



**Land south of
Mortimers Lane,
Fair Oak**

**Shadow Habitats
Regulations
Assessment**

Prepared by:
**The Environmental Dimension
Partnership Ltd**

On behalf of:
Bloor Homes Limited

October 2025

Report Reference
edp7852_r018b

Document Control

DOCUMENT INFORMATION

Client	Bloor Homes Limited
Report Title	Shadow Habitats Regulations Assessment
Document Reference	edp7852_r018b

VERSION INFORMATION

	Author	Formatted	Peer Review	Proofed by/Date
018_DRAFT	MNe	FMi	IBo	-
018a	MNe	-	-	NHa 010525
018b	MNe	-	-	FMi 101025

DISCLAIMER TEXT

No part of this report may be copied or reproduced by any means without prior written permission from The Environmental Dimension Partnership Ltd. If you have received this report in error, please destroy all copies in your possession or control and notify The Environmental Dimension Partnership Ltd.

This report (including any enclosures and attachments) has been prepared for the exclusive use and benefit of the commissioning party and solely for the purpose for which it is provided. No other party may use, make use of or rely on the contents of the report.

We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report.

Opinions and information provided in the report are those of The Environmental Dimension Partnership Ltd using due skill, care and diligence in the preparation of the same and no explicit warranty is provided to their accuracy. It should be noted, and it is expressly stated that no independent verification of any of the documents or information supplied to The Environmental Dimension Partnership Ltd has been made.

Contents

Section 1 Introduction, Context, Purpose 4

Section 2 Methodology..... 7

Section 3 Baseline Information and Relevant European Sites..... 10

Section 4 Stage 1: Screening of Likely Significant Effects..... 18

Section 5 Stage 2: Appropriate Assessment 28

Section 6 HRA Stage 2: Overall Conclusion 34

APPENDICES

- Appendix EDP 1 Development Framework
- Appendix EDP 2 Vulnerabilities of European Sites
- Appendix EDP 3 Biodiversity Air Quality Screening Assessment, AQC (October 2024)

PLANS

Plan EDP 1: Relevant Designated Sites
(edp7852_d042 11 April 2025 JGr/MNe)

Section 1

Introduction, Context, Purpose

- 1.1 This Shadow Habitats Regulations Assessment (sHRA) has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of Bloor Homes Limited (hereafter referred to as 'the Applicant'). It details the HRA process in relation to Proposed Development at Land south of Mortimers Lane, Fair Oak (hereafter referred to as 'the Project') and considers the impacts of the Proposed Development on relevant European and internationally designated sites.
- 1.2 The Project site is agricultural land located immediately east of Fair Oak, within the administrative area of Eastleigh Borough Council (EBC), the local planning authority.
- 1.3 The Project site is not currently identified within the Local Plan Habitats Regulations Assessment (HRA)¹; however, the site formed part of the proposed allocation at 'land north and east of Fair Oak' in the submitted Eastleigh Local Plan (2016-2036)² under then Policy S5, as one of two strategic growth options³ to support the then proposed housing strategy for Eastleigh.
- 1.4 The site also is identified within the latest Settlement Gaps Background Paper⁴ which forms the evidence base for the Local Plan Review. The Project site forms part of Strategic Development Option A for the Issues and Options (SDO A - North East of Fair Oak), in the Eastleigh Local Plan Review Issues and Options Consultation Document (December 2024). The current Local Plan HRA does not take account of this option. However, the submission HRA for the Local Plan⁵ and Preliminary Screening Report⁶ for the Local Plan review has been undertaken, which includes the site as part of the broader SDO A option.
- 1.5 Consideration has been given for development to result in significant effects associated with the following impacts:
- Physical loss of/damage to European Sites;
 - Physical effects on functionally linked habitats (loss of supporting habitat);
 - Non-physical disturbance effects;
 - Air pollution effects;
 - Recreational pressure; and

¹ Urban Edge Environmental Consulting (2019). Habitats Regulations Assessment for the Eastleigh Borough Local Plan (Main Modifications)2016-2036: HRA Report for the Submission Plan. Report for Eastleigh Borough Council.

² <https://www.eastleigh.gov.uk/media/3484/final-local-plan-document-june-2018-print.pdf>.

³ <https://www.eastleigh.gov.uk/media/4142/sgo-001-part-1-sgo-paper.pdf>.

⁴ <https://www.eastleigh.gov.uk/media/15028/settlement-gaps-background-paper.pdf>.

⁵ Urban Edge Environmental Consulting (2021) HRA for the Eastleigh Borough Local Plan: Proposed Submission Stage.

⁶ <https://www.eastleigh.gov.uk/media/15017/hra-preliminary-screening-report.pdf>.

- Water quality/hydrology effects including nutrient enrichment, surface water and abstraction.

PURPOSE OF THIS REPORT

- 1.6 This sHRA aims to provide relevant technical information to enable competent authorities to discharge their functions under Regulations 7 (competent authorities) and 63 (requirement to carry out an Appropriate Assessment (AA)) of the *Conservation of Habitats and Species Regulations 2017* in relation to the Project.
- 1.7 Regulation 63 of the *Conservation of Habitats and Species Regulations 2017* (as amended) states that:
- “A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.”*
- 1.8 Regulation 63 (2) further states that: *“a person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable it to determine whether an appropriate assessment is required”*.
- 1.9 Regulation 63 (3) states that: *“the competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regards to any representations made by that body within such reasonable time as the authority specifies”*.
- 1.10 Regulation 63 (5) goes on to state that: *“in the light of the conclusions of the assessment, and subject to regulation 64, the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European Site or the European offshore marine site (as the case may be)”*.
- 1.11 Regulation 63 (6) concludes that: *“in considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given”*.
- 1.12 This sHRA considers the potential for Likely Significant Effects (LSEs) on European Sites to arise as a result of the Proposed Development at each stage of the HRA process. European Sites include Special Protection Areas (SPAs) classified under the European Commission Directive on the Conservation of Wild Birds and SACs designated under the *Conservation of Habitats and Species 2017* (as amended). This report will also consider sites designated under the Ramsar Convention on Wetlands of International Importance (1971, Ramsar Sites) as per UK Government Policy (set out in paragraph 194 of the *National Planning Policy Framework* (NPPF 2024)). This policy also brings candidate SACs (cSACs) and potential

SPAs (pSPAs) within the requirement for HRA. For ease of reference, all such designated sites will hereafter be referred to as 'European Sites'.

- 1.13 It is noted that s6(3) of the *European Union (EU) (Withdrawal) Act 2018* (as amended) requires retained EU law (such as the *Conservation of Habitats and Species Regulations 2017* (as amended)) to be interpreted in line with 'retained case law' which includes retained EU case law.
- 1.14 Details pertaining to the methodology and approach taken in preparing this sHRA are detailed in **Section 2**.

LOCATION AND CONTEXT

- 1.15 The Project is located at the east of the built-up area of Fair Oak, and currently comprises two pastured fields extending across 11.06 hectares (ha) (combined), which are divided and bounded by mature hedgerows, scattered trees, and post and wire fencing.
- 1.16 The Project is bound to the north by Mortimers Lane, beyond which lies the recently completed development known as 'Pembers Hill Park' (application reference: O/15/77190/7RM/18/83278). The outline and subsequent reserved matters application sought consent for the construction of 242 new homes comprising 1 and 2 bed apartments and 2, 3, 4, and 5 bed family sized homes ranging between 2 – 3 storeys, on the edge of Fair Oak.
- 1.17 To the west, the Project abuts residential development known as 'Knowle Lane' (application reference: O/13/72490/R/15/77751) for 73 new homes and south-west at 'East Knowle' (F/17/80640/RM/18/83737) for 34 new 2, 3 and 4 bed homes. These developments extend the built-up edge of Fair Oak further east and up to the boundary of the Project.
- 1.18 The land adjacent to the south-west corner of the site was granted planning permission for the development of five general industrial buildings (Use Class B2) in July 2023 (reference: F/20/87889) and is largely completed.
- 1.19 East Horton Golf Club abuts the east of the site and has been sculpted, heavily managed, and with landscaping maintained in accordance with its current use.

PROJECT SUMMARY

- 1.20 This document forms part of an outline planning application (OPA) for the Project, with all matters reserved barring principal access. The Project has a tested provision of up to 245 new residential homes, multi-functional space, including a mobility hub, and swathes of public open space and additional landscape planting. Details of the Project are provided in **Appendix EDP 1**.

Section 2 Methodology

GUIDANCE AND COMMON STANDARDS FOLLOWED

2.1 This assessment has been undertaken with reference to established guidance, as follows:

- Guidance set out by Natural England⁷;
- The outcome of the 'People Over Wind' case⁸;
- Natural England's Operational Standard for HRA⁹;
- Guidance for Ecological Impact Assessment published by the Chartered Institute of Ecology and Environmental Management^{10,11}; and
- The DTA handbook¹².

ASSESSMENT PROCESS

2.2 European Sites considered within this sHRA are detailed within **Section 3** of this report. Each Habitats Site within the Project's Zone of Influence (Zol) will be considered sequentially through up to four stages, as follows.

2.3 The HRA process follows four sequential stages, with guidance having been published to aid competent authorities to fulfil their responsibilities:

- Stage 1: Screening of Likely Significant Effects;
- Stage 2: Appropriate Assessment;
- Stage 3: Alternative Solutions; and
- Stage 4: Interests of Overriding Public Interest and Compensatory Measures.

Stage 1: Habitat Screening

2.4 This stage considers the possibility for LSE to occur based on a high-level analysis of risks, taking into account the spatial relationship between impact sources and designated sites (and functionally linked habitats and species), the magnitude of changes predicted with

⁷Appropriate Assessment - GOV.UK accessed 30.01.25.

⁸ CJEU, 12 April 2018. *People Over Wind and Sweetman v Coillte Teoranta* (C-323/17).

⁹ Natural England Standard: HRA Habitats Regulations Assessment (HRA) (NESTND026) V1.4. April 2019.

¹⁰ CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.

¹¹ CIEEM (2010). Guidelines for Ecological Impact Assessment in Britain and Ireland: Marine and Coastal. Chartered Institute of Ecology and Environmental Management, Winchester.

¹² Tyldesley, D., and Chapman C., (2013). The Habitats Regulations Assessment Handbook, DTA Publications Ltd. Accessed 10.02.2025.

regard to atmospheric and hydrological receptor pathways (with reference to relevant evidence), and any physical or other relationships between the Project and each Habitats Site. Stage 1 screening for LSE considers the project both alone and in-combination with other projects.

- 2.5 If it can be confidently predicted, on the basis of objective information, that no LSE are identified for all the European Sites considered, then HRA stages 2-4 are not required, and the report would take the form of a screening assessment.
- 2.6 The April 2018 judgment of *'People over Wind and Sweetman'* ruled that mitigation measures intended to avoid or reduce the harmful effects of the plan or project on a European Site could not be considered at the Stage 1 screening stage. Therefore, in this SHRA report, such measures will only be taken into account as part of Stage 2: Appropriate Assessment.

Stage 2: Appropriate Assessment

- 2.7 Those LSEs screened in will then be subject to progression to Stage 2: Appropriate Assessment. Under the *Habitats Regulations*, the competent authority is required to carry out an Appropriate Assessment if there are deemed to be LSEs on European Sites when considered alone or in-combination with other projects, and where those LSEs arise from a plan or project not directly connected with, or necessary to the management of, that site or sites.
- 2.8 If Stage 1 identifies LSE upon a Habitats Site, an assessment of the effects of the Project upon the site(s)'s conservation objectives/interest features is carried out either from the project alone or in-combination with other plans or projects, which cannot be discounted. Conservation objectives for European Sites are defined and published by Natural England and assessments will refer to relevant objectives as necessary. The assessment will include sufficient information to enable an Appropriate Assessment to be undertaken by the competent authority and will detail mitigation designed to reduce or eliminate identified LSE upon those European Sites screened into the assessment. LSE screened in are set out and assessed against proposed mitigation measures outlined in **Section 5** and residual effects identified where applicable.
- 2.9 HRA Stages 3 and 4 will be required if Stage 2 concludes that the Project adversely affects the integrity of European Site(s), or when adverse effects on integrity cannot be ruled out based on the evidence available, either from the project alone or in-combination with other plans or projects, which cannot be discounted.

Stage 3: Consideration of Alternative Solutions

- 2.10 Stage 3 requires the consideration of alternatives, which may include locating the Project at an alternative location or changes to the design to eliminate residual LSE, or not constructing the Project at all.

Stage 4: Imperative Reasons of Overriding Public Interest

- 2.11 Stage 4 is engaged where measures to avoid LSE are not possible/viable, to assess whether the Project is justified by Imperative Reasons of Overriding Public Interest (IROPI). If the competent authority is satisfied that the Project must be carried out for IROPI, it may still be carried out.

Stage 5: Compensatory Measures

- 2.12 After progression through Stages 1-4, the HRA must include an assessment of the Project against any proposed compensatory measures.
- 2.13 In this case, owing to the nature of potential LSE identified, and that proposed mitigation is deemed to successfully negate any effects, it was deemed not necessary to take the assessment of the Proposed Development to Stage 3 or Stage 4.
- 2.14 Further details pertaining to the methodology and approach taken with regards to Stage 1 and Stage 2 are provided below, with details relating to European Sites considered within this sHRA provided in **Section 3**.

Section 3

Baseline Information and Relevant European Sites

DEFINING MAXIMUM ZONES OF INFLUENCE FOR EFFECTS ARISING FROM THE PROJECT

3.1 A distance of 15km has been used as a starting point to identify European Sites with potential to be affected by impacts relating to this Project. In addition, consideration has been given to each potential impact pathway arising from the Project to determine if assessment of a wider Zol is necessary. These pathways are listed below, and discussed in turn within this section:

- Physical loss of/damage to European Sites;
- Physical effects on functionally linked habitats (loss of supporting habitat);
- Non-physical disturbance effects;
- Air pollution effects;
- Recreational pressure; and
- Water quality/hydrology effects.

SITES CONSIDERED IN STAGE 1: SCREENING

3.2 Based on the potential maximum range at which identified effects have the potential to be significant, and taking account of the modelled outputs and assessments, the need to consider the potential for LSE has been identified for the following European Sites:

- The River Itchen Special Area of Conservation (SAC) is located 3.3km east;
- Solent and Southampton Water Special Protection Area (SPA) and Ramsar are located 6km south;
- Solent Maritime SAC is located 6km south;
- Emer Bog SAC is located 10.7km north-west; and
- Portsmouth Harbour SPA and Ramsar are located 14.6km south-east.

3.3 These European Sites are presented on **Plan EDP 1**.

3.4 The Solent SAC is made up of several component sites. Although falling inside the catchment map for The Solent¹³, both Portsmouth Harbour SPA/Ramsar and Chichester and Langstone Harbours SPA/Ramsar are not considered to be within the potential Zol of the Project, nor do they need to be detailed in this screening assessment. This is because

¹³ <https://publications.naturalengland.org.uk/publication/6522945605468160>.

of their geographical remoteness from the Project (more than 15km distant) as well as their hydrological remoteness e.g. they fall outside relevant hydrological catchments. Only the Solent European Sites associated with the Test and Itchen catchment, require further consideration and these are listed above.

- 3.5 A summary of the qualifying features of each designation being considered at the screening stage are set out below.

River Itchen SAC

- 3.6 The River Itchen is situated 3.3km east of the Project and is designated for the following reasons:

- The site qualifies under Article 4(4) of the *Habitats Directive* as it hosts Annex I habitat that is a primary reason for site selection: water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Brachion* vegetation (Habitat Code 3260); and
- The site qualifies under Article 4(4) of the *Habitats Directive* as it hosts the following species listed in Annex II:
 - Southern damselfly: Primary reason for site selection (Species Code 1044);
 - Bullhead: Primary reason for site selection (Species Code 1163);
 - White-clawed crayfish: Qualifying feature only (Species Code 1092);
 - Brook lamprey: Qualifying feature only (Species Code 1096);
 - Atlantic salmon: Qualifying feature only (Species Code 1106); and
 - Otter: Qualifying feature only (Species Code 1355).

- 3.7 The conservation objectives for this SAC are 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, by maintaining or restoring¹⁴;

- *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;*

¹⁴ European Site Conservation Objectives for River Itchen Special Area of Conservation Site Code: UK0012599. Available at: <https://publications.naturalengland.org.uk/publication/5130124110331904>.

- *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."*

Solent and Southampton Water SPA and Ramsar

- 3.8 The Solent and Southampton Water SPA and Ramsar is situated 6km to the south of the Project. The designated site comprises a series of estuaries and harbours with extensive mudflats and saltmarshes, as well as coastal habitats including saline lagoons, shingle beaches, reedbeds, damp woodland and grazing marsh. Mudflats have a rich invertebrate fauna that forms the food resource for estuarine birds.
- 3.9 The site is designated under Ramsar criterion 1 (*"A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region."*), criterion 2 (*"A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities."*), criterion 5 (*"A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds."*) and criterion 6 (*"A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird."*). The site has the following interest features:
- Criterion 1 – *"The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs";*
 - Criterion 2 – *"The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site";*
 - Criterion 5 – The site supports species with peak counts in winter of 51,343 waterfowl; and
 - Criterion 6 – The site supports species/populations occurring at levels of international importance over winter including:
 - Black-tailed godwit (2.6% of the population);
 - Dark-bellied brent goose (3.2% of the population); and
 - Eurasian teal (1.1% of the population).

3.10 It is designated as an SPA for the following reasons:

- Importance for breeding seabirds, including gulls and four species of terns (common tern (*Sterna hirundo*), little tern (*Sterna albifrons*), Mediterranean gull (*Larus melanocephalus*), roseate tern (*Sterna dougallii*) and sandwich tern (*Sterna sandvicensis*)); and
- Importance for overwintering seabirds with a large (at least 20,000) and diverse assemblage. Important overwintering species include black-tailed godwit (*Limosa limosa islandica*), dark-bellied brent goose (*Branta bernicla bernicla*), ringed plover (*Charadrius hiaticula*) and teal (*Anas crecca*).

3.11 The conservation objectives for this SPA are to:

“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 restoring¹⁵;

- *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.”*

Solent Maritime SAC

3.12 The Solent Maritime SAC is situated 6km south of the Project and is a composite site comprising separate areas of saltmarsh and including four coastal plain estuaries and four bar-built estuaries.

3.13 The site qualifies under Article 4(4) of the *Habitats Directive* as it hosts Annex I habitats that are a primary reason for site selection: Estuaries (Habitat Code 1130) with a unique hydrographic regime and complex marine and estuarine habitats including extensive estuarine flats, mudflats and rare sponges; Spartine swards (Habitat Code 1320) with the site being the only one to support smooth cord-grass (*Spartina alterniflora*) in the UK; and Atlantic salt meadows (Habitat Code 1130) with the site containing the second largest aggregation of this habitat in south and south-west England.

3.14 Annex I habitats which are not a primary reason for site selection include:

- Sandbanks which are slightly covered by sea water at all times (Habitat Code 1110);

¹⁵ European Site Conservation Objectives for Solent and Southampton water Special Protection Area Site Code: UK9011061. Available at: <https://publications.naturalengland.org.uk/publication/6567218288525312>.

- Mudflats and sandflats not covered by seawater at low tide (Habitat Code 1140);
- Coastal lagoons (Habitat Code 1150);
- Annual vegetation of drift lines (Habitat Code 1210);
- Perennial vegetation on stony banks (Habitat Code 1220);
- *Salicornia europaea* and other annuals colonising mud and sand (Habitat Code 1310); and
- Shifting dunes along the shoreline with *Ammophila arenaria* (Habitat Code 2120).

3.15 There is an Annex II species present as a qualifying feature, but this is not a primary reason for site selection:

- Desmoulin's whorl snail (*Vertigo moulinsiana*) (Species Code 1016).

3.16 The conservation objectives of this SAC are 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, by maintaining or restoring¹⁶;

- *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."*

Emer Bog SAC

3.17 The Emer Bog SAC is situated 10.7km north-west of the Project. The site qualifies under Article 4(4) of the *Habitats Directive* as it hosts Annex I habitat that is a primary reason for site selection: Transition Mires and Quaking Bogs (Habitat Code 7140).

¹⁶ European Site Conservation Objectives for Solent Maritime Area of Conservation Site Code: UK0030059.
<https://publications.naturalengland.org.uk/publication/5762436174970880>.

3.18 The conservation objectives for this site are 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, by maintaining or restoring¹⁷;

- *The extent and distribution of the qualifying natural habitat;*
- *The structure and function (including typical species) of the qualifying natural habitat; and,*
- *The supporting processes on which the qualifying natural habitat rely.”*

Portsmouth Harbour SPA and Ramsar

3.19 Portsmouth Harbour SPA and Ramsar are located 14.6km south-east of the site and consist of a large, industrialised estuary with one of the largest expanses of mudflats and tidal creeks on the south coast of Britain.

3.20 The site is designated under the following Ramsar Criterion:

- Criterion 3 – *“The intertidal mudflat areas possess extensive beds of eelgrass (*Zostera angustifolia* and *Zostera noltei*) which support the grazing dark-bellied brent geese populations. The mud-snail (*Hydrobia ulvae*) is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass (*Spartina anglica*) dominates large areas of the saltmarsh and there are also extensive areas of green algae (*Enteromorpha* spp.) and sea lettuce (*Ulva Lactuca*). More locally the saltmarsh is dominated by sea purslane (*Halimione portulacoides*) which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species”; and*
- Criterion 6 – The site supports wintering populations occurring at internationally important levels of dark-bellied Brent goose (2.1% of the GB population).

3.21 The site is designated as an SPA for regularly supporting overwintering populations of:

- Dark-bellied Brent goose (*Branta bernicla bernicla*) (0.5% of the GB population);
- Dunlin (*Calidris alpina*) (1% of the GB population);
- Black-tailed godwit (*Limosa limosa islandica*) (0.4% of the GB population); and
- Red-breasted merganser (*Mergus serrator*) (0.9% of the GB population).

¹⁷ European Site Conservation Objectives for Emer Bog Special Area of Conservation Site Code: UK0030147. Available at: <https://publications.naturalengland.org.uk/publication/4900551749795840>.

VULNERABILITIES OF EUROPEAN SITES

- 3.22 Throughout this assessment the relevant threats/pressures to which the SAC, SPA and Ramsar Sites are vulnerable have been considered. This information has been identified through Natural England's 'Site Improvement Plan' (SIP) for the relevant sites. The details of these threats/pressures for each Site are set out in **Appendix EDP 2**. The threats/pressures identified have been assessed based on the residential nature of the Project, and given the type and location of development, the Project will not require the modifying of management of any European Sites, nor are there considered to be potential risks of introducing invasive species, increasing fishing, pest control or climate change risks. Relevant threats/pressures to the European Sites have been identified to include public access and disturbance, water pollution, hydrological changes and air pollution.
- 3.23 It is recognised that the Project will not have any potential influence on some of these vulnerabilities. In addition, there may be other potential impact pathways from the Proposed Development which are not listed as a vulnerability on the relevant SIPs.

BASELINE INFORMATION

- 3.24 To inform the assessment of ecological impacts of the Project, an extensive suite of desk- and field-based investigation has been completed for the Project site. The methodology, results and conclusion of these investigations are presented within the Project Ecological Appraisal (report reference: edp8752_r011).
- 3.25 Pertinent data collated and surveys completed to inform this sHRA include:
- Desk studies undertaken in November 2022 and August 2024 with information obtained from Hampshire Biological Records Centre (HBIC) and the Multi-Agency Geographic Information for the Countryside (MAGIC) website;
 - Habitat surveys undertaken in November 2022 and June 2023, with condition assessments undertaken in August 2023;
 - Breeding bird surveys undertaken in 2023; and
 - A wintering bird survey undertaken in January 2023.
- 3.26 The key findings that are applicable to the HRA are summarised below:
- 3.27 The Project does not include or lie directly adjacent to any European Sites. However, there are several European Sites within the potential Zol of the Project.
- 3.28 The Project site does not support any of the qualifying habitats of the European Sites. Habitats across the Project consist largely of dry modified grassland, with boundary hedgerows and an occasionally wet ditch running along the southern boundary of the site.
- 3.29 The Project site does not support any of the species that are qualifying features of the European Sites. Breeding and wintering bird surveys did not identify any of the qualifying bird species of the Solent designated sites, and the habitats on-site are of limited suitability

to support the wintering and wading birds. Habitats on-site are also considered unsuitable to support the qualifying species of the River Itchen SAC, as assessed in detail below.

- 3.30 This sHRA has also been informed by the traffic modelling and Air Quality Assessment which assisted in identifying the appropriate ZOI and European Sites potentially affected by changes in air pollutants. These included European Sites within 200m of the affected road network in line with DMRB guidance,¹⁸ which states that beyond 200m of the affected road network, the contribution of vehicle emissions is not significant.
- 3.31 A review of the HRA undertaken for both the adopted Local Plan and the emerging Local Plan identified key pathways for impacts on designated sites, which, where relevant have been considered for the Project within this HRA. The HRA undertaken for the adopted Local Plan was amended in 2022⁵ as the Strategic Growth Options (SGO) were removed from the Local Plan. The original HRA¹ which was prepared for the Local Plan submission included the Strategic Growth Options, one of which covered the Project site. As part of the amended Local Plan HRA, the SGOs were removed from consideration. Both the submission HRA and adopted main modifications of the HRA are considered further within the relevant screening in **Section 4**.

¹⁸ Highways England (2019). Design Manual for Roads and Bridges. LA 105.

Section 4

Stage 1: Screening of Likely Significant Effects

- 4.1 This Section considers the potential for LSEs to occur on the European Sites identified in **Section 3**, as a result of the implementation of the Proposed Development. In accordance with best practice, this discussion is focused on the potential of the Project to impact upon the conservation objectives of these designations.
- 4.2 All potential effects discussed within this Section are considered in the absence of mitigation, as required in accordance with CJEU judgment C-323/17 in 2018 (*People Over Wind and Sweetman v. Coillte Teoranta*).

IMPACT PATHWAYS THAT HAVE THE POTENTIAL TO GIVE RISE TO EFFECTS WITHIN EUROPEAN/RAMSAR SITES

Physical Loss of/Damage to European Sites

- 4.3 The Project is not within or adjacent to any European Site, therefore has no potential to directly damage habitats within them. The intervening distance between the Project and identified European or Ramsar Sites described negates the potential for any direct effects. Development will have no bearing on any identified pressures which relate to physical modification. As such, direct adverse effects to the named European Sites/Ramsar are consequently screened out as the Project will have no effect on any qualifying feature's conservation objectives.

Physical Effects on Functionally Linked Habitats (Loss of Supporting Habitat)

- 4.4 With reference to Natural England guidance set out in NECR207 and the Local Plan HRA, there is a need to consider 'functionally linked' populations where they have been identified beyond the boundaries of European Sites, in addition to populations of species occurring within the boundaries of the European Sites themselves.
- 4.5 Consideration for those European Sites with mobile qualifying species is required. The Zol defined in the WCC Local Plan HRA is 15km, and this same Zol is applied in this sHRA. Given the nature, size and location of the Project, there is no potential for LSEs to occur on mobile species supported by European Sites beyond this distance.
- 4.6 Relevant European Sites within the Zol include:
- River Itchen SAC;
 - Solent and Southampton Water SPA and Ramsar; and
 - Portsmouth Harbour SPA and Ramsar.
- 4.7 Emer Bog SAC and Solent Maritime SAC do not have any qualifying mobile species which could rely on functionally linked land (FLL) within the Project site, and as such LSEs due to FLL on these sites has been screened out from further assessment.

River Itchen SAC

- 4.8 The likelihood of the Project being functionally linked to the River Itchen SAC and supporting mobile species such as otter (*Lutra Lutra*), which is a qualifying feature at this SAC, is considered highly unlikely. While a small ditch runs along the southern boundary of the Project, the ditch was dry throughout the majority of the survey period, with only occasional low levels of water. As such, it was considered to be largely unsuitable for otter and they are presumed to be absent from the site. The ditch itself has connectivity to a tributary of the River Hamble and as such does not drain to the River Itchen. Given the lack of hydrological connectivity, the Project is not considered to provide functionally linked habitat for otter.
- 4.9 Southern blue damselfly (*Coenagrion mercuriale*) is also a qualifying feature of the SAC. The species is specialised in its habitat requirements, localised to shallow, well-vegetated, base-rich runnels and flushes¹⁹. Permanent, continuous water flow is also noted as an important feature of habitats supporting the species²⁰. Given the lack of hydrological connectivity to the River Itchen and habitat on-site, there no functional linkage to the SAC.
- 4.10 White-clawed crayfish (*Austropotamobius pallipes*) are also a qualifying feature of the River Itchen SAC and make use of freshwater habitats adjacent to the waterbodies they exist within. Given the nature of the ditches and the lack of connectivity to the River Itchen, the habitats within the Project could not be relied upon by any population of crayfish associated with the SAC.
- 4.11 Brook lamprey (*Lampetra planeri*) and bullhead (*Cottus gobio*), both additional qualifying features, are not migratory and rely solely on habitats within the SAC, and whilst Atlantic Salmon (*Salmo salar*) is migratory, again it relies solely on habitats that are within the designation boundaries. Given the lack of connectivity to the River Itchen and the drainage nature of the ditches, the habitats within the Project will not support the populations associated within the SAC.
- 4.12 Given the Project is not likely to provide functionally linked land for any of the qualifying species of the River Itchen, there is no potential for effects on FLL and as such, no pathway for LSEs on the SAC as a result. This pathway is therefore screened out from further assessment.

Solent and Southampton Water SPA and Ramsar

- 4.13 The likelihood of the Project being functionally linked to the Solent and Southampton Water SPA/Ramsar and supporting significant populations of breeding/over-wintering qualifying bird species is considered highly unlikely. The Project site consists largely of dry modified grassland, unsuitable to support the wading waterbird species of the SPA/Ramsar. This is supported within the Solent Waders and Brent Goose Strategy²¹ which does not identify any

¹⁹ JNCC (no date) 1044 Southern Damselfly *Coenagrion mercuriale*. Available: (<https://sac.jncc.gov.uk/species/S1044/#:~:text=The%20southern%20damselfly%20Coenagrion%20mercuriale%20has%20very%20specialised,chalk%20rivers.%20Most%20sites%20are%20on%20wet%20heath>). Accessed: 02.04.2025.

²⁰ Thompson DJ, Rouquette JR & Purse BV (2003). Ecology of the Southern Damselfly. Conserving Natura 2000 Rivers Ecology Series No. 8. English Nature, Peterborough.

²¹ Solent Waders and Brent Goose Steering Group (2020), Solent Waders and Brent Goose Strategy <https://hiwwt.maps.arcgis.com/apps/instant/minimalist/index.html?appid=f4bbd6fe517647cba8bf0f3b8cfb7c1b>.

core, primary or secondary support areas beyond 2km inland and does not include the site as supporting habitat.

- 4.14 Breeding and wintering bird surveys undertaken in 2023 also support this, as none of the qualifying species were identified during the survey visits.
- 4.15 Due to the distances involved and lack of suitable supporting habitat, the Project is not functionally linked to this designation. Full details of the Project's ecological baseline, including the breeding bird survey, can be found in the Ecological Appraisal (report reference: edp7852_r011). As such, LSEs on the Solent and Southampton Water Ramsar and SPA as a result of FLL effects are screened out from further consideration.

Portsmouth Harbour SPA and Ramsar

- 4.16 The Project site is considered highly unlikely to support the qualifying wintering bird species of the SPA and Ramsar. The Project site consists largely of dry modified grassland, unsuitable for the qualifying species. Portsmouth Harbour forms part of the wider Solent network covered by the Solent Waders and Brent Goose Strategy. The strategy does not identify any core, primary or secondary support areas beyond 2km inland and does not include the site as supporting habitat.
- 4.17 Breeding and wintering bird surveys undertaken in 2023 also support this, as none of the qualifying species were identified during the survey visits.
- 4.18 Due to the distances involved and lack of suitable supporting habitat, the Project is not functionally linked to this designation. Full details of the Project's ecological baseline, including the breeding bird survey, can be found in the Ecological Appraisal (report reference: edp8752_r011). As such, LSEs on the Solent and Southampton Water Ramsar and SPA as a result of FLL effects are screened out from further consideration.

Non-physical Disturbance Effects

- 4.19 During construction and operation, disturbance effects on qualifying species of the European Sites may occur as a result of increased noise, vibration or lighting. The River Itchen SAC, Solent and Southampton Water SPA and Ramsar and Portsmouth Harbour SPA and Ramsar have qualifying species identified to be sensitive to disturbance via these pathways. Emer Bog SAC and Solent Maritime SAC do not have qualifying species sensitive to noise, vibration or light disturbance and as such, are not considered further below.

River Itchen SAC

- 4.20 The most recent preliminary HRA⁶ undertaken for the Local Plan review identified a precautionary 100m screening zone for otter for potential noise and vibration effects, based on otter hearing thresholds and research into construction activity disturbance. This same threshold has been considered suitable here. Given that the Project is located over 3.3km from the SAC and does not lie within 100m of any watercourses with connectivity to the River Itchen, no LSEs on otter as a qualifying species are anticipated as a result of noise or vibration effects during construction or operation.

- 4.21 The Local Plan HRA and the most recent preliminary HRA undertaken for the Local Plan review also identified a potential screening distance of 70m for noise and vibration effects on Atlantic salmon, based on Environment Agency criteria for watercourse disturbance and research on piling operations. Given that the Project is located over 3.3km from the SAC and does not lie within 70m of any watercourses with connectivity to the River Itchen, no LSEs on Atlantic salmon as a qualifying species are anticipated as a result of noise or vibration effects during construction or operation.
- 4.22 White-clawed crayfish and southern damselfly are not considered to be sensitive to noise and vibration. However, as a precautionary approach, the larger 100m screening zone identified for otter has also been applied to both species.
- 4.23 As the Project is located outside of the identified screening ZoI identified above for noise and vibration disturbance, LSEs as a result of disturbance of the qualifying species are considered highly unlikely to occur and as such, are screened out from further assessment.
- 4.24 Of the qualifying species detailed above, otter is the only species considered likely to be sensitive to lighting disturbance. A screening zone for light impacts was not identified as part of the Local Plan HRA. Levels of light disturbance are highly dependent on the individual project lighting levels and local topography. However, given the Project is over 3.3km from the SAC and does not contain any FLL for otter (or any of the other qualifying species), it is considered highly unlikely that LSEs would occur as a result of the Project and lighting effects are screened out from further assessment.

Solent and Southampton Water SPA and Ramsar

- 4.25 Construction and operational noise, vibration or lighting effects during construction or operation may result in disturbance to the qualifying water birds for which the European Sites are designated. While disturbance distances vary based on species and type of disturbance, the Local Plan Review HRA references research which identified Brent goose and other wading bird species to generally respond to disturbance through changes in behaviour, or displacement from suitable habitats within 80-100m of the source of the disturbance. The HRA has used this distance as a screening zone, and for the purposes of this assessment 100m has been taken to be an acceptable distance to screen disturbance effects on these species.
- 4.26 The SPA/Ramsar is located over 6km south of the Project and as identified above, does not contain any supporting habitat or FLL for the qualifying bird species of the European Site. As the SPA/Ramsar does not sit within the identified 100m screening zone, no LSEs as a result of noise, vibration or lighting disturbance of qualifying species are anticipated, and this pathway is screened out from further assessment.

Portsmouth Harbour SPA and Ramsar

- 4.27 Construction and operational noise, vibration or lighting effects during construction or operation may result in disturbance to the qualifying water birds for which the European Sites are designated. While disturbance distances vary based on species and type of disturbance, the Local Plan Review HRA references research which identified Brent goose and other wading bird species to generally respond to disturbance through changes in behaviour, or displacement from suitable habitats within 80-100m of the source of the

disturbance. The HRA has used this distance as a screening zone, and for the purposes of this assessment 100m has been taken to be an acceptable distance to screen disturbance effects on these species.

- 4.28 The SPA/Ramsar is located over 14.6km south of the Project and as identified above, does not contain any supporting habitat or FLL for the qualifying bird species of the European Site. As the SPA/Ramsar does not sit within the identified 100m screening zone, no LSEs as a result of noise, vibration or lighting disturbance of qualifying species are anticipated and this pathway is screened out from further assessment.

Air Pollution Effects

- 4.29 The maximum Zol for air quality effects arising from the Project has been defined with reference to the Eastleigh Local Plan HRA^{1.5} and the Local Plan Review HRA⁶ and informed by the Air Quality Assessment (**Appendix EDP 3**) undertaken for the Project.
- 4.30 In line with relevant guidance from DMRB which states that beyond 200m of the affected road network, the contribution of vehicle emissions is not significant, and JNCC guidance²² on air quality thresholds, the below screening zones have been identified:
- Road impacts - within 200m of any road that experiences a 1000 Average Annual Daily Traffic (AADT) or more increase from the Project; and
 - Construction impacts - within 50m of the routes used by construction vehicles, up to 250m from site exits and within 250m of the site boundary.
- 4.31 There are no designated sites within 50m of the construction vehicle routes, up to 250m from site exits and within 250m of the site boundary. As such, LSEs as a result of construction stage impacts have been screened out for all European Sites.
- 4.32 The HRA undertaken for the Local Plan Review identified potential LSEs as a result of air pollution on the River Itchen SAC, the Solent Maritime SAC and the Solent and Southampton Water SPA and Ramsar.
- 4.33 JNCC guidance highlights that impacts on road traffic from development schemes should only take into account impacts within 10km of the Project unless it consists of a road infrastructure scheme. As the Project is for residential development, LSEs as a result of air quality impacts have been screened out for the following sites:
- Emer Bog SAC (10.7km from the Project); and
 - Portsmouth Harbour SPA and Ramsar (14.6km from the Project).
- 4.34 Whilst the Solent Maritime SAC and the Solent and Southampton Water SPA/Ramsar are located within 10km of the Project, the transport assessment for the Project has identified that the European Sites are not located within 200m of a road which experiences an increase of over 1000 AADT. Additional assessment based on in-combination traffic flows which are <1000 AADT do not require further assessment and consequently, air quality

²² Main Report: Guidance on Decision-making Thresholds for Air Pollution.

impacts of these which have the potential to be significant can be scoped out. Air quality effects are not carried forward to Appropriate Assessment for these European Sites.

- 4.35 As detailed within the Air Quality Assessment, the traffic modelling indicates that by 2029 with the completion of the Project in-combination with other plans and projects, the AADT on roads within 200m of the River Itchen SAC will increase by over 1000 AADT on the B3037 (west of Sandy Lane), the B3037 (east of Chickenhall Lane) and B3037 (west of Chickenhall Lane).
- 4.36 The Environment Agency has published guidance²³ which allows air quality impacts from development to be screened out as insignificant if they fall below set thresholds; a change of 1% of the critical levels and critical loads of air pollutants. Exceedance of these thresholds does not in itself lead to LSE but requires further assessment of the potential impacts.
- 4.37 Air quality modelling for the River Itchen SAC was undertaken considering the Project both alone and in-combination with other plans and known projects. When considering the Project alone the annual mean ammonia, NO_x and nitrogen deposition levels all remain below the 1% threshold. However, when considered in-combination, these thresholds are exceeded for all pollutants with a 5%, 6% and 7% increase for ammonia, NO_x and nitrogen deposition respectively.
- 4.38 Effects within 200m of the affected roads (B3037) have been modelled as part of the Air Quality Assessment to identify the worst-case emissions and deposition levels. In line with this assessment, an assessment of impacts on habitats within 200m of the road have been considered.
- 4.39 The qualifying habitat of the River Itchen is watercourse of plain to montane levels with *Ranunculus fluitans*. The River Itchen is currently in an unfavourable condition due to the phosphorous nutrient pressures, rather than nitrogen deposition pressures. Given the River Itchen is a freshwater system, phosphorus is the key limiting nutrient in the system, and nitrogen is already present in excess (as a result of agricultural practices). On that basis, the SAC itself is unlikely to be significantly impacted directly by nitrogen deposition as a result of increased traffic.
- 4.40 However, a qualifying feature of the SAC is the southern damselfly which can be sensitive to nitrogen deposition. Southern damselflies are dependent on shallow, well vegetated base-rich runnels and flushes or small side channels of chalk rivers. Suitable habitat for the species may be adversely affected by nitrogen deposition, leading to the fringe and emergent vegetation species used by the species for egg laying being overtaken by more coarse species typical of enriched habitats. The affected road crosses four channels of the River Itchen, and Units 92 and 93 of the associated River Itchen SSSI lie immediately south of the Road and include areas of rank fen and swamp, as well as ditches which may provide suitable habitat for southern damselfly. While surveys of this habitat have not been undertaken as part of this assessment, transect surveys undertaken as part of the Local Plan HRA, in the area close to the road, found southern damselfly to be present. As

²³ Environment Agency (2021a) Air emissions risk assessment for your environmental permit, <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit> edition, Available: <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>.

such, there is potential for LSEs due to deterioration of the species' supporting habitat, and this pathway has been taken forward to the Appropriate Assessment stage.

- 4.41 The River Itchen, located within 200m of the affected road network, provides suitable habitat to support freshwater (white-clawed) crayfish, otter, brook lamprey, Atlantic salmon and bullhead. However, these species are not vulnerable to atmospheric increases in air pollutants, and impacts on these species and their supporting habitats were screened out as part of the Local Plan HRA, due to a lack of pathway for LSEs. In line with the Local Plan HRA approach, LSEs on these qualifying species have also been screened out for this Project.

Recreational Pressure

- 4.42 Eastleigh Borough Council has adopted the Bird Aware Solent Recreation Mitigation Strategy²⁴ which sets out the appropriate buffer zones within which residential development has the potential to result in recreational impacts to the Solent SAC, SPA and Ramsar network. The Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC and Portsmouth Harbour SPA and Ramsar are all considered to form part of the Solent Sites network. The majority of recreational pressures on the Solent Sites network have been identified to be from within this zone. Given that the Project is located outside of the 5.6km buffer of all of the Solent Sites, including both the Solent and South Hampton Water SPA and Ramsar, Solent Maritime SAC and Portsmouth Harbour SPA and Ramsar, no LSEs due to recreational pressure on these sites are anticipated, and this pathway has been screened out from further consideration.
- 4.43 The River Itchen SAC Site Improvement Plan²⁵ prepared by Natural England has not identified recreational pressure as a significant threat/pressure to the site. However, the Local Plan HRA identified a potential pathway for recreational impacts on the River Itchen SAC, as a result of trampling and erosion of riverbanks and marginal vegetation leading to increased siltation and plant nutrients in the watercourse, which may damage spawning habitat for the SAC qualifying fish species. In addition, otter are known to be sensitive to the presence of dogs. However, the HRA of the Local Plan identified that no LSEs on the River Itchen SAC are anticipated as a result of the Local Plan. While the Local Plan Review HRA found potential for LSEs from the closest strategic sites and local development sites to the River, given the distance of the SAC from the Project, no LSEs as a result of increased recreational pressure are anticipated. As such, this pathway is screened out from further assessment.
- 4.44 Emer Bog SAC identified public access and disturbance as a potential threat for the site. However, both the Local Plan HRA and the Local Plan Review HRA found that, given the distances from the allocated sites and the SAC, recreational and other impacts on the SAC were not considered likely. While no specific buffer zones for recreational impacts on Emer Bog SAC have been identified by Eastleigh Borough Council, in line with buffer zones for other designated sites and buffer zones adopted by adjacent councils for Emer Bog SAC²⁶, a 5-6km Zol is likely appropriate. Given the 10.7km distance of the Project from

²⁴ <https://www.eastleigh.gov.uk/media/12025/52-solent-recreation-mitigation-strategy.pdf>.

²⁵ <https://publications.naturalengland.org.uk/publication/5404054607888384>.

²⁶ South Downs Local Plan Regulation 18 HRA.

Emer Bog SAC, no recreational pressures on the European Site are considered likely. As such, no LSEs are anticipated, and this pathway has been screened out from further assessment.

Water Quality/Hydrology Effects

4.45 Water and hydrology related effects and the Zol considered comprise the following:

- Surface water pollution effects – direct runoff and pollution to watercourses within 500m of the boundary draining into European Sites;
- Hydrological effects - Increases of nitrogen and phosphorous load – from the connected Wastewater Treatment Works (WwTW) within catchment. The currently proposed WwTW (Chickenhall WwTW) connected to the Project is associated with the Test and Itchen Catchment, which is hydrologically connected to the Solent; and
- Hydrological effects from increases in abstraction from the River Itchen. Southern Water's Waste Resource Management Plan takes 1/3 of its water from groundwater and 2/3 from the River Test and River Itchen.

4.46 Relevant European Sites within the Zol include:

- River Itchen SAC;
- Solent and Southampton Water SPA and Ramsar;
- Solent Maritime SAC; and
- Portsmouth Harbour SPA and Ramsar.

4.47 Emer bog SAC, whilst hydrologically sensitive, is located 10.7km north-west of the Project. Given the lack of hydrological connectivity and the distance from the Project, there is no water quality/hydrology effect pathway for the SAC.

Nutrient Enrichment

4.48 The Project sits within the Test and Itchen catchment, in which the River Itchen SAC is located. A major chalk aquifer underlies the River Itchen, which flows into Southampton Water and the Solent. Effects on quality, particularly nutrient enrichment, require consideration in the HRA. Future housing developments could exacerbate the impact that eutrophication is having on marine ecology and associated protected habitats and species.

4.49 Despite the Project sitting outside the Test and Itchen Catchment, it will connect to Chickenhall WwTW which discharges into the Test and Itchen Catchment, which itself drains into the Solent. On that basis, operational effects arising from increased nutrient loading into the River Itchen SAC, Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC and Portsmouth Harbour SPA and Ramsar from nitrogen and phosphorous cannot be ruled out, and are brought forward to Appropriate Assessment.

Surface Water

- 4.50 No European Sites or supporting habitats fall within the Zol for predicted surface water runoff effects as a result of the Project.
- 4.51 The ditch which runs along the southern edge of the Project site is largely dry, and when wet has connectivity to a tributary of the River Hamble. While the River Hamble drains into the Solent Sites, given the distance from the Solent (over 6km) and the very limited hydrological connectivity, surface runoff during construction into connecting watercourses leading to LSEs on the European Sites is considered very unlikely. However, as a precaution, this effect is considered further at Appropriate Assessment stage for the Solent Sites.

Abstraction

- 4.52 The Local Plan, following advice from Southern Water, will ensure that all Source Protection Zones (SPZ's) are protected through existing mitigation measures²⁷. These measures will ensure that there are no adverse effects on the River Itchen SAC, which is an abstraction source.
- 4.53 Increased abstraction, to facilitate the Project (construction and operational phases) is not considered to cause a potential effect on the River Itchen SAC. The River Itchen is subject to strict control via abstraction licences which are designed to be sustainable and protect the River Itchen SAC²⁸. Conditions imposed to abstraction licenses ensure that if any river/aquifer drops below what is required to protect the environment, abstraction must cease. Therefore, it is concluded that any abstraction related to the Project could not affect the integrity of qualifying features in the SAC and therefore, this hydrological effect does not need to be considered for the River Itchen SAC and will not be brought forward to Appropriate Assessment.
- 4.54 Abstraction from the other named European Sites is not anticipated because of the Project and therefore the Solent and Southampton Water SPA/Ramsar, Solent Maritime SAC, Portsmouth Harbour SPA/Ramsar and Emer Bog SAC can also be screened out from further consideration.

IN-COMBINATION REQUIREMENTS

- 4.55 No appreciable effects are anticipated from the Project on the Emer Bog SAC via any of the potential impact pathways described above. These European Sites do not require an in-combination assessment.
- 4.56 As LSE are predicted for the River Itchen SAC, Solent and Southampton Water SPA/Ramsar, Solent Maritime SAC and the Portsmouth Harbour SPA/Ramsar from the Project alone, these do not need to be assessed in-combination with other plans or projects at this stage either as any assessment is taken forward to Appropriate Assessment.

²⁷ Statement of Common Ground Between Winchester City Council and Southern Water (2024).

²⁸ Environment Agency (March 2019) Test and Itchen Abstraction Licensing Strategy Version 3.

4.57 Natural England's guidance on advising competent authorities states that²⁹:

"It is Natural England's view that care should be taken to avoid unnecessarily combining the insignificant effects of the subject plan or project with the effects of other plans or projects which can be considered significant in their own right. The latter should always be dealt with by its own individual HRA alone. In other words, it is only the appreciable effects of those other plans and projects that are not themselves significant alone which are added into an in-combination assessment with the subject proposal."

4.58 Therefore, as the Project has the potential to cause a significant (adverse) effect regarding water quality, namely nutrient enrichment, no in-combination assessment is required.

Summary of Sites taken to Appropriate Assessment

4.59 Based on the maximum range at which identified effects have the potential to be significant, taking account of the modelled outputs and assessments, the need to consider the potential for LSE has been identified for the following European Sites:

- River Itchen SAC (3.3km east) in relation to air quality and nutrient neutrality;
- Solent and Southampton Water SPA and Ramsar (6km south) in relation to air quality, water quality and nutrient neutrality;
- Solent Maritime SAC (6km south) in relation to air quality, water quality and nutrient neutrality; and
- Portsmouth Harbour SPA and Ramsar (14.6km south-east) in relation to air quality, water quality and nutrient neutrality.

4.60 It should be noted that no significant effects are considered to be likely in respect of European Sites in devolved administrations, or within other European Economic Area (EEA) states.

²⁹ Natural England Internal Guidance (June 2018). Approach to advising competent authorities on Road Traffic Emissions and HRAs V1.4 Final.

Section 5

Stage 2: Appropriate Assessment

- 5.1 The HRA screening assessment undertaken in **Section 4** concluded that as a precaution in the context of case law, LSE on the conservation objectives of the following European Sites cannot be completely discounted as a result of the Project with respect to air quality and nutrient neutrality. Accordingly, an assessment of these potential effects resulting from the Project alone and in-combination with other plans or projects is undertaken in this section.

AIR QUALITY

- 5.2 No adverse effects on European Sites are anticipated as a result of air quality during construction. In addition, for the Project alone, the 1% critical levels and loads for ammonia, NO_x and nitrogen deposition are not exceeded. However, as detailed within the Air Quality Assessment (**Appendix EDP 3**), the Project in-combination with future development is anticipated to lead to exceedances of the 1% thresholds of critical loads and critical levels for ammonia, NO_x and nitrogen deposition for the River Itchen, as a result of increased traffic levels during operation. The relevant qualifying features with potential for LSEs include:
- Southern damselfly.
- 5.3 The Proposed Development is located within the area formerly identified as a Strategic Growth Option (SGO) in the original draft of the Eastleigh Local Plan. This area was removed from the adopted Local Plan, which was finalised in April 2022. The HRA supporting the Local Plan included a detailed Air Quality Assessment, accounting for ~11,000 new dwellings and associated traffic across Eastleigh. This included both an 'in isolation' assessment (Local Plan alone) and an 'in-combination' assessment (with other plans and projects). The HRA found no adverse effects on the integrity of the River Itchen SAC from air quality, even when the SGOs were included.
- 5.4 A qualifying feature of the River Itchen SAC is the southern damselfly, which is sensitive to nitrogen deposition. Increased traffic can adversely affect the breeding habitats of this species. As such, the Local Plan HRA took a precautionary approach, undertaking dispersion modelling for NO_x, ammonia, and nutrient nitrogen, and used this to inform Appropriate Assessment.
- 5.5 There is a critical load for southern damselfly which is found in floodplain habitats, best described as rich fens rather than dwarf shrub heaths this species is typically associated with. Natural England accepted this conclusion within the Eastleigh Local Plan HRA and subsequently the effects of acid deposition on habitats used by southern damselfly are scoped out, as rich fens are not limited by acid deposition. Southern damselfly has a critical load for nutrient nitrogen of 15-30kgN/ha/year and is not considered to be sensitive to acid deposition.
- 5.6 The air quality modelling identified areas where nutrient nitrogen deposition was predicted to increase by more than 1% over the critical load of 15kgN/ha/year. In total, approximately

1,900m of supporting watercourses within the SAC and 850m outside the SAC were identified as potentially affected. However, the maximum increase in deposition was 1.33% (0.2kgN/ha/year), which the HRA described as 'not substantial'.

- 5.7 Importantly, the HRA concluded that this level of change, alongside prevailing habitat conditions, would not lead to an adverse effect on the integrity of the SAC or the southern damselfly population. Natural England accepted this conclusion, and the air quality pathways were considered to have been adequately assessed.
- 5.8 The assessment noted that ammonia exceedances were only predicted adjacent to the M27 and were not considered significant. It also concluded that the key impact pathway was via deposition of nutrient nitrogen, rather than direct NO_x exposure, given uncertainties around NO_x impacts on aquatic and semi-aquatic vegetation.
- 5.9 The Project site now proposed forms a small fraction (~7%) of the SGO area removed from the Local Plan. Since September 2022, only eight major planning applications (totalling around 250 residential units) have been submitted in the area. This represents a small portion of the 3,350 dwellings once allocated to the SGO. Consequently, there remains significant headroom between what was assessed and what is now proposed.
- 5.10 During the Local Plan HRA, transect surveys for southern damselfly and their habitats were undertaken, including at Ashtrim Nursery - highlighted in the Project's air quality modelling as an area where critical thresholds are exceeded. Ashtrim Nursery is an important location for southern damselfly populations, but surveys found no evidence of nutrient enrichment or eutrophication related to road traffic.
- 5.11 The southern damselfly is primarily found in rich fen habitats along floodplains. These habitats obtain most of their nutrients from fluvial sources rather than atmospheric deposition. Studies in the River Itchen catchment found nitrate to be in excess, while phosphate was identified as the limiting nutrient.
- 5.12 The APIS database confirms that nutrient nitrogen is the key air pollutant of concern for southern damselfly habitat. Current nitrogen deposition at the SAC ranges from 13.3 to 15.7kg/ha/year, with a site average of 14.1kgN/ha/year. The in-combination modelling for the proposed Project predicts a nitrogen deposition of 22.65kgN/ha/year, which exceeds the lower range of the critical load for nutrient nitrogen (15–30kgN/ha/year) but remains below the upper threshold.
- 5.13 Nevertheless, the Local Plan HRA determined that the predicted changes in deposition would not lead to significant impacts, largely because nutrient inputs to southern damselfly habitats are dominated by catchment-derived sources, not air quality. Acid deposition was also scoped out, as rich fen habitats are not sensitive to acidity, and southern damselfly is not considered sensitive to acid deposition.
- 5.14 Given the conservative approach taken in the Local Plan HRA and the removal of the SGOs from the final plan, the effects of the current Project - being significantly smaller in scale - are considered to fall within the scope of the previous assessment. As such, an adverse effect on the integrity of the River Itchen SAC or its qualifying features is unlikely.

- 5.15 It is also noted that the Project site lies outside of the River Itchen hydrological catchment. Therefore, increased phosphate inputs to the SAC are not anticipated.

NUTRIENT NEUTRALITY

Nitrates

- 5.16 In line with the Natural England Advice on Achieving Nutrient Neutrality for New Development in The Solent Region and the requirements of Eastleigh Borough Council to demonstrate nutrient neutrality, the nutrient budget has been calculated using the Solent Nutrient Calculator for the Solent Area.
- 5.17 The calculator has been submitted separately (report reference: edp8752_r017), and a summary has been provided below in **Table EDP 5.1**.

Table EDP 5.1: Total Nitrate Budget Calculations

Total Nutrient Budget Calculations	
Description of Values Generated	Values Generated
Wastewater TN load (kg TN/year):	170.10
Net land use TN change (kg TN/year):	-105.98
TN budget:	64.12
Annual Nutrient Budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	64.12
Pre-2030 Nutrient Budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	465.24

- 5.18 Based on the Project delivering up to 245 units, this will generate approximately 64.12kg per year of additional nitrogen. The pre-2030 nutrient budget is 465.24.9kg TN/yr and represents the total amount of nutrient mitigation required before the changing permit date for Chickenhall WwTW.
- 5.19 For the purposes of these early indicative calculations, the calculations have been completed on the basis that 20% precautionary buffer is not required. It should be noted that this budget assumes full that occupancy by 2030 which is considered highly unlikely, and so these calculations are already considered highly precautionary. It is anticipated that the build out rate for the Project will be 30 units in the first year (2028), and then 60 units in subsequent years, with full occupation reasonably expected to be after 2030. In any event, detailed calculations will be required at the detailed design state, at which point the precise number of credits will be confirmed and secured.

- 5.20 Consultation with Eastleigh Borough Council has identified that nitrogen credits are available for purchase through the council 'nutrient offset scheme³⁰' and are specifically available for purchase within the Fair Oak area.
- 5.21 The Project detail also has the capacity to further reduce nutrient loading through Sustainable urban Drainage Systems (SuDS). At this stage however, the calculations do not consider SuDS measures. The capacity for the SuDS network to remove nutrients will be fully considered at the detailed design stage, once the drainage designs are defined.
- 5.22 As such, and subject to the proposed mitigation being secured, no LSE due to nitrogen enrichment of the Solent Sites including Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, and Portsmouth Harbour SPA and Ramsar are anticipated as a result of the Project.

Phosphates

- 5.23 The phosphate nutrient budget for the site has also been calculated using the 'Natural England River Itchen Special Area of Conservation (SAC): nutrient neutrality calculator' which is submitted alongside this assessment (report reference: edp7852_r024). **Table EDP 5.2** summarises the phosphate budget calculations.

Table EDP 5.2: Total Phosphate Budget Calculations

Total Nutrient Budget Calculations	
Description of Values Generated	Values Generated
Wastewater TP load (kg TP/year):	5.32
Net land use TN change (kg TP/year):	0.00
P budget (kg TP/year):	5.32
Annual Nutrient Budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	5.32
Pre-2030 Nutrient Budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	12.25

- 5.24 Based on the Project delivering up to 245 units, it will generate approximately 5.32 per year of additional phosphorus. The pre-2030 nutrient budget is 12.25kg TP/yr and represents the total amount of nutrient mitigation required before the changing permit date for Chickenhall WwTW. As the Project falls outside the River Itchen Catchment, land use has not been considered within these calculations.
- 5.25 Again, the proposals also have the capacity to further reduce nutrient loading through SuDS. At this stage however, the calculations do not consider SuDS measures. The capacity for the SuDS network to remove nutrients will be fully considered at the detailed design stage, once the drainage designs are defined.

³⁰ <https://www.eastleigh.gov.uk/business/developers-how-to-unlock-your-development>.

- 5.26 As with nitrates, the calculations have been completed on the basis that 20% precautionary buffer is not required at this stage. This indicative budget assumes full occupancy by 2030 which is considered highly unlikely, and so these calculations are already considered highly precautionary. It is anticipated that the build out rate for this Project will be 30 units in the first year (2028), and then 60 units in subsequent years, with full occupation reasonably expected to be after 2030. In any event, detailed calculations will be required at the detailed design state, at which point the precise number of credits will be confirmed and secured.
- 5.27 Natural England has previously raised concerns during consultation (reference: 511784, 21 May 2025) regarding the effectiveness of the Council's earlier phosphate offset strategy, particularly around the suitability and location of some proposed mitigation sites. Following further review, Natural England has acknowledged new evidence identifying mitigation land that drains to more appropriate parts of the catchment. This evidence supports an update to the Council's strategic nutrient strategy to reflect the true availability of credits. Alternatively, as per the Partnership for South Hampshire's Potential Nutrient Mitigation Schemes April 2025³² there are a number of other mitigation scheme sites upstream of Chickenhall WwTW which could be utilised to secure phosphate credits.
- 5.28 In any event, although the Council's nutrient scheme requires refinement, suitable and approved nutrient credit schemes are available locally to address phosphate impacts from development. Any such measures will be detailed within a Nutrient Mitigation Strategy which can be secured via condition and appropriate s106 or other legal agreement, such that no likely significant effects on Solent Sites or River Itchen SAC are anticipated. Additional assurance can be provided to the Competent Authority through the use of a Grampian-style planning condition, ensuring that occupation of the development cannot proceed until appropriate nutrient mitigation has been secured.
- 5.29 As such, and subject to the proposed mitigation being secured, no LSE on the River Itchen SAC are anticipated as a result of the Project in relation to increased phosphate loading.

WATER QUALITY

Effects During Construction

- 5.30 A Construction and Environmental Management Plan (CEMP) will be provided to include a range of measures to ensure impacts on off-site habitats and features are avoided, not least measures to ensure that any surface waters are appropriately dealt with during the construction phase. This will be sufficient to ensure that any potential adverse impacts may be fully avoided on the adjacent drain and connecting watercourses, to avoid downstream impacts on the Solent Marine Sites in terms of construction related pollution incidents. Whilst the underlying geology/soil conditions at the Project are permeable, meaning that the majority of water will soak into the soil and filter through the soil, any pollutants will be contained and extremely unlikely to enter the Solent Marine Sites, given the distance from the Project.

³² <https://www.push.gov.uk/work/mitigation-schemes-available-to-developers>

- 5.31 For the avoidance of doubt, measures secured by way of the CEMP would include the provision of spill kits to machine operators, use of interceptors/bunds where appropriate, and agreed safe storage protocols for any chemicals on-site. The CEMP will also secure a scheme for any disposal of contaminated waters (including runoff and contaminated drainage) that avoids potential adverse impacts arising.
- 5.32 The Project will incorporate SuDS which will control runoff from the Project for discharge via infiltration. As a minimum this is currently anticipated to include ponds, swales and SuDS such as infiltration basins throughout the site. The Project is also potentially suitable for the inclusion of additional SuDS including water butts; filter drains along access roads; tree pits along access roads; commercial, community and sports areas; and green roof provision. The infiltration basins will have a soil filter medium to ensure they are effective at removing most nutrients and are to be designed to be dry outside major rainfall events. As part of the SuDS strategy, infiltration basins will be created in advance of the relevant phase.
- 5.33 The SuDS strategy and CEMP will completely neutralise any adverse effects arising during construction and operation. Additional mitigation is not required to ensure no LSEs, and no adverse effects as a result of water quality impacts during construction or operation are anticipated on the River Itchen SAC, Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC or Portsmouth Harbour SPA and Ramsar.

Section 6

HRA Stage 2: Overall Conclusion

- 6.1 As detailed within this sHRA, a screening assessment of the effects of the Project on European Sites has been undertaken. The European Sites that have been considered are:
- The River Itchen SAC;
 - Solent and Southampton Water SPA and Ramsar;
 - Solent Maritime SAC;
 - Emer Bog SAC; and
 - Portsmouth Harbour SPA and Ramsar.
- 6.2 Given the distance from the Proposed Development to the European Sites and the lack of direct ecological pathways, the majority of impact pathways were screened out due to no LSEs from the Project alone. However, LSEs in the absence of mitigation were identified for a number of European Sites as a result of air pollution, nutrient pollution and water quality. As such, these pathways were taken forward to Appropriate Assessment.
- 6.3 Mitigation measures as set out in **Section 5** include both on-site mitigation measures and financial contributions to nutrient neutrality schemes endorsed by the LPA and Natural England. With the implementation of the mitigation measures, it is considered there would be no adverse effects alone or in-combination on the European Sites. These measures will be secured both via planning conditions and s106 agreements. As such, it can be concluded that there will be no adverse effects on the integrity of the European Sites as a result of the Project
- 6.4 The findings of this work are set out within this document such that the competent authority, in exercising their duties under the *Habitats Regulations*, has all the necessary information before them in considering the Proposals.

Appendix EDP 1 Development Framework



© Pegasus Planning Group Limited. © Crown copyright and database rights OS 100042083. Promap Licence number 100020449. EmapSite Licence number 0100031673. Terms & Conditions @ pegasusgroup.co.uk

KEY

- Site Boundary
- Gross Development Area: Including Residential, Mobility Hub, Multi-functional Space, Incidental Public Open Space, Play Facilities, Drainage Features, Landscaping & Ancillary Infrastructure.
- Strategic Public Open Space: Including Play Facilities, Drainage Features, Pedestrian/ Cycle Links, Landscaping, Retained Vegetation (inc. Root Protection Areas) & Ancillary Infrastructure.
- Access Infrastructure & Roads Through Open Space
- Vehicular, Pedestrian & Cycle Access Point.
- Potential Agricultural, Pedestrian & Cycle Access Point
- Potential Pedestrian & Cycle Access Point
- Potential Pedestrian Connections to Site Boundary

- Existing Trees & Hedgerows to be retained
- Root Protection Areas (for the retained trees & hedgerows)
- Existing Trees & Hedgerows to be removed
- New Site Boundary Planting
- Indicative Locations of Play
- Indicative Location of Mobility Hub & Multi-functional Space

Notes:
- All Features & Areas Subject to a tolerance of +/- 5m.
- Utility and/or access infrastructure may need to be located in POS areas.



LAND SOUTH OF MORTIMERS LANE, FAIR OAK – DEVELOPMENT FRAMEWORK

PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: TB | APPROVED BY P.M: TB | DATE: 28.03.25 | SCALE: 1:1250@A1 | DRWG: P23-2261_DE_007_01_D | CLIENT: BLOOR HOMES



Appendix EDP 2 Vulnerabilities of European Sites

A2.1 The vulnerabilities of the European Sites as identified on Natural England's Site Improvement Plans are detailed in **Table EDP A2.1** below.

Table EDP A2.1: European Site Vulnerabilities.

European Sites	Vulnerabilities
River Itchen SAC ³³	• Water pollution – pressure; • Physical modification – pressure; • Siltation – pressure; • Overgrazing – pressure; • Water abstraction – pressure; • Inappropriate weed control – pressure; • Hydrological changes – threat; • Inappropriate water levels – pressure; • Change in land management – threat; • Inappropriate cutting/mowing; pressure; • Invasive species – pressure; • Undergrazing – pressure; • Inappropriate ditch management – pressure; • Inappropriate scrub control – pressure; and • Forestry and woodland management – pressure.
Solent and Southampton Water SPA ³⁴	• Public access and disturbance - threat; • Coastal squeeze - threat; • Fisheries: commercial marine and estuarine - threat; • Water Pollution - threat; • Changes in species distributions - threat; • Climate change - threat; • Change to site conditions - threat; • Invasive species - threat; • Direct land take from development - threat; • Biological resource use - threat; • Change in land management - threat; • Inappropriate pest control - threat; • Air pollution: impact of atmospheric nitrogen - pressure; • Hydrological changes - threat; • Direct impact from 3rd party - threat; • Extraction: non-living resources - threat; and • Other - threat.

³³ <https://publications.naturalengland.org.uk/publication/5404054607888384>.

³⁴ <https://publications.naturalengland.org.uk/publication/4692013588938752>.

European Sites	Vulnerabilities
Solent and Southampton Water Ramsar ³⁵	No site improvement plan is available for the Ramsar, but the vulnerabilities identified for the SPA remain relevant for the Ramsar. The Information Sheet for the site identifies the following factors as adversely affecting the site's ecological character: • Erosion – on-site.
Solent Maritime SAC	• Public access and disturbance – threat; • Coastal squeeze – threat; • Fisheries: commercial marine and estuarine – threat; • Water Pollution – threat; • Changes in species distributions – threat; • Climate change – threat; • Change to site conditions – threat; • Invasive species – threat; • Direct land take from development – threat; • Biological resource use – threat; • Change in land management – threat; • Inappropriate pest control – threat; • Air pollution: impact of atmospheric nitrogen – pressure; • Hydrological changes – threat; • Direct impact from 3rd party – threat; • Extraction: non-living resources – threat; and • Other – threat.
Emer Bog SAC ³⁶	• Public access and disturbance – threat; • Hydrological changes – pressure/threat; and • Air pollution: impact of atmospheric nitrogen deposition – pressure.

³⁵ <https://rsis.ramsar.org/ris/965>.

³⁶ <https://publications.naturalengland.org.uk/publication/6367668705689600>.

European Sites	Vulnerabilities
Portsmouth Harbour SPA ³⁷	• Public access and disturbance – threat; • Coastal squeeze – threat; • Fisheries: commercial marine and estuarine – threat; • Water Pollution – threat; • Changes in species distributions – threat; • Climate change – threat; • Change to site conditions – threat; • Invasive species – threat; • Direct land take from development – threat; • Biological resource use – threat; • Change in land management – threat; • Inappropriate pest control – threat; • Air pollution: impact of atmospheric nitrogen – pressure; • Hydrological changes – threat; • Direct impact from 3rd party – threat; • Extraction: non-living resources – threat; and • Other – threat.
Portsmouth Harbour Ramsar ³⁸	No site improvement plan is available for the Ramsar, but the vulnerabilities identified for the SPA remain relevant for the Ramsar. The Information Sheet for the site identifies the following factors as adversely affecting the site's ecological character: • Eutrophication – on-site; • Unspecified development: urban use – on- and off-site; and • Coastal engineering, e.g. construction of sea defences for coastal protection – on-site.

³⁷ <https://publications.naturalengland.org.uk/publication/4692013588938752>

³⁸ <https://rsis.ramsar.org/ris/720>

Appendix EDP 3
Biodiversity Air Quality Screening Assessment, AQC (October 2024)

Report

Land South of Mortimers Lane, Fair Oak

Biodiversity Air Quality Screening Assessment

For Bloor Homes

25 October 2024

Document Control

Project Title:	Land South of Mortimers Lane, Fair Oak
Project Number:	J10/15952A/10
Client:	Bloor Homes
Principal Contact:	Rebecca Fenn-Tripp
Document Title:	Biodiversity Air Quality Screening Assessment
Document Number:	J10/15952A/10/2
Prepared By:	Frances Marshall
Reviewed By:	Penny Wilson

Revision History

01	25/10/2024	Draft for Client Review
-----------	------------	-------------------------



Logika Group is a trading name of Air Quality Consultants Limited (Companies House Registration No: 02814570), Noise Consultants Limited (Companies House Registration No: 10853764) and Logika Consultants Limited (Companies House Registration No: 12381912).

This document has been prepared based on the information provided by the client. Air Quality Consultants Ltd, Noise Consultants Ltd or Logika Consultants Ltd do not accept liability for any changes that may be required due to omissions in this information. Unless otherwise agreed, this document and all other Intellectual Property Rights remain the property of Air Quality Consultants Ltd, Noise Consultants Ltd and/or Logika Consultants Ltd. When issued in electronic format, Air Quality Consultants Ltd, Noise Consultants Ltd or Logika Consultants Ltd do not accept any responsibility for any unauthorised changes made by others.

The Logika Group all operate a formal Quality Management System, which is certified to ISO 9001:2015, and a formal Environmental Management System, certified to ISO 14001:2015.

When printed by any of the three companies, this report will be on Evolve Office, 100% Recycled paper.

Registered Office: 3rd Floor St Augustine's Court, 1 St. Augustine's Place Bristol BS1 4UD Tel: +44(0)117 974 1086

24 Greville Street, Farringdon, London, EC1N 8SS Tel: +44(0)20 3873 4780

First Floor, Patten House, Moulders Lane, Warrington WA1 2BA Tel: +44(0)1925 937 195

8-9 Ship St, Brighton and Hove, Brighton BN1 1AD Tel: +44(0)20 3873 4780

Avenue du Port, 86c Box 204, 1000 Bruxelles Tel: +44(0)20 3873 47840

Executive Summary

The air quality impacts associated with the proposed residential development on land south of Mortimers Lane in Eastleigh have been assessed. The proposals are to construct up to 245 residential dwellings, up to 350 m² multi-functional space and mobility infrastructure.

The assessment has considered the impacts of road traffic generated by the proposed development on the River Itchen Special Area of Conservation and considers the changes in pollutant concentrations and fluxes in the context of published screening criteria.

When considered in isolation, the assessment demonstrates that the change in pollutant concentrations and fluxes are below screening criteria, and thus the impacts can be discounted as 'not significant'. The in-combination changes in pollutant concentrations and fluxes are, however, greater than the screening criteria.

This report should be read in conjunction with the air quality assessment for human health effects and the Shadow Habitats Regulation Assessment prepared by the Project Ecologist.

Contents

1	Introduction	1
2	Policy Context	3
3	Critical Levels and Critical Loads	7
4	Relevant Guidance	8
5	Assessment Approach	14
6	Background Information and Context	18
7	Impact Assessment	20
8	Summary	22
9	References	23
10	Glossary	26
11	Appendices	28
A1	Professional Experience	29
A2	Relevant Case Law	30
A3	Data from (Caporn et al., 2016) Cited by National Highways	33
A4	Modelling Methodology	34

Tables

Table 1: Vegetation and Ecosystem CL _{es} (µg/m ³) ^a	7
Table 2: Vegetation and Ecosystem CL _{os}	7
Table 3: Environment Agency Screening Criteria (% of CL _e or CL _o)	8
Table 4: Site-Relevant and Decision-Making Thresholds for Application to Individual Plans and Projects (AQC, 2021)	13
Table 5: Guidance on Defining Development Density for On-site Emissions (AQC, 2021)	13
Table 6: Summary of Annual Mean Nitrogen Dioxide Monitoring (µg/m ³) ^a	18
Table 7: Estimated Annual Mean Background Pollutant Concentrations (µg/m ³) and Fluxes (kgN/ha/yr) in 2023 and 2029	19
Table 8: Air Quality Conditions at Worst-case Locations in the River Itchen SAC	20
Table 9: Summary of Worst-case Changes to Air Quality Conditions at River Itchen SAC	21
Table A3-1: Values from Table 21 of Caporn et al (2016) Relied on in National Highways' Assessment Method	33
Table A4-1: Summary of Traffic Data for Roads within 200 m of the River Itchen SAC	34
Table A4-2: Deposition Velocities Used in This Assessment	36

Figures

Figure 1: Application Site Relative to the River Itchen SAC	1
Figure 2: Transect Locations	14
Figure 3: Monitoring Locations	18
Figure A4-1: Modelled Road Network & Speed	35
Figure A4-2: Wind Rose	35

1 Introduction

- 1.1 This report describes a screening assessment for air quality effects on biodiversity associated with the operation of the proposed residential development on land south of Mortimers Lane in Eastleigh. It accompanies the report prepared by Air Quality Consultants (AQC) which describes the air quality effects on human health (2024). The proposed development is described as:

“Outline application for up to 245 dwellings (Use Class C3), up to 350sqm multi-functional space, mobility infrastructure (Use Class Sui Generis), with associated open space, landscaping, infrastructure, and vehicular access off Mortimers Lane, Fair Oak; All matters reserved except for vehicular access off Mortimers Lane and pedestrian / cycle connections to the site boundary)”.

- 1.2 The designated habitat of concern relevant to this assessment is the River Itchen Special Area of Conservation (SAC). At its closest point, the River Itchen SAC is approximately 3.3 km west of the proposed development; the location of the SAC relative to the application site is shown in Figure 1.

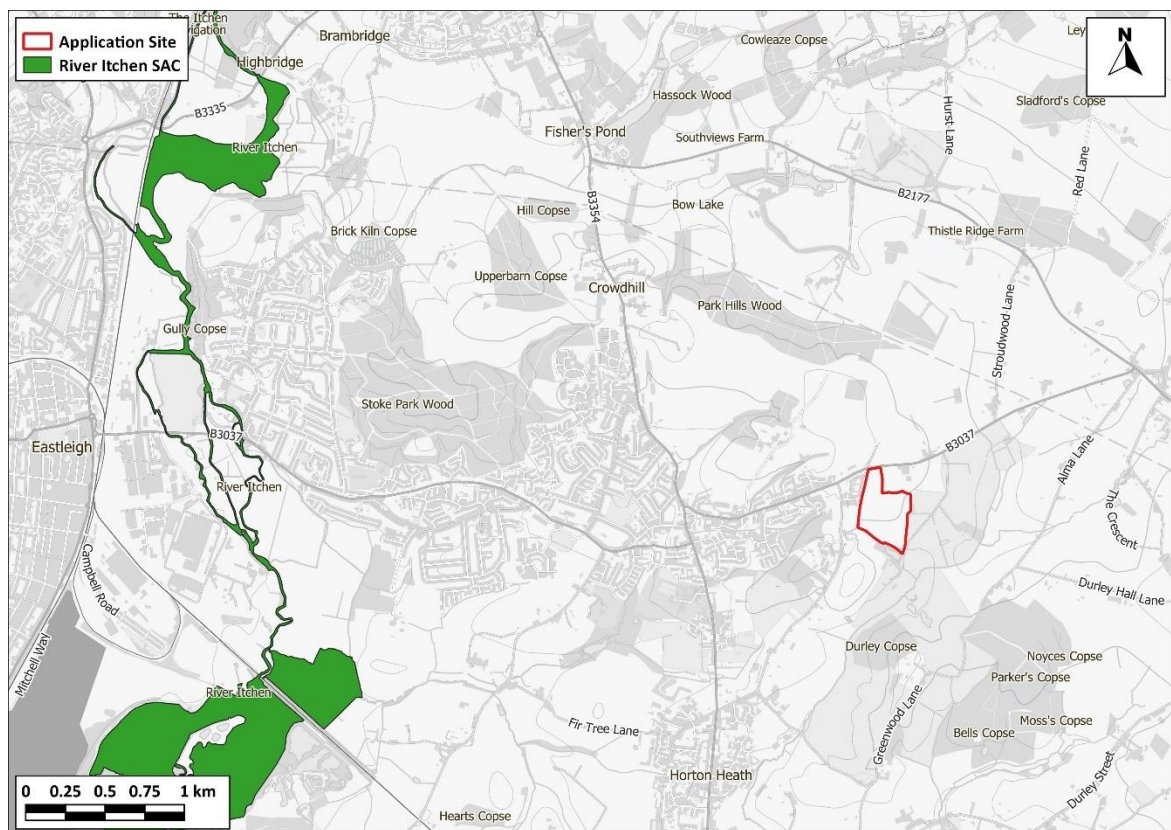


Figure 1: Application Site Relative to the River Itchen SAC

Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v3.0.

- 1.3 With respect to notified features, the SAC is designated for its 'water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation' habitat, which supports a number of species, including white-clawed crayfish, Southern damselfly, bullhead, brook, river and sea lamprey, otter, Atlantic salmon and Desmoulin's whorl snail. Following discussions with the Project Ecologist (The Environmental Dimension Partnership Ltd (EDP)), the assessment has focussed on the potential impacts with respect to the Southern damselfly.

- 1.4 The proposed development will lead to changes in traffic flows on roads which pass within 200 m of the SAC. Road traffic can emit nitrogen oxides (NO_x) and ammonia (NH₃), and some sensitive vegetation may be affected by elevated concentrations of these pollutants. Furthermore, the deposition of both NO_x and ammonia can alter the nutrient balance of some ecosystems, causing changes to their composition and health. This assessment has quantified the changes to NO_x and ammonia concentrations that would be caused by the proposed development, as well as the changes to nitrogen deposition fluxes. It is understood that the River Itchen SAC is not sensitive to changes in acid deposition fluxes, thus these are not considered further.
- 1.5 In this report, the term 'impact' refers to a change to concentrations or deposition fluxes, while the term 'effect' refers to the consequence of that change. Because this is a screening report, the approach has been to consider changes to air quality and deposition in the context of *potential* effects on ecosystem health. This has relied on published and commonly accepted screening criteria which make worst-case assumptions regarding the sensitivity of any given habitat to air pollution effects. This assessment does not extend to defining the specific sensitivity of the habitats in practice, which has been completed by the Project Ecologist in the accompanying Shadow Habitats Regulation Assessment.
- 1.6 This report describes existing local air quality conditions (base year 2023), and the predicted air quality in the future assuming that the proposed development does, or does not, proceed. The assessment of traffic-related impacts focuses on 2029, which is the anticipated year of first occupation of any of the new homes.
- 1.7 This report has been prepared taking into account all relevant local and national guidance and regulations. The professional experience of the consultants involved in the assessment is summarised in Appendix A1.

2 Policy Context

- 2.1 Protection of nature conservation sites is provided by an array of different local, national, and international policies. This effectively provides different levels of protection to different types of sites, as outlined below.

European Sites

- 2.2 The Habitats Directive (European Council Directive 92/43/EEC, 1992) requires all European member states to introduce a range of measures for the protection of habitats and species. The Conservation of Habitats and Species Regulations (2017) ('the Habitats Regulations') transpose the Directive into UK law. Changes to the Habitats Regulations in 2021 (Defra, 2021) transferred functions from the European Commission to the appropriate UK authorities.
- 2.3 The following European sites are protected by the Habitats Regulations and any proposals that could affect them will require a Habitats Regulations Assessment ('HRA'):
- Special Areas of Conservation (SACs), which are designated because of their importance for specific habitats or species listed in the Directive;
 - Special Protection Areas (SPAs), which are designated for the protection of birds under the "Birds Directive" (Directive 2009/147/EC, 2009), implemented in UK law through the Conservation of Habitats and Species Regulations (2010);
 - Ramsar Sites. Originally intended to protect waterfowl habitat, the Ramsar Convention has broadened its scope to cover all aspects of wetland conservation;
 - proposed SACs and SPAs (often termed cSAC and cSPA); and
 - areas secured as sites compensating for damage to a European Site.
- 2.4 In practice, it is not uncommon for the same area of land to be covered by more than one designation.
- 2.5 The Habitats Regulations, require competent authorities (in this case Eastleigh Borough Council) to only allow new projects (e.g. individual developments seeking planning permission) or plans (e.g. local plans) having first ascertained that they will not adversely affect the integrity of a European site either alone or 'in-combination' with other projects and plans.
- 2.6 HRA refers to the process of assessment required under the Regulations, which is commonly described as four distinct stages (e.g. the Planning Inspectorate (2017)):
- Stage 1 - screening;
 - Stage 2 - Appropriate Assessment ('AA'),
 - Stage 3 - assessment of alternatives, and
 - Stage 4 - assessment of Imperative Reasons of Overriding Public Interest ('IROPI').
- 2.7 Not all stages are required for most projects or plans. In particular, if the screening stage can show that the project will not have a Likely Significant Effect ('LSE') on the interest features either alone or in-combination with other plans and projects then an AA is not required. This report considers the screening stage only but also contains information which may be used in subsequent stages of the assessment where needed.

- 2.8 An effect is 'significant' if it undermines the conservation objectives. Before granting planning permission, decision makers must be satisfied that no reasonable scientific doubt remains as to the absence of adverse effects to site integrity.
- 2.9 Interpretation of the Habitats Regulations with respect to air quality impacts and effects has been shaped by judgements and opinions of European and UK courts, and a brief summary of some relevant case law is provided in Appendix A2. These Judgements and Opinions have highlighted the extent to which the Directive, and therefore Regulations, require a precautionary approach. However, the Courts have also recognised that there is no such thing as absolute certainty. This is particularly important with air quality modelling, which is always uncertain, with this uncertainty impossible to quantify precisely. Decision makers must identify reasonably foreseeable risks based on information that can readily be obtained. The courts have also established that, whilst a risk is sufficient to constrain development under the Habitats Regulations, there must be credible evidence that this risk is real, rather hypothetical (see Paragraph A2.3).
- 2.10 UK interpretation of the Habitats Regulations has also been shaped by guidance given by Natural England (NE) to local planning authorities and the Planning Inspectorate. A key area where this prior advice is important is the reliance which should be placed on forecast reductions in emissions from road traffic and other sectors over time. Measures which are expected to improve air quality in the future which are unrelated to a plan or project being determined are described as 'autonomous measures', and the forecast improvements resulting from these measures are termed 'autonomous reductions'. Paragraphs A2.9 to A2.14 in Appendix A2 explain that there are significant risks to local planning authorities if they do not adequately take account of the ability of autonomous reductions to offset and negate adverse changes caused by new plans and projects.

Planning Policy

National Policies

- 2.11 The National Planning Policy Framework (NPPF) (2023) sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, and that the planning system has three overarching objectives, one of which (Paragraph 8c) is an environmental objective:
- "to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".*
- 2.12 With respect to protecting biodiversity, the NPPF places a heavy reliance on the designation status of sites (for example if they are designated as a SSSI), explaining that planning policies and decisions should contribute to and enhance the natural environment by:
- "protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)" (Para 180).*
- Furthermore, "Plans should: distinguish between the hierarchy of international, national and locally designated sites" (Para 181).*
- 2.13 The NPPF provides specific guidance on determining planning applications with respect to protecting habitats and biodiversity, explaining that local planning authorities should apply the following principles:

a) "if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate" (Para 186).

2.14 In Paragraph 187, the NPPF explains that European sites, candidate or proposed European 2000 sites, and sites required as compensatory measures for effects on designated sites should be afforded the same planning protection as those with a statutory UK designation.

2.15 The NPPF is supported by Planning Practice Guidance (PPG) (Ministry of Housing, Communities & Local Government, 2019), which includes guiding principles on how planning can take account of the impacts of new development on air quality. Within the section on air quality, the PPG states that:

"Air quality considerations may ... be relevant to obligations and policies relating to the conservation of nationally and internationally important habitats and species".

"Where air quality is a relevant consideration the local planning authority may need to establish:

...whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity)".

2.16 The PPG sets out the information that may be required in an air quality assessment, making clear that:

"Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific".

Local Policies

2.17 Eastleigh Borough Council adopted its new Local Plan, which covers the period 2016-2036, in April 2022 (Eastleigh Borough Council, 2022). Policy DM11, 'Nature Conservation', states:

"...International Designations:

2. Development which is likely (either individually or in combination with other developments) to adversely affect the integrity of an international or European nature conservation site will not be permitted subject only to imperative reasons of overriding public interest and securing any necessary compensatory measures in the absence of alternative solutions. A 'project level' Habitat Regulations Assessment will be required where there are likely significant effects or uncertainty. Any mitigation measures required to ensure no adverse impact must be implemented at the appropriate time.

3. The Council will work with PFSH, Natural England, the Environment Agency and other wildlife organisations to develop and implement with developers a strategic approach to the protection and enhancement of international and European sites from the direct and indirect effects of development. Within Eastleigh Borough this will include:

a. implementing:

i. the Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and

ii. the interim and any future New Forest Recreation Mitigation Strategy if required; or alternative agreed site specific measures to address recreational disturbance;

b. preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent;

c. protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive); and

d. seek contributions towards measures set out in the Southern Damselfly Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain."

3 Critical Levels and Critical Loads

- 3.1 European Union (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 nitrogen oxides¹. The same value has been set as a domestic objective within the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations (2002). The limit value and objective 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.
- 3.2 Critical levels (CL_es) and critical loads (CL_os) are the ambient concentrations and deposition fluxes below which significant harmful effects to sensitive ecosystems are unlikely to occur. Some of the CL_es are set at the same concentrations as the objectives but do not have the same spatial constraints on where they apply. Exceedances of the CL_es and CL_os are considered in the context of preventing harm to sites which are protected under the various designation frameworks outlined in Section 2.
- 3.3 The CL_es relevant to this assessment are set out in Table 1. In discussion with the Project Ecologist, a CL_e of 3 µg/m³ for ammonia has been applied; this is consistent with the CL_e applied in Eastleigh Borough Council's Local Plan Habitats Regulation Assessment.

Table 1: Vegetation and Ecosystem CL_es (µg/m³)^a

Pollutant	Time Period	CL _e (µg/m ³)
Nitrogen Oxides (expressed as NO ₂)	Annual Mean ^{a,b}	30
Ammonia	Annual Mean	3

^a The CL_es are defined by the World Health Organisation (WHO, 2000).

^b Away from major sources (see Paragraph 3.1), this CL_e is set as an objective (Defra, 2007) and a limit value (The European Parliament and the Council of the European Union, 2008).

- 3.4 The CL_os are specific to different habitat types, and the CL_o which is most relevant to this assessment, and agreed with the Project Ecologist is provided in Table 2.
- 3.5 Southern damselfly is the only feature at the River Itchen on the Air Pollution Information Service (APIS) website with a CL_o; however, this is assigned to the broad habitat Dwarf Shrub Heath. Within the River Itchen, the Southern damselfly is found in a managed chalk-river floor plain, which is better described as the Rich Fens habitat. This approach is consistent with the Eastleigh, Fareham and Winchester Local Plan Habitat Regulation Assessments.

Table 2: Vegetation and Ecosystem CL_os

Habitat Type ^a	Nutrient Nitrogen (kgN/ha/yr) ^b
Rich Fens (D4.1) ^b	15

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

^b CL_o agreed with the Project Ecologist, EDP.

¹ There are also limit values set for sulphur dioxide, however these are not relevant to the proposed development as sulphur dioxide is not a pollutant of concern from road traffic.

4 Relevant Guidance

- 4.1 Different organisations have issued assessment guidance and screening criteria for different types of emissions source and different site designations. This has resulted in different levels of protection being provided with respect to effects of the same pollutants on the same sites. There is no single official guidance document which fully covers the impacts assessed in this report and so it is helpful to consider the protection provided with respect to different development types.

Environment Agency

- 4.2 The Environment Agency has published criteria which allow impacts from developments requiring environmental permits to be rapidly screened out as insignificant (Environment Agency, 2021a; 2021b). These are applied to the impacts from developments in isolation (i.e. not in combination with other plans or projects). Exceeding these criteria does not mean that there is an LSE, it simply means that further consideration is required of the potential changes to air quality or deposition. No further assessment is required if the changes caused by the proposed development (termed the Process Contributions 'PC' by the Environment Agency) are all less than the relevant criteria in Table 3.

Table 3: Environment Agency Screening Criteria (% of CL_e or CL_o)

Site Type	Averaging Period ^a	Impacts of Ammonia Emissions from Intensive Pig and Poultry Farms	Impacts from Other Emissions
European Sites	LT	4% to 20% ^b	1%
	ST	- ^c	10%
SSSIs	LT	20% to 50% ^b	1%
	ST	- ^c	10%
NNRs, LNRs, LWS, and AW	LT or ST	100%	100%

^a LT = Long Term (annual mean or 1-week mean), ST = Short-term (15-minute, 1-hour and 24-hour).

^b The upper thresholds apply where there are no other intensive farms which might affect the same receptors. Internally, the Environment Agency has begun requiring detailed modelling wherever the PC exceeds 4% of a CL_e or CL_o and the 20% criterion is not supported, but is still recommended in the Environment Agency's published guidance.

^c There is no short-term CL_e for ammonia and no short-term CL_o.

- 4.3 The Environment Agency (2021a) also notes that there is no need for further consideration of changes to concentrations or deposition fluxes if:
- the annual mean concentration or flux is less than 70% of the CL_e or CL_o; and
 - the short-term Process Contribution is less than 20% of the short-term CL_e minus twice the long-term background concentration.
- 4.4 These criteria have been widely applied to the results from detailed dispersion modelling but are principally intended by the Environment Agency to guide a decision as to whether detailed modelling is required, with changes below the criteria not requiring such modelling.

National Highways

- 4.5 National Highways (then Highways England) issued guidance on the assessment of air quality impacts caused by Highways England road schemes as part of its Design Manual for Roads and Bridges (DMRB). The current version of this guidance is LA 105 (Highways England, 2019). This states that the air quality impacts of each individual project should be scoped out from any further assessment where the changes caused by the project in isolation (i.e. not in combination with other plans or projects) do not meet any of the following criteria within 200 m of a designated site:
- Annual Average Daily Traffic (AADT) flow $\geq 1,000$; or
 - Heavy Duty Vehicle (HDV) AADT flow ≥ 200 ; or
 - a change in speed band; or
 - a change in carriageway alignment by $\geq 5\text{m}$.
- 4.6 As with the Environment Agency criteria, National Highways uses these values to define when a more detailed consideration of air quality impacts is required and not to define an LSE.
- 4.7 Where detailed air quality modelling has been carried out, guidance from National Highways is that there will be no significant effect wherever:
- the total nitrogen deposition is less than the relevant CL_0 ; OR
 - the change to nitrogen deposition caused by the proposed development (alone) is $< 1\%$ of the CL_0 .
- 4.8 Changes with respect to a CL_e are also considered to be not significant where one of the above criteria is met.
- 4.9 Where the potential for an LSE cannot be discounted using the above criteria, National Highways refers to Table 21 of Natural England Report 210 (Caporn et al., 2016), which is reproduced in Appendix A3 of this current report. This table estimates the increase to nitrogen deposition which would reduce species richness by one species. National Highways states that the effects will be not significant (i.e. no LSE) if the increases to nitrogen deposition caused by the project alone (i.e. not in combination with other projects or plans) are smaller than those in Appendix A3. This approach is described here in order to add context to the more robust approach which has been followed in the current assessment.

Natural England

- 4.10 Natural England's guidance on advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (Natural England, 2018) recommends the use of the DMRB criteria (see Paragraph 4.5) for changes to traffic caused by all types of plans or projects, and not just for highways schemes. In the same way, irrespective of their original derivation, Natural England (2018) adopts the 1% change criterion from the Environment Agency (Table 3) as a basis for screening out the need for more detailed assessment. It explains:

"the AADT thresholds and 1% of critical load/level are considered by Natural England's air quality specialists ... to be suitably precautionary, as any emissions below this level are ... considered to be imperceptible". It goes on: "There can therefore be a high degree of confidence in [the use of these criteria] to screen for risks of an effect".

- 4.11 Natural England (2018) further explains that the AADT criteria have *"been adopted here to simply help trigger when to look further where traffic projection data is the sole means of assessment – [triggering the criteria] does not immediately mean there will be an effect"*.
- 4.12 A key difference between how these criteria are applied by Natural England (2018) when compared with both National Highways and the Environment Agency is that Natural England suggests that they should be applied first to the change caused by each individual project and then to the changes caused by relevant plans and projects in combination with one another.
- 4.13 Natural England provides guidance on which plans and projects should be considered within an in combination assessment for European sites. It explains that this *"is restricted to plans and projects which are 'live' at the same time as the assessment being undertaken. These can potentially include:*
- *The incomplete or non-implemented parts of plans or projects that have already commenced;*
 - *Plans or projects given consent or given effect but not yet started;*
 - *Plans or projects currently subject to an application for consent or proposed to be given effect;*
 - *Projects that are the subject of an outstanding appeal;*
 - *Ongoing plans or projects that are the subject of regular review and renewal;*
 - *Any draft plans being prepared by any public body;*
 - *Any proposed plans or projects that are reasonably foreseeable and/or published for consultation prior to application."*
- 4.14 Natural England also explains that an exhaustive search for live plans or projects which could potentially fall within the scope of an 'in-combination' assessment is not necessary:
- "it is Natural England's view that staff in a competent authority can apply their professional judgment when considering this. It might be that a pragmatic approach to identifying the most pertinent ones may be required from the competent authority. It might be reasonable to initially limit a search to those plans and projects which are of most direct relevance to the subject plan or project under HRA (i.e. the likelihood of that plan or project's effects impacting upon the same site in-combination with the proposed plan or project). This may be those which are simply the closest to the site or within a certain distance from it, or the most influential in nature."*
- 4.15 Natural England also stresses that, at the screening stage, the competent authority must *"remember that the subject plan or project remains the focus of any in-combination assessment. Therefore, it is Natural England's view that care should be taken to avoid unnecessarily combining the insignificant effects of the subject plan or project with the effects of other plans or projects which can be considered significant in their own right... it is only the appreciable effects of those other plans and projects that are not themselves significant alone which are added into an in-combination assessment with the subject proposal."*

The Institute of Air Quality Management

- 4.16 The Institute of Air Quality Management (IAQM) issued a guide to the assessment of air quality impacts on designated nature conservation sites in 2019, which was then amended in 2020 (Holman et al, 2020). This summarises the other guidance referred to above, but does not definitively recommend any one complete assessment approach. The limited areas where the IAQM guidance adds to, or unambiguously supports, that contained within other guidance documents are:

- on traffic screening criteria:
 - if the DMRB criteria (Paragraph 4.5) are used, they should be applied to changes in traffic caused by the development alone as well as in combination with other projects and plans;
- on the Environment Agency screening criteria:
 - the Environment Agency criteria (Paragraph 4.2) are suitable for screening the need for further assessment from all types of emissions sources where detailed air quality modelling has been carried out and not just those requiring environmental permits. The criteria should, though, “be used in the context of an in-combination assessment”. The guidance also hints that the 100% criterion used by the Environment Agency for local site designations should not be used and that the 1% criterion should be used instead. The 100% criterion is not used in this assessment.
 - the 1% criterion should not be used rigidly, or with more precision than the modelling can justify (for example emphasising the difference between 0.9% and 1.1%);
 - that exceeding the 1% criterion is simply an indication that further investigation is needed and does not necessarily indicate an LSE;
- on defining in combination projects:
 - projects and plans to be considered include those that may have been approved but are, as yet, incomplete, the subject of an outstanding appeal, or ongoing review;
- on receptor siting:
 - it is recommended that the predictions are not made closer than 2 m from the edge of the road; and
- on designation types:
 - the IAQM document covers all site designation types and thus suggests that the same overall assessment method should be applied regardless of the designation.

Chartered Institute of Ecology and Environmental Management

4.17 The Chartered Institute of Ecology and Environmental Management (CIEEM) has published advice on the Ecological Assessment of Air Quality Impacts (CIEEM, 2021), which is intended for use by both ecologists and air quality specialists. This provides six steps to exploring potential effects:

- 1) identifying the baseline ecological features and air quality;
- 2) assessing confounding factors, background pollution trends, the relative importance of each sector, and the sensitivity of the receptor;
- 3) determining if the CL_{es} or CL_{os} are exceeded?
- 4) applying the CL_{es} and CL_{os} with expert judgement;
- 5) considering the project duration and seasonal effects; and
- 6) considering the relative importance of ambient concentrations versus deposition fluxes.

Joint Nature Conservation Committee

- 4.18 The Joint Nature Conservation Committee (JNCC) has published Decision-Making Thresholds (DMTs) and Site-Relevant Thresholds (SRTs) for air pollution (Chapman and Kite, 2021), which were developed for JNCC by AQC (AQC, 2021). The thresholds define changes caused by individual projects (i.e. not in combination with other projects and plans) which can be discounted as not significant without additional work. Where the appropriate thresholds are exceeded, then further assessment will be needed. The SRTs are for emissions from industry and agriculture and take account of the overall development pressure in an area. The DMT for road traffic takes account of the scale of each development within the context of overall traffic growth but is ultimately expressed as a proportion of the baseline traffic flow. The thresholds are set out in Table 4, with additional guidance on defining development density given in Table 5.
- 4.19 The JNCC guidance makes clear that an air quality assessment is only necessary if the effects of a project have not already been assessed. This is particularly relevant with respect to development sites which are allocated in strategic development plans which have themselves been considered through a HRA. For example, there is no need to consider impacts on a European site from a development site which is allocated within a Local Plan if those impacts have already been considered when developing that Plan. The guidance also makes clear that the study area for the assessment of impacts from road traffic should not extend more than 10 km from a plan boundary, and that impacts alongside the Strategic Road Network² only require consideration for road infrastructure schemes.
- 4.20 Where the DMT for road traffic in Table 4 is exceeded, a "road-relevant" approach may be taken based on the distance between the affected road and the nearest boundary of a designated site. The JNCC guidance recommends that professional judgement is used, taking account of the predicted reduction with distance away from the road, and a view as to whether other plans and projects are likely to cause a combined exceedance of the 1% criterion described in paragraph 4.10 (Chapman and Kite, 2021).
- 4.21 There are specific exceptions where the JNCC criteria should not be used. These are summarised as:
- 'clean' or 'pristine' sites (i.e. those with very low existing levels of air pollution) where there is reason to doubt the improving background trend;
 - sites with sensitive epiphytic or epilithic components that are, or form an important part of, a qualifying feature of the site and which are at or just below their CL_o or CL_e;
 - sites with sensitive epiphytic or epilithic components that are, or form an important part of, a qualifying feature of the site and which are at or just below their CL_o or CL_e;
 - sites with a highly localised and sensitive qualifying feature(s) that may coincide spatially with maxima of nitrogen deposition / ammonia concentrations from clusters of emission sources; and
 - situations where it may be inappropriate to rely on DMTs because the assumptions which underpin them do not reflect the particular circumstances which apply (Chapman and Kite, 2021).
- 4.22 The development of these criteria included widespread consultation with ecology specialists and UK nature conservation agencies, as well as extensive legal review. The criteria are thus considered appropriate for use in this assessment.

² [Our roads - Highways England](#), [Official list of trunk roads \(transport.gov.scot\)](#), [Welsh Government strategic road network map](#) | [Traffic Wales](#), [Link Corridors and Trunk Roads brochure](#) | [Department for Infrastructure \(infrastructure-ni.gov.uk\)](#).

Table 4: Site-Relevant and Decision-Making Thresholds for Application to Individual Plans and Projects (AQC, 2021)

Development Density	Very Low	Low	Medium	High
Site-Relevant Thresholds for On-site Emissions				
Annual Mean NH ₃ (lichens/bryophytes) (µg/m ³)	0.0075	0.0034	0.0020	0.00079
Annual Mean NH ₃ (higher plants) (µg/m ³)	0.022	0.010	0.0060	0.0024
Annual Mean NO _x (µg/m ³)	0.087	0.046	0.030	0.014
Annual Mean N dep (woodland) (kgN/ha/yr)	0.13	0.057	0.034	0.013
Annual Mean N dep (grassland) (kgN/ha/yr)	0.088	0.040	0.024	0.0093
Decision-Making Threshold for Road Traffic				
Increase in Traffic Flow	0.15% of AADT in the year that the assessment is carried out			

Table 5: Guidance on Defining Development Density for On-site Emissions (AQC, 2021)

Development Density	Very Low	Low	Medium	High
Description ^a	Remote area which sees very little development	Area which sees small amounts of development	Typical agriculture / industrial area	Area experiencing intensive growth (e.g. Powys or Immingham docks)
Example Number of additional new projects below the thresholds within 5 km of proposed development over 13 yrs ^a	1	5	10	30

^a These might be either industrial or agricultural projects, or both.

5 Assessment Approach

Study Area

- 5.1 The study area for the assessment has been determined in discussion with the Project Ecologist (EDP) and the Project Transport Consultant (Glanville Group).
- 5.2 Based on the available traffic data, the assessment focuses on Bishopstoke Road, which travels over the River Itchen SAC. The Transport Consultants have advised that this is the location within the SAC where the traffic generated by the proposed development will be greatest. Consideration has, therefore, been given to potential effects on the River Itchen SAC within 200 m of Bishopstoke Road. This is the distance used in guidance from National Highways (Highways England, 2019) and Natural England (2018).

Receptors

- 5.3 Impacts have been predicted at transects of receptors within the River Itchen SAC running perpendicular to Bishopstoke Road³. Following guidance from the IAQM (Paragraph 4.16), impacts have not been predicted within 2 m of roads. These transects of receptors, which extend to 200 m from the road edge are shown in Figure 2.

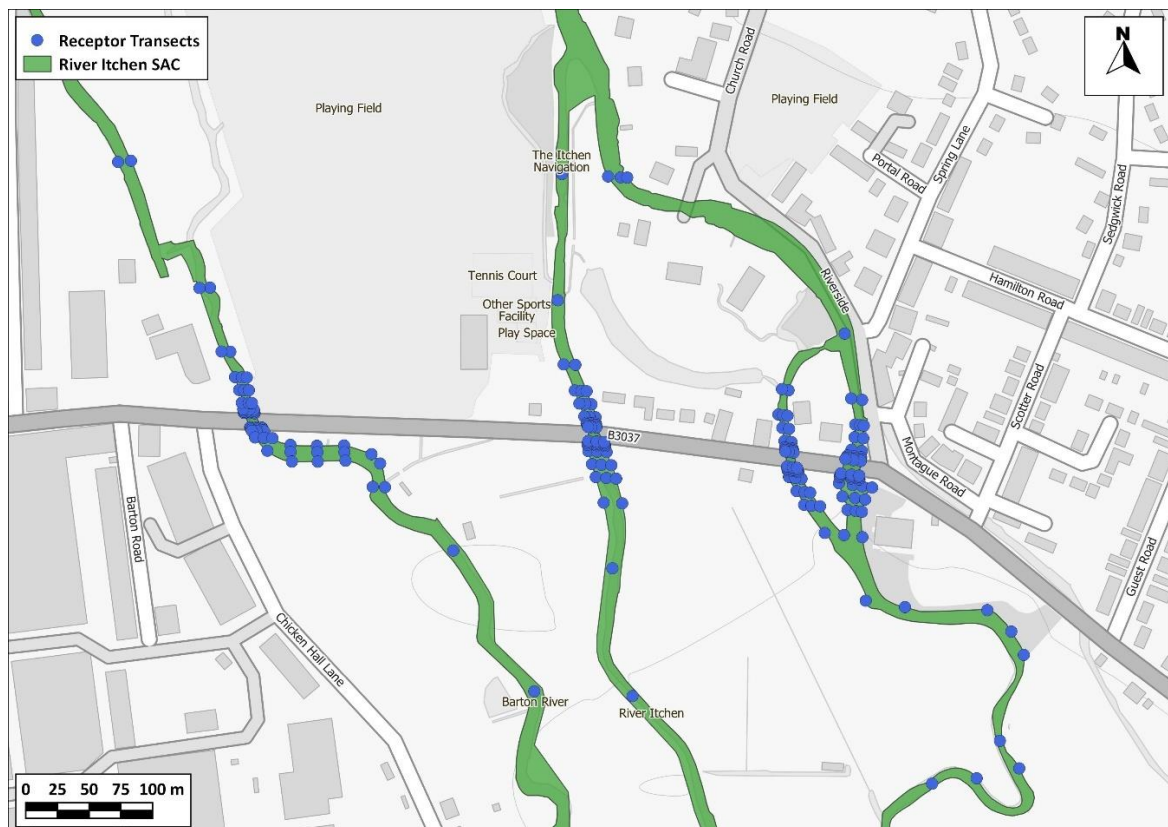


Figure 2: Transect Locations

Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v3.0.

³ Receptors have been modelled at the following distances from the road edge: 2 m, 3 m, 4 m, 5 m, 10 m, 20 m, 30 m, 50 m, 100 m and 200 m.

- 5.4 All receptors 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.
- 5.5 At the locations where Bishopstoke Road crosses the River Itchen, the road is elevated relative to the river. However, these areas have not been modelled as bridges or elevated sections. This may have resulted in the degree of pollutant dispersion in these areas being under-predicted, with a resultant over-prediction in concentrations. The result is that the assessment will be worst-case for these areas.

Monitoring Data

- 5.6 Information on existing nitrogen dioxide concentrations has been obtained by collating the results of monitoring carried out by Eastleigh Borough Council; the Council operates two diffusion tubes on Bishopstoke Road, which are within 100 m of the River Itchen SAC boundary.
- 5.7 Information on existing background ammonia concentrations has been obtained by collating results of monitoring carried out on behalf of Defra as part of the National Ammonia Monitoring Network (NAMN); this consists of 95 sites across the UK.

Background Concentrations and Fluxes

- 5.8 Background concentrations of NO_x and ammonia, and nutrient nitrogen deposition fluxes, have been taken from the Air Pollution Information System (APIS) website (2024). The concentrations and deposition fluxes represent 1 km x 1 km averages. APIS currently presents three-year mean values centred on the calendar year of 2021. These have been adjusted to represent three-year averages centred on 2023 and 2029 using the rate of change predicted for this area using the Business-as-Usual assumptions of JNCC's Nitrogen Futures project⁴.

Assessment Scenarios

- 5.9 NO_x and ammonia concentrations, and nutrient nitrogen deposition fluxes, have been predicted for the following scenarios:
- A) base year 2023;
 - B) 2029 without any increase in traffic from 2023 (including future-year emissions factors and future-year background concentrations and fluxes but base-year traffic within the dispersion model);
 - C) 2029 without the development but with the forecast background increase in traffic between from 2023 (also including future-year emissions factors and background concentrations and fluxes); and
 - D) 2029 with both the proposed development and background traffic growth (also including future-year emissions factors and background concentrations and fluxes).
- 5.10 The three 2029 scenarios have been compared to derive the impacts of the proposed development alone and in-combination with other projects and plans:

⁴ <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 2021 data scaled based on the location-specific predicted changes.

- the difference between scenarios C and D represents the change caused by the proposed development 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').

Modelling Methodology

- 5.11 Concentrations have been predicted using the ADMS-Roads dispersion model, with emissions of NO_x 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.
- 5.12 Traffic flows have been provided by Glanville Group, who are the Project Transport Consultants.
- 5.13 The model results have been verified against local measurements; full details are described in the human health assessment (AQC, 2024), and are briefly summarised in Appendix A4. Nitrogen dioxide has been calculated from NO_x using the calculator provided by Defra (2024). 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 A4.

Uncertainty

- 5.14 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.
- 5.15 An important stage in the process of modelling road traffic emissions is model verification, which involves comparing the model output with measured concentrations. The level of confidence in the verification process is necessarily enhanced when data from an automatic analyser have been used, as has been the case for this assessment. Because the model has been verified and adjusted, there can be reasonable confidence in the prediction of base year (2023) concentrations. Full details are available in the human health assessment (AQC, 2024).
- 5.16 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.
- 5.17 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 more recent versions of Defra's EFT carried out by AQC (2020a; 2020b) suggest that, on balance, these versions are unlikely to over-state the rate at which NO_x emissions decline in the future at an 'average' site in the UK. In practice, the balance of evidence suggests that NO_x concentrations are most likely to decline more quickly in the future, on average, than predicted by previous versions of the 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 provides a robust assessment, given that the model has been verified against measurements made in 2023.
- 5.18 Historically, less attention has been given to calculating emissions of ammonia from road traffic than to calculating emissions of NO_x. 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.

Assumptions

5.19 It is necessary to make a number of assumptions when carrying out an air quality assessment. Key assumptions made in carrying out this assessment include:

- the proposed development is complete and fully operational in 2029. This may overestimate the traffic emissions and hence the 2029 "With Scheme" concentrations and impacts as the development is unlikely to be completely built out by 2029;
- the Middle Wallop meteorological monitoring station appropriately represents conditions in the study area;
- emissions from Bishopstoke Road are likely to be included in the background maps, and therefore there will be an element of double counting baseline concentrations and deposition fluxes, since the road component has not been removed;
- 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 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; and
- the River Itchen travels under Bishopstoke Road, however, it is not possible to include structures such as bridges within the model. This may have under-predicted the degree of pollutant dispersion in these areas, with a resultant over-prediction in concentrations and fluxes.

6 Background Information and Context

- 6.1 The proposed development is located in Fair Oak, approximately 6 km to the east of Eastleigh. The site comprises two pasture fields, and is bound to the north by Mortimers Lane, by agricultural land to the east, a small woodland to the south, and residential properties to the west. The wider area is principally a mix of residential properties and agricultural fields and grassland, including East Horton Golf Club.

Air Quality Monitoring

- 6.2 Eastleigh Borough Council operates a number of nitrogen dioxide monitoring sites using diffusion tubes prepared and analysed by Gradko (using the 20% TEA in water method), two of which are adjacent to Bishopstoke Road, and within 100 m of the River Itchen SAC. Annual mean results for the years 2019 to 2023 are summarised in Table 6, and their locations are shown in Figure 3. The monitoring data have been taken from Eastleigh Borough Council's 2024 Annual Status Report (2024).

Table 6: Summary of Annual Mean Nitrogen Dioxide Monitoring ($\mu\text{g}/\text{m}^3$)^a

Site ID	Site Type	Location	2019	2020	2021	2022	2023
BR	Roadside	Bishopstoke Road	33.8	29.6	29.0	30.5	25.4
BR2	Roadside	Bishopstoke Road 2	31.3	26.8	26.6	27.2	24.7

^a There is no CL_a for nitrogen dioxide, but nitrogen dioxide concentrations provide an indication of total NO_x concentrations and are thus included for context.

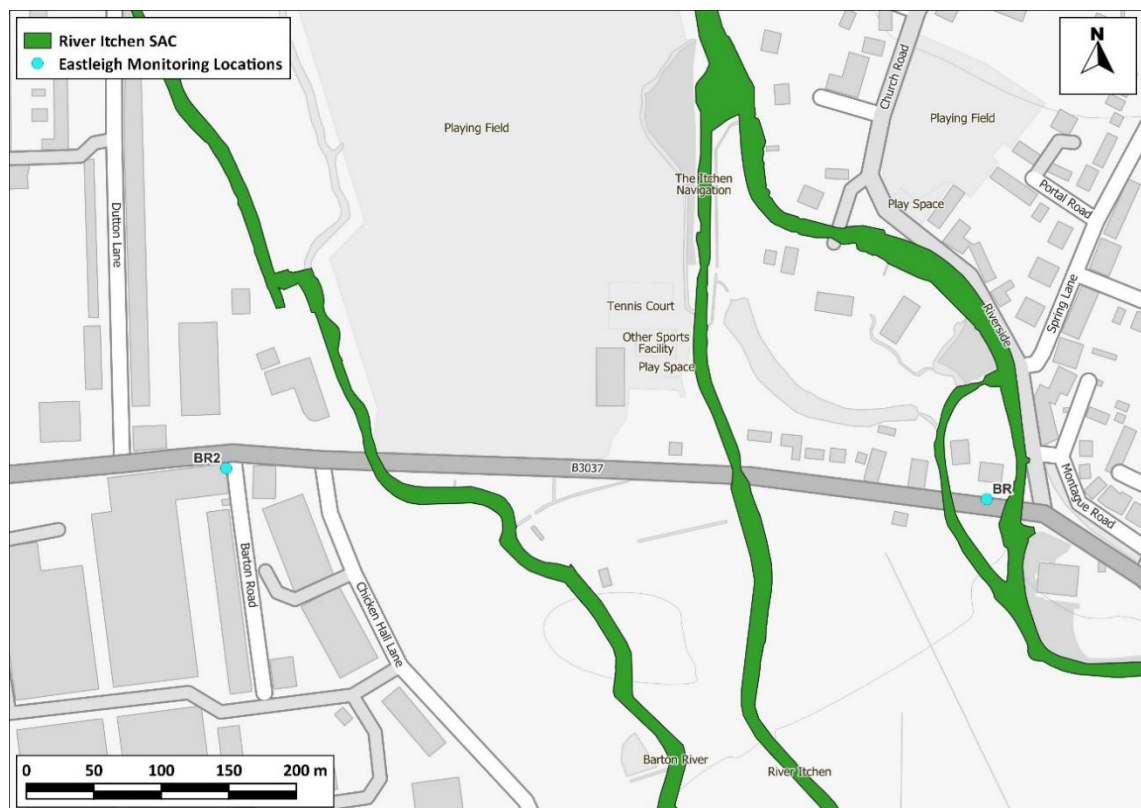


Figure 3: Monitoring Locations

Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v3.0.

- 6.3 At both sites, concentrations of nitrogen dioxide have reduced since 2019; it is, therefore, reasonable to assume that a similar trend would be observed for direct measurements of NO_x. Given the proximity of the two sites to the assessed receptor locations, and that both sites are approximately 2 m from the edge of Bishopstoke Road, the sites are considered representative of conditions within the River Itchen SAC.
- 6.4 Eastleigh Borough Council does not monitor concentrations of ammonia, however, there is a rural background site operated by Defra as part of its NAMN located at Old Winchester Hill. This site was commissioned in April 2023; however, data capture was low (<60%).

Background Concentrations and Fluxes

- 6.5 Estimated background concentrations of NO_x and ammonia, and nutrient nitrogen deposition fluxes are set out in Table 7.
- 6.6 The background concentrations of NO_x and ammonia are predicted to be well below the CL_e in both 2023 and 2029. Background nutrient nitrogen deposition fluxes are below the CL_o in both 2023 and 2029.

Table 7: Estimated Annual Mean Background Pollutant Concentrations (µg/m³) and Fluxes (kgN/ha/yr) in 2023 and 2029

Year	NO _x	NH ₃	Nutrient Nitrogen Deposition
2023	12.5	1.2	13.5
2029	9.3	1.3	13.1
CL_e / CL_o	30	3	15

7 Impact Assessment

7.1 Air quality conditions at the worst-case locations within the River Itchen SAC are set out in Table 8. Predictions are presented for three separate locations:

- the receptor with the highest predicted concentrations and fluxes;
- the receptor with the maximum PC; and
- the receptor with the maximum ICC.

7.2 Whilst the locations may correspond to different transect locations, all occur at 2 m from the road edge. Results are provided for all four assessment scenarios described in Paragraph 5.9. The CL_es for annual mean NO_x and ammonia concentrations are achieved in all future year scenarios, although concentrations are greater than 70% of the CL_es. The CL_o for nitrogen deposition is exceeded at all of these worst-case locations in all scenarios.

Table 8: Air Quality Conditions at Worst-case Locations in the River Itchen SAC

Year	2023	2029			Cl _e / Cl _o
Pollutant/Averaging Period	Existing Baseline	No Growth _a	Without Development _b	With Development _c	
At Location with Maximum Concentration or Flux					
Annual Mean NH ₃ (µg/m ³)	2.36	2.53	2.67	2.69	3
Annual Mean NO _x (µg/m ³)	44.97	24.07	25.65	25.87	30
Nitrogen Deposition (kgN/ha/yr)	22.61	21.60	22.52	22.65	15
At Location with Maximum PC					
Annual Mean NH ₃ (µg/m ³)	2.30	2.47	2.61	2.63	3
Annual Mean NO _x (µg/m ³)	44.97	24.07	25.65	25.87	30
Nitrogen Deposition (kgN/ha/yr)	22.61	21.60	22.52	22.65	15
At Location with Maximum ICC					
Annual Mean NH ₃ (µg/m ³)	2.35	2.52	2.66	2.68	3
Annual Mean NO _x (µg/m ³)	44.97	24.07	25.65	25.87	30
Nitrogen Deposition (kgN/ha/yr)	22.51	21.54	22.47	22.60	15

^a Assuming future-year emissions factors and background concentrations/fluxes, but excluding any increase in traffic on local roads between 2023 and 2029. The predicted changes to background implicitly include increases to traffic on a UK level.

^b Assuming future-year emissions factors and background concentrations/fluxes and forecast increase to traffic on local roads (excluding the proposed development) between 2023 and 2029.

^c Assuming future-year emissions factors and background concentrations/fluxes, forecast increases to traffic and the proposed development.

Changes to Air Quality at Worst-case Locations

- 7.3 Table 9 summarises the changes to concentrations and deposition fluxes at the worst-case identified locations and expresses these changes in relation to the CL_{es} (Table 1) and CL_o (Table 2).
- 7.4 The PCs (when rounded) are no greater than 1% of the CL_o and CL_e, respectively for all pollutants. Thus, according to the guidance summarised in Section 4, the effects of the proposed development, when viewed in isolation, will be not significant and not give rise to an LSE.
- 7.5 All of the ICCs are greater than 1% of the CL_o and CL_{es}. Guidance from Natural England and the IAQM (see Section 4) does not, therefore, allow the effects in-combination with other relevant projects to be immediately discounted.
- 7.6 Further consideration of potential effects from the Project Ecologist is provided in the Shadow Habitats Regulation Assessment.

Table 9: Summary of Worst-case Changes to Air Quality Conditions at River Itchen SAC

Pollutant/Averaging Period	Change in Concentration or Flux ^a		As % of CL _e /CL _o ^b	
	PC	ICC	PC	ICC
At Location with Maximum Concentration or Flux				
Annual Mean NH ₃ (µg/m ³)	0.02	0.16	1	5
Annual Mean NO _x (µg/m ³)	0.22	1.79	1	6
Nitrogen Deposition (kgN/ha/yr)	0.14	1.06	1	7
At Location with Maximum PC				
Annual Mean NH ₃ (µg/m ³)	0.02	0.16	1	5
Annual Mean NO _x (µg/m ³)	0.22	1.79	1	6
Nitrogen Deposition (kgN/ha/yr)	0.14	1.06	1	7
At Location with Maximum ICC				
Annual Mean NH ₃ (µg/m ³)	0.02	0.16	1	5
Annual Mean NO _x (µg/m ³)	0.22	1.79	1	6
Nitrogen Deposition (kgN/ha/yr)	0.13	1.06	1	7

^a i.e. with and without forecast increases to traffic which are unrelated to the proposed development.

^b Following guidance from the IAQM (Paragraph 4.16) percentage values have been rounded to the nearest whole number.

8 Summary

- 8.1 A screening assessment has been provided for air quality effects on biodiversity associated with operation of the proposed development. The emissions which have been considered are emissions from road traffic generated by the completed and occupied development. The proposed development will increase concentrations of NO_x and ammonia, and nitrogen deposition fluxes within the River Itchen SAC.
- 8.2 The increase to concentrations and deposition fluxes at the assessed transect locations within each site, both alone and in-combination with other relevant projects, have been compared with relevant CL_{es} and CL_o. When viewed in isolation, the changes in concentrations and fluxes are less than 1%. The changes when viewed in combination are all greater than 1% of the relevant CL_{es} and CL_o.
- 8.3 As such, further consideration of the effects of the proposed development on the River Itchen SAC is provided by the Project Ecologist in the Shadow Habitats Regulation Assessment.

9 References

APIS (2024) APIS, Available: <http://www.apis.ac.uk/>.

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

AQC (2020c) '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 (2021) 'Decision-Making Thresholds for Air Pollution Technical Report', JNCC Report No., JNCC, Peterborough, ISSN 0963-9091.

AQC (2024) 'Land South Of Mortimers Lane, Eastleigh J10/15952A/10/F1'.

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'.

Caporn et al. (2016) 'Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance'.

Chapman and Kite (2021) 'Guidance on Decision-Making Thresholds for Air Pollution', JNCC Report No., JNCC, Peterborough, ISSN 0963-9091.

CIEEM (2021) 'Advice on Ecological Assessment of Air Quality Impacts. Chartered Institute of Ecology and Environmental Management. Winchester, UK.'

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

Defra (2021) 'Changes to the Habitats Regulations 2017', no. <https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017>.

Defra (2022) *Review & Assessment: Technical Guidance LAQM.TG22 August 2022 Version*, [Online], Available: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>.

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

DfT (2023) *DfT Road traffic statistics (TRA03)*, Available: <https://www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra>.

Directive 2009/147/EC (2009) *The European Parliament and the Council of the European Union*, Available: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147>.

Eastleigh Borough Council (2022) *Eastleigh Borough Local Plan 2016-2036*.

Eastleigh Borough Council (2024) *2024 Air Quality Annual Status Report (ASR)*.

Environment Agency (2021a) *Air emissions risk assessment for your environmental permit*, <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit> edition, Available: <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>.

Environment Agency (2021b) 'Intensive farming risk assessment for your environmental permit', no. <https://www.gov.uk/guidance/intensive-farming-risk-assessment-for-your-environmental-permit>.

European Council Directive 92/43/EEC (1992) *The Council of the European Communities on the Conservation of Natural Habitats and of Wild Fauna and Flora*, Available: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>.

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/dmr/b/search/10191621-07df-44a3-892e-c1d5c7a28d90>.

Holman et al (2020) *A guide to the assessment of air quality impacts on designated nature conservation sites*. IAQM. Version 1.1, <https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf>.

Ministry of Housing, Communities & Local Government (2019) *Planning Practice Guidance*, Available: <https://www.gov.uk/government/collections/planning-practice-guidance>.

Ministry of Housing, Communities & Local Government (2023) *National Planning Policy Framework*, [Online], Available: https://assets.publishing.service.gov.uk/media/65819679fc07f3000d8d4495/NPPF_December_2023.pdf.

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>.

Natural England (2019) *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Ashdown Forest Special Area of Conservation (SAC) Site Code: UK0030080*.

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 Conservation of Habitats and Species Regulations 2010 Statutory Instrument 490 (2010), HMSO, Available: http://www.legislation.gov.uk/ukSI/2010/490/pdfs/ukSI_20100490_en.pdf.

The Conservation of Habitats and Species Regulations 2017 Statutory Instrument 1012 (2017), HMSO.

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>.

The Planning Inspectorate (2017) 'Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects', no. <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/06/Advice-note-10v4.pdf>.

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

10 Glossary

AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
ADMS-Roads	Atmospheric Dispersion Modelling System model for Roads
APIS	Air Pollution Information System
AQC	Air Quality Consultants
Autonomous Measures	Measures which are unrelated to a plan or project which is being determined
Autonomous Reductions	Forecast improvements resulting from autonomous measures.
CL _e	Critical Level - <i>"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"</i> (APIS, 2024)
CL _o	Critical Load – <i>"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"</i> (APIS, 2024)
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EFT	Emission Factor Toolkit
EU	European Union
EUNIS	European Nature Information System
Exceedance	A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure
HDV	Heavy Duty Vehicles (> 3.5 tonnes)
HMSO	His Majesty's Stationery Office
IAQM	Institute of Air Quality Management
kph	Kilometres Per hour
LAQM	Local Air Quality Management
LSE	Likely Significant Effect. An effect is 'likely' if it cannot be excluded on the basis of objective information. An effect is 'significant' if it undermines the conservation objectives.
µg/m ³	Microgrammes per cubic metre
NAMN	National Ammonia Monitoring Network

NE	Natural England
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides (taken to be NO ₂ + NO)
NPPF	National Planning Policy Framework
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PC	Process Contribution
PPG	Planning Practice Guidance
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
TEA	Triethanolamine – used to absorb nitrogen dioxide
WHO	World Health Organisation

11 Appendices

A1 Professional Experience

Penny Wilson, BSc (Hons) CSci MEnvSc 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 Frances Marshall, MSci PhD MEnvSc MIAQM

Dr Marshall is a Principal Consultant with AQC with ten years' relevant experience. Prior to joining AQC, she spent four years carrying out postgraduate research into atmospheric aerosols at the University of Bristol. Dr Marshall has experience preparing air quality assessments for a range of projects, including residential and commercial developments, road traffic schemes, energy centres, energy from waste schemes and numerous power generation schemes. She has experience in producing air quality assessments for EIA schemes, and has also assessed the impacts of Local Plans on designated ecological areas, prepared Annual Status Reports for Local Authorities, and undertaken diffusion tube monitoring studies. She is a Member of both the Institute of Air Quality Management and the Institution of Environmental Sciences.

A2 Relevant Case Law

- A2.1 Interpretation of the Habitats Regulations with respect to air quality impacts and effects has been shaped by judgements and opinions of European and UK courts. Published findings of the Planning Inspectorate for England and Wales, and the advice given to this Inspectorate by Natural England, has also proven seminal in defining how air quality impacts on European sites should be assessed. A brief summary of some key cases, in chronological order, is given below.

2004 - Waddenzee⁵

- A2.2 This case in the Court of Justice of the European Union (CJEU) explained the extent to which the precautionary principal must be followed in HRA. In particular, the judgement (para 61) notes: *"the competent national authorities are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects"*.

2009 - Boggis⁶

- A2.3 This judgement explained that a breach of Article 6.3 does not occur solely because of a hypothetical risk of harm to a designated site. There must be credible evidence that the risk is real for this to require consideration (para 37).

2011 Sweetman⁷

- A2.4 This judgement from the CJEU also emphasised the need for the precautionary principal. In particular, it highlighted that the word "Likely" in LSE is unique to the English language interpretation of the Habitats Directive and should not be seen as synonymous with 'probable'. The judgement explained that an AA *"cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned"*.

2013 – Lough Corrib⁸

- A2.5 This case in the CJEU explained that the entirety of each European site is protected by the Habitats Directive: if a "plan or project will lead to the lasting and irreparable loss of the whole or part of a priority natural habitat type whose conservation was the objective that justified the designation of the site concerned ..., the view should be taken that such a plan or project will adversely affect the integrity of that site." (para 46).

2017 - Wealden 1⁹

- A2.6 This case in the UK High Court concerned the approach to in-combination assessments pursuant to the Habitats Regulations. The principal issue was whether it was appropriate to apply a screening criterion published by Highways England (in which changes of less than 1,000 vehicles per day could be discounted as not significant) to consider the impacts of individual plans. The overall conclusion in this respect was that the criterion should have been applied to the aggregated change caused by two plans and not to each plan in isolation. This has changed the approach taken at the screening

⁵ Case C-127/02. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62002CJ0127:EN:PDF>

⁶ [2009] EWCA Civ 1061. [Boggis & Anor v Natural England & Anor \[2009\] EWCA Civ 1061 \(20 October 2009\) \(baillii.org\)](#)

⁷ Case C-258/11 (Sweetman) Judgement para 44, 46 and 47

⁸ Case C-258/11. [CURIA - Documents \(europa.eu\)](#)

⁹ Judgment in Wealden District Council v Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority) [2017]

stage of HRA, which now routinely considers the effects of plans and projects in combination as well as on their own.

2018 People over Wind¹⁰

- A2.7 The judgement of the CJEU was that it was more appropriate to consider the effects of mitigation at the AA stage rather than at the screening stage: *"it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site"*. This is particularly challenging to reconcile with the concepts of 'better by design' and 'air quality positive' which expect consideration of air quality improvement to run throughout the design of a project. Since the People over Wind judgement, most assessments consider that on-site measures to reduce emissions which are not required solely to avoid an LSE can form part of the assessment considered at the screening stage.

2018 Dutch Nitrogen Cases¹¹

- A2.8 These two cases highlighted several interesting points. The most relevant in terms of air quality assessment in the UK are:

- 1) that an AA may not take into account the existence of 'autonomous' measures¹² (i.e. measures not part of that programme), if the expected benefits of those measures are not certain;
- 2) that screening thresholds may only be used to discount an LSE from a project if there is no reasonable scientific doubt that that project will not affect the integrity of a designated site in combination with other plans and projects; and
- 3) that recurring activities such as grazing and fertilizer use may be classified as a 'project' in the context of the Habitats Directive.

2019 - Examination of the Submission Wealden Local Plan

- A2.9 This does not relate to a court case, but the judgements expressed by NE and the planning inspectorate have had significant implications for the way in which air quality impacts on nature conservation sites are assessed in the UK. In particular, they form the basis of the approach which was taken to derive the DMTs and SRTs (see Paragraph 4.18). Furthermore, the political implications for Wealden District Council (WDC) of not following NE's advice on this matter have provided a clear signal to other local planning authorities regarding the treatment of autonomous measures in planning decisions.
- A2.10 In the evidence supporting its 2018 Submission Local Plan, Wealden District Council showed the impact of its Submission Plan on air quality conditions within the Ashdown Forest SAC. It quantified the PC and ICC, and also showed the net effect of forecast changes to national and international emissions (i.e. autonomous measures). These emissions were forecast using three alternative approaches, each of which assumed a different level of efficacy of the autonomous measures.

¹⁰ C-323/17 Judgement of the Court 12 April 2018, Request for a preliminary ruling under Article 247 TFEU from the High Court (Ireland), made by decision on 10 May 2017, received at the Court on 30 May 2017, in the proceedings of People Over Wind and Peter Sweetman v Coillte Teoranta, curia.europa.eu/juris/document/document.jsf?text=&docid=200970&pageIndex=0&doclang=en&mode=req&dir=&occ=first&part=1&cid=619449.

¹¹ Coöperatie Mobilisation for the Environment UA and Vereniging Leefmilieu v College van gedeputeerde staten van Limburg and College van gedeputeerde staten van Gelderland. Requests for a preliminary ruling from the Raad van State Joined Cases C-293/17 and C-294/17

¹² i.e. measures which are not being delivered as part of the plan, project, or programme being assessed.

- A2.11 NE advised WDC that it should base its plan-making solely on the scenario that used AQC's CURED model¹³, but instead the Council took account of all three emissions scenarios, including one in which autonomous measures were assumed to have no effect¹⁴.
- A2.12 Under NE's preferred scenario¹³, improvements caused by autonomous measures were predicted to be greater than the adverse effects of the Submission Local Plan, both alone and in-combination with other predicted traffic growth (i.e. the effect of autonomous measures was greater than both the PC and ICC). Detailed habitats surveys had identified the distribution of the protected feature, and at the worst relevant location, the PC was predicted to remove 53% of the autonomous improvements, while the ICC was predicted to remove 74% of the autonomous improvements¹⁵. These predictions were used by NE to inform its supplementary conservation objectives for Ashdown Forest (Natural England, 2019). Making specific reference to the modelling published by WDC, NE stated:
- "Assessment of improvements in vehicular technology and in particular Euro6/VI standards that all vehicles are currently being manufactured to, will outweigh impacts from new development. The improvements will be marginally retarded by additional development but future nitrogen deposition and concentration will continue to decline with the existing trend."* (Natural England, 2019).
- A2.13 This statement relates to the entire SAC and thus takes account of the large area where the ICC was predicted to remove less than 74% of the autonomous improvements, as well as these worst-case impacts. NE also explained the importance of this net downward trend in its representations to the planning inspector^{16,17}. The predicted improving trend related only to NOx and nitrogen deposition. The modelling published by WDC, to which NE referred, did not predict any reductions to ammonia concentrations, only adverse impacts. NE's advice took a holistic view of ambient concentrations in general in its advice relating to air quality.
- A2.14 It is important to note that NE's position regarding the importance of autonomous emissions reductions at Ashdown Forest did not refer to specific habitat features, their sensitivity, or any other ecological context. The statement which is quoted in Paragraph A2.12, relates solely to air quality forecasts. A key disagreement between WDC and NE was whether the autonomous measures included in the air quality forecasts were sufficiently certain for decision making in the context of the Habitats Regulations¹⁸. The Submission Plan ultimately had to be withdrawn, partly because of WDC's failure to take account of NE's advice on the significance of the PC and ICC when viewed in the context of the benefits provided by autonomous measures¹⁹.

¹³ This was termed 'Scenario B'. AQC's CURED model has since been withdrawn but the modelling presented in this report is consistent with the level of precaution which was inherent in this model scenario.

¹⁴ This was termed 'Scenario A'.

¹⁵ As documented in the executive summary of the air quality modelling report cited by Natural England (2019) which shows the maximum deposition to heath predicted using the most detailed modelling would fall from 22.7 kgN/ha/yr in 2015 to: 19.3 kgN/ha/yr in 2028 without any 'in-combination' traffic; 20.8 kgN/ha/yr in 2028 without the Submission Plan, and 21.8 kgN/ha/yr with the Plan..

¹⁶ e.g. Paragraphs 19 to 25, and Paragraphs 37 to 46 of Annex 1 to Natural England Comments on Proposed Submission Document 05/08/18 – Natural England ref 255168 (available on request).

¹⁷ It is important to note that the examination in public followed shortly after the judgement from the Dutch Nitrogen Cases, which were discussed at length and thus fully accounted for in advice from both Natural England and the planning inspector.

¹⁸ In particular, WDC noted that measurements showed that traffic-related nitrogen deposition had, on average, been increasing for many years despite the same forecasts showing concurrent reductions.

¹⁹ Wealden District Council concluded that the PC and ICC were both potentially significant without mitigation, while for the reasons given in Paragraph 1(a)(i)(1)(a)(i)A2.12, Natural England determined that mitigation was not required.

A3 Data from (Caporn et al., 2016) Cited by National Highways

Table A3-1: Values from Table 21 of Caporn et al (2016) Relied on in National Highways' Assessment Method

Habitat	CL ₀	Nitrogen Deposition kgN/ha/yr					
		Background deposition					
		5	10	15	20	25	30
		Increase required to reduce measured species richness by 1					
Upland heath ^a	10-20	0.4	0.8	1.3	1.7	2.0	2.4
Upland heath ^a	10-20	1.7	2.0	2.5	3.3	5.0	20.0
Lowland heath	10-20	0.4	0.8	1.3	1.7	2.0	2.4
Bog	5-10	-	-	-	3.3	-	-
Sand dunes ^a	8-15	0.1	0.5	1.1	2.0	-	-
Sand dunes ^a	8-15	0.3	0.6	0.9	1.3	-	-
Sand dunes ^a	8-15	0.3	0.6	0.9	1.3	-	-
Acid grasslands	10-15	1.7	1.7	2.0	2.0	2.5	2.5

^a Based on two separate studies using different quadrat sizes.

A4 Modelling Methodology

A4.1 The full details of the modelling methodology are provided in the AQC report which describes the operational air quality effects on human health (document reference J10/15952A/10/1/F1, dated October 2024) (2024). Nonetheless, pertinent details to this assessment have been reproduced in this section.

Model Inputs

- A4.2 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). All of the roads entered into the model have been assumed to have no elevation above the surrounding ground level.
- A4.3 Vehicle NO_x emissions have been calculated based on vehicle flow, composition and speed data using the EFT (Version 12.1) published by Defra (2024), whilst emissions of ammonia have been derived using AQC's CREAM (v1A) model.
- A4.4 AADT flows and the proportions of HDVs have been provided by Glanville Group, who have undertaken the transport assessment work for the proposed development. 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 of relevance to this assessment (i.e., data for those roads within 200 m of the River Itchen) are summarised in Table A4-1²⁰. Diurnal and monthly flow profiles for the traffic have been derived from the national profiles published by DfT (2023).

Table A4-1: Summary of Traffic Data for Roads within 200 m of the River Itchen SAC

Road Link	2023		2029 (Without Scheme)		2029 (With Scheme)	
	AADT	%HDV	AADT	%HDV	AADT	%HDV
B3037 (West of Sandy Lane)	16,000	2.5	18,095	2.3	18,454	2.2
B3037 (East of Chickenhall Lane)	20,282	1.9	22,687	1.8	23,048	1.8
ABRI	387	0.0	407	0.0	407	0.0
Chickenhall Lane	5,596	17.5	5,889	17.5	5,889	17.5
B3037 (West of Chickenhall Lane)	19,207	5.4	21,470	5.0	21,831	5.0

A4.5 Figure A4-1 shows the modelled roads within 200 m of the River Itchen SAC, along with the speed at which each link was modelled.

²⁰ The full extent of the modelled road network is presented in the human health assessment.



Figure A4-1: Modelled Road Network & Speed

Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v3.0.

A4.6 Hourly sequential meteorological data in sectors of 10 degrees from Middle Wallop for 2023 have been used in the model. The Middle Wallop meteorological monitoring station is located approximately 29 km to the northwest of the proposed development. It is deemed to be the nearest monitoring station representative of meteorological conditions in the vicinity of the proposed development; both the application site and the Middle Wallop meteorological monitoring station are located in Hampshire where they will be influenced by the effects of inland meteorology over relatively flat-lying, predominantly agricultural, topography.

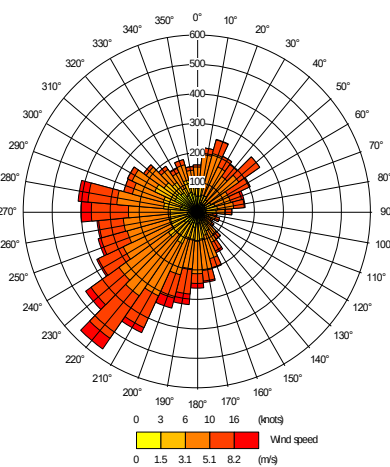


Figure A4-2: Wind Rose

Model Verification

Nitrogen Dioxide

- A4.7 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.
- A4.8 Appendix A3 of the human health assessment (AQC, 2024) demonstrates that the unadjusted model has under predicted the road-NO_x contribution; this is a common experience with this and most other road traffic emissions dispersion models. An adjustment factor of 2.2135 has therefore been applied to the modelled road-NO_x concentration for each receptor to provide adjusted modelled road-NO_x concentrations.

Ammonia

- A4.9 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, 2020c) 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

- A4.10 The model predicts road-NO_x concentrations at each receptor location. These concentrations have been adjusted using the adjustment factor set out above, which, along with the background NO₂, has been processed through the NO_x to NO₂ calculator available on the Defra LAQM Support website (Defra, 2024). The traffic mix within the calculator has been set to "All other urban UK traffic", which is considered suitable for the study area. The calculator predicts the component of NO₂ based on the adjusted road-NO_x and the background NO₂.

Deposition Rates

- A4.11 Deposition has not been included within the dispersion model because the principal depositing component of concern is nitrogen dioxide and this is calculated from nitrogen oxides outside of the model. Instead, deposition has been calculated from the predicted ambient concentrations using the deposition velocities set out in Table A4-2.
- A4.12 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/m³) by the velocity (m/s) to predict a deposition flux (µg/m²/s) and then scaling by time and area to represent kg/ha/yr of the nitrogen component of the molecule.

Table A4-2: Deposition Velocities Used in This Assessment

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

- A4.13 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

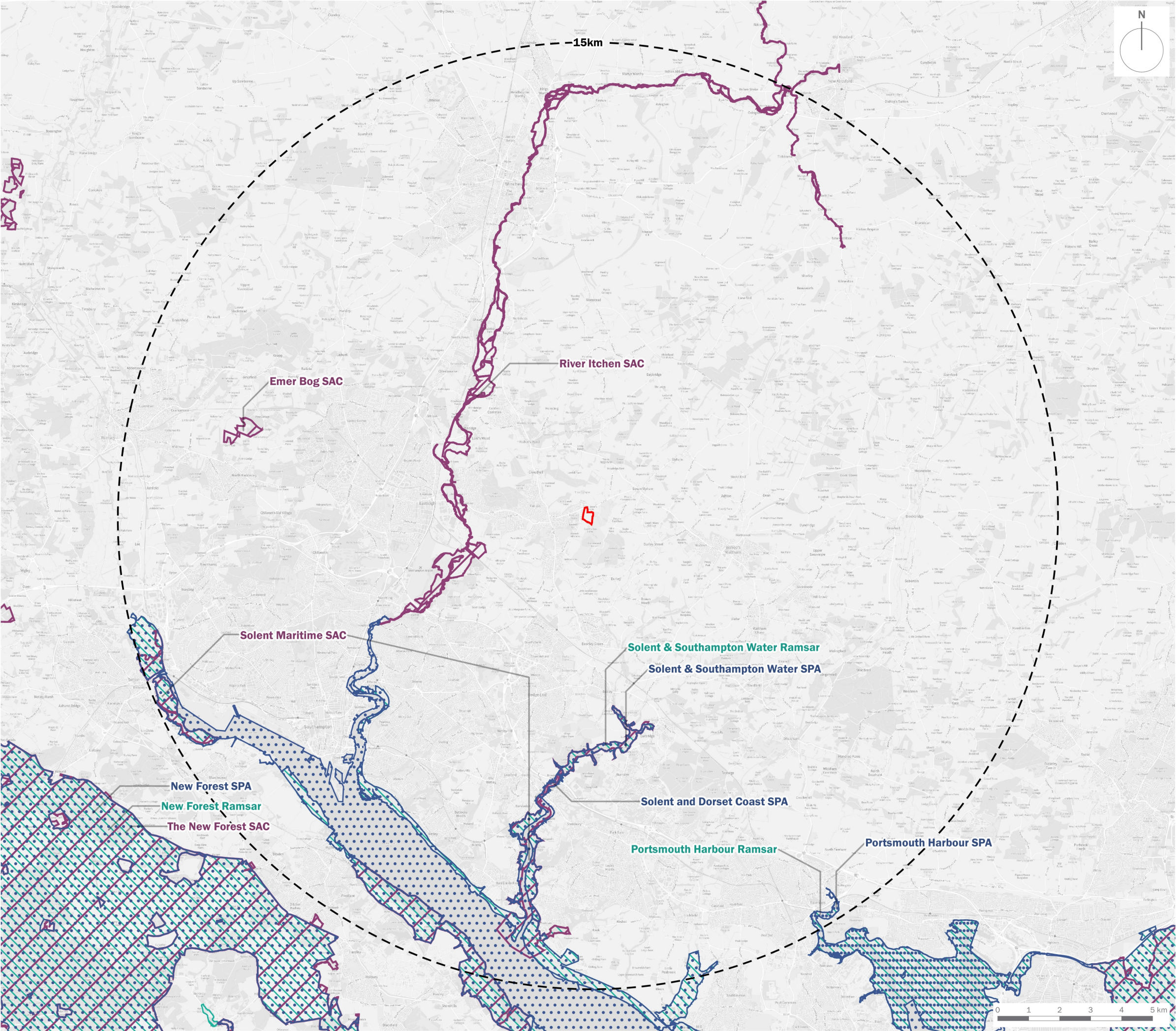
molecules before they hit the ground. Falling raindrops displace the air around them, effectively pushing gasses away. AQTAG06 guidance (2011) is that the wet deposition of sulphur dioxide, nitrogen dioxide and ammonia is not significant within a short range. It has thus not been included.



London • Bristol • Warrington • Brussels

Plans

Plan EDP 1: Relevant Designated Sites
(edp7852_d042 11 April 2025 JGr/MNe)



- Site Boundary
- 15km Study Area
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar Wetland

client	Bloor Homes Limited		
project title	Land south of Mortimers Lane, Fair Oak		
drawing title	Relevant Designated Sites		
date	11 APRIL 2025	drawn by	JGr
drawing number	edp7852_d042	checked	MNe
scale	1:120,000 @ A3	QA	DJo



the environmental
dimension partnership

CARDIFF
02921 671900

CHELTENHAM
01242 903110

CIRENCESTER
01285 740427

info@edp-uk.co.uk
www.edp-uk.co.uk

The Environmental Dimension Partnership Ltd, Registered as a Limited Company in England and Wales. Company No. 09102431. Registered Office: Quarry Barn, Elkstone Studios, Elkstone, Gloucestershire GL53 9PQ



**URBAN
DESIGN
GROUP** REGISTERED
PRACTICE



**IEMA
CORPORATE
PARTNER**

**Landscape
Institute**
Registered practice