-Stage-1-Screening/pdf/Habitats_Regulations_Assessment_-_Stage_1_Screening.pdf?m=637963310902470000 [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
	hearings due to re-commence in January / February 2025[19].	intensifying the use of the Borough's employment floorspace offer		recreational, urbanisation, air quality, and hydrology LSEs.
Sutton Council	In 2018, the Council adopted the Local Plan[21] as a development plan document (DPD) until 2031. The Council is currently preparing a new Local Plan 2024-2041[22]. The first consultation stage, Issues and Preferred Options took place in September 2024.	The Local Plan sets out the delivery of at least 403 homes per year.	No HRA was available at the time of writing.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
Tandridge District Council	The Tandridge District Core Strategy[23] was adopted in 2008. Following the withdrawal of the 'Our Local Plan 2033', the Council is preparing a new Local Plan.	The adopted Core Strategy plans for the provision of a net increase of at least 2,500 dwellings in the period 2006 to 2026.	Not available at the time of writing.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.

[19] Spelthorne Borough Council (2022) Pre-submission Spelthorne Local Plan 2022 – 2037.

[21] Sutton Council (2018) Sutton Local Plan 2016-2031. London Borough of Sutton Local Plan. Available at: https://www.sutton.gov.uk/documents/20124/864129/1.+Sutton+Local+Plan+%28Adopted+2018%29.pdf/57903d66-57ad-bf28-857d-8c8e779fc3ce?t=1678268850847 [Date Accessed: 11/02/25].

[22] Sutton Council (2024) London Borough of Sutton Local Plan Issues and Preferred Options Consultation (Regulation 18). Available at: https://www.sutton.gov.uk/documents/d/guest/local-plan-issues-and-preferred-options-2024- [Date Accessed: 11/02/25].

[23] Tandridge District Council (2008) Tandridge District Core Strategy. Available at: https://www.tandridge.gov.uk/Portals/0/Documents/Planning%20and%20building/Planning%20strategies%20and%20policies/Current%20and%20adopted%20planning%20policies/Core%20strategy/Core-Strategy.pdf?ver=_zP2pjmfxzC9M7nkmKaYlA%3d%3d [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
The Royal Borough of Kingston upon Thames	The Council is currently preparing a new Local Plan[24] to replace the Core Strategy (2012) and the Kingston Town Centre Area Action Plan (2008). The First Draft Local Plan consultation was conducted from November 2022 to February 2023. The Publication version (Regulation 19) is being prepared.	The Local Plan sets out the delivery of 9,640 new homes between 2019/20 and 2028/9 in line with the London Plan's housing target.	An HRA[25] was conducted in support of the new Local Plan at Regulation 18. It concluded that further detailed assessment is required to rule out in-combination LSEs on European sites.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.
Wandsworth Borough Council	The Wandsworth Local Plan 2023-2038[26] was adopted in July 2023.	Within the plan period 2023-2038, the local Plan will provide for a minimum of 20,311 new homes (1,950 new homes per year until 2028/9).	An HRA[27] was conducted in support of the Local Plan. The screening assessment did not identify any AIOSI alone or in-combination at any European site.	This plan has the potential to act in-combination with the Local Plan through increased residential and employment development which may trigger in-combination recreational, urbanisation, air quality, and hydrology LSEs.

[24] The Royal Borough of Kingston Upon Thames (2022) Kingston's Local Plan First Draft of the Local Plan Consultation (Regulation 18). Available at: https://www.kingstonletstalk.co.uk/planning/first-draft-local-plan/supporting_documents/Kingstons_first_draft_Local_Plan.pdf [Date Accessed: 11/02/25].

[25] WSP (2022) New Local Plan Habitats Regulations Screening Assessment. Available at: https://www.kingstonletstalk.co.uk/planning/first-draft-local-plan/supporting_documents/RBKUP_Local_Plan_Reg_18_HRSA.pdf [Date Accessed: 11/02/25].

[26] Wandsworth Borough Council (2023) Wandsworth Local Plan 2023-2038. Available at: https://www.wandsworth.gov.uk/media/large/adopted_local_plan.pdf [Date Accessed: 11/02/25].

[27] Wandsworth Borough Council (2023) Initial Habitat Screening Assessment Wandsworth Local Plan Partial Review (LPPR). Available at: https://www.wandsworth.gov.uk/media/lpejujdf/local_plan_partial_review_habitat_screening_assessment.pdf [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
Thames River Basin Management Plan (RBMP)	The Thames RBMP[28] was updated in October 2022.	The Plan provides an overview of river basin planning in England and Wales for the Thames River Basin District. It includes objectives for each water body and a summary of the measures necessary to reach those objectives.	The RBMP was supported by an HRA[29]. This concluded that, at the strategic plan level, the RBMP is not likely to have any significant effects on any European sites, alone or in combination with other plans or projects. Given this conclusion, there is no requirement, at this strategic plan level, to progress to the next stage of the HRA (an 'appropriate assessment' to examine the question of adverse effects on the integrity of European sites). The RBMP does not specify exactly where or how measures should be implemented, this will be determined at either a lower-tier plan or project level and this is taken into consideration in the HRA. The HRA also draws on detailed mitigation measures and procedures currently in place.	The RBMP actions are focused on water body and water dependent European site improvements. Whilst development activities arising from Local Development Plans (including the GGTS DPD) may inhibit the ability of the RBMP to achieve objectives relating to European site protected areas, the overall effect of the RBMP is to promote management towards GEP and GES.
Thames Water Resource Management Plan (WRMP)	The revised draft Thames WRMP[30] 2024 sets out the regional plan over the next 50 years, looking ahead to 2075. The Final WRMP24 is due to be published in October 2024 (but had not been [published at the time of writing)	The WRMP highlights the significant future shortfall in water resources in the supply area and sets out the policies to maintain the balance between water supply and demand.	An HRA[31] supported the WRMP. It concludes no adverse impact on the integrity of any European sites either alone or in-combination.	This plan aims to protect the water environment and takes account for future water demand. It is unlikely that the WRMP will have alone or in-combination effects on the water environment.

[28] Environment Agency (2022) Thames River Basin Management Plan. Available at: https://www.gov.uk/guidance/thames-river-basin-district-river-basin-management-plan-updated-2022 [Date Accessed: 11/02/25].

[29] Environment Agency (2022) River basin management plan for the Thames River Basin District Habitats Regulations Assessment. Available at: https://assets.publishing.service.gov.uk/media/635248048fa8f554cca7b226/Thames_river_basin_management_plan_2022_HRA.pdf [Date Accessed: 11/02/25].

[30] Thames Water (2024) Revised Water Resources Management Plan 2024. Available at: https://thames-wrmp.co.uk/news/documents/#collapse-4 [Date Accessed: 11/02/25].

[31] Ricardo Energy & Environment (2020) Final Water Resources Management Plan 2019: Habitats Regulations Assessment – April 2020. Available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/water-resources/technical-appendices/appendix-c-habitats-regulation-assessment.pdf [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
SES Water WRMP	The revised draft SES WRMP[32] 2024 sets out the regional plan over the next 50 years, looking ahead to 2075.	SESs published WRMP demonstrates the long-term plans in place to accommodate the impacts of population growth, drought, our environmental obligations and climate change uncertainty in order to balance the supply and demand for water in the communities. The plan covers the period from 2025 to 2075.	An HRA[33] was conducted in 2022. The HRA identifies both adverse and beneficial impacts and proposes mitigation where required. It concluded that the WRMP is a well-balanced Plan in terms of environmental protection whilst meeting requirements for water supply.	This plan aims to protect the water environment and takes account for future water demand. It is unlikely that the WRMP will have alone or in-combination effects on the water environment.
Thames Water Drought Plan[34].	The Thames Water Drought Plan was adopted in 2022	The Drought Plan outlines the operational steps that will be conducted if we face a drought in the next 5 years. It describes how supplies will be enhanced, demands managed, and environmental impacts minimised. It proposes ongoing leakage reduction measures, water efficiency and monitoring and metering activities.	An HRA[35] was prepared in support of the Drought Plan. It concluded no adverse impacts on the integrity of any European site either alone or in-combination.	This plan aims to protect the water environment in times of drought. It is unlikely that the WRMP will have alone or in-combination effects on the water environment.
SES Water Drought Plan[36]	The SES Water Drought Plan was prepared in 2022.	The Drought Plan outlines the area of operation and describes how SES Water will supply adequate quantities of water, at an appropriate quality, with as little recourse as possible to drought orders or permits, during times of drought. It	An HRA was not available online but the outcomes (which are reported in the Drought Plan) conclude no likely significant effects the integrity of European sites.	This plan aims to protect the water environment in times of drought. It is unlikely that the Drought Plan will have alone or in-combination effects on the water environment.

[32] SES Water (2022) Revised Draft Water Resources Management Plan 2025-2075. Non-technical summary. Available at: https://seswater.co.uk/-/media/files/seswater/about-us/publications/ses-revised-draft-wrmp-non-technical-summary-021123.pdf [Date Accessed: 11/02/25].

[33] Atkins (2022) SES Water WRMP24. Strategic Environmental Assessment Non-Technical Summary. Available at: https://seswater.co.uk/-/media/files/seswater/your-environment/wrmp-2022/ses-water-dwrmp-sea-nts.pdf [Date Accessed: 11/02/25].

[34] Thames Water (2022) Drought Plan 2022. Available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/drought-plan/drought-plan-2022/thames-water-drought-plan-2022.pdf [Date Accessed: 11/02/25].

[35] Ricardo (2022) Thames Water Final Drought Plan 2022. Habitat Regulations Assessment – Screening Report. Available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/drought-plan/drought-plan-2022/hra-screening-report.pdf [Date Accessed: 11/02/25].

[36] SES Water (2022) Drought Plan 2022. Available at: https://seswater.co.uk/-/media/files/seswater/your-environment/ses-water-drought-plan-november-22-final.pdf [Date Accessed: 11/02/25].

Local Planning Authority	Plan Status	Summary of Housing/Employment – Key elements of the Plan that could cause in-combination effects	Summary of HRA findings	Potential In-combination Likely Significant Effects (LSEs)
		proposes additional indicators to promote demand saving measures earlier in times of drought and prioritises improving customer understanding of drought actions.		
Surrey County Council Local Transport Plan 4[37]	Local Transport Plan4 was adopted in July 2022.	The LTP4 sets out changes that will need to be made to transform the transport network in Surrey to achieve net zero emissions by 2050, in line with the national target.	The HRA is not available publicly.	
Surrey County Council Minerals Plan[38]	Surrey Minerals Plan adopted 2011 Surrey County Council are currently preparing a new Minerals and Waste Plan.	The Surrey Minerals Plan provides strategic policies for minerals, and site specific proposals for the extraction of minerals for the period to 2026.	Whilst an HRA was not available publicly, the Minerals Plan notes that an HRA has been undertaken which notes that project level an appropriate assessment will be needed where proposals are made which are likely to have a direct or indirect impact on the designated areas.	There is potential for extraction of minerals to have an in-combination effect at European sites from air quality and water pathways of impact.
Surrey County Council Waste Plan[39]	Surrey Waste Plan adopted 2020 Surrey County Council are currently preparing a new Minerals and Waste Plan.	The Plan sets out policies and sites where there is potential for development of waste facilities (on industrial land and allocated sites) to ensure land is available to be developed so that there are enough waste management facilities to handle the equivalent amount of waste arising in Surrey.	An HRA was not available publicly. The Waste Plan however notes that an AA has been undertaken which made recommendations in respect of the suitability of the allocated sites and these have been taken forward into detailed guidance for each site.	There is potential for waste management to have an in-combination effect at European sites from air quality and water pathways of impact.

[37] Surrey County Council (2022) Local Transport Plan 4 https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan [Date Accessed: 11/02/25].

[38] Surrey County Council (2011) Surrey Minerals Plan 2011 Core Strategy Development Plan Document. Available at: https://www.surreycc.gov.uk/__data/assets/pdf_file/0007/81439/Adopted-Core-Strategy-Development-Plan-Document.pdf [Date Accessed: 11/02/25].

[39] Surrey County Council (2020) Surrey Local Waste Plan – Part 1 Policies. Part 2 Sites and areas of search. Available at: https://www.surreycc.gov.uk/land-planning-and-development/minerals-and-waste/waste-plan [Date Accessed: 11/02/25].

Appendix B: Screened In European Site Conservation Objectives, Qualifying Features, Threats and Pressures

Mole Gap to Reigate Escarpment SAC[1]

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:

H4030. European dry heaths

H5110. Stable *xerothermophilous* formations with *Buxus sempervirens* on rock slopes (*Berberidion p.p.*); Natural box scrub

H6210. Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (important orchid sites); Dry grasslands and scrublands on chalk or limestone (important orchid sites)

H9130. *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils

H91J0. *Taxus baccata* woods of the British Isles; Yew-dominated woodland

S1166. *Triturus cristatus;* Great crested newt

S1323. *Myotis bechsteinii;* Bechstein's bat

*denotes a priority natural habitat or species

Threats and Pressures at European site which may be affected by the Local Plan[2,3]:

- Water quality and quantity;
- Habitat connectivity (FLL);
- Public access / disturbance; and,
- Atmospheric pollution – impact of atmospheric nitrogen deposition.

South West London Waterbodies SPA[4]

Conservation objectives:

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

[1] Natural England (2019) Mole Gap to Reigate Escarpment SAC Conservation Objectives. Available at: https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK0012804.pdf [Date Accessed: 10/02/25].

[2] Natural England (2014) Mole Gap to Reigate Escarpment SIP. Available at: https://publications.naturalengland.org.uk/file/6256378880458752 [Date Accessed: 10/02/25].

[3] Natural England (2019) Mole Gap to Reigate Escarpment SAC Conservation Objectives Supplementary Advice. Available at: https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK0012804.pdf [Date Accessed: 10/02/25].

[4] Natural England (2019) South West London Waterbodies SPA Conservation Objectives. Available at: https://publications.naturalengland.org.uk/file/5411059804667904 [Date Accessed: 10/02/25].

South West London Waterbodies SPA[4]

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

Qualifying Features:

A051. *Anas strepera;* Gadwall (Non-breeding)

A056. *Anas clypeata;* Northern shoveler (Non-breeding)

Threats and Pressures at European site which may be affected by the Local Plan[5,6]:

- Public access / disturbance;
- Air quality;
- Hydrology; and,
- Habitat connectivity.

South West London Waterbodies Ramsar[7]

Ramsar sites do not have the Conservation Objectives in the same way as SPAs and SACs. Information regarding the designation of Ramsar sites is contained in JNCC Ramsar Information Sheets. Ramsar Criteria are the criteria for identifying Wetlands of International Importance. The relevant criteria and ways in which this site meets the criteria are presented in the table below.

Ramsar Criterion	Justification for the application of each criterion
6	Species/populations occurring at levels of international importance. Qualifying species/populations (as identified at designation): Species with peak counts in spring/autumn: • Northern shoveler, *Anas clypeata,* NW & C Europe – 397 individuals, representing an average of 2.6% of the GB population (5 year peal mean 1998/9-2002/3) Species with peak counts in winter: • Gadwall, *Anas strepera strepera,* NW Europe – 487 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3)

Threats and Pressures at European site which may be affected by the Local Plan:

No factors reported.

[5] Natural England (2014) Site Improvement Plan: South West London Waterbodies. Available at: https://publications.naturalengland.org.uk/file/5135484288237568 [Date Accessed: 10/02/25].

[6] Natural England (2018) South West London Waterbodies SPA Conservation Objectives Supplementary Advice. Available at: https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK9012171.pdf [Date Accessed: 10/02/25].

[7] JNCC (2000) Ramsar Information Sheet: South West London Waterbodies. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11065.pdf [Date Accessed: 10/02/25].

Thames Basin Heaths SPA[8]

Conservation objectives:

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

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

Qualifying features:

A224 *Caprimulgus europaeus;* European nightjar (Breeding)

A246 *Lullula arborea;* Woodlark (Breeding)

A302 *Sylvia undata;* Dartford warbler (Breeding)

Threats and Pressures at European site which may be affected by the Local Plan [9,10]:

- Public access / disturbance;
- Habitat connectivity (FLL);
- Predation;
- Hydrological changes; and,
- Air pollution – impact of atmospheric nitrogen deposition.

Wimbledon Common SAC[11]

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:

H4010. Northern Atlantic wet heaths with *Erica tetralix;* Wet heathland with cross-leaved heath

H4030. European dry heaths

[8] Natural England (2019) Thames Basin Heaths SPA Conservation Objectives. Available at: https://publications.naturalengland.org.uk/file/5048458801315840 [Date Accessed: 10/02/25].

[9] Natural England (2014) Thames Basin SIP. Available at: https://publications.naturalengland.org.uk/file/5946121331408896 [Date Accessed: 10/02/25].

[10] Natural England (2016) Thames Basin Heaths SPA Conservation Objectives Supplementary Advice. Available at: https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK9012141.pdf [Date Accessed: 10/02/25].

[11] Natural England (2018) Wimbledon Common SAC Conservation Objectives. Available at: https://publications.naturalengland.org.uk/file/6215672493506560 [Date Accessed: 10/02/25].

Wimbledon Common SAC[11]

S1083. *Lucanus cervus;* Stag beetle

Threats and Pressures at European site which may be affected by the Local Plan[12,13]:

- Public access / disturbance;
- Hydrology
- Habitat fragmentation; and,
- Atmospheric pollution – impact of atmospheric nitrogen deposition.

[12] Natural England (2014) Site Improvement Plan: Wimbledon Common. Available at: https://publications.naturalengland.org.uk/file/5097829219434496 [Date Accessed: 10/02/25].

[13] Natural England (2016) Wimbledon Common SAC Conservation Objectives Supplementary Advice. Available at: https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK0030301.pdf [Date Accessed: 10/02/25].

Appendix C: Air Quality Modelling Report

Report

Habitats Regulations Assessment for Epsom and Ewell Local Plan

Air Quality Modelling Technical Report

For Epsom and Ewell Borough Council

19 December 2024

Air Quality CONSULTANTS | PART OF Logika Group

Document Control

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1 Introduction

1.1 This report describes the air quality modelling methodology and results to inform the Habitats Regulations Assessment (HRA) of the Epsom and Ewell Local Plan 2022 to 2040. The modelling predicts concentrations of nitrogen oxides (NO_x) and ammonia, along with nitrogen and acid deposition, at those parts of the Mole Gap to Reigate Escarpment Special Area of Conservation (SAC) which are alongside the B2032. The location of the designated site is shown in Figure 1.

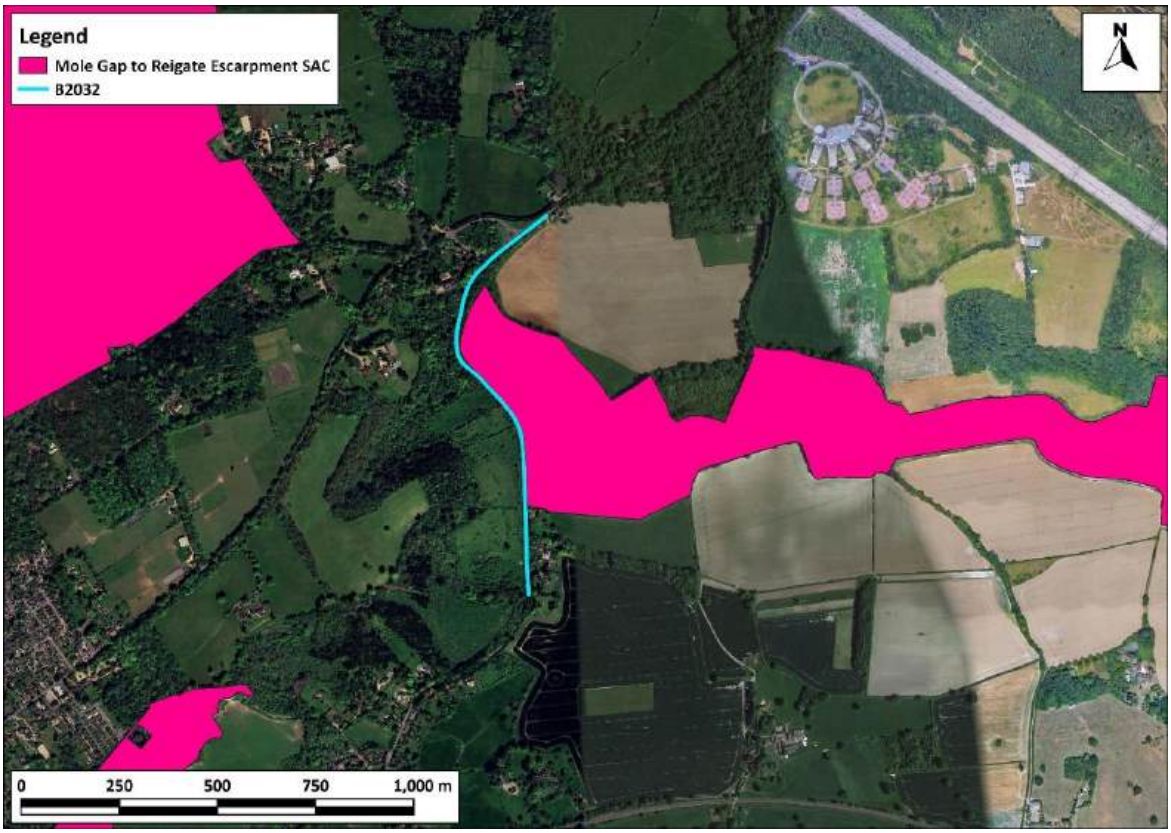

Figure 1: The Mole Gap to Reigate Escarpment SAC

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1.2 This report describes the overall scope of the air quality assessment, the dispersion modelling methodology, and the modelled results. It has been prepared by Air Quality Consultants Ltd, part of the Logika Group, on behalf of Epsom and Ewell Borough Council. The professional experience of the consultants involved in preparing the assessment is summarised in Appendix A1.

2 Critical Levels and Critical Loads

2.1 EU Directive 2008/50/EC (The European Parliament and the Council of the European Union, 2008) sets a limit value for annual mean concentrations of NOx and for annual and winter mean concentrations of sulphur dioxide[1]. The same values have been set as domestic objectives within the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations (2002). The limit values and objectives only apply a) more than 20 km from an agglomeration (about 250,000 people), and b) more than 5 km from Part A industrial sources, motorways and built-up areas of more than 5,000 people.

2.2 Critical levels (CLes) and critical loads (CLos) are the ambient concentrations and deposition fluxes below which significant harmful effects to sensitive ecosystems are unlikely to occur. Some of the CLes are set at the same concentrations as the objectives but do not have the same spatial constraints on where they apply. Exceedances of the CLes and CLos are considered in the context of preventing harm to sites which are protected under the various designation frameworks. The CLes relevant to this assessment are set out in Table 1. The CLos are specific to different habitat types, and those which are most relevant to this assessment are provided in Table 2.

Table 1: Vegetation and Ecosystem CLes [a]

Pollutant	Time Period	CLe
NOx (expressed as NO_2)	Annual Mean [a,b]	30 µg/m^3
Ammonia	Annual Mean	1 µg/m^3

[a] The CLes are defined by the World Health Organisation (WHO, 2000).

[b] Away from major sources (see Paragraph 2.1), this CLe is set as an objective (Defra, 2007) and a limit value (The European Parliament and the Council of the European Union, 2008).

Table 2: Vegetation and Ecosystem CLos

Habitat Type [a]	Nutrient Nitrogen (kgN/ha/yr) [b]	Acid Deposition 'N_{max}' (keq/ha/yr) [c]
European dry heaths	5	1.449

[a] The European Nature Information System. (European Environment Agency, 2021).

[b] CLos for nutrient nitrogen taken from the Air Pollution Information System (APIS) website (APIS, 2024).

[c] CLos for acid deposition have been taken from (APIS, 2024). N_{max} is the value above which additional nitrogen deposition will lead to an exceedance.

[1] Sulphur dioxide is no longer emitted in significant quantities from road transport and does not, therefore, require assessing here.

3 Assessment Approach

Study Area

3.1 The study area for air quality modelling has been defined by Lepus Consulting and is shown in Figure 2.

Receptors

3.2 Impacts have been predicted over the SAC within 200 m of the B2032. Grid points have been modelled at the following distances from the roads: 2 m, 3 m, 5 m, 9 m, 17 m, 33 m, 65 m, 129 m and 200 m [2]. In addition, a Cartesian grid with a spacing of 50 m x 50m has been used to cover the area shown in Figure 2.

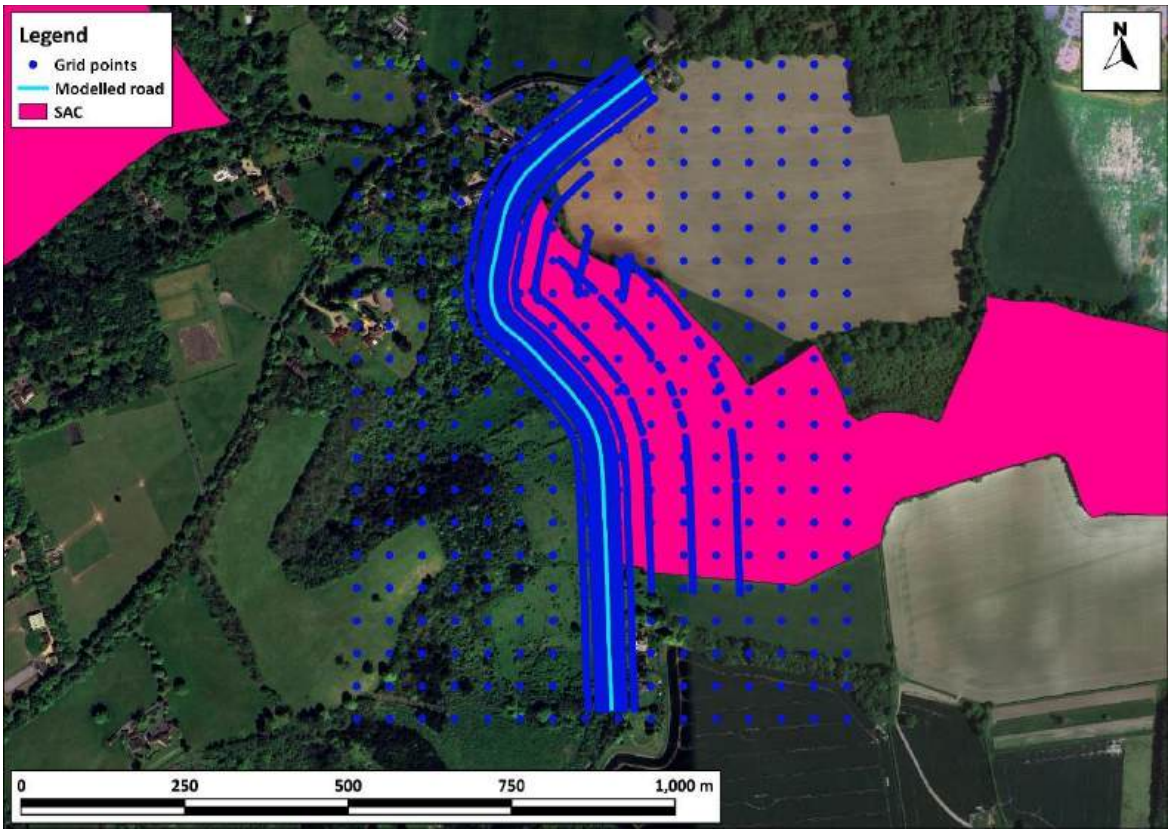

Figure 2: Receptor Grid

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3.3 Impacts have also been predicted along discrete transects of receptors running perpendicular to each road. The transects have been modelled at the following distances from the roads: 2 m, 3 m, 5 m, 9 m, 17 m, 33 m, 65 m, 129 m and 200 m [2]. The transects (labelled A to C) are shown in Figure 3.

[2] These distances are used because they broadly reflect the expected rate at which concentrations of NOx and ammonia reduce with distance from roads. This provides an efficient way to more precisely show the predicted changes.

3.4 All receptors and transects have been modelled at a height of 1.5 m to ensure consistency with the national background deposition modelling carried out on behalf of Defra and used within this assessment.

Figure 3: Transect Locations

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Assessment Scenarios

3.5 NOx and ammonia concentrations, and nitrogen and acid deposition fluxes, have been predicted for the following scenarios:

A) base year 2019;

B) 2040 without any increase in traffic from 2019 (including future-year emissions factors and future-year background concentrations and fluxes but base-year traffic within the dispersion model – "2040 Do Nothing");

C) 2040 without the Local Plan but with the forecast background increase in traffic from 2019 (also including future-year emissions factors and background concentrations and fluxes – "2040 Do Minimum"); and

D) 2040 with both the Local Plan and background traffic growth (also including future-year emissions factors and background concentrations and fluxes – "2040 Do Something").

3.6 The three 2040 scenarios have been compared to derive the impacts of the Local Plan alone and in-combination with other projects and plans:

- the difference between scenarios C and D represents the change caused by the Local Plan which, for consistency with other regimes, is termed the Process Contribution ('PC');
- the difference between scenarios B and D represents the In-Combination Change ('ICC').

Background Concentrations and Fluxes

3.7 Background concentrations of NOx and ammonia, and nitrogen and acid nitrogen deposition fluxes, have been taken from APIS (2024). The concentrations and deposition fluxes represent 1 km x 1 km averages. APIS currently presents 3-year mean values centred on the calendar year of 2019. These have been adjusted to represent 3-year averages centred on 2040 using the rate of change predicted for this area using the Business-as-Usual assumptions of JNCC's Nitrogen Futures project[3]. Nitrogen Futures only predicted changes to 2030, so the background values for 2030 have been used to represent 2040. It is not currently possible to reliably predict any subsequent changes to local background conditions between 2030 and 2040.

3.8 Estimated background concentrations of NOx and ammonia are set out in Table 3. The background concentrations of NOx are predicted to be well below the CLe in both 2019 and 2040. Predicted background concentrations of ammonia are above the CLe of 1 µg/m^3 in both years.

Table 3: Estimated Annual Mean Background Pollutant Concentrations in 2019 and 2040 (µg/m^3)

Year	NOx	Ammonia
2019	14.7	1.40
2040	8.60	1.56
CLe	**30**	**1**

3.9 Background nitrogen deposition fluxes are presented in Table 4. Predicted background nutrient nitrogen deposition rates exceed the CLo in both years. Predicted background acid nitrogen deposition rates are below the CLo in both years.

Table 4: Estimated Annual Mean Background Deposition Fluxes in 2019 and 2040 (µg/m^3)

Year	Nutrient Nitrogen Deposition (kgN/ha/yr)	Acid Nitrogen Deposition (keq/ha/yr)
2019	16.1	1.15
2040	15.0	1.07
CLo	**5**	**1.449**

Modelling Methodology

3.10 Concentrations have been predicted using the ADMS-Roads dispersion model, with emissions of NOx derived using Defra's Emission Factor Toolkit (EFT) (v12.1) (Defra, 2024), and emissions of ammonia derived using AQC's Calculator for Road Emissions of Ammonia (CREAM) (v1A) model. Traffic flows have been provided by Surrey County Council. The model results have been verified against local

[3] https://jncc.gov.uk/our-work/nitrogen-futures/. A linear rate of change has been assumed between 2017 and the 2030 Business as Usual scenario, with the APIS 2018 data scaled based on the location-specific predicted changes. Acid nitrogen deposition has been scaled proportionally to nutrient nitrogen.

measurements. Nitrogen dioxide has been calculated from NOx using the calculator provided by Defra (2024). Details of the model inputs and the model verification are provided in Appendix A2. Deposition fluxes have been calculated from the predicted concentrations of nitrogen dioxide and ammonia. Details on the method for calculating the deposition are provided in Appendix A2.

3.11 The EFT has been used to predict emissions per vehicle in 2040. CREAM only currently allows predictions to be made up to 2030. The ammonia emissions per vehicle in 2030 have therefore been used to represent 2040. The NOx to nitrogen dioxide calculator also only currently allows predictions to be made up to 2030 and so it has been assumed that there will be no changes to nitrogen dioxide to NOx quotients between 2030 and 2040.

Uncertainty

3.12 There are many components that contribute to the uncertainty of modelling predictions. The road traffic emissions dispersion model used in this assessment is dependent upon the traffic data that have been input, which will have inherent uncertainties associated with them. There are then additional uncertainties, as models are required to simplify real-world conditions into a series of algorithms.

3.13 An important stage in the process of modelling road traffic emissions of is model verification, which involves comparing the model output with measured concentrations (see Appendix A2). Because the model has been verified and adjusted, there can be reasonable confidence in the prediction of base year (2019) concentrations. There are no suitable roadside ammonia monitoring sites in the area which can be used to verify the modelled ammonia concentrations. Development of the CREAM model, which has been used in this assessment, included verifying the emissions model, combined with the ADMS-Roads dispersion model, against measurements from the most dense roadside ammonia monitoring network in Europe. The modelling has thus been verified as far as is possible.

3.14 Predicting pollutant concentrations in a future year will always be subject to greater uncertainty. For obvious reasons, the model cannot be verified in the future, and it is necessary to rely on a series of projections provided by DfT and Defra as to what will happen to traffic volumes, background pollutant concentrations and vehicle emissions. Historic versions of Defra's EFT tended to over-state emissions reductions into the future. However, analyses of the most recent versions of Defra's EFT carried out by AQC (2020b) (2020c) suggest that, on balance, these versions are unlikely to over-state the rate at which NOx emissions decline in the future at an 'average' site in the UK. In practice, the balance of evidence suggests that NOx concentrations are most likely to decline more quickly in the future, on average, than predicted by the current EFT, especially against a base year of 2016 or later. Whilst such an analysis has not been undertaken by AQC for EFT v12.1, it is considered that using EFT v12.1 for future-year forecasts in this report thus provides a robust assessment, given that the model has been verified against measurements made in 2019.

3.15 As explained above, in many cases it has been necessary to use data for 2030 to represent conditions in 2040, which will introduce uncertainty. The results can nevertheless be considered suitable for their intended purpose.

3.16 Historically, less attention has been given to calculating emissions of ammonia from road traffic than to calculating emissions of NOx. Future forecasts of traffic-related ammonia are thus quite uncertain. However, the CREAM model takes a deliberately conservative approach regarding these future uncertainties and can thus be considered robust.

3.17 It should also be recognised that the deposition velocities which have been used for ammonia may be particularly conservative. There is strong evidence that where ammonia concentrations are high, the deposition of ammonia can be significantly inhibited (Cape et al, 2008). The deposition velocity for ammonia used in this assessment was developed by the Air Quality Technical Advisory Group

(AQTAG) to be precautionary in most settings. Thus, close to emissions sources it is likely to have caused the deposition of ammonia to have been over-predicted.

3.18 Only the road shown in Figure 2 has been included explicitly within the dispersion model. The baseline contributions from all other roads are included in the background maps. This means that:

- close to other roads, baseline concentrations and deposition are likely to have been underpredicted, since the local effects of those roads are not included;
- since the road shown in Figure 2 is already included in the background maps, there will be an element of double counting baseline concentrations and deposition; and
- the effects of changes caused by the Local Plan to traffic on other roads has not been accounted for.

3.19 While these issues should be recognised, they are not considered sufficient to invalidate the conclusions that may be drawn from the predictions made in this report.

4 Dispersion Model Results

NOx

4.1 Table 5 sets out the total concentrations and changes relative to the CLe for NOx at the modelled transects. NOx concentrations show an overall reduction between 2019 and 2040. The in-isolation contributions are below 1% of the CLe. The in-combination contributions are above 1% of the CLe at the transect points closer to the road. In all future year scenarios, the total concentration is well below the CLe.

Table 5: Model Results for NOx [a]

Distance from Road Edge (m) [b]	Total Concentration (µg/m³)				% Change from Local Plan Relative to CLe (30 µg/m³)	
	2019 Baseline	2040 Do Nothing	2040 Do Minimum	2040 Do Something	2040 PC	2040 ICC
Transect A						
2	**58.7**	14.2	15.4	15.4	0.2	**4.1**
3	**54.7**	13.7	14.7	14.8	0.2	**3.8**
5	**48.7**	12.9	13.8	13.9	0.2	**3.2**
9	**41.2**	11.9	12.6	12.7	0.1	**2.5**
17	33.2	10.9	11.4	11.4	0.1	**1.7**
33	26.3	10.0	10.4	10.4	0.1	**1.1**
65	21.5	9.4	9.6	9.6	0.0	0.6
129	18.5	9.1	9.2	9.2	0.0	0.3
Transect B						
2	**59.9**	14.4	15.6	15.7	0.2	**4.3**
3	**55.5**	13.8	14.9	15.0	0.2	**3.9**
5	**49.1**	13.0	13.9	14.0	0.2	**3.3**
9	**41.0**	12.0	12.7	12.7	0.1	**2.5**
17	**32.7**	10.9	11.3	11.4	0.1	**1.7**
33	25.6	10.0	10.2	10.3	0.1	1.0
65	20.7	9.3	9.5	9.5	0.0	0.5
129	17.7	9.0	9.0	9.0	0.0	0.3
200	16.5	8.8	8.9	8.9	0.0	0.2
Transect C						
3	**53.7**	13.6	14.7	14.7	0.2	**3.7**
5	**47.4**	12.8	13.7	13.7	0.2	**3.1**

9	**39.6**	11.8	12.4	12.5	0.1	**2.3**
17	**31.6**	10.7	11.2	11.2	0.1	**1.6**
33	24.9	9.9	10.1	10.1	0.1	0.9
65	20.2	9.3	9.4	9.4	0.0	0.5
129	17.3	8.9	9.0	9.0	0.0	0.2
200	16.1	8.8	8.8	8.8	0.0	0.1

[a] Exceedances of the 30 µg/m³ Critical Level, or 1% change shown in bold

[b] Only the transect points that fall within the SAC are presented

Ammonia

4.2 Table 6 sets out the total concentrations and changes relative to the CLe for ammonia at the modelled transects. The in-isolation contributions are above 1% of the CLe at the transect points closer to the road. The in-combination contributions are above 1% of the CLe at the majority of transect points. In all scenarios, the total concentration is above the CLe.

Table 6: Model Results for Ammonia [a]

Distance from Road Edge (m) [b]	Total Concentration (µg/m³)				% Change from Local Plan Relative to CLe (1 µg/m³)	
	2019 Baseline	2040 Do Nothing	2040 Do Minimum	2040 Do Something	2040 PC	2040 ICC
Transect A						
2	**2.37**	**2.88**	**3.15**	**3.17**	**1.6**	**29.0**
3	**2.27**	**2.74**	**2.98**	**2.99**	**1.4**	**25.8**
5	**2.12**	**2.53**	**2.73**	**2.74**	**1.2**	**21.3**
9	**1.93**	**2.27**	**2.42**	**2.43**	0.9	**15.7**
17	**1.74**	**2.02**	**2.11**	**2.12**	0.6	**10.1**
33	**1.60**	**1.82**	**1.87**	**1.87**	0.3	**5.7**
65	**1.50**	**1.69**	**1.72**	**1.72**	0.2	**3.0**
129	**1.45**	**1.62**	**1.64**	**1.64**	0.1	**1.5**
Transect B						
2	**2.39**	**2.92**	**3.20**	**3.22**	**1.6**	**29.7**
3	**2.28**	**2.76**	**3.01**	**3.02**	**1.4**	**26.3**
5	**2.12**	**2.54**	**2.74**	**2.75**	**1.2**	**21.5**
9	**1.92**	**2.27**	**2.42**	**2.42**	0.9	**15.6**
17	**1.73**	**2.00**	**2.10**	**2.10**	0.5	**9.8**

33	**1.58**	**1.80**	**1.85**	**1.86**	0.3	**5.4**
65	**1.49**	**1.68**	**1.70**	**1.70**	0.1	**2.6**
129	**1.44**	**1.61**	**1.62**	**1.62**	0.1	**1.2**
200	**1.42**	**1.59**	**1.59**	**1.59**	0.0	0.7
Transect C						
3	**2.24**	**2.71**	**2.95**	**2.96**	**1.4**	**25.2**
5	**2.08**	**2.49**	**2.68**	**2.69**	**1.1**	**20.4**
9	**1.90**	**2.23**	**2.37**	**2.38**	0.8	**14.8**
17	**1.72**	**1.98**	**2.07**	**2.07**	0.5	**9.3**
33	**1.58**	**1.79**	**1.84**	**1.84**	0.3	**5.1**
65	**1.49**	**1.67**	**1.69**	**1.70**	0.1	**2.5**
129	**1.44**	**1.61**	**1.62**	**1.62**	0.1	**1.1**
200	**1.42**	**1.58**	**1.59**	**1.59**	0.0	0.6

[a] Exceedances of the 1 µg/m^3 Critical Level, or 1% change shown in bold

[b] Only the transect points that fall within the SAC are presented

Nitrogen Deposition

4.3 Table 7 sets out the total deposition rates and changes relative to the CLo load for nutrient nitrogen at the modelled transects. Deposition rates show an overall reduction between 2019 and 2040. The in-isolation contributions are above 1% of the CLo at the transect points closer to the road. The in-combination contributions are above 1% of the CLo at the majority of transect points. In all scenarios, the total deposition rate is above the CLo.

Table 7: Model Results for Nitrogen Deposition [a]

Distance from Road Edge (m) [b]	Total Deposition Flux (kgN/ha/yr)				% Change from Local Plan Relative to CLo (5 kgN/ha/yr)	
	2019 Baseline	2040 Do Nothing	2040 Do Minimum	2040 Do Something	2040 PC	2040 ICC
Transect A						
2	**24.3**	**22.3**	**23.9**	**23.9**	**1.8**	**32.0**
3	**23.5**	**21.6**	**22.9**	**23.0**	**1.6**	**28.6**
5	**22.3**	**20.4**	**21.5**	**21.6**	**1.3**	**23.6**
9	**20.8**	**19.0**	**19.8**	**19.9**	1.0	**17.4**
17	**19.3**	**17.6**	**18.1**	**18.2**	0.6	**11.3**
33	**18.0**	**16.5**	**16.8**	**16.8**	0.4	**6.4**

65	**17.2**	**15.8**	**16.0**	**16.0**	0.2	**3.4**
129	**16.7**	**15.4**	**15.5**	**15.5**	0.1	**1.7**
Transect B						
2	**24.5**	**22.6**	**24.1**	**24.2**	**1.8**	**32.9**
3	**23.6**	**21.7**	**23.1**	**23.2**	**1.6**	**29.1**
5	**22.4**	**20.5**	**21.6**	**21.7**	**1.3**	**23.8**
9	**20.8**	**19.0**	**19.8**	**19.9**	1.0	**17.4**
17	**19.2**	**17.5**	**18.1**	**18.1**	0.6	**11.0**
33	**17.9**	**16.4**	**16.7**	**16.7**	0.3	**6.1**
65	**17.0**	**15.7**	**15.9**	**15.9**	0.2	**3.0**
129	**16.5**	**15.3**	**15.4**	**15.4**	0.1	**1.3**
200	**16.4**	**15.2**	**15.3**	**15.3**	0.1	0.8
Transect C						
3	**23.3**	**21.4**	**22.7**	**22.8**	**1.5**	**27.9**
5	**22.1**	**20.2**	**21.3**	**21.4**	**1.2**	**22.7**
9	**20.6**	**18.8**	**19.6**	**19.6**	0.9	**16.5**
17	**19.0**	**17.4**	**17.9**	**17.9**	0.6	**10.4**
33	**17.8**	**16.3**	**16.6**	**16.6**	0.3	**5.8**
65	**17.0**	**15.7**	**15.8**	**15.8**	0.1	**2.8**
129	**16.5**	**15.3**	**15.4**	**15.4**	0.1	**1.2**
200	**16.3**	**15.2**	**15.2**	**15.2**	0.0	0.6

[a] Exceedances of the 5 Kg/ha/yr Critical Load, or 1% change shown in bold

[b] Only the transect points that fall within the SAC are presented

Acid Deposition

4.4 Table 8 sets out the total deposition rates and changes relative to the CLo for acid nitrogen at the modelled transects. The in-isolation contributions are all below 1% of the CLo. The in-combination contributions are above 1% of the CLo at the transect points closer to the road. In all scenarios, the total deposition rate is above the CLo at the transect points closer to the road.

Table 8: Model Results for Acid Deposition [a]

Distance from Road Edge (m) [b]	Total Deposition Flux (keq/ha/yr)				% Change from Local Plan Relative to CLo (1.449 keq/ha/yr)	
	2019 Baseline	2040 Do Nothing	2040 Do Minimum	2040 Do Something	2040 PC	2040 ICC

Transect A						
2	**1.74**	**1.60**	**1.70**	**1.71**	0.4	**7.9**
3	**1.68**	**1.54**	**1.64**	**1.64**	0.4	**7.0**
5	**1.60**	1.46	**1.54**	**1.54**	0.3	**5.8**
9	**1.49**	1.36	1.42	1.42	0.2	**4.3**
17	1.38	1.26	1.30	1.30	0.1	**2.8**
33	1.29	1.18	1.20	1.20	0.1	**1.6**
65	1.23	1.13	1.14	1.14	<0.1	0.8
129	1.19	1.10	1.11	1.11	<0.1	0.4
Transect B						
2	**1.75**	**1.61**	**1.72**	**1.73**	0.4	**8.1**
3	**1.69**	**1.55**	**1.65**	**1.65**	0.4	**7.2**
5	**1.60**	**1.46**	**1.54**	**1.55**	0.3	**5.9**
9	**1.49**	1.36	1.42	1.42	0.2	**4.3**
17	1.37	1.25	1.29	1.29	0.2	**2.7**
33	1.28	1.17	1.19	1.19	0.1	**1.5**
65	1.22	1.12	1.13	1.13	<0.1	0.7
129	1.18	1.10	1.10	1.10	<0.1	0.3
200	1.17	1.09	1.09	1.09	<0.1	0.2
Transect C						
3	**1.67**	**1.53**	**1.62**	**1.63**	0.4	**6.9**
5	**1.58**	1.44	**1.52**	**1.53**	0.3	**5.6**
9	**1.47**	1.34	1.40	1.40	0.2	**4.1**
17	1.36	1.24	1.28	1.28	0.1	**2.6**
33	1.27	1.17	1.19	1.19	0.1	**1.4**
65	1.21	1.12	1.13	1.13	<0.1	0.7
129	1.18	1.09	1.10	1.10	<0.1	0.3
200	1.17	1.08	1.09	1.09	<0.1	0.2

[a] Exceedances of the 1.449 Keq/ha/yr Critical Load, or 1% change shown in bold

[b] Only the transect points that fall within the SAC are presented

Contour Plots

4.5 Figure 4 to Figure 9 show the spatial distribution of these changes. There are no locations in the in-isolation scenario where the change exceeds 1% of the NOx CLe or 1% of the acid deposition CLo.

There are no locations in either scenario where the total NOx concentrations exceed the CLe, or where the ammonia CLe or nitrogen deposition CLo are not exceeded.

4.6 It should be noted that these plots are intended to provide only a very high-level summary of the predictions. More detailed contours have also been provided to inform the HRA.

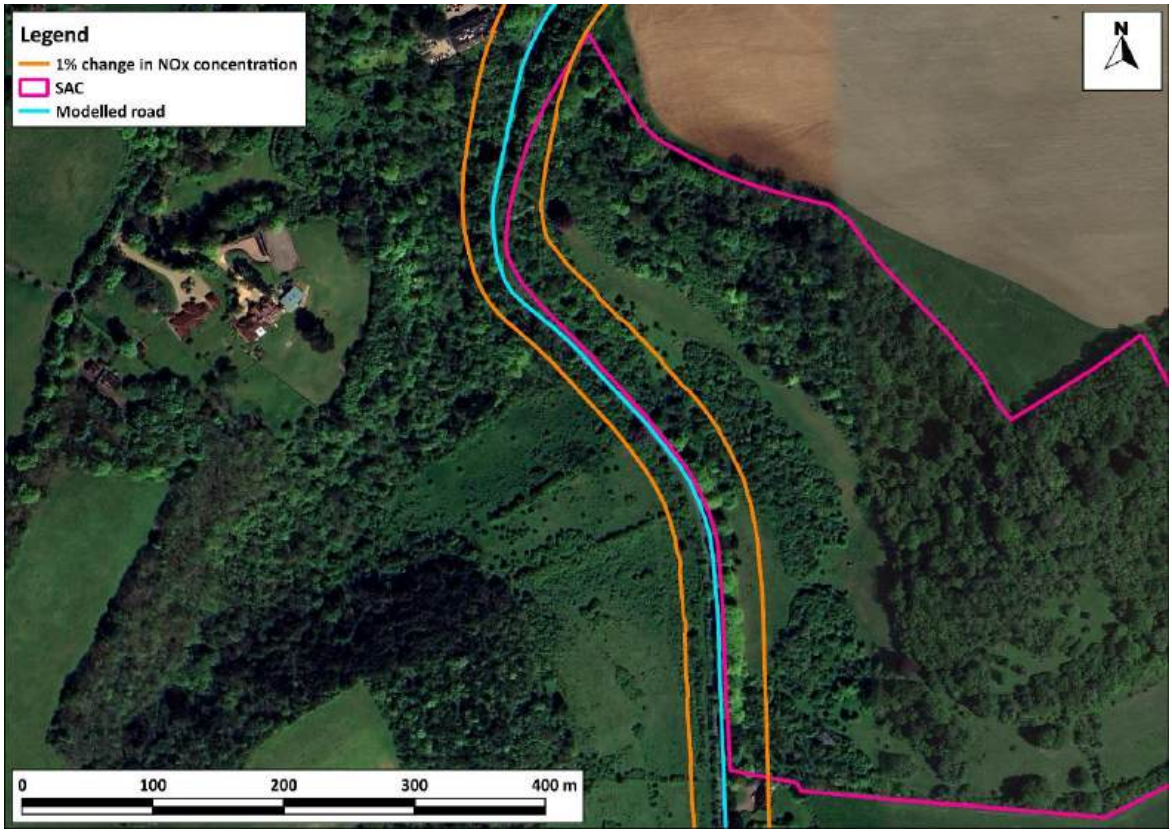

Figure 4: % Change in NOx Concentrations Relative to the Critical Level (30 µg/m³) - ICC

Imagery ©2024 Airbus, Maxar Technologies.

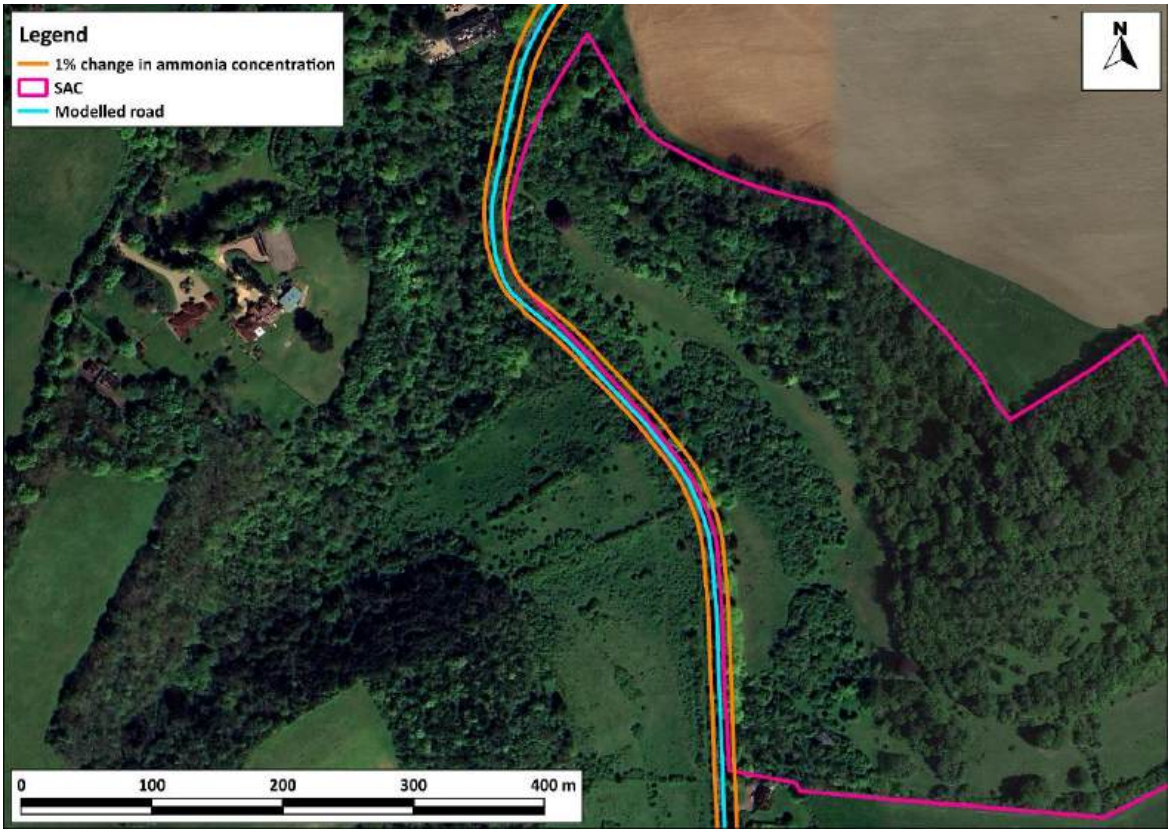

Figure 5: % Change in Ammonia Concentrations Relative to the Critical Level (1 µg/m³) - PC

Imagery ©2024 Airbus, Maxar Technologies.

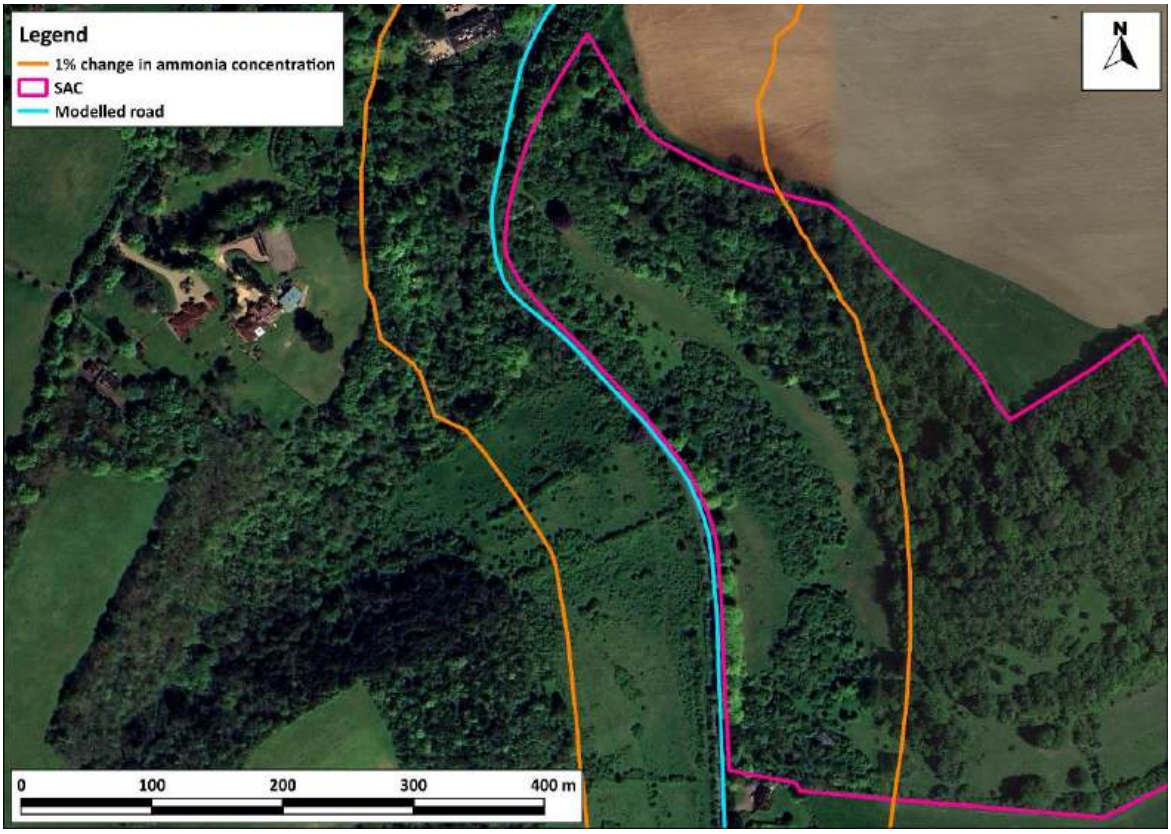

Figure 6: % Change in Ammonia Concentrations Relative to the Critical Level (1 µg/m³) - ICC

Imagery ©2024 Airbus, Maxar Technologies.

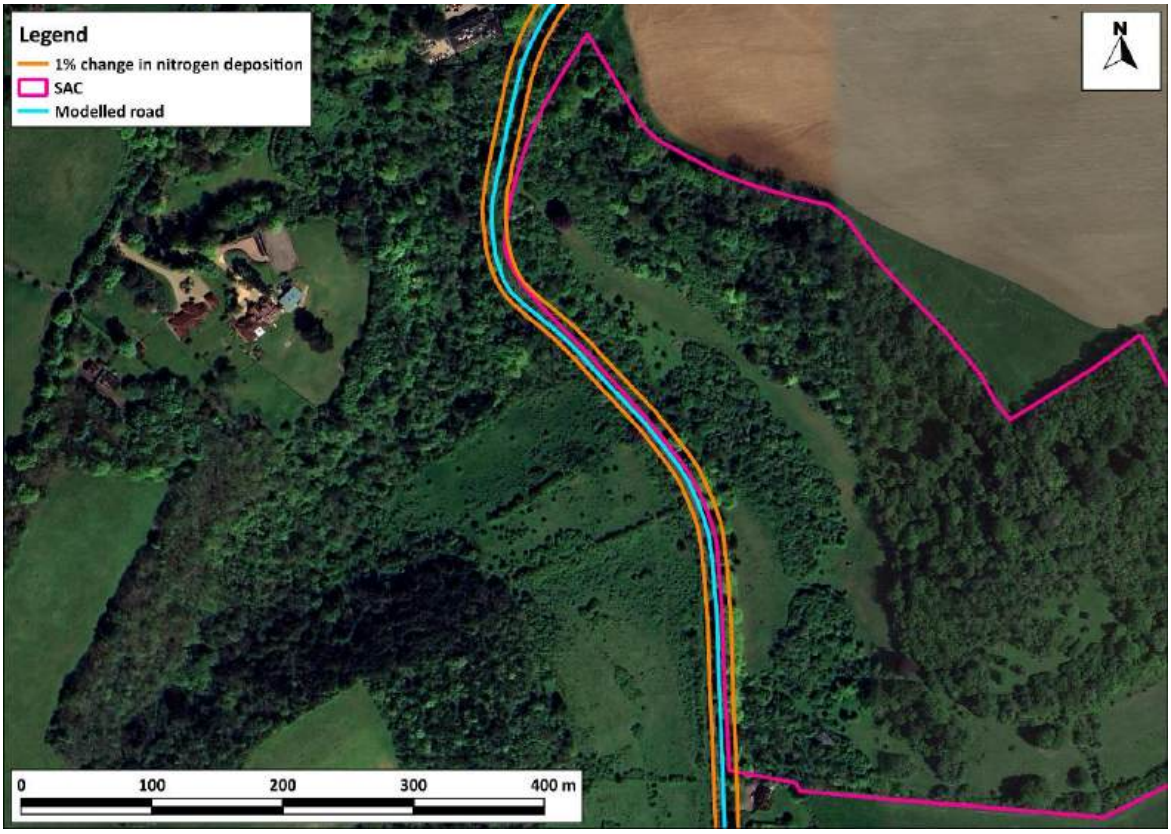

Figure 7: % Change in Nitrogen Deposition Relative to the Critical Load (5 kgN/ha/yr) - PC

Imagery ©2024 Airbus, Maxar Technologies.

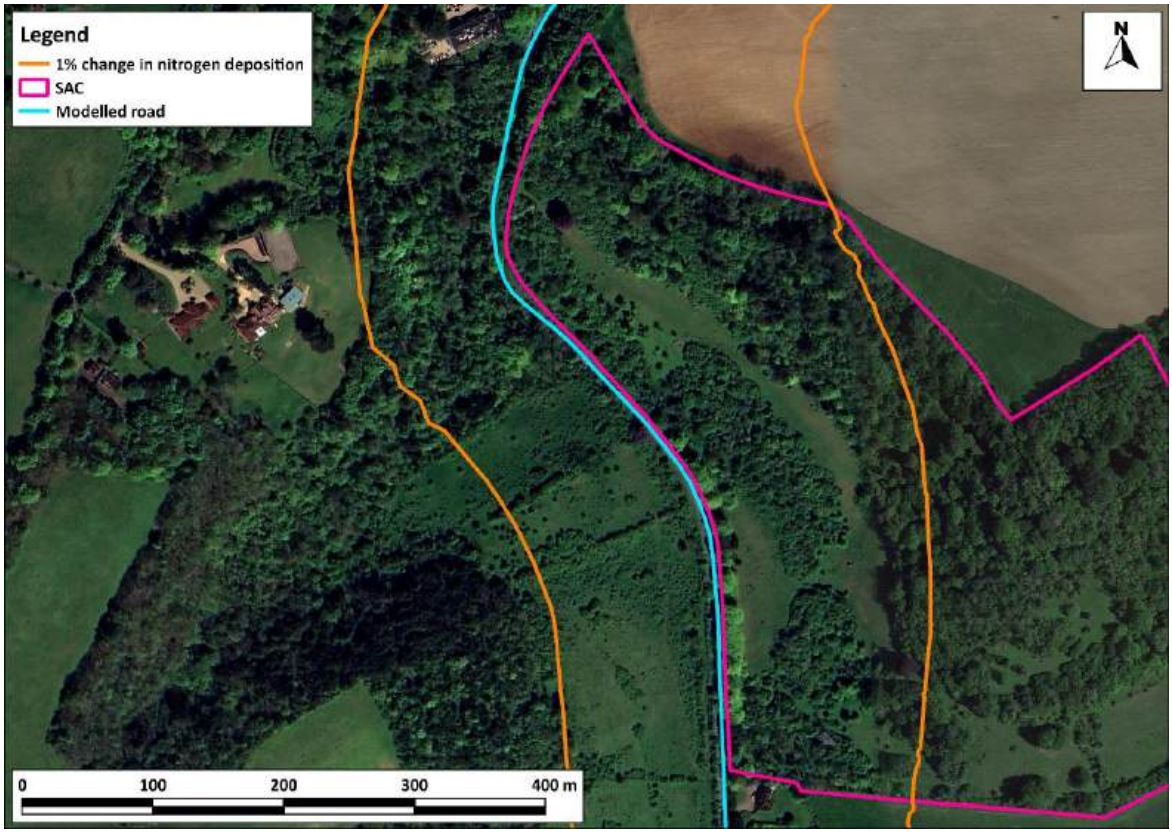

Figure 8: % Change in Nitrogen Deposition Relative to the Critical Load (5 kgN/ha/yr) - ICC

Imagery ©2024 Airbus, Maxar Technologies.

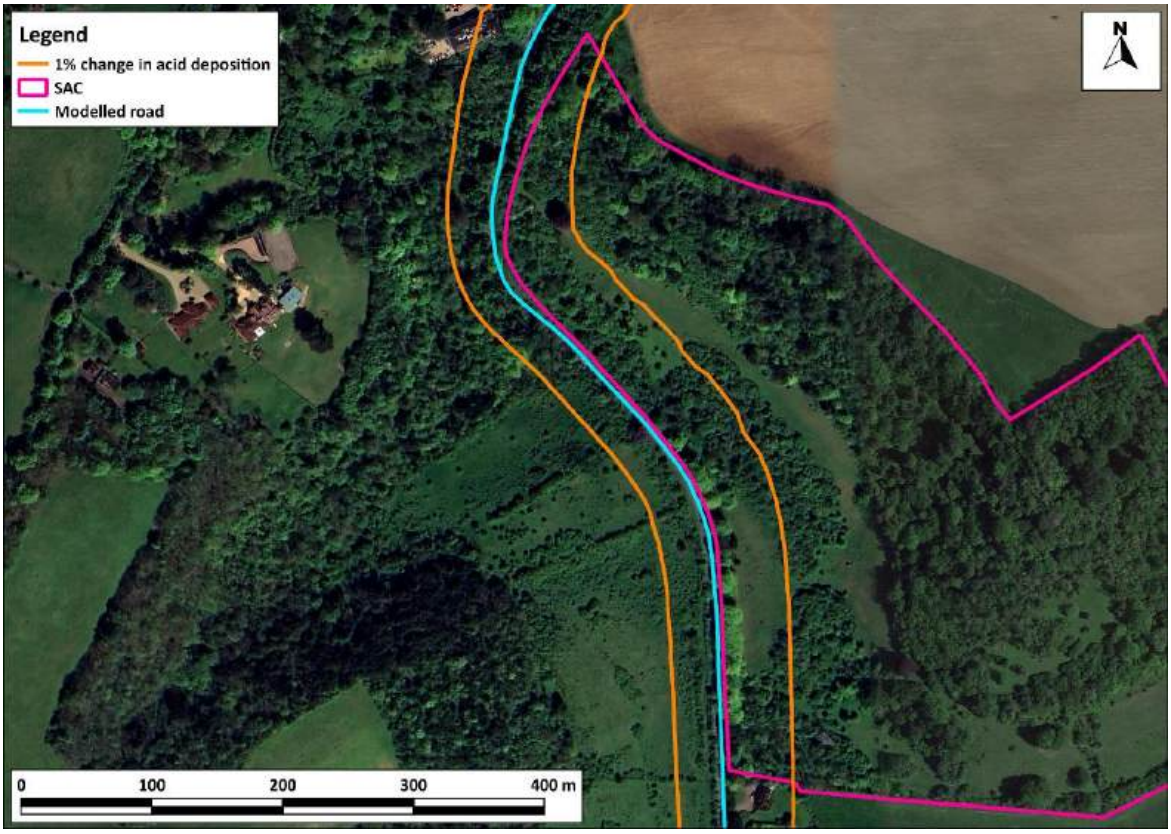

Figure 9: % Change in Acid Deposition Relative to the Critical Load (1.449 keq/ha/yr) - ICC

Imagery ©2024 Airbus, Maxar Technologies.

5 References

APIS (2013) *Recommended values within nutrient nitrogen critical load ranges for use in air pollution impact assessments.* *http://www.apis.ac.uk/sites/default/files/downloads/APIS%20critical_load_range_document_0.pdf*.

APIS (2024) *APIS*, [Online], Available: http://www.apis.ac.uk/.

AQC (2020a) 'Ammonia Emissions from Roads for Assessing Impacts on Nitrogen-sensitive Habitats', no. https://www.aqconsultants.co.uk/CMSPages/GetFile.aspx?guid=3aa4ec2e-ee4e-4908-bc7a-aeb0231b4b37.

AQC (2020b) *Performance of Defra's Emission Factor Toolkit 2013-2019*, Available: https://www.aqconsultants.co.uk/CMSPages/GetFile.aspx?guid=7fba769d-f1df-49c4-a2e7-f3dd6f316ec1.

AQC (2020c) *Comparison of EFT v10 with EFT v9*, Available: https://www.aqconsultants.co.uk/CMSPages/GetFile.aspx?guid=9d6b50e1-3897-46cf-90f1-3669c6814f1d.

AQTAG (2011) *AQTAG06 - Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air*.

Cape et al (2008) *Concentration-dependent deposition velocities for ammonia: moving from lab to field*, 631181st edition.

Defra (2007) *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland*, Defra.

Defra (2022) *Review & Assessment: Technical Guidance LAQM.TG22*, Available: https://laqm.defra.gov.uk/documents/LAQM-TG16-April-21-v1.pdf.

Defra (2024) *Local Air Quality Management (LAQM) Support Website*, Available: http://laqm.defra.gov.uk/.

Defra Air Quality Expert Group (2020) *Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK- Rapid evidence review*, Available: https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2007010844_Estimation_of_Changes_in_Air_Pollution_During_COVID-19_outbreak_in_the_UK.pdf.

DfT (2020) *DfT Road traffic statistics (TRA03)*, Available: https://www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra.

European Environment Agency (2021) *The European Nature Information System*, Available: http://eunis.eea.europa.eu/habitats-code.jsp.

Highways England (2019) 'Design Manual for Roads and Bridges LA 105 Air Quality Revision 0', no. https://www.standardsforhighways.co.uk/dmrb/search/10191621-07df-44a3-892e-c1d5c7a28d90.

Natural England (2018) 'Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001)', pp. http://publications.naturalengland.org.uk/publication/4720542048845824.

The Air Quality (England) (Amendment) Regulations 2002, Statutory Instrument 3043 (2002), HMSO, Available: https://www.legislation.gov.uk/uksi/2002/3043/contents/made.

The Air Quality (England) Regulations 2000 Statutory Instrument 928 (2000), HMSO, Available: http://www.legislation.gov.uk/uksi/2000/928/contents/made.

The European Parliament and the Council of the European Union (2008) *Directive 2008/50/EC of the European Parliament and of the Council*, Available: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0050.

WHO (2000) *Air Quality Guidelines for Europe; 2nd Edition. http://www.euro.who.int/__data/assets/pdf_file/0005/74732/E71922.pdf*.

6 Appendices

A1 Professional Experience

Penny Wilson, BSc (Hons) CSci MIEnvSc MIAQM

Ms Wilson is a Technical Director with AQC, with more than 20 years' relevant experience in the field of air quality. She has been responsible for numerous assessments for a range of infrastructure developments including power stations, road schemes, ports, airports and residential/commercial developments. The assessments have covered operational and construction impacts, including dust and odour nuisance. She also provides services to local authorities in support of their LAQM duties, including the preparation of Review and Assessment and Action Plan reports, as well as audits of Air Quality Assessments submitted with planning and DCO applications. She has provided expert evidence to a number of Public Inquiries and civil court, and is a Member of the Institute of Air Quality Management and a Chartered Scientist.

Dr Ben Marner, BSc (Hons) PhD CSci MIEnvSc MIAQM

Dr Marner is the Director of Air Quality Modelling and Assessment at AQC and has over 20 years' relevant experience. He has been responsible for air quality and greenhouse gas assessments of road schemes, rail schemes, airports, power stations, waste incinerators, commercial developments and residential developments in the UK and abroad. He has acted as expert witness at public inquiries, where he has presented evidence on health-related air quality impacts, the impacts of air quality on sensitive ecosystems, and greenhouse gas impacts. He has developed a range of widely-used air quality models and contributed to the development of best practice. Dr Marner has provided support and advice to foreign governments, Highways England, Transport Scotland, Transport for London, Greater London Authority, the Joint Nature Conservation Committee, the Environment Agency, and numerous local authorities. He is a Member of the Institute of Air Quality Management and a Chartered Scientist. He currently advises the UK Government on air quality as part of its Air Quality Expert Group (AQEG), where his specific area of expertise relates to air quality assessment in the development control process.

Dr Imogen Heard, BSc (Hons) MSc PhD

Dr Heard is an Associate of AQC with over 12 years' experience in the field of air quality. She has been involved in numerous development projects including road schemes, energy from waste facilities, urban extensions and energy centres. These have included the use of ADMS-5 and ADMS-Roads dispersion models to study the impacts of a variety of pollutants, including nitrogen dioxide, PM_{10} and $PM_{2.5}$, and the preparation of air quality assessment reports and air quality chapters for Environmental Statements. She also has experience in undertaking construction dust risk assessments, Air Quality Neutral assessments and human health risk assessments, as well as in preparing local authority reports. Prior to joining AQC she worked as a scientist in the Atmospheric Dispersion and Air Quality area at the UK Met Office for four years, modelling the dispersion of a range of pollutants over varying spatial and temporal scales.

A2 Modelling Methodology

Model Inputs

A2.1 Predictions have been carried out using the ADMS-Roads dispersion model (v5). The model requires the user to provide various input data, including emissions from each section of road and the road characteristics (including road width). Vehicle emissions have been calculated based on vehicle flow, composition and speed data using the EFT (Version 12.1) published by Defra (2024) and the CREAM V1A model published by AQC (2020a). Model input parameters are summarised in Table A2-1and, where considered necessary, discussed further below.

Table A2-1: Summary of Model Inputs

Model Parameter	Value Used
Terrain Effects Modelled?	No
Variable Surface Roughness File Used?	No
Urban Canopy Flow Used?	No
Advanced Street Canyons Modelled?	No
Noise Barriers Modelled?	No
Meteorological Monitoring Site	Gatwick Airport
Meteorological Data Year	2019
Dispersion Site Surface Roughness Length (m)	0.75
Dispersion Site Minimum MO Length (m)	10
Met Site Surface Roughness Length (m)	0.2
Met Site Minimum MO Length (m)	30
Gradients?	No

A2.2 AADT flows, diurnal flow profiles, speeds, and vehicle fleet composition data have been provided by Surrey County Council. Traffic speeds have been estimated based on professional judgement, taking account of the road layout, speed limits and the proximity to a junction. The traffic data used in this assessment are summarised in Table A2-2. Diurnal and monthly flow profiles for the traffic have been derived from the national profiles published by DfT (2020).

Table A2-2: Summary of Traffic Data used in the Assessment

Road Link	2019			2040 (Without Scheme)			2040 (With Scheme)		
	AADT	%HDV	Speed (kph)	AADT	%HDV	Speed (kph)	AADT	%HDV	Speed (kph)
B2032	18,329	0.7	65	21,871	1.1	64	22,118	1.1	64

A2.3 Figure A2-1 shows the road network included within the model.

Figure A2-1: Modelled Road

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A2.4 Hourly sequential meteorological data in sectors of 10 degrees from Gatwick Airport for 2019 have been used in the model. The Gatwick Airport meteorological monitoring station is located at Gatwick Airport, approximately 13 km to the southeast of the Mole Gap to Reigate Escarpment SAC. It is the nearest monitoring station representative of meteorological conditions at the SAC; both the SAC and the Gatwick Airport meteorological monitoring station are located in the southeast of England where they will be influenced by the effects of inland meteorology over flat-lying topography. A wind rose for the site for 2019 is provided in Figure A2-2. The station is operated by the UK Met Office. Data were provided and quality assured by the UK Met Office.

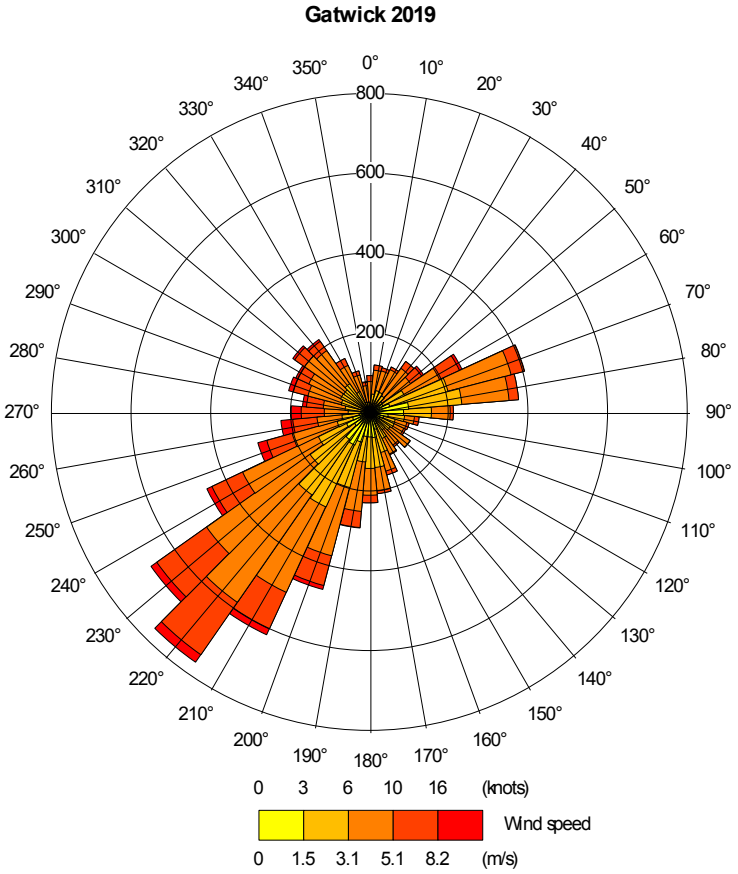

Figure A2-2: Wind Rose

Model Verification

A2.5 Evidence collected over many years has shown that, in most urban areas, dispersion modelling relying upon Defra's EFT has tended to systematically under-predict roadside nitrogen dioxide concentrations. To account for this, it is necessary to adjust the model against local measurements. The model has been run to predict annual mean nitrogen dioxide concentrations during 2019 at the RB125 and RB150 diffusion tube monitoring sites in Reigate. These sites have been selected because they are located adjacent to a nearby road for which traffic data are available. The monitoring locations used in the model verification are shown in Figure A2-3 and the measured concentrations are shown in Table A2-3.

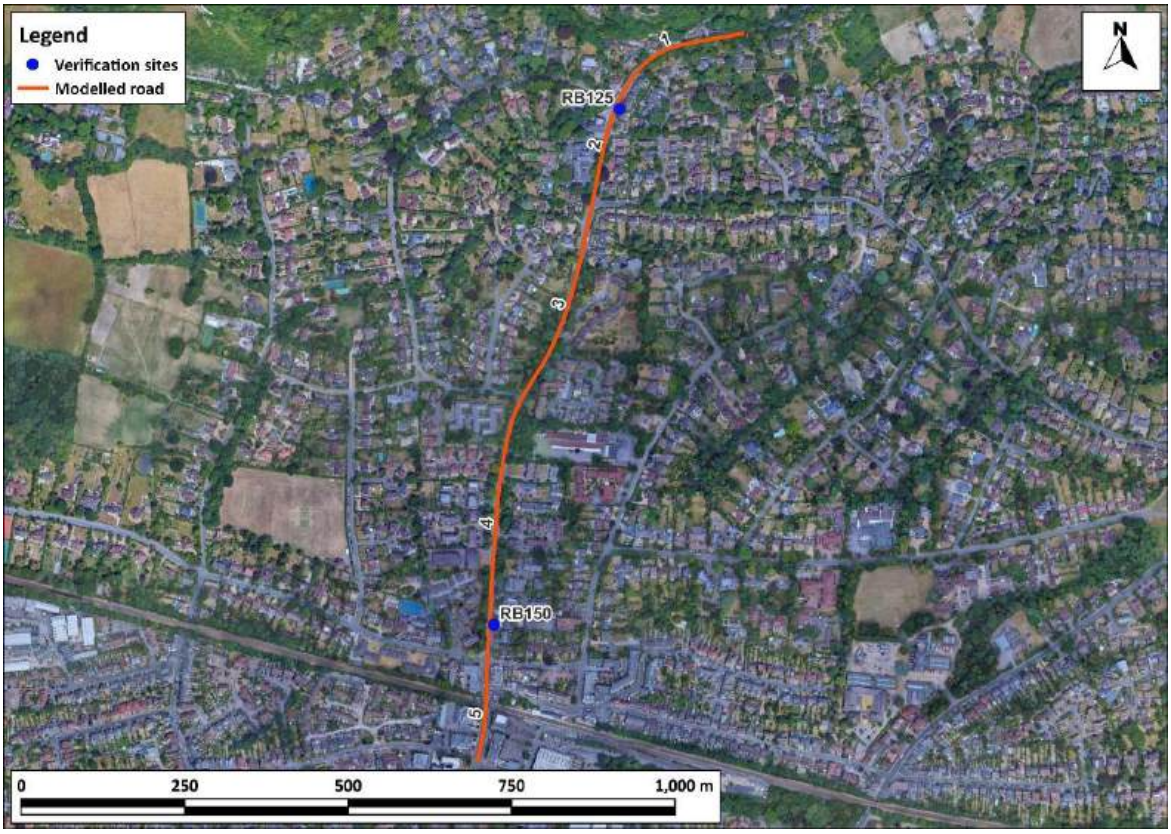

Figure A2-3: Monitoring Locations used in the Model Verification

Imagery ©2024 Landsat / Copernicus, Maxar Technologies.

Table A2-3: Measured Concentrations used in the Model Verification

Monitoring Site	Annual Mean NO_2 in 2019 (µg/m³)
RB125	33.5
RB150	35.3

Background Concentrations

A2.6 The background annual mean nitrogen dioxide concentrations used in the model verification are summarised in Table A2-4, having been derived from the national maps provided by Defra for Local Air Quality Management.

Table A2-4: Background Concentrations used in the Model Verification

Monitoring Site	Background NO_2 (µg/m³)
RB125	14.3
RB150	15.8

Traffic Data

A2.7 AADT flows, the proportions of HDVs, and average speeds, for the A217 adjacent to the monitoring sites, have been provided by Surrey County Council. Traffic data used in the model verification are summarised in Table A2-5. The road links are shown in Figure A2-3.

Table A2-5: 2019 Traffic Data used in the Model Verification

Road Link	AADT	%HDV	Speed (kph)
1	21,518	3.9	37
2	21,518	3.9	37
3	17,201	4.6	37
4	17,196	4.6	37
5	13,286	5.2	41

Nitrogen Dioxide

A2.8 Most nitrogen dioxide (NO_2) is produced in the atmosphere by reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emissions of NOx (NOx = NO + NO_2).

A2.9 The model output of road-NOx (i.e. the component of total NOx coming from road traffic) has been compared with the 'measured' road-NOx. Measured road-NOx has been calculated from the measured NO_2 concentrations and the predicted background NO_2 concentration using the NOx from NO_2 calculator (Version 8.1) available on the Defra LAQM Support website (Defra, 2024).

A2.10 The unadjusted model has under predicted the road-NOx contribution; this is a common experience with this and most other road traffic emissions dispersion models. An adjustment factor has been determined as the slope of the best-fit line between the 'measured' road contribution and the model derived road contribution, forced through zero (Figure A2-4). The calculated adjustment factor of 2.658 has been applied to the modelled road-NOx concentration for each receptor to provide adjusted modelled road-NOx concentrations.

A2.11 The total nitrogen dioxide concentrations have then been determined by combining the adjusted modelled road-NOx concentrations with the predicted background NO_2 concentration within the NOx to NO_2 calculator. Figure A2-5 compares final adjusted modelled total NO_2 at each of the monitoring sites to measured total NO_2 and shows a close agreement.

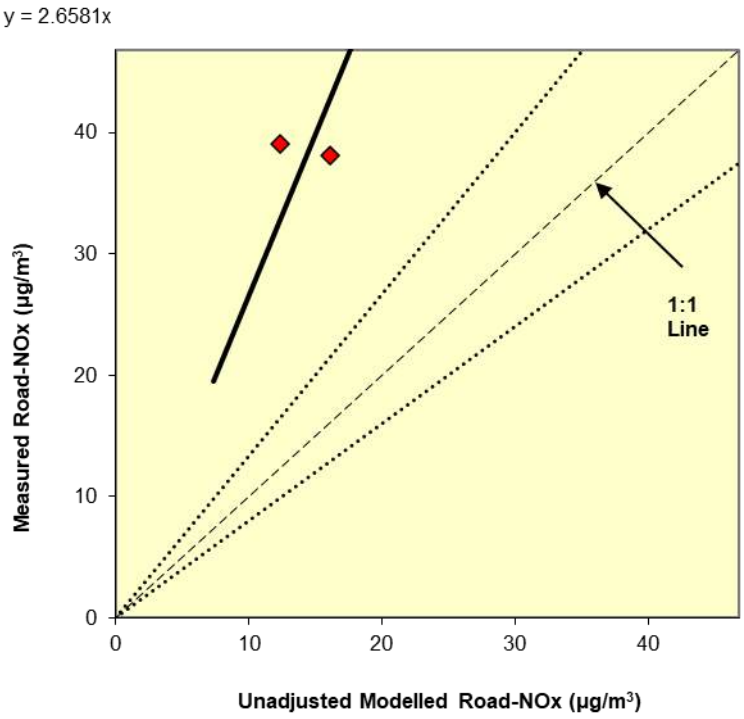

Figure A2-4: Comparison of Measured Road NOx to Unadjusted Modelled Road NOx Concentrations. The dashed lines show ± 25%.

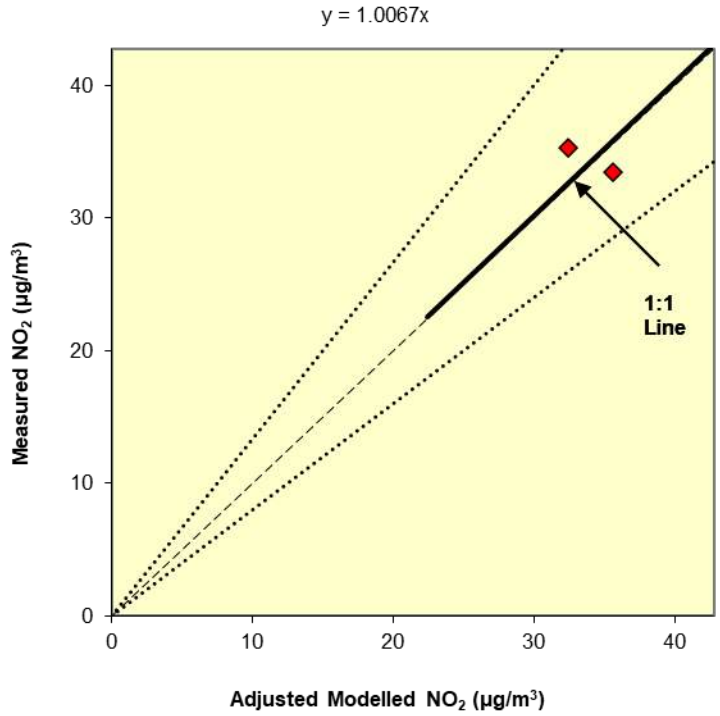

Figure A2-5: Comparison of Measured Total NO_2 to Final Adjusted Modelled Total NO_2 Concentrations. The dashed lines show ± 25%.

Ammonia

A2.12 There are no local roadside ammonia monitoring sites which can be used to verify the model results for traffic-related ammonia emissions. Development of the CREAM emissions model (AQC, 2020a) included verification of concentrations predicted using the ADMS-Roads dispersion model and measured traffic data against ambient measurements from the most detailed network of roadside monitoring sites which has ever been run in the UK. No further adjustment to the model predictions is considered appropriate.

Post-processing

A2.13 The model predicts road-NOx concentrations at each receptor location. These concentrations have been adjusted using the adjustment factor set out above, which, along with the background NO_2 (derived from the national maps provided by Defra for Local Air Quality Management), has been processed through the NOx to NO_2 calculator which is also available on the Defra LAQM Support website (Defra, 2024). The traffic mix within the calculator has been set to "All non-urban UK traffic", which is considered suitable for the study area. The calculator predicts the component of NO_2 based on the adjusted road-NOx and the background NO_2.

Deposition Rates

A2.14 Deposition has not been included within the dispersion model because the principal depositing component of concern is nitrogen dioxide and this is calculated from NOx outside of the model. Instead, deposition has been calculated from the predicted ambient concentrations using the deposition velocities set out in Table A2-1. Deposition velocities refer to a height above ground, typically 1 or 2 m, although in practice the precise height makes little difference and here they have been applied to concentrations predicted at a height of 1.5 m above ground. The velocities are applied simply by multiplying a concentration (µg/m^3) by the velocity (m/s) to predict a deposition flux (µg/m^2/s) and then scaling by time and area to represent kg/ha/yr of the nitrogen component of the molecule. The deposition velocity for ammonia has been included within the ADMS-Roads model to allow for the calculation of depletion.

Table A2-1: Deposition Velocities Used in This Assessment

Pollutant	Deposition Velocity (m/s)	Reference
Nitrogen Dioxide	0.0015 m/s (Grassland)	AQTAG06 (AQTAG, 2011)
Ammonia	0.02 m/s (Grassland)	AQTAG06 (AQTAG, 2011)

A2.15 Wet deposition of the emitted pollutants close to the emission source will be restricted to wash-out, or below cloud scavenging. For this to occur, rain droplets must come into contact with the gas molecules before they hit the ground. Falling raindrops displace the air around them, effectively pushing gasses away. AQTAG06 guidance (AQTAG, 2011) is that the wet deposition of sulphur dioxide, nitrogen dioxide and ammonia is not significant within a short range. It has thus not been included.

A2.16 Deposition may have an acidifying effect through the release of acid protons during chemical transformation in the soil or biota. Thus, even alkaline gases such as ammonia can have an acidifying

effect. The acidity Clos are expressed as equivalents ('eq'), referring to the molar equivalent of potential acidity. This is calculated from the mass (in g) of the deposited element, taking account of both its atomic mass and its valency. For example, the acidifying potential (in eq) of both ammonium (NH_4^+) and nitrate (NO_3^-) is 1/14 times the deposited mass in grammes (with 14 being the atomic mass of nitrogen). The species included in the calculation of acid deposition, and their calculated acidifying potentials, are set out in Table A2-2.

Table A2-2: Species Included in Acid Deposition Calculations

Pollutant	Calculation (kg deposition to keq)
N (from deposited NO_2 and ammonia)	0.071

London • Bristol • Warrington • Brussels

Appendix D: Epsom & Ewell Local Plan Policy & Allocation Screening Evaluation

Chapter 1 – 2 – Introductions and Context

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
Chapter 1 – 2	This chapter contains administrative text.	Screen Out – Administrative text

Chapter 3 – Spatial Strategy

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
Policy S1: Spatial Strategy	This policy identifies the quantum of development required over the Plan period (2022-2040), making provision for at least 4,700 new homes. Employment needs (office, light industrial, industrial and warehousing) will be met through the intensification of existing strategic employment sites and the delivery of additional employment floorspace that is compatible with residential use in Epsom Town Centre. Retail needs will be met within existing centres and through the	Screen In – Category L

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
	provision of small-scale retail facilities within the Ewell East Station strategic allocation. Provision has been made for 10 permanent pitches for Gypsies and Travellers within Epsom and Ewell over the plan period. The council will seek to make additional provision by permitting suitable sites. Development within the Plan area (from the Local Plan alone and the Local Plan in-combination with development in neighbouring local plan areas (see **Appendix A**)) has the potential to cumulatively result in the following LSEs: - Mole Gap to Reigate Escarpment SAC – air quality and recreational pressure in-combination LSEs; - South West London Waterbodies SPA – water quantity in-combination LSEs; - South West London Waterbodies Ramsar – water quantity in-combination LSEs; - Wimbledon Common SAC – water quantity in-combination LSEs.	
Policy SA2: Sustainable and Viable Development	This policy sets out the provisions for sustainable and viable development within the Plan area. It will not lead to development or any change which may have an LSE on any European site. Instead, it sets criteria in relation to sustainability which is a requirement for new development.	Screen Out – Category B
Policy S3: Climate Change and Mitigation	This policy sets out a set of criteria which development must meet to address climate change. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category B
Policy S4: Epsom Town Centre	This policy sets out criteria to regenerate and expand Epsom Town Centre in becoming diversified in terms of use and supporting windfall developments. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category B

Chapter 4 - Planning for Places

The locations of site allocations are illustrated in **Figure D.1** below.

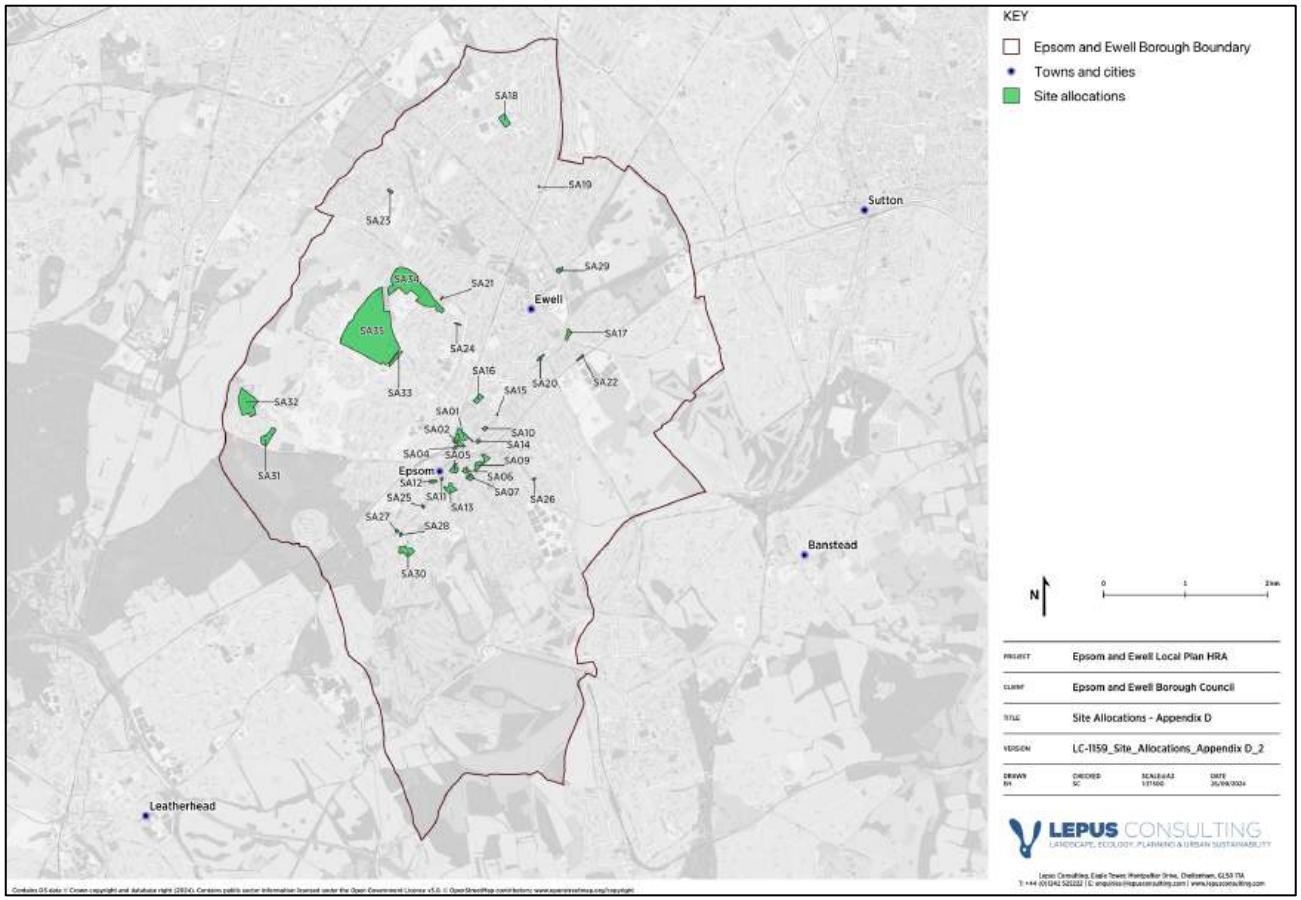

***Figure D.1**: Plan of allocation locations*

Policy number / name	Description of policy for each site allocation	Screening conclusion (Screening Category – Table 4.1) and recommendations
Site SA1: Southern Gas Network Site	This policy is for the residential led mixed use development of this site, comprising approximately 455 new homes and a performing arts centre. Development within the Plan area (from the Local Plan alone and the Local Plan in-combination with development in neighbouring local plan areas (see **Appendix A**)) has the potential to cumulatively result in the following LSEs: - Mole Gap to Reigate Escarpment SAC – air quality and recreational pressure in-combination LSEs; - South West London Waterbodies SPA – water quantity in-combination LSEs; - South West London Waterbodies Ramsar – water quantity in-combination LSEs; - Wimbledon Common SAC –water quantity in-combination LSEs.	Screen In – Category L
Site SA2: Hook Road Car Park	This policy is for the residential led development of this site, comprising approximately 150 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA3: Solis House, 20 Hook Road	This policy is for the residential led development of this site, comprising approximately 20 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as for Policy SA1 listed above.	Screen In – Category L
Site SA4: Bunzl, Hook Road	This policy is for the residential led development of this site, comprising approximately 20 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as for Policy SA1 listed above.	Screen In – Category L
Site SA5: Epsom Town Hall	This policy is for the residential led development of this site, comprising approximately 90 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as for Policy SA1 listed above.	Screen In – Category L
Site SA6: Hope Lodge Car Park	This policy is for the residential led development of this site, comprising approximately 30 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as for Policy SA1 listed above.	Screen In – Category L
Site SA7: Former Police and	This policy is for the residential led mixed use development of this site, comprising approximately 85 new homes and a nursing and dementia care home for the elderly. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L

Policy number / name	Description of policy for each site allocation	Screening conclusion (Screening Category – Table 4.1) and recommendations
Ambulance Station Sites		
Site SA8: Epsom Clinic	This policy is for the residential led development of this site, comprising approximately 30 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA9: Depot Road and Upper High Street Car Park	This policy is for the residential led mixed use development of this site, comprising approximately 100 new homes and a decked public car park. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA10: 79-85 East Street	This policy is for the residential led development of this site, comprising approximately 35 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA11: Finachem House, 2-4 Ashley Road	This policy is for the residential led development of this site, comprising approximately 20 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA12: Global House	This policy is for the residential led development of this site, comprising approximately 75 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA13: Swail House	This policy is for the residential led development of this site, comprising approximately 45 new homes as part of the refurbishment of Swail House. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA14: 60 East Street	This policy is for the residential led development of this site, comprising approximately 30 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L

Policy number / name	Description of policy for each site allocation	Screening conclusion (Screening Category – Table 4.1) and recommendations
Site SA15: Corner of Kiln Lane and East Street (101b East Street)	This policy is for the residential led development of this site, comprising approximately 5 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA16: Land at Kiln Lane	This policy is for the residential led development of this site, comprising approximately 40 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA17: Hatch Furlong Nursery	This policy is for the residential led development of this site, comprising approximately 30 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA18: Land to the Rear of Rowe Hall	This policy is for the residential led development of this site, comprising approximately 96 new apartments which classify as extra care accommodation, including spaces for staff and communal facilities. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA19: 7 Station Approach	This policy is for the residential led development of this site, comprising approximately 5 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA20: Esso Express, 26 Reigate Road	This policy is for the residential led development of this site, comprising approximately 10 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA21: Richards Field Car Park	This policy is for the residential led development of this site, comprising approximately 7 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA22: Etwelle House, Station Road	This policy is for the residential led development of this site, comprising approximately 20 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L

Policy number / name	Description of policy for each site allocation	Screening conclusion (Screening Category – Table 4.1) and recommendations
Site SA23: 140-142 Ruxley Lane	This policy is for the residential led development of this site, comprising approximately 12 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA24: Garages at Somerset Close and Westmorland Close	This policy is for the residential led development of this site, comprising approximately 6 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA25: 64 South Street Epsom	This policy is for the residential led development of this site, comprising approximately 6 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA26: 35 Alexandra Road	This policy is for the residential led development of this site, comprising approximately 8 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA27: 22-24 Dorking Road	This policy is for the residential led development of this site, comprising approximately 18 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA28: 63 Dorking Road	This policy is for the mixed use development of this site, comprising a specialist care home with ancillary accommodation for nurses (equivalent to 6 net dwellings). Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above with the exception of recreational impacts given the nature of development.	Screen In – Category L
Site SA29: 65 London Road	This policy is for the mixed use development of this site, comprising a care home with up to 81 bedrooms. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above with the exception of recreational impacts given the nature of development..	Screen In – Category L
Site SA30: Epsom General Hospital	This policy is for the mixed use development of this site, comprising approximately 305 units of older people's accommodation, 24 key worker units and a children's nursery.	Screen In – Category L

Policy number / name	Description of policy for each site allocation	Screening conclusion (Screening Category – Table 4.1) and recommendations
	Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	
Site SA31: Land at West Park Hospital (South)	This policy is for the residential led development of this site, comprising approximately 50 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA32: Land at West Park Hospital (North)	This policy is for the residential led mixed use development of this site, comprising approximately 150 new homes and a health hub. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA33: Land at Chantily Way	This policy is for the residential led development of this site, comprising approximately 30 new homes. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA34: Hook Road Arena	This policy is for the residential led mixed use development of this site, comprising approximately 100 new homes and the development of a new sports hub. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L
Site SA35: Land at Horton Farm	This policy is for the residential led mixed use development of this site, comprising approximately 1,250 new homes, 10 gypsy and traveller pitches, community building and health hub, and approximately 10ha of public open space. Development within the Plan area has the potential to cumulatively result a number of LSEs as listed for Policy SA1 above.	Screen In – Category L

Chapter 5 – Homes for all

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
Policy S5: Housing Mix and Type	This policy sets out requirements for development in terms of housing mix and type to be provided. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy S6: Affordable Housing	This policy sets out requirements for development in terms of affordable housing to be provided. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM1: Residential Space Standards	This policy sets out design requirements for development, including private outdoor space and accessibility requirements. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM2: Self and Custom Build Policy	This policy sets out requirements for the development of self and custom build plots. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy S7: Specialist Housing	This policy sets out requirements for specialist housing. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM3: Loss of Housing	This policy sets out circumstances where the loss of housing may be permitted. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy S8: Gypsies, Travellers and Travelling Showpeople	This policy sets out the land to be safeguarded for existing supply and where development proposals would be permitted and criteria that would be used to determine applications. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F

Chapter 6 – Economy

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
Policy S9: Economic Development	This policy sets out requirements to fulfil the sustainable economic growth of the borough. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy S10: Retail Hierarchy and Network	This policy sets out the retail hierarchy. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM4: Primary Shopping Areas and Retail Frontages	This policy identifies a Primary Shopping Area (PSA) where the Council considers retail uses should remain. It also identifies primary and secondary retail frontages with the PSA. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM5: Edge of Centre or Out of Centre Proposals	This policy sets out tests which will apply to protect trading performance across the Plan area. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM6: Neighbourhood Parades and Isolated Shops	This policy sets out circumstances in which development proposals will be considered in neighbourhood parades and at isolated shops. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM7: Employment Land	This policy designates Kiln Lane and Longmead Industrial Estates as areas for securing strategic employment sites. Development within the Plan area (from the Local Plan alone and the Local Plan in-combination with development in neighbouring local plan areas (see **Appendix A**)) has the potential to cumulatively result in the following LSEs: - Mole Gap to Reigate Escarpment SAC – air quality in-combination LSEs; - South West London Waterbodies SPA – water quantity in-combination LSEs; - South West London Waterbodies Ramsar – water quantity in-combination LSEs;	Screen In – Category L

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
	- Wimbledon Common SAC – water quantity in-combination LSEs.	
Policy DM8: Racehorse Training Zone	This policy sets out planning permission requirements for equestrian and horse racing facilities. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM9: Visitor Accommodation	This policy sets out criteria for visitor accommodation. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F

Chapter 7 – Built and Natural Environment

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
Policy S11: Design	This policy sets out design criteria for all development. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category B
Policy S12: Amenity Protection	This policy sets out to protect amenities for its future occupants and nearby properties. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
DM10: Building Emission Standards	This policy sets out requirements to meet buildings emissions standards such as embedding the Energy Hierarchy, achieving Net Zero Carbon for residential development and achieving a minimum of an 'Excellent' BREEAM standard or equivalent. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
DM11: Sustainable water use	This policy sets out the requirements for new homes to meet the water efficiency standard of a maximum of 110 litres per person per day for residential development. It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
DM12: Health Impact Assessments	This policy sets out the requirement to conduct a Health Impact Assessment for developments of 100 or more units. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy S12: Preserving identity of place with heritage	This policy sets out protections for the cultural, historic and architectural townscape character of the borough. It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
Policy S13: Preserving identity of place with heritage	This policy seeks to enhance the cultural, historic, architectural and townscape character and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
Policy DM13: Development Impacting Heritage Assets	This policy sets out protections for heritage assets and the historic environment. It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
Policy DM14: Shopfronts	This policy sets out the requirements for the design of new shopfronts. It is a policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM15: Green Belt	This policy sets out protections that only permit development in the greenbelt under specific circumstances. It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
Policy DM16: Landscape Character	This policy sets out requirements for the conservation of the landscape character of the borough. It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
Policy S14: Biodiversity and Geodiversity	This policy sets out protections and enhancements for biodiversity. It specifically notes that there will be no adverse effect on the integrity of international designated sites (which include Habitats sites). It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
Policy S15: Biodiversity Net Gain	This policy sets out the requirement to achieve at least 10% biodiversity net gain within new developments. It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
Policy DM17: Trees, Woodlands and Hedgerows	This policy sets out protections for trees, woodlands and hedgerows. It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D
Policy S16: Flood Risk and	This policy sets out requirements for management and reduction of flood risk and requirements for implementation of sustainable drainage systems (SuDS). It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1) and recommendations
Sustainable Drainage		
Policy DM18: Pollution and Contamination	This policy sets out requirements for identification and improvements in pollution (soil, contaminated land, water quality, air quality, noise and vibration and light). It is a plan-wide environmental protection policy and will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category D

Chapter 8 – Infrastructure

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1)
Policy S17: Infrastructure Delivery	This policy sets out requirements for development to contribute to infrastructure and information on scale, timings and delivery. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy S18: Green and Blue Infrastructure	This policy sets out requirements for development to protect and enhance green infrastructure. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM19: Open Space, Sport and Recreation	This policy ensures the range and quality of existing open space, sport and recreation provision is maintained and improved where needs are identified. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM20: Community and Cultural Facilities	This policy supports the safeguarding of existing community and cultural facilities and delivery of additional facilities to meet need. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F

Policy number / name	Description of policy	Screening conclusion (Screening Category – Table 4.1)
Policy DM21: Education Infrastructure	This policy sets out circumstances where development for intensification, enhancement and maximisation of use of education infrastructure will be supported. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy S19: Transport	This policy promotes the inclusion, facilities and connection to sustainable and active travel options in new development. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM22: Aerodrome Safeguarding	This policy ensures the design of development safeguards the aerodrome for Heathrow and Gatwick Airport which covers a large proportion of the borough. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F
Policy DM23: Digital Infrastructure and Communications	This policy provides assessment criteria and guidance regarding future telecommunications and utilities equipment for development. It will not lead to development or any change which may have an LSE on any European site.	Screen Out – Category F

Habitats Regulations Assessments

Sustainability Appraisals

Strategic Environmental Assessments

Landscape Character Assessments

Landscape and Visual Impact Assessments

Green Belt Reviews

Expert Witness

Ecological Impact Assessments

Habitat and Ecology Surveys

Biodiversity Net Gain

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