Wealden Local Plan

Habitats Regulations Assessment
Regulation 19 Plan

Wealden District Council

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Quality information

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1. Introduction

1.1 Background

1.1.1 AECOM has been appointed by Wealden District Council (WDC) to undertake a Habitats Regulations Assessment (HRA) of the Regulation 19 Wealden Local Plan . The objective of an HRA is to identify any aspects of a Plan that may result in Likely Significant Effects (LSEs) and, where relevant, adverse effects on the integrity of Habitats (previously European) sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites), either in isolation or in combination with other plans and projects. The HRA also advises, as necessary, on appropriate policy mechanisms for delivering mitigation where adverse effects on integrity are identified. Under the Conservation of Habitats and Species Regulations 2017 (as amended), an Appropriate Assessment of impact pathways is required, where a plan or project is likely to have a Likely Significant Effect (LSE) upon a Habitats Site, either alone or in combination with other plans and projects.

1.1.2 The new Wealden Local Plan will cover the years 2025 to 2042. The Plan will allocate land for housing, employment, mixed-use development and other purposes. For example, 16,833 new dwellings and 197,7800m^2 of employment floorspace will be delivered in the authority over the Plan period under the preferred approach as set out in the Regulation 19 Wealden Local Plan. The Plan also sets out the policies and proposals to guide the future development in the district during this period. At the same time, the document seeks to protect Wealden's important natural assets, including Habitats sites that are designated for internationally important habitats and species.

1.1.3 An initial assessment of the designated sites within and surrounding Wealden District, and the impact pathways linking to the proposed growth, highlights that several Habitats sites require consideration, including the Ashdown Forest SPA / SAC, Pevensey Levels SAC / Ramsar, Lewes Downs SAC and Castle Hill SAC.

1.1.4 The version of the Local Plan assessed in this report is the Regulation 19 Wealden Local Plan (WLP). In December 2024, the National Planning Policy Framework (NPPF) was updated, as well as the calculation on housing need known as the 'standard method', which results in increased housing need within Wealden District compared to that presented in the March 2024 draft Local Plan[1].

1.2 Legislation

1.2.1 The UK left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). While the UK is no longer a member of the EU, a requirement for Habitats Regulations Assessment continues, as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[2].

1.2.2 The HRA process applies the 'Precautionary Principle'[3] to Habitats sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the Habitats site(s) in question. To ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the Plan or project in question. Figure 1 below sets out the legislative basis for Appropriate Assessment.

1.2.3 Plans and projects that are associated with potential adverse impacts on Habitats sites may still be permitted if there are no reasonable alternatives and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

[1] Available here: https://www.wealden.gov.uk/planning-and-building-control/planning-policy/new-local-plan/wealden-local-plan/
[2] These don't replace the 2017 Regulations but are just another set of amendments.
[3] The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: *"When human activities may lead to morally unacceptable harm* [to the environment] *that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis".*

Conservation of Habitats and Species Regulations 2017 (as amended)

The Regulations state that:

"*A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives… The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site*".

Figure 1: The legislative basis for Appropriate Assessment

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

1.2.5 In spring 2018 the 'Sweetman' European Court of Justice ruling[4] clarified that 'mitigation' (i.e. measures that are specifically introduced to avoid or reduce a harmful effect on a Habitats site that would otherwise arise) should **not** be taken into account when forming a view on Likely Significant Effects. Mitigation should instead only be considered at the Appropriate Assessment stage. This HRA has been cognisant of that ruling.

1.3 Scope of the Project

1.3.1 There is no pre-defined guidance that dictates the physical scope of an HRA of a Plan document. Current guidance suggests that the following Habitats sites should be included in the scope of an HRA assessment:

- All Habitats sites within the boundary of Wealden District; and,
- Other Habitats sites within 10km shown to be linked to development in Wealden through a known 'pathway' (discussed below).

1.3.2 Generally, it is uncommon for development plans to have significant impacts on Habitats sites situated more than 10km from areas of growth. For example, most core recreational catchments (except for some coastal sites) are under 10km in size and the average vehicle commuting distance of a UK resident is approx. 10km. It should be noted that the presence of a conceivable impact pathway linking a Plan to a Habitats site does not mean that Likely Significant Effects (LSEs) will occur.

1.3.3 In some cases, development impacts can extend beyond 10km, particularly where hydrological pathways are involved, which is why the source-pathway-receptor concept is also used to help determine whether there are potential pathways connecting development to Habitats sites. This takes site-specific sensitivities into account, including issues such as nutrient neutrality or water levels, quantity and flow.

1.3.4 Briefly defined, impact pathways are routes by which the implementation of a policy within a Local Plan document can lead to an effect upon a Habitats site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could affect Habitats sites through, for example, disturbance of ground-nesting birds.

1.3.5 Given an initial assessment of the relevant Habitats sites and the impact pathways present, and referring to the HRA work that was undertaken for the adopted Wealden District Core Strategy Local Plan (2013), and for previous draft Local Plan stages (notably in 2023-24) this HRA will discuss (at least as far as the LSEs stage) the following Habitats sites:

- Ashdown Forest SPA / SAC (entirely within the district boundary in the north-west of Wealden District);

[4] People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

- Pevensey Levels SAC / Ramsar (largely within the district boundary in the south-east of Wealden District);
- Lewes Downs SAC (approx. 2.9km to the west of the Wealden District boundary in the adjoining authority of Lewes);
- Castle Hill SAC (approx. 9.9km to the west of the Wealden District boundary in the neighbouring authorities of Lewes and Brighton and Hove).

1.3.6 For the HRA, the views of the statutory nature conservation advisors, namely Natural England, will be sought as part of the consultation process on the scope of the Habitats sites assessed. The distribution of the above Habitats sites in relation to Wealden District is shown in Appendix A. An introduction to, the qualifying features (species and habitats), Conservation Objectives, and threats and pressures to the integrity of these Habitats sites are set out in Chapter 3.

1.3.7 In order to fully inform the HRA, several studies and online information databases have been consulted. These include:

- Future development proposed (and, where available, HRAs) for the adjoining authorities of Lewes, South Downs National Park, Eastbourne, Rother, Tunbridge Wells, Sevenoaks, Tandridge and Mid Sussex;
- Road traffic statistics from the Department for Transport (https://roadtraffic.dft.gov.uk);
- Journey-to-work data from the Population Census 2021 (https://www.nomisweb.co.uk/sources/census_2021_od);
- Specific traffic and air quality modelling undertaken for this HRA, regarding Ashdown Forest SAC/SPA and Lewes Downs SAC. The traffic modelling takes account of dynamic reassignment of traffic on the network in situations of congestion, while the air quality modelling makes a suitable allowance for improvements in vehicle emissions technology and electric vehicles by 2042. This has specifically been done to address issues with earlier versions of Local Plans and their accompanying HRAs where the appointed planning inspector for the now 'withdrawn' Wealden Local Plan (2019) determined that the HRA had been excessively precautionary in not allowing for any improvement in background or emissions technology over the plan period;
- Visitor surveys carried out in the Ashdown Forest SPA / SAC by Footprint Ecology in 2016 and 2021 (the latter largely replicating the methodology of the 2016 survey to provide comparative data for recreational pressure);
- Visitor surveys carried out at four greenspace sites in the vicinity of Ashdown Forest: East Court and Ashplats Wood, Horsted Green, Reedens Meadow and Walshes Park (Ashdown Forest SANGs Surveys 2021 (wealden.gov.uk)).
- South East Water's Water Resources Management Plan 2024;
- The HRAs produced for the adopted Wealden District Core Strategy Local Plan (2013) and those of adjoining authorities;
- Site Improvement Plans and Supplementary Conservation Advice Notes for relevant Habitats sites published by Natural England;
- The UK Air Pollution Information System (www.apis.ac.uk); and
- Multi Agency Geographic Information for the Countryside (MAGIC) and its links to SSSI citations and the JNCC website (www.magic.gov.uk).

1.4 Quality Assurance

1.4.1 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS OHSAS 18001:2007. In

addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.

1.4.2 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2019).

2. Methodology

2.1 Introduction

2.1.1 The HRA has been carried out with reference to the general EC guidance on HRA[5] and general guidance on HRA published by government in July 2019 and 2021[6]. AECOM has also been mindful of the implications of European case law in 2018, notably the Holohan ruling and the People over Wind ruling, both discussed below.

2.1.2 Figure 2 below outlines the stages of HRA. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the Plan until no significant adverse effects remain.

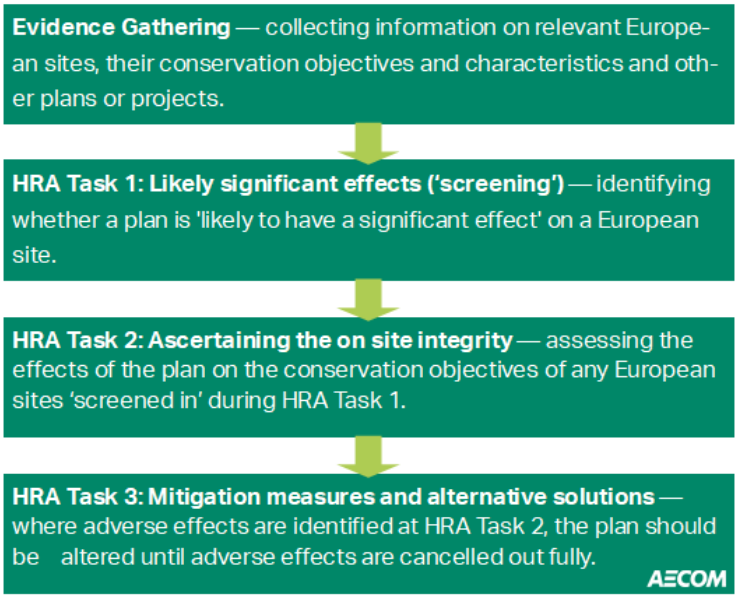


Figure 2: Four Stage Approach to Habitats Regulations Assessment.

2.2 Description of HRA Tasks

HRA Task 1 – Screening for Likely Significant Effects (LSEs)

2.2.1 Following evidence gathering, the first stage of any Habitats Regulations Assessment is the screening for Likely Significant Effects (LSEs), essentially a high-level assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

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

2.2.2 The objective is to filter out those Plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in any impacts upon Habitats sites, usually because there is no mechanism for a negative interaction.

[5] European Commission (2021): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.
[6] https://www.gov.uk/guidance/appropriate-assessment and https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

HRA Task 2 – Appropriate Assessment (AA)

2.2.3 Where it is determined that a conclusion of 'no Likely Significant Effects (LSEs)' cannot be drawn, the analysis proceeds to the next stage of HRA known as Appropriate Assessment. Case law has clarified that 'Appropriate Assessment' is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to Appropriate Assessment compared to the screening stage.

2.2.4 By virtue of the fact that it follows screening for LSEs, there is a clear implication that the analysis will be more detailed than undertaken at the previous stage. One of the key considerations during Appropriate Assessment is whether there is available mitigation that would entirely address the potential effect. In practice, the Appropriate Assessment would take any policies or allocations that could not be dismissed following the high-level screening and assess the potential for an effect in more detail, with a view to concluding whether there would be a potential for an adverse effect on site integrity (in other words, disruption of the coherent structure and function of the Habitats site(s)). A decision by the European Court of Justice[7] concluded that measures intended to avoid or reduce the harmful effects of a proposed Plan or project on a Habitats site may no longer be considered by competent authorities at the screening for LSEs stage of HRA. That ruling has been taken into account in producing this HRA.

2.2.5 Also, in 2018 the Holohan ruling[8] was handed down by the European Court of Justice. Among other provisions, paragraph 39 of the ruling states that '*As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, … typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area*' [emphasis added]. Due account of this decision has been given in this HRA in relation to the Ashdown Forest SPA, which is designated for mobile ground-nesting birds (although it is to be noted that the qualifying species are not considered to be critically dependent on functionally linked habitats).

HRA Task 3 – Avoidance and Mitigation

2.2.6 Where necessary, measures are recommended for incorporation into the Plan in order to mitigate and / or avoid adverse effects on Habitats sites. There is considerable precedent concerning the level of detail that a Local Plan document needs to contain regarding mitigation for impact pathways on Habitats sites (e.g. regarding recreational pressure). The implication of this precedent is that it is not necessary for all measures to be fully developed prior to adoption of the Plan, but the Plan must provide an adequate policy framework within which these measures can be delivered.

2.2.7 When discussing mitigation for a Local Plan, one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the detail of the mitigation measures themselves since a Local Plan document is a high-level policy document.

2.2.8 In any Local Plan, there are numerous policies for which there is a limit to the degree of assessment that is possible at the Plan level. This is because either:

- The policy in question does not contain any specifics as to what will be delivered or where, and so cannot be assessed in detail at the Plan level. In these cases, the Appropriate Assessment focusses on precautionary mitigation that can be included in the plan to ensure that whatever proposals come forward will not result in adverse effects on integrity; or
- The nature of potential impacts (e.g. visual and noise disturbance arising from construction or loss of functionally linked habitat) are related to how the development will be designed and constructed, and therefore cannot be assessed in detail at the plan level. In these instances, the Appropriate Assessment focusses on available mitigation measures, the extent to which such measures would be achievable and effective, and whether an adequate protective framework exists to ensure that the policy would not lead to an adverse effect on the integrity of any internationally designated sites.

[7] People Over Wind and Sweetman v Coillte Teoranta (C-323/17)
[8] Case C-461/17

2.2.9 There are several court rulings of relevance to the level of detail required in the HRA for a Local Plan. The Court of Appeal[9] has ruled that providing the Council (competent authority) is duly satisfied that proposed mitigation could be 'achieved in practice' to satisfy that the proposed development would have no adverse effect, then this would suffice. This ruling has since been applied to planning permissions (rather than a Plan level document)[10]. In this case the High Court ruled that for '*a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Reg 61 of the Habitats Regulations'*.

2.2.10 In these instances, the advice of Advocate-General Kokott[11] is also worth considering. She commented that: *'It would …hardly be proper to require a greater level of detail in preceding plans* [rather than planning applications] *or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure* ***to the extent possible on the basis of the precision of the plan***. ***This assessment is to be updated with increasing specificity in subsequent stages of the procedure'*** [emphasis added].

[9]No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015
[10]High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015
[11] Opinion of Advocate General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN

3. Habitats Sites

3.1 Ashdown Forest SAC

Introduction

3.1.1 The Ashdown Forest SAC is an extensive area of common land located between East Grinstead and Crowborough, and entirely within Wealden District. The underlying geology of the Ashdown Sands, in combination with the wetter and cooler local climate, gives rise to sandy soils, which are characteristically acid, clay and nutrient-poor. In turn, this soil type has promoted the development of heathland, valley mire and damp woodland communities.

3.1.2 Despite a recent acceleration in the development of woodland, Ashdown Forest remains one of the largest single continuous blocks of lowland heath in south-east England. A range of typical heathland flora is supported, including heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*), gorse (*Ulex europaeus*) and dwarf gorse (*Ulex minor*). A rich invertebrate fauna (e.g. beetles, dragonflies, damselflies and butterflies) and unique assemblage of heath and woodland birds critically depend on the SAC habitat (see section on the overlapping Ashdown Forest SPA below).

3.1.3 The damp heath woodland may be varied, including birch (*Betula sp.*, acting as primary colonisers), oak (*Quercus robur*), willow (*Salix sp.*) and pine (*Pinus* sp.). In areas where grazing management has been limited, woodland often encroaches on former heath, forming dense and shaded areas with sparse ground flora. In many instances, where Natural England's site condition assessment identifies sub-components as 'unfavourable declining', a lack of grazing management has been identified as a main contributing factor to negative site condition.

Qualifying Features[12]

3.1.4 Annex I habitats:

- Northern Atlantic wet heathland with *Erica tetralix*
- European dry heaths

3.1.5 Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Great-crested newt *Triturus cristatus*

Conservation Objectives[13]

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

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

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

[12] Available at: https://sac.jncc.gov.uk/site/UK0030080 [Accessed on the 17/04/2026]
[13] Available at: http://publications.naturalengland.org.uk/publication/6183967367626752 [Accessed on the 17/04/2026]

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

Threats / Pressures to Site Integrity[14]

3.1.8 The following threats / pressures to the integrity of the Ashdown Forest SAC have been identified in Natural England's Site Improvement Plan and Supplementary Advice on Conservation Objectives:

- Change in land management;
- Air pollution: Impact of atmospheric nitrogen deposition;
- Public access / damage; and
- Hydrological changes.

3.2 Ashdown Forest SPA

Introduction

3.2.1 The mosaic of habitats, and specifically the heath and woodland, in Ashdown Forest harbours a high species richness of birds. These include woodland specialists (e.g. woodcock, tree pipits, siskins, lesser redpoll) as well as various birds of prey (e.g. buzzards, sparrowhawk, hobby). However, most notably, Ashdown Forest harbours specialist species that critically depend on the heath for survival, including the nightjar and Dartford warbler.

3.2.2 The Dartford warbler depends on mature, dry heath habitats (especially gorse) in good condition for surviving the winter. It is a ground-nesting bird that builds a grassy, cup-shaped nest under the protective cover of dense heather or gorse. Similarly, nightjar usually build their nests in small gaps in dry heather, which provides shelter and protection from potential predators. Both species depend on the rich invertebrate fauna that is supported by the heath.

Qualifying Species[15]

3.2.3 This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species:

Annex I breeding species:

- European nightjar (*Caprimulgus europaeus*) – 35 pairs (1% of the breeding population in GB)
- Dartford warbler (*Sylvia undata*) – 29 pairs (1.8% of the breeding population in GB)

Conservation Objectives[16]

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

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

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;

[14] Available at: http://publications.naturalengland.org.uk/publication/5793096570765312 [Accessed on the 17/04/2026]
[15] Available at: http://publications.naturalengland.org.uk/publication/6399918323269632 [Accessed on the 17/04/2026]
[16] Available at: http://publications.naturalengland.org.uk/publication/6399918323269632 [Accessed on the 17/04/2026]

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

Threats / Pressures to Site Integrity[17]

3.2.6 The following threats / pressures to the integrity of the Ashdown Forest SPA have been identified in Natural England's Site Improvement Plan and Supplementary Advice on Conservation Objectives:

- Change in land management;
- Air pollution: Impact of atmospheric nitrogen deposition;
- Public access / disturbance; and
- Hydrological changes.

3.3 Pevensey Levels SAC / Ramsar

Introduction

3.3.1 The Pevensey Levels SAC is a 3,585.38ha large site that encompasses humid / mesophile grassland (97.5%) and inland water bodies (2.5%). It is situated in a low-lying area between Eastbourne and Bexhill in East Sussex in the Pevensey Levels National Character Area. The SAC's underlying geology comprises sandstones and clays, overlain by low-permeability marine silts and clay. Due to its poor drainage, the site is associated with long periods of standing water, especially in winter, which attract large flocks of overwintering waterfowl and waders.

3.3.2 A high proportion of the SAC's wet meadows are extensively grazed and actively maintained by systems of drainage channels and dykes. The freshwater ditches criss-cross the site and reflect successive reclamation efforts dating back to the 13th century. These harbour significant botanical interest, including a population of the small little whirlpool ram's-horn snail (*Anisus vorticulus*), which is the qualifying feature of the SAC. Additionally, the site supports extensive wetland communities, including nationally rare aquatic plants and invertebrates, as well as a notable assemblage of breeding and wintering waterfowl.

3.3.3 In addition to its ecological importance, the Pevensey Levels SAC is important as a public water supply, wet fencing for livestock and a flood storage reservoir. It is involved in both groundwater recharge / discharge and maintenance of water quality through nutrient removal. Its location adjoining the English Channel means that the site is further important for shoreline stabilisation and dissipation of erosive forces.

SAC Qualifying Features[18]

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

- Ramshorn snail Anisus vorticulus

Ramsar Qualifying Features[19]

3.3.5 The Pevensey Levels are designated as a Ramsar for the following criteria:

Ramsar Criterion 2:

[17] Available at: http://publications.naturalengland.org.uk/publication/5793096570765312 [Accessed on the 17/04/2026]
[18] Available at: https://sac.jncc.gov.uk/site/UK0030367 [Accessed on the 17/04/2026]
[19] Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11053.pdf [Accessed on the 17/04/2026]

The site supports an outstanding assemblage of wetland plants and invertebrates including many British Red Data Book species.

Ramsar Criterion 3:

The site supports 68% of vascular plant species in Great Britain that can be described as aquatic. It is probably the best site in Britain for freshwater molluscs, one of the five best sites for aquatic beetles *Coleoptera* and supports an outstanding assemblage of dragonflies *Odonata*.

SAC Conservation Objectives[20]

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

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

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

Threats / Pressures to Site Integrity of the SAC[21]

3.3.8 The following threats / pressures to the integrity of the Pevensey Levels SAC are identified in Natural England's Site Improvement Plan:

- Inappropriate water levels;
- Invasive species; and
- Water pollution.

3.4 Lewes Downs SAC

Introduction

3.4.1 The Lewes Downs SAC is a 146ha large site comprising a range of habitats, including dry grassland / steppes (85%), heath / scrub (5%), humid / mesophile grassland (5%) and improved grassland (5%). The SAC encompasses an isolated block of downland that forms part of the South Downs. It is significant for its biodiversity-rich chalk grassland and scrub vegetation, which include several species of nationally rare orchid. In turn, these habitats support rich invertebrate fauna (including a rare moth) and a breeding population of downland birds. The majority of the site comprises unimproved species-rich chalk grassland that is distributed on steep slopes.

3.4.2 The qualifying feature of the SAC are semi-natural dry grasslands and scrubland facies on calcareous substrates. *Festuco-Brometalia* grassland is predominantly found at low to moderate altitudes and is maintained by grazing. Rare plants associated with this qualifying habitat include purple milk-vetch *Astragalus danicus*, dwarf sedge *Carex humilis*, spotted cat's-ear *Hypochaeris maculata*, spring cinquefoil *Potentilla tabernaemontani*, pasqueflower *Pulsatilla vulgaris*, bastard-toadflax *Thesium*

[20] Available at: http://publications.naturalengland.org.uk/publication/6293054151458816 [Accessed on the 17/04/2026]
[21] Available at: http://publications.naturalengland.org.uk/publication/6057793526169600 [Accessed on the 17/04/2026]

humifusum and the Annex II species early gentian *Gentianella anglica*. Notable bryophytes and lichens are also associated with this habitat.

Qualifying Features[22]

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

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (note that this includes important orchid sites)

Conservation Objectives[23]

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

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

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

Threats / Pressures to Site Integrity[24]

3.4.6 The following threats / pressures to the integrity of the Lewes Downs SAC have been identified in Natural England's Site Improvement Plan:

- Game management: Pheasant rearing;
- Undergrazing;
- Public access / disturbance; and
- Air pollution: Impact of atmospheric nitrogen deposition.

3.5 Castle Hill SAC

Introduction

3.5.1 The Castle Hill SAC is a 114.54ha large site that encompasses dry grassland / steppes (90%), humid / mesophile grassland (5%) and heath / scrub (5%). It is situated in the South Downs National Character Area and South Downs National Park. The site is one of the best examples in East Sussex of the nationally uncommon chalk grassland habitat. Particular variations of plant and animal communities are seen along gradients of aspect and slope. Notable species in the sward include sheep's-fescue Festuca ovina, meadow oat-grass Helictotrichon pratense, upright brome Bromopsis erecta and tor-grass Brachypodium pinnatum.

3.5.2 The plant communities within the SAC also support a number of rare and scarce species, including spider-orchid *Ophrys sphegodes*, burnt orchid *Orchis ustulate* and early gentian *Gentianella anglica*. Scrub compartments provide breeding habitat for a range of downland birds, such as yellowhammer, corn bunting, linnet and whitethroat. A rich orthopteran fauna is also associated with the site, including great green bush cricket and wart-biter grasshopper.

[22] Available at: https://sac.jncc.gov.uk/site/UK0012832 [Accessed on the 17/04/2026]
[23] Available at: http://publications.naturalengland.org.uk/publication/4618459505754112 [Accessed on the 17/04/2026]
[24] Available at: http://publications.naturalengland.org.uk/publication/5857326774878208 [Accessed on the 17/04/2026]

Qualifying Features[25]

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

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (note that this includes important orchid sites).

3.5.4 Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Early gentian Gentianella anglica,

Conservation Objectives[26]

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

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

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

Threats / Pressures to Site Integrity[27]

3.5.7 The following threats / pressures to the integrity of the Castle Hill SAC are identified in Natural England's Site Improvement Plan:

- Undergrazing;
- Fertiliser use; and
- Air pollution: Impact of atmospheric nitrogen deposition.

[25] Available at: https://sac.jncc.gov.uk/site/UK0012836 [Accessed on the 17/04/2026]
[26] Available at: http://publications.naturalengland.org.uk/publication/6088288314064896 [Accessed on the 17/04/2026]
[27] Available at: http://publications.naturalengland.org.uk/publication/6241234389565440 [Accessed on the 17/04/2026]

4. Identified Impact Pathways

4.1 Atmospheric Pollution (Nitrogen Deposition)

4.1.1 The main emitted pollutants of concern for Habitats sites are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2) and are summarised in Table 1. Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[28]. NOx can also be toxic at very high concentrations (far above the annual average Critical Level). Elevated NOx and NH_3 also increases the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems depending on sensitivity, extent of area affected and other factors. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This can have adverse effects on the community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats[29] [30].

Table 1: Main sources and effects of air pollutants on habitats and species[31]

Pollutant	Source	Effects on habitats and species
Sulphur Dioxide (SO_2)	The main sources of SO_2 are electricity generation, and industrial and domestic fuel combustion. Total SO_2 emissions in the UK have decreased substantially since the 1980's and our concentrations are now generally very low. Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO_2 have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO_2 emissions in the UK.	Wet and dry deposition of SO_2 acidifies soils and freshwater and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However, SO_2 background levels have fallen considerably since the 1970's and are presently not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.
Acid deposition	Leads to acidification of soils and freshwater via atmospheric deposition of SO_2, NOx, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most contributed to lower sulphate levels. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.	Gaseous precursors (e.g. SO_2) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. This can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include the lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants. Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.

[28] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[29] Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. (2006). Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* **38**: 161-176.
[30] Dijk, N. (2011). Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation. *Global Change Biology* **17**: 3589-3607.
[31] Information summarised from the Air Pollution Information System (http://www.apis.ac.uk/).

Pollutant	Source	Effects on habitats and species
Ammonia (NH_3)	Ammonia is a reactive, soluble alkaline gas released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock. It is also emitted from the catalytic converters of certain vehicles, particularly petrol cars. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4+) - containing aerosol. Due to its significantly longer lifetime, NH_4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	The negative effect of NH_4+ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	Nitrogen oxides are mostly produced in combustion processes. Half of NO_X emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes. Nitrogen oxides, particularly from traffic, have been consistently falling for many years, notwithstanding an increase in traffic on the network, due to improved vehicle emissions technology.	Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NOx for all vegetation types has been set to 30 ug/m3. Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification. In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.
Nitrogen deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_X) or reduced (e.g. NH_3) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices. However, at a local scale, road traffic makes a significant contribution. The N pollutants together are a large contributor to acidification (see above).	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above). Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40ppb	Concentrations of O_3 above 40 ppb can be toxic, to both humans and wildlife, and can affect buildings. High O_3 concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in

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

4.1.2 Emissions of NOx and, at a local scale, ammonia can reasonably be expected to increase as a result of the Plan, primarily due to an increase in the volume of commuter traffic associated with housing growth.

4.1.3 The World Health Organisation has the following critical thresholds for plant communities: The critical NOx concentration (critical threshold) for the protection of vegetation is 30 μgm^{-3}, that for ammonia is 3 μgm^{-3} (1 μgm^{-3} for lower plants) and the threshold for sulphur dioxide is 20 μgm^{-3}. Additionally, ecological studies have determined 'Critical Loads'[32] of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH_3).

4.1.4 According to the Department for Transport's Transport Analysis Guidance, beyond 200m, the contribution of vehicle emissions from the roads to local pollution levels is insignificant (Figure 3 and reference[33]). Additionally, guidance from Natural England[34] indicates that 200m is an appropriate screening distance for the impacts of air quality as a result of road traffic emissions. Therefore, this distance has been used throughout this HRA to determine whether Likely Significant Effects (LSEs) on sensitive Habitats sites may arise due to implementation of the Plan.

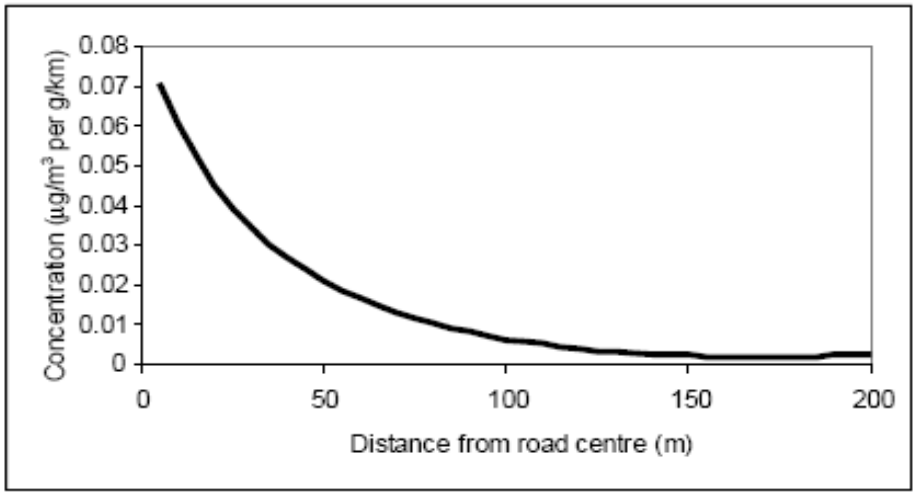


Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT[35])

4.1.5 Several studies have been previously commissioned by Wealden District Council to consider the impact of traffic associated with new housing and employment development at Ashdown Forest. For example, an Air Quality Monitoring and Modelling Study was undertaken by Air Quality Consultants ltd, which highlighted that the annual mean critical levels for both NH_3 and NOx was exceeded in close proximity to the roads traversing the SAC. However, that study was undertaken approaching a decade ago and a lengthy programme of air quality monitoring has since been undertaken by the Council to develop an improved baseline. Particularly regarding ammonia, this shows that roadside ammonia concentrations are in fact generally below the minimum critical level of 1 μgm^{-3}. This monitoring data has been taken into account in the air quality modelling undertaken for this iteration of the Local Plan.

[32] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur.
[33] Available at: http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013 [Accessed on the 06/01/2026]
[34] Available at: https://publications.naturalengland.org.uk/publication/4720542048845824 [Accessed on the 17/04/2026]
[35] Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20140715150031/http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf [Accessed on the 06/01/2026]

4.1.6 With regards to ammonia and nitrogen deposition, despite studies undertaken in the past by the Council and others it has generally been difficult to attribute variation in heathland habitats to air quality, primarily due to a range of confounding variables such as grazing management, visitor pressure and other roadside physical disturbances (e.g. salt spray, particulates and debris). Another study undertaken by ECUS on behalf of Wealden District Council, investigated ecological impacts caused by nitrogen deposition along 15 road transects in the Ashdown Forest SAC. The study determined that the transects showed low overall species richness, but also that this tended to decline with distance from the road (in other words diversity was greater closer to the road than more distant, the opposite of what one might expect if nitrogen deposition were the main factor governing vegetation composition). Furthermore, there was no correlation between soil total nitrogen levels with distance from the road, implying that road traffic alone clearly does not account for soil chemistry variation and species composition.

4.1.7 As a general rule, and as confirmed by Natural England in the past via their Discretionary Advice Service, long-term undergrazing and inadequate management is considered the primary reason as to why Ashdown Forest SAC does not support good quality heathland. For example, a review of the Natural England SSSI condition assessment covering the SAC clearly indicates that historic (and in many cases current) inadequate management is the reason why only 20% of Ashdown Forest SAC is currently in a favourable condition. Roads can have a significant effect, but their effect will be most felt closest to the road which is generally the habitat less representative of SAC features and is affected by a range of other factors controlling vegetation composition, known as edge effects. Away from the roadside, agriculture makes the greatest contribution to nitrogen deposition across the SAC. Notwithstanding this, atmospheric pollution from road traffic clearly continues to be a contributing risk regarding the integrity of the Ashdown Forest SAC and requires particular attention in HRAs of Local Plans, hence the monitoring and modelling undertaken to inform this assessment.

4.1.8 The following Habitats sites within 10km of the Wealden District boundary are sensitive to atmospheric nitrogen deposition, primarily due to the presence of nutrient-limited habitats and / or species (the sites in **bold** are taken forward into the following HRA chapters), and lie within 200m of relevant roads:

- **Ashdown Forest SAC / SPA (located in the north-west of Wealden District)**
- **Lewes Downs SAC (located approx. 2.9km to the west of Wealden District in the adjoining authority of Lewes District)**

4.2 Recreational Pressure

4.2.1 There is concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfill conservation objectives while also providing recreational opportunity. Various research reports have provided compelling links between changes in housing and access levels[36], and impacts on Habitats protected sites[37] [38]. This applies to any habitat, but recreational pressure from housing growth is of particular significance for Habitats sites designated for their bird interest. Different Habitats sites are subject to different types of recreational pressures and have different vulnerabilities. Studies across a range of species have shown that the effects from recreation can be complex. HRAs of planning documents tend to focus on recreational sources of disturbance as a result of new residents.

Trampling Damage, Nutrient Enrichment and Wildfires

4.2.2 Most terrestrial habitats (especially heathland, woodland and dune systems) can be affected by trampling and other mechanical damage, which dislodges individual plants, leads to soil compaction and erosion. The following studies have assessed the impact of trampling associated with different recreational activities in different habitats:

[36] Weitowitz D.C., Panter C., Hoskin R. & Liley D. (2019). The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology* **5**. https://doi.org/10.1093/jue/juz019
[37] Liley D, Clarke R.T., Mallord J.W., Bullock J.M. (2006a). The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Natural England / Footprint Ecology.
[38] Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. (2006b). Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. Footprint Ecology / Dorset County Council.

- Wilson & Seney[39] examined the degree of track erosion caused by hikers, motorcyclists, horse riders and cyclists in 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.

- Cole et al[40] conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphology was found to explain more variation in response than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. The cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.

- Cole [41] conducted a follow-up study (across four vegetation types) in which shoe type (trainers or walking boots) and trampling weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier tramplers caused a greater reduction in vegetation height than lighter tramplers, but there was no differential impact on vegetation cover.

- Cole & Spildie[42] experimentally compared the effects of off-track trampling by hikers and horse riders (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse trampling was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance but recovered rapidly. Generally, it was shown that higher trampling intensities caused more disturbance.

- In heathland sites, trampling damage can affect the value of a site to wildlife. For example, heavy use of sandy tracks loosens and continuously disturbs sand particles, reducing the habitat's suitability for invertebrates[43]. Species that burrow into flat surfaces such as the centres of paths, are likely to be particularly vulnerable, as the loose sediment can no longer maintain their burrow. In some instances, nature conservation bodies and local authorities resort to hardening paths to prevent further erosion. However, this is concomitant with the loss of habitat used by wildlife, such as sand lizards and burrowing invertebrates.

4.2.3 A major concern for nutrient-poor terrestrial habitats (e.g. heathlands, sand dunes, bogs and fens) is nutrient enrichment associated with dog fouling (addressed in various reviews, e.g**.** footnote 44). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a more spread out distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and

[39] Wilson, J.P. & J.P. Seney. (1994). Erosional impact of hikers, horses, motorcycles and off-road bicycles on mountain trails in Montana. *Mountain Research and Development* **14**:77-88
[40] Cole, D.N. (1995a). Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* **32**: 203-214
Cole, D.N. (1995b). Experimental trampling of vegetation. II. Predictors of resistance and resilience. *Journal of Applied Ecology* **32**: 215-224
[41] Cole, D.N. (1995c). Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.
[42] Cole, D.N., Spildie, D.R. (1998). Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* **53**: 61-71
[43] Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.
[44] Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. (2005). Dogs, access and nature conservation. English Nature Research Report, Peterborough.

60 tonnes of dog faeces are deposited annually[45]. While there is limited information on the chemical constituents of dog faeces, nitrogen is one of the main components[46]. Nutrient availability is the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in a shift towards plant communities that are more typical of improved grasslands.

Bird Disturbance

4.2.4 Human activity can affect birds either directly (e.g. by eliciting flight responses) or indirectly (e.g. by damaging habitat or reducing bird fitness in less obvious ways such as through inducing stress responses). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to much subtler behavioural (e.g. alterations in feeding behaviour, avoidance of certain areas and use of sub optimal areas etc.) and physiological changes (e.g. an increase in heart rate). While such changes are less noticeable, they might result in major population-level changes by altering the balance between immigration / birth and emigration / death[47].

4.2.5 Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and time spent responding to disturbance is time that is not spent feeding[48]. Disturbance therefore increases energetic expenditure while reducing energetic intake, which can adversely affect the 'condition' and ultimately survival of birds. Additionally, displacement of birds from one feeding site to another can increase the pressure on the resources available within alternative foraging sites, which must sustain a greater number of birds[49]. Moreover, the higher proportion of time a breeding bird spends away from its nest, the more likely it is that eggs will cool and the more vulnerable they, or any nestlings, are to predators. Recreational effects on ground-nesting birds are particularly severe, with many studies concluding that urban sites support lower densities of key species, such as stone curlew and nightjar[50] [51].

4.2.6 Several factors (e.g. seasonality, type of recreational activity) may have pronounced impacts on the nature of bird disturbance. Disturbance in winter may be more impactful because food shortages make birds more vulnerable at this time of the year. In contrast, this may be counterbalanced by fewer recreational users in the winter months and lower overall sensitivity of birds outside the breeding season. Evidence in the literature suggests that the magnitude of disturbance clearly differs between different types of recreational activities. For example, dog walking leads to a significantly higher reduction in bird diversity and abundance compared to hiking[52]. Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers[53]. Furthermore, differences in on-site route lengths and usage patterns likely imply that key spatial and temporal parameters (such as the area of a site potentially impacted and the frequency of disturbance) will also differ between recreational activities. This suggests that activity type is a factor that ought to be taken into account in HRAs.

4.2.7 With respect to heathland birds specifically, Liley and Clarke[54,55] found that the density of European nightjar *Caprimulgus europaeus* was directly related to the amount of surrounding development, with sites surrounded by higher levels of development supporting fewer nightjars. The species' breeding

[45] Barnard A. (2003). Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* **11**:16-19.
[46] Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.
[47] Riley, J. (2003). Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.
[48] Riddington, R. *et al*. (1996). The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* **43**:269-279.
[49] Gill, J.A., Sutherland, W.J. & Norris, K. (1998). The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* **12**: 67-72.
[50] Clarke R.T., Liley D., Sharp J.M., Green R.E. (2013). Building development and roads: Implications for the distribution of stone curlews across the Brecks. *PLOS ONE*. https://doi:10.1371/journal.pone.0072984.
[51] Liley D. & Clarke R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. Biological Conservation **114**: 219-230.
[52] Banks P.B., Bryant J.Y. (2007). Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* **3**: 14pp.
[53] Miller S.G., Knight R.L., Miller C.K. (2001). Wildlife responses to pedestrians and dogs. *Wildlife Society Bulletin* **29**: 124-132.
[54] Liley, D. & Clarke, R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation* **114**: 219-230.
[55] Liley, D. & Clarke, R.T. (2002) The impact of human disturbance and human development on key heathland bird species in Dorset. Sixth National Conference (eds Underhill, J.C. & Liley, D.). RSPB, Bournemouth.

success appears to be much higher at less visited sites[56], with path proximity correlating strongly with nest failure, up to 225m from the path edge. Although Dartford warblers do not appear to be as sensitive to human disturbance (possibly as they are not ground-nesting), their breeding parameters are still affected by disturbance levels from humans and their pets[57].

Summary

4.2.8 Several Habitats sites in Wealden District and adjoining authorities are designated for habitats and species that are sensitive to recreational pressure, including the Ashdown Forest SAC (supports parcels of dry and wet heathland), Ashdown Forest SPA (supports nightjar and Dartford warbler, which nest on or close to the ground), Lewes Downs SAC (supports semi-natural dry grassland and scrubland habitat on calcareous substrates) and the Castle Hill SAC (designated for semi-natural dry grassland and scrubland). The increase in residential development allocated in the Wealden Local Plan would lead to an increase in the local population and demand for access to outdoor spaces. The HRA process needs to adequately assess potential recreational pressure effects of the Plan on these Habitats sites.

4.2.9 Overall, the following Habitats sites within 10km of the Wealden District boundary are sensitive to increased recreational access, due to the allocation of residential development in the Wealden Local Plan (the sites in **bold** are taken forward into the following HRA chapters):

- **Ashdown Forest SAC / SPA (located in the north-west of Wealden District)**
- **Lewes Downs SAC (located approx. 2.9km to the west of Wealden District in the adjoining authority of Lewes District)**
- **Castle Hill SAC (located approx. 9.9km to the west of Wealden District in the authorities of Lewes District and Brighton and Hove City Council)**

4.3 Water Quantity, Level and Flow

4.3.1 The unique nature of wetlands combines shallow water, high levels of nutrients and high primary productivity. These conditions are ideal for the growth of organisms at the basal level of food webs, which sustain a wide range of birds, mammals, fish and amphibians. Overwintering and migrating wetland bird species are particularly reliant on these food sources, as they need to build up enough nutritional reserves to sustain their long migration routes.

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

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

[56] Murison, G. (2002). The Impact of Human Disturbance on the Breeding Success of the Nightjar *Caprimulgus europaeus* on Heathlands in South Dorset, England. English Nature.
[57] Murison, G.C. (2007). The impact of human disturbance, urbanisation and habitat type on a Dartford warbler *Sylvia undata* population. PhD thesis, University of East Anglia.

4.3.3 Specifically, the Site Improvement Plan for the Pevensey Levels SAC[58], and its Supplementary Advice on Conservation Objectives, identifies inappropriate water levels as a primary threat to site integrity. The SAC (and overlapping Ramsar) is a complex managed hydrological system in which adequate water levels must be maintained to provide optimum habitat to the ram's-horn snail and British Red Data Book wetland invertebrates. The site has a complex hydrology which is subject to a water level management plan. The Environment Agency and the Pevensey and Cuckmere Water Level Management Board are jointly responsibility for delivering this plan. Levels are controlled by a series of sluices and pumping stations. Maintaining adequate water levels (0.3cm below ditch neck) is critical to the SAC qualifying features. A reduced freshwater supply due to higher abstraction volumes and increased surface water runoff from impermeable urban surfaces may both threaten the hydrological conditions within the SAC / Ramsar. It is to be noted that the WwTW at Hailsham plays an integral role in maintaining freshwater supply to the SAC / Ramsar in the summer months via the discharge of treated effluent. The Ashdown Forest SAC, partly designated for its areas of wet heath, is also sensitive to hydrological changes resulting from the Plan.

4.3.4 The emerging Wealden Local Plan could result in changes to the water quantity, level and flow in the catchment of several Habitats sites, if it required additional abstractions from sources that are hydrologically connected to these sites. This may alter the water level within the designated sites themselves with potential cascading effects on qualifying species or habitats. Overall, the following Habitats sites are considered to be sensitive to changes in water quantity, level and flow (**sites in bold are taken forward to the following chapters of the HRA**):

- **Pevensey Levels SAC / Ramsar (located in the south-east part of Wealden District and partly in the adjoining authority of Rother District)**
- **Ashdown Forest SAC (located in the north-west of Wealden District)**

4.4 Water Quality

4.4.1 Water quality is an important determinant of the nature and condition of qualifying habitats and species in Habitats sites. Declining water quality can have a range of environmental impacts:

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

4.4.2 The main risk associated with the Wealden Local Plan is an increase in the discharge of treated sewage effluent from Wastewater Treatment Works (WwTWs) serving Wealden District. This may increase nutrient concentrations (phosphorus is the main limiting nutrient in freshwater habitats) in Habitats sites that are hydrologically connected to waterbodies receiving sewage effluent.

4.4.3 The Local Plan assessed in this HRA provides for development in the area served by Southern Water, responsible for the public water supply and wastewater treatment in large areas of south England. In Wealden District, Southern Water is only responsible for wastewater treatment. The potential implications of growth for the WwTWs serving Wealden District are outlined in Table 2 below.

Table 2: Wastewater Treatment Works (WwTWs) serving Wealden District, the growth allocated or

[58] Available at: http://publications.naturalengland.org.uk/publication/6057793526169600 [Accessed on the 22/10/2021]

committed and resulting HRA implications.

WwTWs serving Wealden District	Residential and employment development quantum allocated in the Wealden Local Plan	HRA implications
Hailsham North, Hailsham South, Buxted, Uckfield, Ripe, Redgate Mill (Crowborough), East Hoathly, Fletching, Hartfield, Rotherfield, Mayfield, Vines Cross, Windmill Hill, Maresfield, Hooe and Whitegates Lane (Wadhurst). Certain locations in the district are served by WwTWs outside the District including the Tunbridge Wells South and Eastbourne WTWs. (operated by Southern Water)	16,609 new residential dwellings, 159,530m^2 of employment floorspace and between 7,600 m^2 and 9,700 m^2 of convenience retail floorspace and between 7,600 m^2 and 11,900 m^2 of comparison retail floorspace.	Discharge of treated sewage effluent and industrial pollutants into local watercourses (e.g. the Hurst Haven at Hailsham Waterbody and Horse Eye Sewer Waterbody) that are in hydrological continuity with the Pevensey Levels SAC / Ramsar and could affect water quality in that site.

4.4.4 Overall, the following Habitats sites are sensitive to negative changes in water quality, primarily due to increased discharge volumes of treated sewage effluent from WwTWs (**sites in bold are taken forward to the following chapters of the HRA**):

- **Pevensey Levels SAC / Ramsar (located in the south-east part of Wealden District and partly in the adjoining authority of Rother District)**

5. Screening for Likely Significant Effects (LSEs)

5.1 Atmospheric Pollution (Nitrogen Deposition)

Ashdown Forest SAC

5.1.1 The Ashdown Forest SAC is primarily designated for its extensive, continuous block of lowland heathland, comprising northern wet heath with *Erica tetralix* and European dry heath. The Air Pollution Information System (APIS) identifies both habitats as being sensitive to atmospheric pollution with a nitrogen Critical Load (CL) of 5-15 kg N/ha/yr. This was lowered nationally for heathland in spring 2023, from the previous range of 10-20 kgN/ha/yr. An exceedance of the CL may lead to a change in botanical community composition, favouring more competitive grasses over heather species. High nitrogen concentrations can also make ericaceous species more susceptible to impacts from frost and drought. In dry heaths, elevated nitrogen levels may lead to a decline in lichens and changes in plant biochemistry. The current deposition trends for the SAC indicate that the minimum CL is already being exceeded, with typical background nitrogen deposition to heathland recorded as c. 14 kg N/ha/yr with higher levels closer to the roads.

5.1.2 The SAC sits entirely within Wealden District and is traversed by three potential commuter roads (A22, A275 and A26) as well as numerous smaller roads. Review of habitat mapping on MAGIC indicates that extensive fragments of heathland are located within the 200m screening distance for roadside atmospheric pollution effects from vehicular traffic on all of those roads. Furthermore, two roads are

likely to be key routes for commuters travelling to / from the adjoining authorities (connecting Uckfield to East Grinstead and Tunbridge Wells – A22 and A26 respectively, and Lewes to East Grinstead – A275). Natural England's Site Improvement Plan highlights atmospheric pollution as being second to inadequate land management as a pressure on the integrity of the SAC, with parts of the site experiencing declines in heather coverage and becoming increasingly dominated by grasses. **The Wealden Local Plan will significantly increase the population and employment opportunities within the District, resulting in more commuter journeys being undertaken within 200m of sensitive habitats. Therefore, Likely Significant Effects (LSEs), both alone and in-combination, cannot be excluded and the site is screened in for Appropriate Assessment regarding this impact pathway.**

5.1.3 Great-crested newts are an Annex II qualifying feature of the SAC, which rely on freshwater ponds for reproduction, with larvae emerging between August and October. They prefer well vegetated ponds in a range of settings, including pastoral and arable farmland. While it is noted that the newts do not necessarily require high water quality, APIS identifies the species' broad habitat (standing open water and canals) as sensitive to atmospheric pollution. However, the main limiting nutrient in freshwater is phosphorus (which is not associated with road traffic), with nitrogen being of much lower importance. Great crested newts will use a wide range of terrestrial habitats provided they have sufficient cover, and therefore the relatively subtle botanical effects of changes in nitrogen deposition will not affect their habitat use. **Therefore, this HRA does not consider great-crested newts further in relation to atmospheric pollution.**

Lewes Downs SAC

5.1.4 The Lewes Downs SAC is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates (includes important orchid sites) for which APIS identifies a CL of 10-20 kg N/ha/yr. This is a downwards revision undertaken in spring 2023 for all calcareous grassland sites, as the previous minimum part of the critical load range was 15 kgN/ha/yr. In this habitat type excessive nitrogen deposition can lead to an increase in tall grasses, a decrease in botanical diversity, nitrogen leaching and surface acidification. The current typical background nitrogen deposition to the SAC according to APIS is c. 13 kg N/ha/yr (12.3 kgN to 12.6 kgN depending on location), which exceeds the minimum CL identified for the site since spring 2023. The SAC also comprises important lichen and bryophyte elements that are sensitive to ammonia (NH_3) deposition. Natural England's Site Improvement Plan for the SAC identifies atmospheric pollution as a pressure on the site, aiming to '*control, reduce and ameliorate atmospheric nitrogen impacts*'.

5.1.5 The SAC stretches along the A26, which in turn runs on a north-south axis to the east of the town of Lewes. Habitat mapping on APIS shows that there is lowland calcareous grassland within approx. 50m from the A26. Calcareous grassland lies within the 200m screening distance at several other locations along this stretch of road. The A26 is the main strategic route that connects the authorities of Wealden and Lewes, implying that it is reasonable to expect an increase in commuter traffic on the road due to implementation of the Plan. **Therefore, LSEs of the Wealden Local Plan on the Lewes Downs SAC regarding atmospheric pollution cannot be excluded and the site is screened in for Appropriate Assessment regarding this impact pathway.**

Castle Hill SAC

5.1.6 Castle Hill SAC is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates (this includes important orchid sites) that have a nitrogen CL of 10-20 kg N/ha/yr (see previous section). Natural England's Site Improvement Plan (SIP) list the impact of atmospheric nitrogen deposition as a key pressure to the site with potential knock-on effects on community composition. However, a review of the road network shows that there are no major ('A') roads within 200m of the Castle Hill SAC (the closest point being approx. 1.7km from the A27). Therefore, it is concluded that road traffic is unlikely to be a major contributor to nitrogen deposition across the SAC, especially compared to nitrogen from agricultural sources. Indeed, the SIP specifies that fertiliser use on land bordering the SAC, such as on arable land parcels sloping down towards the site, is a major contributor of nitrogen through erosion, leaching and runoff. **Overall, LSEs of the Wealden Local Plan on the Castle Hill SAC regarding atmospheric pollution can be excluded and the site is screened out from Appropriate Assessment in relation to this impact pathway.**

Policy Screening

5.1.7 A review of the emerging WLP indicates that LSEs in relation to atmospheric pollution cannot be excluded for several policies due to the allocation of residential / employment growth and the concomitant increase in commuter traffic. The following policies need to be taken forward to Appropriate Assessment:

- Policy SS2 (Provision of Homes) – identifies the delivery of 16,609 dwellings over the WLP period;
- Policy SS3 (Gypsy, Traveller and Travelling Showpeople – Accommodation Needs) – identifies 51 pitches for gypsies and travellers and 3 plots for travelling showpeople to be delivered over the WLP period;
- Policy SS4 (Retail Provision and Town Centres) – supports the provision of between 7,600 sqm and 9,700 sqm of convenience retail floorspace and between 7,600 sqm and 11,900 sqm of comparison retail floorspace by 2040;
- Policy SS5 (Provision of Employment Floorspace) – stipulates that at least 159,530m^2 of employment floorspace of different use classes will be delivered across the district over the Plan period;
- Policy SS6 (Strategic Employment Allocations) – identifies the Strategic Employment Allocations, and therefore employment opportunities, that will be delivered over the WLP period; and
- Policy SA1 (Housing and Mixed Use Sites) – Allocates numerous sites for residential and mixed-use development.

5.2 Recreational Pressure

Ashdown Forest SPA / SAC

5.2.1 The qualifying ground-nesting birds in the Ashdown Forest SPA (nightjar and Dartford warbler) are sensitive to disturbance, particularly from visitors that walk their dogs off-lead. These species nest on or close to the ground and disturbance can lead to reduced time spent incubating eggs, provisioning for chicks, increased energy expenditure and, in the case of prolonged disturbance, abandonment of eggs. Recreational trampling can also lead to the destruction of eggs, killing of chicks and damage to SAC vegetation upon which qualifying birds rely. Natural England's Site Improvement Plan identifies public access as potentially impacting breeding birds in the SPA and work that is ongoing to reduce visitor pressure, including baseline work to identify current impacts and identifying necessary mitigation interventions.

5.2.2 Previous visitor surveys undertaken within the Ashdown Forest SPA / SAC, entirely situated within Wealden District, have established the site as an attractive and compelling destination, attracting visitors from a large geographical catchment. Data from the surveys have been used to identify a core recreational catchment (i.e. the zone that 75% of visitors to the site derive from based on the linear distance to home postcodes) for the SPA / SAC of 7km, which includes a large portion of Wealden District including the nearest major settlements of Crowborough and Uckfield. Therefore, it can be reasonably expected that residential growth in the authority would result in increased visitor numbers and disturbance in the SPA / SAC. A review of Natural England's SSSI condition assessments further corroborates this. For example, the assessment for East Chase Unit 47 states that the area is heavily used by walkers (especially dog walkers), although there is little evidence to indicate that visitors venture far off-track.

5.2.3 The available evidence base highlights that recreational pressure is a continuing concern for the Ashdown Forest SPA / SAC, with visitor numbers expected to further increase due to emerging Local Plans. Therefore, LSEs of the Wealden Local Plan on the Ashdown Forest SPA / SAC regarding recreational pressure cannot be excluded and these sites are screened in for Appropriate Assessment.

Lewes Downs SAC

5.2.4 The site is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates, the grassland components of which are more sensitive to recreational trampling and nutrient enrichment from dog faeces. Trampling damage is of elevated concern where the sward comprises grasslands containing significant orchid assemblages or rare orchid species. The Lewes Downs SAC supports a range of rare and scarce orchids including early spider-orchid, burnt orchid (one of the largest colonies in the UK) and musk orchid. Natural England's Site Improvement Plan lists public access as a pressure on the SAC, although particularly in relation to large-scale, unconsented gatherings, which '*can create serious damage through trampling*', particularly when confined to small parts of the site. The increase in recreational pressure that is likely to arise due to the implementation of the Wealden Local Plan will primarily occur as small-scale, discrete recreational visits that are unlikely to result in excessive footfall in sub-sections of the SAC.

5.2.5 Site accessibility is a major factor in determining potential recreational impacts in nature conservation sites. For example, there is only one formal car park that serves the SAC in Glynde, indicating that the vast majority of visitors are likely to be local residents. The Lewes Downs SAC lies approx. 2.9km to the west of Wealden District, implying that visitors from the authority are likely to be restricted to car travel. Furthermore, a review of OS mapping on outdooractive highlights the steep terrain of the SAC is only permeated by a few foot paths. It is considered that most visitors will be discouraged from walking off-track by the adjoining steep terrain, providing natural protection to the sensitive chalk grassland and orchid species. HRAs for Lewes Local Plan, the South Downs National Park Local Plan and other authorities have not identified recreational pressure as a significant concern for this SAC. **Overall, it is concluded that LSEs of the Wealden Local Plan on the Lewes Downs SAC regarding recreational pressure can be excluded and the site is screened out from Appropriate Assessment.**

Castle Hill SAC

5.2.6 With regard to recreational trampling, the sensitivity and overall situation of the Castle Hill SAC is similar to the Lewes Downs SAC which was discussed in the previous section. The site is designated for grasslands and scrubland facies on calcareous substrates, which are distributed over steeply sloping hills. There is a limited number of footpaths that permeate the SAC and it is considered that most visitors will stick to the route network without venturing off path. At a distance of 9.9km from Wealden District (and only one formal car park situated to the west of the SAC in Woodingdean), the site also lies far beyond the core recreational catchment that is documented for most inland, terrestrial Habitats sites (typically approx. 5km). The Lewes Local Plan HRA, the South Downs Local Plan HRA and Brighton & Hove Local Plan HRA all considered recreational pressure on the SAC but determined that it was of low susceptibility. **Overall, it is concluded that there will be no LSEs of the Wealden Local Plan on the Castle Hill SAC regarding recreational pressure and the site is screened out from Appropriate Assessment regarding this impact pathway.**

Policy Screening

5.2.7 A review of the emerging WLP indicates that LSEs in relation to recreational pressure cannot be excluded for several policies due to the allocation of residential growth and a concomitant increase in the local population. The following policies need to be taken forward to Appropriate Assessment:

- Policy SS2 (Provision of Homes) – identifies the delivery of 16,609 dwellings over the WLP period;
- Policy SS3 (Gypsy, Traveller and Travelling Showpeople – Accommodation Needs) – identifies 51 pitches for gypsies and travellers and 3 plots for travelling showpeople to be delivered over the WLP period; and
- Policy SA1 (Housing and Mixed Use Sites) – Allocates numerous sites for residential and mixed-use development.

5.3 Water Quantity, Level and Flow

Pevensey Levels SAC / Ramsar

5.3.1 The emerging Wealden Local Plan will lead to an increased requirement for potable water consumption for households and industrial sites. If this requirement is met by an increase in consented abstraction volumes or the development of new water resources, this can result in changes to the integrity of hydrologically connected Habitats sites, such as through reduced water levels or flows. Runoff from impermeable urban surfaces can also lead to increased volumes of surface water input and flash floods in nearby nature conservation sites.

5.3.2 The Pevensey Levels SAC is designated for its population of ram's-horn snails and Natural England's Site Improvement Plan and Supplementary Advice on the Conservation Objectives highlights that maintaining adequate water levels (0.3cm below ditch neck) is critical to the survival and migration of this species. Furthermore, the overlapping Ramsar is designated for its assemblage of wetland plants and invertebrates, which all depend on appropriate water levels throughout at least parts of their life cycle. The SAC has been identified as having a relatively narrow hydrological catchment, with water levels primarily being determined by a few key rivers that traverse the plain.

5.3.3 The Pevensey Levels Ramsar is designated for its assemblage of wetland plants and invertebrates (especially Coleoptera and Odonata), which all require appropriate water levels.

5.3.4 Given the baseline evidence, LSEs of the Wealden Local Plan on the Pevensey Levels SAC / Ramsar regarding water quantity, level and flow cannot be excluded, and **the site is screened in for Appropriate Assessment** in relation to this impact pathway. In particular, the following policies are screened in because they will increase demand for clean drinking water and proliferate urban surfaces within Wealden District:

- Policy SS2 (Provision of Homes) – identifies the delivery of 16,609 dwellings over the WLP period;
- Policy SS3 (Gypsy, Traveller and Travelling Showpeople – Accommodation Needs) – identifies 51 pitches for gypsies and travellers and 3 plots for travelling showpeople to be delivered over the WLP period;
- Policy SS4 (Retail Provision and Town Centres) – supports the provision of 7,600 sqm and 9,700 sqm of convenience retail floorspace and between 7,600 sqm and 11,900 sqm of comparison retail floorspace by 2040;
- Policy SS5 (Provision of Employment Floorspace) – stipulates that at least 159,530m^2 of employment floorspace of different use classes will be delivered across the district over the Plan period;
- Policy SS6 (Strategic Employment Allocations) – identifies the Strategic Employment Allocations, and therefore employment opportunities, that will be delivered over the WLP period; and
- Policy SA1 (Housing and Mixed Use Sites) – Allocates numerous sites for residential and mixed-use development.

Ashdown Forest SAC

5.3.5 The Ashdown Forest SAC is partly designated for its wet heaths with *Erica tetralix* (Annex I habitat). Wet heathland forms on a range of nutrient-poor substrates with impeded drainage, such as shallow peats and sandy soils. Depending on their location, wet heaths may be primarily fed by rainwater or groundwater. The latter is particularly important in valley basins where groundwater comes close to the surface, and this is the type of wet heath that may be predominantly impacted by increases in water abstraction.

5.3.6 Natural England's Site Conservation Objectives Supplementary Advice specifies that wet heath depends on hydrological supporting processes and establishes that an appropriate hydrological regime is required for the site to achieve its Conservation Objectives. Changes in the source, depth,

duration, frequency, magnitude and timing of freshwater supply can significantly alter botanical community composition. For example, an increased drying of wet heath may result in the long-term reduction of coverage by moisture-loving species, such as *Erica tetralix*. As part of their air quality and ecology monitoring / modelling work, Ecus mapped the distribution of different vegetation types and habitats across the SAC. The data indicates that wet heath is primarily distributed across the central, eastern and southern areas of the site, which would also be most sensitive to reduced hydrological input.

5.3.7 **Overall, LSEs of the Wealden Local Plan on the Ashdown Forest SAC regarding water quantity, level and flow cannot be excluded and the site is screened in for Appropriate Assessment in relation to this impact pathway.**

5.4 Water Quality

Pevensey Levels SAC / Ramsar

5.4.1 The Pevensey Levels SAC/Ramsar is designated for its notably large population of ramshorn snails, an invertebrate species that preferentially occurs in unpolluted water. Eutrophication and resulting low oxygen concentrations and excessive algal growth have been identified as a major threat to this species. The Pevensey Levels Ramsar encompasses a range of important wetland flora and fauna communities, all of which are sensitive to water pollution. The site supports outstanding invertebrate populations, including Mollusca, aquatic Coleoptera, over 15 species of dragonfly and the fen raft spider *Dolomides plantarius*. Point-source domestic sewage pollution is identified as one of two factors currently adversely affecting the Ramsar's ecological status.

5.4.2 Notably, the SAC / Ramsar lies immediately south-east to the conurbation of Hailsham, which is served by two Wastewater Treatment Works (WwTWs) – Hailsham North and Hailsham South. Both WwTWs discharge into waterbodies that are connected to the SAC / Ramsar and sit directly adjacent to the boundary of the site. This implies that there is little scope for natural dilution and attenuation processes to reduce the influx of nutrients to the SAC / Ramsar. Natural England's Site Improvement Plan specifies that the storm water tank of one of the WwTWs adjoins the SAC / Ramsar and discharges untreated sewerage into the site under peak flow conditions.

5.4.3 Most of the settlements in Wealden District (i.e. Crowborough, Uckfield and Heathfield) are served by WwTWs that discharge to catchments which are not hydrologically connected to the Pevensey Levels SAC / Ramsar. AECOM considers that where growth takes place in these areas, it will not require more detailed assessments regarding water quality impacts. It is noted that treatment upgrades at Hailsham North and Hailsham South WwTWs have been made and that The WTWs operate in accordance with Environmental Permits set by the Environment Agency so that water quality objectives are protected. Water is now being treated to the best standard (the technically achievable limit – TAL)[59], substantially reducing the phosphorus concentration in the treated sewerage that is released into the Pevensey Levels (this will be covered further in the Appropriate Assessment). **Notwithstanding this, as a precautionary measure, for growth around Hailsham in particular (served by the two Hailsham WwTWs), LSEs on the Pevensey Levels SAC / Ramsar regarding water quality through treated sewage effluent cannot be excluded. Therefore, the site is screened in for Appropriate Assessment.**

5.4.4 Furthermore, the proliferation of impermeable surfaces through the allocation of development has the potential to increase polluted surface run-off across Wealden District. If such allocations are situated within the hydrological catchment of the Pevensey Levels SAC / Ramsar, there is the potential for water quality impacts to aquatic or water-dependent ecological interest features within this Habitats site. The WLP allocates several housing and employment sites in close proximity, which require further assessment regarding their hydrological connectivity to the Peveney Levels SAC / Ramsar. **Overall, LSEs of the WLP on the Pevensey Levels SAC / Ramsar regarding water quality through surface run-off cannot be excluded. Therefore, the site is screened in for Appropriate Assessment.**

[59] TAL is the lowest level to which nutrients/pollutants can be removed to using current technology, and as technology changes and lower levels become achievable, the TAL will reduce further.

Ashdown Forest SAC

5.4.5 The wet heaths with *Erica tetralix* Annex I qualifying feature of the Ashdown Forest SAC is likely to be at least partly sensitive to negative changes in water quality. While wet heaths do not solely depend on hydrological inputs, these habitats form on acidic, nutrient-poor substrates. The eutrophication of hydrologically connected surface water and groundwater (such as through treated sewage effluent) may result in higher phosphorus and nitrogen concentrations in wet heathland, which in turn may change botanical community composition.

5.4.6 According to a high-level review, the closest WwTWs to the Ashdown Forest SAC are Uckfield and Crowborough WwTWs. The Crowborough WwTW discharges to the Uck Upstream of Buxted Water Body in the Adur and Ouse Management Catchment. This river flows southward from Crowborough and does not have hydrological connectivity with the SAC. The Uckfield WwTW, located to the south of Uckfield, discharges to Ridgewood Stream, a watercourse in the River Ouse catchment that is connected to the River Uck. **Given that the discharge locations of WwTWs serving Wealden District, particularly those that lie closest to the SAC, have no hydrological connectivity with the Ashdown Forest SAC, LSEs of the Wealden Local Plan on the site can be excluded. The site is screened out from Appropriate Assessment regarding this impact pathway.**

Policy Screening

5.4.7 A review of the emerging WLP indicates that LSEs in relation to water quality cannot be excluded for several policies due to the allocation of residential / employment growth and the concomitant increase in commuter traffic. The following policies need to be taken forward to Appropriate Assessment:

- Policy SS2 (Provision of Homes) – identifies the delivery of 16,833 dwellings over the WLP period;
- Policy SS3 (Gypsy, Traveller and Travelling Showpeople – Accommodation Needs) – identifies 51 pitches for gypsies and travellers and 3 plots for travelling showpeople to be delivered over the WLP period;
- Policy SS4 (Retail Provision and Town Centres) – supports the provision of between 7,600 sqm and 9,700 sqm of convenience retail floorspace and between 7,600 sqm and 11,900 sqm of comparison retail floorspace by 2040;
- Policy SS5 (Provision of Employment Floorspace) – stipulates that at least 197,780m^2 of employment floorspace of different use classes will be delivered across the district over the Plan period;
- Policy SS6 (Strategic Employment Allocations) – identifies the Strategic Employment Allocations, and therefore employment opportunities, that will be delivered over the WLP period; and
- Policy SA1 (Housing and Mixed Use Sites) – Allocates numerous sites for residential and mixed-use development.

6. Appropriate Assessment

6.1 Atmospheric Pollution

Ashdown Forest SAC

6.1.1 It has long been established that nitrogen is an essential element for all living organisms and is the main growth-limiting nutrient in terrestrial plants. Consequently, it is known that plants are highly sensitive to changes in concentration of available nitrogen. Gaseous nitrogen is highly unreactive, so plants principally depend on oxidised and reduced nitrogen (e.g. NOx and NH_3). These forms of nitrogen are primarily linked to anthropogenic activities, with vehicle emissions being a major source of nitrogen oxides and, to a lesser extent, ammonia. The primary impact of increased dry / wet nitrogen deposition is a fertilisation effect, favouring plant species that are better adapted to assimilate bioavailable nitrogen. The resulting effect on botanical communities is often one of declining species richness and increasing abundance of more competitive species.

6.1.2 Effects of nitrogen on heathland plants may be direct or indirect, while interacting with a host of abiotic and biotic factors, such as species-specific sensitivities. The low-growing and non-vascular species in heathland communities are particularly vulnerable to nitrogen deposition due to their limited ability to assimilate nitrogen. The primary fertilising effect of increased nitrogen deposition increases overall plant biomass, which typically shows as an increase in growth of heather. The growth of lower-growing species like mosses and lichens is impeded by increased shading and the disappearance of bare ground. In turn, heather, through toxic effects of deposition and damage to tissues, becomes more sensitive to diseases and environmental stressors. More competitive species (e.g. bracken and purple moor-grass) are then able to encroach on former heathland habitat.

6.1.3 The Ashdown Forest SAC is designated for wet heaths with *Erica tetralix* and European dry heaths, both of which have a nitrogen Critical Load of 5-15 kg N/ha/yr according to the Air Pollution Information System (APIS). Both habitat types are also sensitive to ammonia deposition due to the presence of lichens and bryophytes, for which APIS establishes an annual mean nitrogen Critical Level of 1 µg NH_3/m^3. In many areas in the UK, nitrogen CL are already exceeded, and many habitats are significantly impacted by nitrogen deposition. APIS highlights that the current typical background deposition to the SAC is c. 14 kg N/ha/yr, (13.5 kgN to 14.6 kgN depending on exact location) exceeding the minimum CL of 5 kg N/ha/yr that is identified for both dry and wet heaths. The typical background ammonia concentrations in both heathland types as provided on APIS (c.2 $\mu g/m^3$) are identified as being above the 1 $\mu g/m^3$ Critical Level established for lichens and bryophytes. However, APIS provides a modelled background at a 1km grid square resolution. To provide greater detail specific to Ashdown Forest ammonia monitoring has been undertaken by Wealden District Council over many years. The most recent monitoring report is that for 2023-24 with a 2024-25 report due in 2026. This has established that local roadside ammonia levels are below the 1 $\mu g/m^3$ critical level, except at the roadside of one of the monitored locations. The monitoring reports also indicate an overall improvement in ammonia concentrations from 2022 to 2024, particularly at sites close to roads.

Road Infrastructure and Commuting Patterns Surrounding the SAC

6.1.4 The Ashdown Forest SAC, situated in the north-west of Wealden District, is crossed by the A22 and A26, two major commuter roads that connect Wealden District with the adjoining authorities of Mid Sussex and Tunbridge Wells. In terms of Annual Average Daily Traffic (AADT), it should be noted that neither road is particularly busy compared to other A roads and both have similar volumes of traffic. For example, for the A26 the DfT's road traffic statistics provide an AADT of 7,841 cars, 1,810 light goods vehicles and 426 heavy goods vehicles at manual count point 78157, just south-east of the Ashdown Forest SAC. Similar traffic volumes have been recorded at traffic monitoring points on the A22. Census 2021 journey-to-work data highlights that the authority of Eastbourne is the origin and destination that accounts for the highest volume of commuter traffic to / from Wealden District. However, both Mid Sussex and Tunbridge Wells, the authorities that would most likely involve vehicle journeys through the Ashdown Forest SAC, are in the top 5 origins and destinations for commuter traffic associated with Wealden District and journeys from those authorities are more likely to pass

within 200m of the SAC than those from Eastbourne. For example, Tunbridge Wells accounts for approx. 10.7% and 15.3% of all incoming and outgoing commuter journeys linked with Wealden District. Mid Sussex, while less important in terms of overall commuter volume, still contributes significantly to the overall traffic footprint connected to Wealden District. Therefore, it is reasonable to conclude that residential and employment development allocated in the Wealden Local Plan would lead to an increase in overall traffic volume on the A22 and A26. However, this does not take account of dynamic reassignment, which is the process whereby traffic modelling identifies that the inherent capacity of a road, and resulting congestion risk as more traffic is added to the network, results in motorists changing their driving behaviour to avoid congested areas. This can result in traffic flows on a given modelled link remaining static or even decreasing as more traffic is added to the network overall. As a result, the air quality modelling for this HRA relies upon the East Sussex County Wide traffic modelling being undertaken for emerging Wealden Local Plan which takes account of dynamic reassignment.

6.1.5 A relatively small section of the Ashdown Forest SAC is traversed by the A275 to the south of Wych Cross. This road provides a potential commuter connection to the authorities of Mid Sussex to the west and Lewes to the south. Lewes accounts for approximately 12.6% of the inflow and 11.9% of the outflow of commuter traffic linked to Wealden District. Therefore, this route also requires further consideration with regards to atmospheric pollution.

Traffic and Air Quality Modelling for the Wealden Local Plan

6.1.6 Although the Local Plan runs to 2042, the air quality tools only provide reliable projections to 2040. Therefore, the modelling for the Local Plan HRA is slightly conservative. The air quality modelling for the Wealden Local Plan involved three model scenarios as follows:

- 2042 Future Baseline – This is a hypothetical scenario that freezes traffic growth at the base year (2023), but accounts for improvements to vehicle emission factors to 2040 – this scenario would never arise in practice but is useful to acknowledge any change in pollutant background concentrations, take account of improvements in emissions technology that may otherwise obscure negative effects of traffic growth, and quantify any retardation effects in air quality (particularly nitrogen deposition) improvements that may be caused by development plans. The scenario takes account of 24hr AADT, 2040 emission factors (latest supported year in the Defra Emissions Factor Toolkit), 2040 projected vehicle fleet composition, and 2040 background concentrations (the latest projected year available from Defra);

- Do Minimum Scenario: Models air quality parameters based on traffic modelling taking account of residential / employment growth in authorities adjoining Wealden District (e.g. in Mid Sussex, Lewes, Tandridge, Sevenoaks, Tunbridge Wells, Rother and Eastbourne), but **excluding** growth allocated in the Wealden Local Plan; and

- Do Something Scenario: Models air quality parameters based on the projected growth in adjoining authorities **including** development allocated in the Wealden Local Plan (the in-combination scope) – the difference between this Scenario and the 'Do Minimum' scenario allows for quantifying the air quality impacts of the Wealden Local Plan, while the difference between these Scenarios and the Future Baseline allows for in-combination assessment as it effectively reflects the impact of all housing and employment growth over the plan period including outside Wealden District. A series of 'with Local Plan' scenarios were modelled reflecting different levels of growth. The highest potential growth within the Local Plan is captured in Scenario 5, which seeks to meet the entirety of housing need under the 'standard method' and therefore, this is the worst-case scenario in terms of growth.

6.1.7 The three future growth scenarios modelled for Air Quality Impact Assessment (AQIA) use different model parameters. The Future Baseline scenario effectively uses present-day AADT, but 2040 emissions factors, vehicle fleet composition, and background concentrations (the latest projected year available from Defra) including a precautionary allowance for conversion of combustion engines to electric vehicles during the 2030's. The 'Do Minimum' and 'Do Something' scenarios utilise 2042 projected AADT, 2040 emission factors, vehicle fleet composition and background concentrations, without and with the Wealden Local Plan respectively.

Air Quality Modelling Results

6.1.8 Air quality modelling was undertaken at 20 transects throughout the Ashdown Forest SAC, including eight transects along the B2026 (WDC1 – WDC8), two transects along New Road (WDC9 and WDC10), two transects along Crowborough Road (WDC11 and WDC12), four transects along the A22 (WDC13, WDC14, WDC17, WDC18), two transects along the A275 (WDC15 and WDC16), one transect along the A26 (WDC19) and one transect off the B2188 (WDC20). Modelled atmospheric pollutants were NH_3, NOx, overall N deposition and acid deposition. Acid deposition results are not discussed in this section as the modelling shows the 'in combination' dose is effectively imperceptible beyond 20m from the roadside on even the most affected transects.

6.1.9 Changes in air quality have been modelled up to a distance of 200m from the roadside because the contribution of traffic to local atmospheric pollution levels becomes imperceptible beyond this distance and any negative effect on the vegetation from traffic growth will therefore be greatest closest to the roadside (and certainly within 200m). The data are reported at 10m intervals perpendicular to the road; this is known as a transect. Modelling transects were chosen based on the facts that a) traffic data (and therefore modelled traffic emissions) will not change between road junctions, so a given stretch of road between junctions only requires one transect (sometimes one each side of the road to take account of the prevailing wind) and b) woodland is not a qualifying feature of the SAC. Generally, transects have been located where heathland is present within 200m of the road.

Ammonia (NH_3) Concentrations

6.1.10 Under all scenarios, NH_3 concentrations, while slightly higher with growth than without it, are below the most stringent Critical Level of 1 µg/m^3 on all transects, except at the immediate roadside, indicating that no damage to sensitive lichens and bryophytes will occur. The Critical Level of 1 µg/m^3 is exceeded at the following locations:

- B2026 – At several transects along the B2026, the Critical Level is exceeded close to the road but falls below the Critical Level by 10m from the roadside. The upper critical level, relevant to the protection of vegetation generally (3 µg/m^3), is not exceeded. These transects are WDC1 – WDC5
- New Road – At transect WDC9, the Critical Level is exceeded close to the road but falls below the Critical Level by 10m from the roadside. The upper critical level, relevant to the protection of vegetation generally (3 µg/m^3), is not exceeded.
- A22 – At several transects along the A22, the Critical Level is exceeded close to the road but falls below the Critical Level by 10m from the roadside. The upper critical level, relevant to the protection of vegetation generally (3 µg/m^3), is not exceeded. These transects are WDC13, WDC14, WDC17 and WDC18.
- A275 - At transect WDC15, the Critical Level is exceeded close to the road but falls below the Critical Level by 10m from the roadside. The upper critical level, relevant to the protection of vegetation generally (3 µg/m^3), is not exceeded.
- A26 – The lowest Critical Level of 1 µg/m^3 is exceeded close to the roadside at transect WDC19, but falls to below the Critical Level by 10m from the road. The nearest significant area of heathland habitat lies approx. 40m from the roadside and, therefore, will not be impacted by elevated NH_3 concentrations.

6.1.11 It is therefore concluded that elevated ammonia due to Local Plan growth will not have an adverse effect on the integrity of Ashdown Forest SAC alone or in combination with other plans or projects, because it is not forecast to exceed the upper critical level and is not forecast to exceed the lower critical level for protection of lichens and bryophytes except at the immediate roadside.

Nitrogen Oxides (NOx) Concentrations

6.1.12 In all future 2040 scenarios NOx concentrations, while higher than they would be in a situation with no traffic growth, are not forecast to exceed the critical level on any transect. Moreover, APIS[60] identifies that the negative effects of NOx/NO_2 in atmosphere (as distinct from its role in nitrogen deposition) are most likely to arise in the presence of equivalent concentrations of sulphur dioxide (SO_2). Vehicle

[60] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm

exhausts do not emit SO_2 and APIS indicates that background SO_2 concentrations at this SAC are very low (below 1 μgm^{-3}) compared to critical levels for SO_2 of 10-20 μgm^{-3}. Since the SO_2 concentrations are so low no synergistic effect with NOx is expected. Therefore, no adverse effect on integrity is expected from the Local Plan, alone or in combination with other plans or projects, as the critical level for NOx will not be exceeded.

Total Nitrogen (N) Deposition

6.1.13 Generally, the majority of nitrogen due to traffic growth will be deposited within 0m and 10m from roads, within adjoining mown grass road verges and belts of dense gorse, bracken and trees. These areas have low sensitivity to nitrogen and contain lower value habitats due to historic impacts from the roads, including from salt spray, litter, dust, surface runoff, altered drainage and soil composition. These vegetation belts also protect SPA birds from road impacts, including from noise, and reduce the risk of livestock straying onto the carriageways. Even at roadside locations, nitrogen deposition from traffic growth would not prevent heathland restoration (if attempted), particularly in the context of forecast net reductions in total nitrogen deposition due to improvements in vehicle emission technologies.

6.1.14 Nitrogen deposition exceeds the critical load along all transects even without traffic growth. This is unsurprising and is the case throughout much of England. In such instances Natural England guidance is relevant:

- Paragraph 5.26 of Natural England guidance on the issue[61] states that '*An exceedance* [of the critical level or load] *alone is insufficient to determine the acceptability (or otherwise) of a project'*. So, the fact that the critical load for nitrogen is already exceeded is not a legitimate basis to conclude that any further nitrogen (no matter how small) will result in an adverse effect. Where an exceedance of the Critical Load is expected, it is also necessary to consider whether the forecast dose will be imperceptible and, if not, what the ecological implications are likely to be;

- Paragraph 4.25 of the same NE guidance states '…*1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible…There can therefore be a high degree of confidence in its application to screen for risks of an effect*'.

- More recent Natural England guidance (Standard Advice for Air Quality Impacts for Local Plans)[62] adds regarding nitrogen deposition that '*As most sites are currently over the relevant thresholds and have a "restore" objective, this should be noted as a "retardation" of the restore objective and expressed in months and years. Retardation of less than one year is acceptable as air quality is considered against an annual average.'*

6.1.15 While data are modelled for the immediate roadside, IAQM guidance is that immediate roadside data are not used in the assessment due to the reduced model accuracy when in close proximity to the road. Using the 10m point as the worst-case therefore the nitrogen data can be summarised as follows:

- WDC1 – in combination nitrogen below 1% of the critical load (0.05 kgN/ha/yr) by 30m, reduced compared to DM

- WDC2 – in combination nitrogen below 1% of the critical load (0.05 kgN/ha/yr) by 20m, reduced compared to DM

[61] 'Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. Version: June 2018'. http://publications.naturalengland.org.uk/publication/4720542048845824

[62] That guidance also states that '*Where EFT calculated emissions are to be used after 2030 to inform air quality assessments, the EFT indicates that appropriate caveats around the limitations of the analysis must be included to accompany the assessment… We therefore advise that emission factors no later than 2030 are used for HRAs– which would mean percentages of EVs are at predicted 2030 levels.'* However, that refers to an older version of the EFT. The caveats referenced do not apply to more recent versions which are robust up to 2040. Moreover, restricting improvements in fleet emissions to 2030 would be effectively to assume no improvement at all over the plan period to 2042, which is the approach that partly led to the Planning Inspector recommending withdrawal of the previous Local Plan on the basis that its HRA air quality assessment had been excessively precautionary.

- WDC3 – in combination nitrogen below 1% of the critical load (0.05 kgN/ha/yr) by 40m, reduced compared to DM
- WDC4 – in combination nitrogen below 1% of the critical load (0.05 kgN/ha/yr) by 20m, reduced compared to DM
- WDC5 – in combination nitrogen below 1% of the critical load (0.05 kgN/ha/yr) by 60m, reduced compared to DM
- WDC6 in combination nitrogen below 1% of the critical load (0.05 kgN/ha/yr) by 30m, reduced compared to DM
- For nine transects (WDC7, WDC8, WDC9, WDC10, WDC11, WDC15, WDC16, WDC19, WDC20) the in-combination nitrogen dose, while naturally greater than in a situation with no traffic growth, is imperceptible (being below 1% or 0.05 kgN/ha/yr) by 20m from the roadside. The contribution of the WLP to this dose (DS – DM scenarios) is also imperceptible or negative at all of these transects (i.e. 0.05 kg N/ha/yr or below by 10-20m from the roadside). Guidance from National Highways as set out in the Design Manual for Roads and Bridges (DMRB) Volume LA105 (Air Quality)[63] indicates that, based on analysis of nitrogen dose-response relationships, a nitrogen dose below 0.4 kgN/ha/yr is not expected to have a significant botanical effect even if it did constitute a net deterioration. This underlines the precautionary nature of the '1% of the critical load' threshold for deeming an impact imperceptible as it is an order of magnitude below the threshold used in DMRB.
- For two transects (WDC5 and WDC6) the in-combination nitrogen dose decreases to imperceptible (being below 1% or 0.05 kgN/ha/yr) levels by 60m and 30m from the roadside respectively. Despite this the contribution of the WLP to this dose (DS – DM scenarios) is negative at both of these transects. The most likely reason for this is that the traffic model allows for dynamic reassignment of traffic to take account of the fact that once flows increase to a certain point drivers are more likely to use alternative routes.
- For all other modelled transects in-combination nitrogen deposition doses as a result of the local plan are consistent with the Future Baseline (i.e. the future situation than in a situation of no traffic growth). The most likely reason for this is that the traffic model allows for dynamic reassignment of traffic to take account of the fact that once flows increase to a certain point drivers are more likely to use alternative routes. All these links are routes which the traffic modelling identifies as locations where delays increase, resulting in rerouting. Therefore, there will be no adverse effect on integrity alone or in combination from increased nitrogen deposition due to Local Plan growth either alone or in combination.

6.1.16 Moreover, the fact that traffic emissions are not a primary concern regarding the ability of Ashdown Forest to achieve its conservation objectives is reflected in the Supplementary Advice on the Conservation Objectives (SACO). The SACO for both the SAC and the SPA contain a target to '*Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System'*. However, they also state that '*Increased development is likely to result in increased traffic on the roads that cross the SPA. However the resultant vehicular air emissions will not significantly retard the background improvements that are expected as a result of improvements in vehicular technology and from the Government Clean Air Strategy'* (SACO for the Ashdown Forest SPA) and '*…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. The site exceeds the critical load/level however Natural England Commissioned Report 210 identifies that expected increase in Nitrogen levels from additional transport would fall below the level that would reduce species richness on the site* [Table 21 of NECR210 identifies that a dose of 1.3 kgN/ha/yr would be required to reduce species richness at lowland heathland by 1 species] *even if the expected declining trend in Nitrogen failed to materialise.*

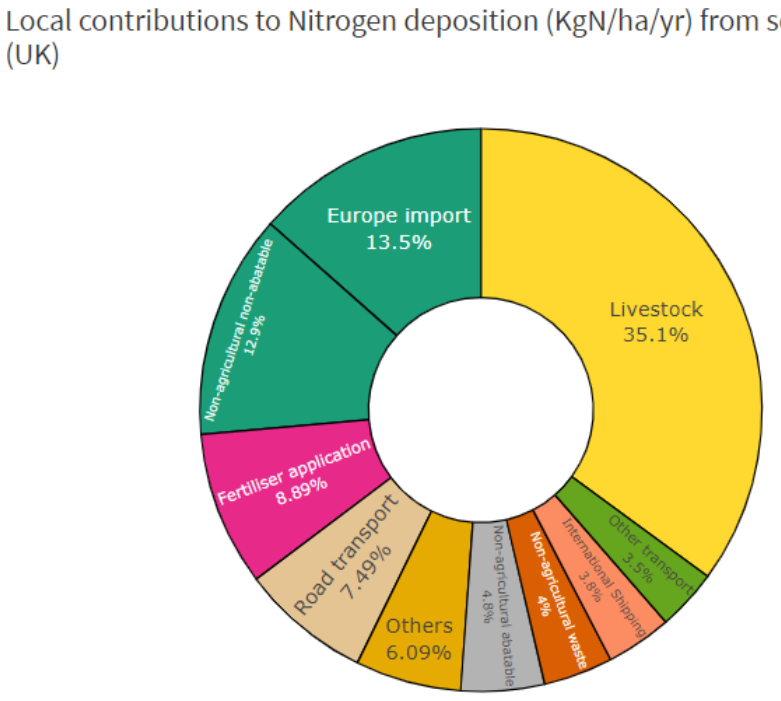
[63] LA 105 - Air quality (standardsforhighways.co.uk)

The background levels of Nitrogen are expected to decline with EU and Government clean air strategies and continue the existing downward trend'.

6.1.17 That is not to say that there is no objective to address nitrogen deposition at the SAC. The Shared Nitrogen Action Plan (SNAP) is the primary mechanism by which Natural England aim to reduce nitrogen deposition to the SAC. It is targeted at agriculture rather than traffic because almost three times more nitrogen deposited to the SAC stems from agriculture (fertiliser and livestock) than traffic. Agricultural emissions also affect a much greater area of the SAC, whereas the effect of the roads is localised.

6.1.18 Regarding atmospheric pollution issues in the Ashdown Forest SAC, it is clear that agricultural sources (e.g. from livestock and fertiliser) continue to be the greatest concern. Source apportionment data on APIS indicate that 44% of all nitrogen deposited within the SAC is from agriculture (approx. four times greater than that from the next largest source). In contrast, road traffic is a relatively minor source of atmospheric pollution (7%). This indicates that the impacts of road traffic will be localised, while agricultural contributions will impact larger areas of the SAC, including open heathland away from roads.

Source attribution of nitrogen deposition at Ashdown Forest, taken from the Air Pollution Information System. It can be seen that agriculture (livestock and fertiliser) are by far the greatest source of nitrogen at the SAC with traffic being a relatively minor source



6.1.19 In conclusion, the air quality modelling indicates that the Wealden Local Plan will not have an adverse effect on the integrity of the Ashdown Forest SAC/SPA either alone or in combination with other plans or projects.

Lewes Downs SAC

6.1.20 The Lewes Downs SAC is located within the adjoining authority of Lewes District and is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates including an important assemblage of rare and scarce orchids. On APIS semi-dry calcareous grassland is attributed a nitrogen CL of 10-20 kg N/ha/yr. Natural England's Site Improvement Plan specifies that the current nitrogen deposition exceeds the site-specific CL, indicating that air quality is an important consideration for the site.

Road Infrastructure and Commuting Patterns Surrounding the SAC

6.1.21 The SAC is situated to the east of the town of Lewes and is abutted by two major roads, the A26 and A27. Importantly, as discussed in the previous section, the A26 represents a strategic route into Wealden District, connecting to the authority to the south of Uckfield. DfT road traffic statistics report an AADT of 6,967 cars, 1,600 light goods vehicles and 284 heavy goods vehicles at manual count point 8386 a few hundred metres to the north of the SAC. According to Census 2021 data, Lewes is the second most important origin (approx. 13% of the total inflow) and second most important (approx. 13% of the total outflow) destination for commuters associated with Wealden District. The town of Lewes is a significant conurbation in Lewes District, indicating that it is also a significant source and destination of commuters travelling to / from Wealden District. The A26 provides the most direct route to the town of Lewes and runs within 200m of the SAC just outside the conurbation near the intersection with the B2192. Therefore, it is concluded that the Wealden Local Plan has the potential to increase traffic flow along sensitive qualifying semi-dry calcareous grassland and a more detailed Air Quality Impact Assessment (AQIA) is needed.

Air Quality Modelling Results

6.1.22 Air quality modelling was undertaken at two transects in the Lewes Downs SAC, including one transect along the A26 at South Malling and one transect along the B2192. Modelled atmospheric pollutants included NH_3, NOx and overall N deposition. Acid deposition was also modelled, but it is recognised that calcareous sites are at low risk of acidification due to the high buffering capacity of the substrate. Acid deposition is therefore not discussed further for this SAC.

6.1.23 Changes in air quality have been modelled up to a distance of 200m from the roadside because the contribution of traffic to local atmospheric pollution levels becomes imperceptible beyond this distance and any negative effect on the vegetation from traffic growth will therefore be greatest closest to the roadside (and certainly within 200m). The data are reported at 10m intervals perpendicular to the road; this is known as a transect. Modelling transects were chosen based on the facts that a) traffic data (and therefore modelled traffic emissions) will not change between road junctions, so a given stretch of road between junctions only requires one transect (sometimes one each side of the road to take account of the prevailing wind) and b) woodland is not a qualifying feature the SAC. The transects are located where semi-natural dry grassland is present within 200m of the road.

Ammonia (NH_3) Concentrations

6.1.24 The results for the busiest and most affected road (the A26, transect LD1) are reported in this analysis as a worst-case. The nearest area of calcareous grassland to the A26 lies approximately 60m from the roadside behind a dense belt of trees. APIS assigns NH_3 Critical Levels to SACs generically rather than basing the decision on site-specific data. A Critical Level of 1 µg/m^3 is assigned to the Lewes Downs SAC on APIS because that threshold is automatically assigned to all sites supporting calcareous grassland because this habitat can support NH_3-sensitive lichens and bryophytes. However, even when present, these assemblages are rarely integral to the conservation status of the grasslands themselves. Past experience indicates that a diverse terricolous lichen flora typically only develops within the grassland sward if this has been damaged, exposing bare ground for lichen colonisation. In personal communication over the South Downs Local Plan HRA in 2018, Natural England confirmed that lichens and bryophytes are not a significant element of the international interest of the Lewes Downs SAC. Therefore, it is considered that the 1 µg/m^3 Critical Level is not applicable and a 3 µg/m^3 Critical Level is more appropriate. This higher Critical Level is not presently exceeded where the calcareous grassland is located and is not forecast to be exceeded in any scenario for 2040.

Nitrogen Oxides (NOx) Concentrations

6.1.25 The Critical Level for the general protection of vegetation is set at 30 µg/m^3. This is not currently exceeded at the closest area of calcareous grassland and is not forecast to be exceeded under any future scenario for 2040. **Therefore, it is concluded that there will be no adverse effect on the SAC from NOx in atmosphere.**

Nitrogen (N) Deposition

6.1.26 While data are modelled for the immediate roadside, IAQM guidance is that immediate roadside data are not used in the assessment due to the reduced model accuracy when in close proximity to the road. The current annual mean nitrogen deposition at both transects exceeds the reduced minimum

Critical Load of calcareous grassland of 10 kg N/ha/yr at the nearest modelled point to the roadside. However, the habitat for which the site is designated, calcareous grassland, is not present along the A26 (the location of the modelled transect as this is the road experiencing the greatest traffic growth to 2040), until between 50-70 m into the SAC (depending on location), with a dense tree belt lying between the A26 and SAC grassland.

6.1.27 At this distance from the A26, the in-combination nitrogen dose is imperceptible (below 1% or 0.1 kgN/ha/yr), being less than 0.01 kgN/ha/yr.

6.1.28 **Overall, it is concluded that the WLP will not result in adverse effects on the integrity of the Lewes Downs SAC regarding atmospheric pollution, either alone or in-combination with other plans or projects.**

6.2 Recreational Pressure

Ashdown Forest SPA / SAC

Sensitivity of the SPA / SAC

6.2.1 Several studies have now shown negative impacts of housing growth on protected wildlife sites. These include evidence on the link of housing growth with nature conservation impacts, such as recreational pressure effects on ground-nesting nightjars and Dartford warblers. These species are particularly sensitive to disturbance because they nest on or close to the ground, which makes them more susceptible to trampling damage and displacement from the nest by heathland visitors. Dogs that are walked off-lead are a particular concern because they roam freely, potentially triggering major flight responses or predating on birds. Studies on nightjar breeding success have established greater failure rates for nests in proximity to footpaths.

6.2.2 While recreational pressure clearly has the potential to impact on individual birds / nests, population-level responses have also been observed. For example, the number of individual woodlark and nightjar in a site was negatively correlated with the amount of housing surrounding a site. In 2006, a Footprint Ecology modelling report demonstrated that the number of visitors to heathland sites was negatively correlated with nightjar density, implying that nightjars showed a statistically significant preference to habitat patches with low visitor pressure. Moreover, birds preferentially established territories away from habitat edges bordering patches with higher visitor numbers. For Dartford warblers it has been shown that disturbance events significantly reduce productivity (i.e. the number of successful broods raised) in heather-dominated territories, most likely due to the lower protection offered by heather species in comparison to gorse. The study estimated that an average of between 13 and 16 visitors passing per hour would prevent multiple broods.

6.2.3 However, data on the effects of recreational pressure on ground-nesting birds are not unequivocal. For example, a 2010 paper[64] found that areas with greatest footfall also supported the highest densities of Annex I species, implying that recreational access may not be impacting the SPA bird populations. Notwithstanding this, it was also shown that both humans and qualifying birds have similar habitat preferences (i.e. avoidance of woodland and wet heath), potentially overriding the impact that disturbance has on the birds. The study concluded that the current level of visitor pressure is not impacting the distribution of Annex I species, although this may change once a tipping point is reached. Furthermore, given that the abundance of these species is already low, recreational access may already be affecting the integrity of the qualifying bird populations, such as by reducing breeding success.

6.2.4 It is noted that sensitivity to recreational pressure also applies to the Ashdown Forest SAC, primarily due to trampling and nutrient enrichment effects that damage SAC habitats (e.g. the wet and dry heaths) directly, as well as potentially rendering them unsuitable for supporting SPA birds. Trampling effects include direct damage to plants due to breakage and abrasion or indirect effects resulting from soil compaction and changes in soil hydrology. Trampling has been shown to lead to a more rapid appearance of bare ground in heathland than in grassland. Moreover, one study showed that when compared to grassland, heathland dominated by *Calluna* species showed a delayed response in terms

[64] Clarke RT, Sharp J & Liley D. (2010). Ashdown Forest visitor survey data analysis. Natural England Commissioned Reports, Number 48. Available at: http://publications.naturalengland.org.uk/publication/46010 [Accessed on the 12/10/2022]

of species recovery under high trampling intensities in winter. When comparing the sensitivity of dry and wet heaths, Gallet and Roze showed that wet heaths generally demonstrate lower resilience to trampling damage, most likely due to the impacts of soil compaction on water circulation. Other than trampling effects, the most important impact of recreational pressure in heathland habitats is dog fouling. For example, there was a significant linear correlation between defecation and soil phosphorus levels in recreation grounds, and high soil phosphorus concentrations remained three years after a ban on dogs. A study in Surrey established that the distribution of dog fouling coincided with a shift away from heather to wavy hair grass, likening the impact of dog fouling to the application of a fertiliser.

6.2.5 However, it is the effects on SPA birds that have driven the need for a mitigation solution, as disturbance of SPA birds has a lower threshold than SAC trampling for having an effect on site integrity.

Background to Evidence Base

6.2.6 To develop a targeted and effective mitigation framework for a Habitats site, a comprehensive understanding of visitor numbers and access patterns is essential. With three prior visitor surveys that have been undertaken, a relatively comprehensive evidence base is available for the Ashdown Forest SPA. While there are significant differences in survey design between these studies (e.g. time of year, survey points and questionnaire), they nonetheless provide some consistent data trends and a useful resource comparing visitor levels over time.

6.2.7 In 2010, an analysis of existing visitor data for the Ashdown Forest SPA was undertaken[65], feeding into HRAs of development plan documents at the time. These essentially identified a strategy broadly analogous to that devised for the Thames Basin Heaths; namely the identification of a series of zones around the SPA each of which triggered a combination of provision of alternative greenspace and improved access management. At that time, a 7km 'outer zone' for Ashdown Forest SPA was agreed with Natural England[66]. Affected authorities that provided development within this affected 7km 'zone' were required to provide a financial contribution towards the provision of Suitable Alternative Natural Greenspaces (SANGs) and Strategic Access Monitoring and Management (SAMM) in the Ashdown Forest SPA / SAC. This general approach was supported by Natural England and the Ashdown Forest Conservators.

6.2.8 In 2016 Footprint Ecology undertook a further visitor survey[67] on behalf of six local authorities (Wealden, Mid Sussex, Lewes, Tunbridge Wells, Tandridge and Sevenoaks), to provide comprehensive and current data on recreational use of the Ashdown Forest SPA / SAC. Additionally, results from the survey were to inform the strategic implementation of access management, tailor a long-term management strategy and inform the design and management of SANGs. Ensuring that SANGs are adequately sited and designed is essential for the delivery of effective mitigation and drawing visitors away from the SPA. The 2016 survey also undertook a review of the site's core catchment zone, but the 7km zone was still recognised as capturing the appropriate geographic extent of growth contributing significantly to visitor numbers in the site.

6.2.9 The same six local authorities commissioned a repeat visitor survey, which was undertaken in summer 2021. This replicated the methodology and 18 of the 20 survey points of the 2016 survey, allowing for comparisons of access patterns, activities undertaken and core recreational catchments. Furthermore, it provided a framework in which to assess the efficacy of the current mitigation framework, including some of the SAMM measures and SANG approaches currently in place.

6.2.10 This visitor survey exercise is being repeated this year (2026) as the visitor surveys of Ashdown Forest are updated every five years.

Overview of the 2016 Visitor Survey Results

6.2.11 Overall, the visitor survey demonstrated that Ashdown Forest SPA / SAC receives roughly 378 hourly visits (based on a 12-hour day) and 4,541 daily visits, equating to over 1.5 million visits annually

[65] Clarke RT, Sharp J & Liley D. 2010. Ashdown Forest Visitor Survey Data Analysis (Natural England Commissioned Reports, Number 048)
UE Associates and University of Brighton. 2009. Visitor Access Patterns on the Ashdown Forest: Recreational Use and Nature Conservation
[66] UE Associates. October 2011. Habitat Regulations Assessment for the Mid-Sussex District Plan
[67] Liley, D., Panter, C. & Blake, D. (2016). Ashdown Forest Visitor Survey 2016. Footprint Ecology Unpublished report.

across all access points. It is one of the largest open public greenspaces in southern England and clearly provides a major draw for people undertaking recreational outings. A total of 452 visitors were interviewed, with most being on a trip from home within a 9.6km radius of the site. Most interviewees visit the SPA / SAC regularly, as is highlighted by 63% of respondents travelling to the site at least weekly. Importantly, approximately half (46%) of people stated that they would not have visited elsewhere if they could not have visited the Ashdown Forest SPA / SAC, highlighting the attractiveness of the site to local residents. The data also indicates that the likelihood and frequency for visiting the site decreases with distance from home, a pattern that is typical for most Habitats sites. Therefore, a residential development that is delivered close to the SPA / SAC may generate considerably more visits than a similarly sized development that lies further away.

Survey Results as Relevant to Wealden District

6.2.12 When considering the magnitude of impact of the Wealden Local Plan, interviewees that visit from the district and those that do so regularly (i.e. daily, weekly or monthly) are clearly most important, because they are associated with the largest recreational footprint stemming from the authority. Therefore, the following section largely focuses on repeat visitors from Wealden District.

6.2.13 Overall, of the 452 visitors interviewed, by far the largest number of interviewees (312) had travelled from Wealden District, accounting for 72% of the visitors captured by the survey. This is unsurprising because the Ashdown Forest SPA / SAC lies entirely within Wealden District and is surrounded by three larger settlements, including Forest Row, Crowborough and Uckfield. Being the largest continuous and most attractive greenspace in the district, it is expected that the SPA / SAC would attract most of its visitors from local conurbations. Furthermore, the report also indicates that people from Wealden District also visit the site most frequently compared to visitors from other authorities, when considering interviewee responses of ‘daily’, ‘most days’ and ‘2 to 3 times per week’. In contrast, many interviewees from Mid Sussex, Tunbridge Wells, Lewes, Tandridge and Sevenoaks, visit the SPA / SAC more irregularly, such ‘2 to 3 times a month’, ‘once a month’ and ‘less than once a month’. Given that distance to home is one of the most important predictors of site choice, this is an expected pattern.

6.2.14 The importance of Wealden District’s contribution to the overall recreational footprint in the Ashdown Forest SPA / SAC is also shown by the settlements that most interviewees derive from. Visitors from Crowborough (139 interviewees, 46.9%) and Forest Row (50 interviewees, 16.9%), both conurbations in Wealden District, accounted by far for the largest proportion of visitors to the site, when excluding those on holiday and staying with friends / family. These settlements also contributed the highest proportion of dog walkers (78% respectively), the user group with the most significant impacts on the qualifying features of the SPA / SAC. The Crowborough and Forest Row (near the golf club) survey points are pedestrian access points with no parking spaces available and had very high proportions of visitors travelling to the site on foot, further highlighting the significance of Wealden District’s nearby settlements.

6.2.15 Footprint Ecology’s 2016 survey also assessed the Euclidean straight-line distances between home postcodes and survey points for different subsets of interview data. This is an important step for identifying the core recreational catchment of Habitats sites, which typically encompasses the distance of the nearest 75% of postcodes to the relevant survey points. The following core recreational catchments were established:

- For all interviewees on a day trip and travelling from home – 75% of visitors lived within approx. 9.6km
- For dog-walking interviewees only – 75% of visitors lived within approx. 7.5km
- For interviewees visiting at least weekly – 75% of visitors lived within approx. 6km (note that the core recreational catchment is much smaller for interviewees that visit daily, 3.6km, and on most days, 5.9km)

6.2.16 Overall, the 2016 visitor survey established that the 7km core recreational catchment zone still provided a sufficiently precautionary compromise on the different types of user groups discussed above and, importantly, captured the high-impact user groups (i.e. dog walkers and those who visit at least weekly) to the SPA / SAC.

2021 Survey Results as Relevant to Wealden District

6.2.17 Of the 505 interviewees providing full valid postcodes in the 2021 repeat visitor survey, 323 (64%) were visiting from Wealden District. Although being slightly lower than in 2016, this confirms Wealden District's importance in determining recreational footfall in the Ashdown Forest SPA / SAC. Interestingly, compared to 2016, fewer interviews were recorded at the survey points nearest to Wealden District's conurbations (i.e. Crowborough and Forest Row near golf club), although these were still among the busier points surveyed and had very high proportions of visitors travelling to the site on foot. It is to be noted that the 2021 repeat survey was carried out during the Covid-19 pandemic, meaning this may have skewed visitor survey data. Notwithstanding this, the total number of interviews was actually larger compared to the 2016 survey and it provides important context in assessing long-term visitor trends in the SPA/SAC.

6.2.18 The 2021 survey also reassessed linear distances to home postcodes to provide updated core catchment zones. While the core catchment zones, based on the 75th percentile of postcode data, have been drawn up for slightly different subsets of data, they still provide useful comparison to the zones recorded in 2016. The 2021 recreational catchments are as follows:

- For all interviewees on a day trip and travelling from home – 75% of visitors lived within approx. 11.4km (note this presents an increase from 2016).
- For dog-walking interviewees only – 75% of visitors lived within approx. 8.8km (note this presents an increase from 2016, but data for people on holiday or staying with friends and family appear not to have been excluded).
- For interviewees visiting at least weekly – 75% of visitors lived within approx. 10.7km (as in 2016, the catchments are significantly smaller for interviewees that visit daily or on most days; note this presents an increase from 2016, but data for people on holiday or staying with friends and family appear not to have been excluded).

Mitigation Requirements

6.2.19 Overall, it has been concluded that a mitigation strategy to reduce negative recreational impacts from new housing developments is required to deliver the Conservation Objectives of the Ashdown Forest SPA / SAC.

6.2.20 It is the main purpose of the Habitats Regulations Assessment (HRA) process to identify an adequate mitigation strategy that ensures no adverse effects on sensitive Habitats sites result from local development plans. Delivery of such a mitigation strategy involves the identification of measures themselves (i.e. an inventory of SANG and SAMM deliverables) and the geographic area to which these requirements apply. Wealden District Council published a detailed SPA Mitigation Zone Background Paper in 2019 in support of its withdrawn Local Plan[68]. This report was to further refine the area in which new residential development (in Wealden District and its adjoining authorities) may contribute to potential adverse effects on the integrity of the Ashdown Forest SPA (and SAC). In short, this paper considered distance to home postcodes from both the 2008 and 2016 visitor surveys and utilised cumulative frequency plots to determine the maximum distance to the SPA boundary, which involved at least a 1% increase in visitor numbers (compared to the previous distance band). The background paper demonstrated that the in-combination visitor numbers (i.e. from Wealden and all adjoining authorities) tapered off beyond 7km for all user types and that this catchment captures 100% of people visiting the site daily or most days, 93.95% of people visiting 1-3 times per week and 90% of all dog walkers (i.e. the user groups with the highest anticipated impacts). In consultation with Natural England and partner authorities, it was determined that a 7km core catchment zone was an evidence-based and sufficiently precautionary approach to ensure effective mitigation delivery. While the 2021 repeat visitor survey evidenced an increase in the core recreational catchment of the SPA/SAC (as detailed above), Natural England still supports a 7km zone as suitable for avoiding adverse effects on site integrity. The principle of using SANG and SAMM as a complimentary mitigation tool is supported by the Conservators of Ashdown Forest, who are pivotal in delivering on-site SAMM measures.

[68] Wealden District Council. (January 2019). Ashdown Forest SPA Mitigation Zone Background Paper – Submission Document. 160pp. Available at: https://www.wealden.gov.uk/UploadedFiles/I1.-Ashdown-Forest-SPA-Mitigation-Zone.pdf [Accessed on the 17/04/2026]

Suitable Alternative Natural Greenspace (SANG)

6.2.21 The provision of SANG is considered to be the primary mitigation pillar to draw visitors away from the Ashdown Forest SPA / SAC. SANGs are greenspaces with defined properties[69] that are of sufficient quality and situated adequately to have a realistic potential to absorbing recreational pressure locally. One of the main benefits of SANGs is their unrestricted, safe and dog-friendly design, which can prove attractive to dog walkers particularly where they do not wish to keep their dogs under close control. The concept for SANGs stems from the Thames Basin Heaths SPA, where they have been a successful tool in attracting recreational users away from heathland sites. Wealden District Council commenced its SANG programme following the adoption of the Wealden District Core Strategy Local Plan in 2013. Currently, WDC owns two SANG sites. One in Uckfield and the other in Crowborough.

6.2.22 The SANG at Crowborough (Walshes Park) was acquired by the council in late 2015 and opened to the public in May 2017. It measures a total of 27.7ha and comprises all-weather paths that enable a circular walk of 3km, with seasonal path extensions enabling longer walks. The site has been improved in consultation with landscape and ecological professionals to maximise its appeal as a destination. Overall, Walshes Park is a popular recreational resource among local residents. Adopting an 8ha per 1,000 population standard (as advocated by Natural England in most parts of the country), the SANG at Crowborough has an approximate initial capacity of 3,462 people (or up to 1,505 new dwellings).

6.2.23 The SANG at Uckfield (Owlsbury Park) was primarily delivered to facilitate the development of 1,000 dwellings, identified as a broad location for growth in the adopted Wealden District Core Strategy Local Plan (February 2013). The Council have subsequently granted planning permission for 1,000 (net) dwellings at the site and is currently under construction. The SANG was opened for public use in May 2019 and measures 29ha in total. Works that were initially completed to make the site more attractive, included highway works along Horsted Pond Lane, improvements to the car park and approx. 2km of all-weather paths have now been completed. Other works have also been completed including the provision of earth bunds along the A22 with acoustic fencing and woodland planting, extending the 2km circular paths to enable walks of 3km and soft landscape works to provide a more appealing place for dog walkers. When considering the whole site, Owlsbury Park has an initial capacity of 3,625 people (or up to 1,576 new dwellings). Management Plans for the two SANGs provide the detail for on-going management and improvement to ensure that these destinations remain attractive and provide continued effective mitigation.

Table 3: Calculation of SANG requirements to support the Wealden Local Plan as per current Natural England guidance.

Total Number of Dwellings allocated within 7km of Ashdown Forest	Total Population Increase	SANG Standard	SANG Requirement to Support the Wealden Local Plan
2,970 dwellings 10 Gypsy, Traveller and Traveling showpeople pitches	7,152 (2,980* 2.4)	0.008ha per person (8ha per 1,000 population increase)	**57.216ha** (7,152 * 0.008)

6.2.24 All dwellings in the 7km zone will require SANG mitigation, either through delivery of bespoke SANG (i.e. integrated in the site fabric) or contribution to a strategic SANG. Overall, it is reasonable to assume that the provision of additional housing will result in approx. 7,152 additional residents, requiring 57.2ha of SANG (Table 3).

6.2.25 As discussed earlier, WDC has established Walshes Park and Owlsbury Park, two SANGs serving the settlements of Uckfield and Crowborough. However, the capacity of these SANGs to mitigate further housing developments will be limited to support additional growth in the emerging Local Plan and new

[69] SANGs must adhere to stringent guidelines published by Natural England. These have been last updated in 2008 and are available on the websites of various Local Planning Authorities, such as: https://www.woking2027.info/allocations/sadpdexam/neguidelinessang [Accessed on the 17/04/2026]

SANGs will be required unless additional capacity exists at Walshes Park and Owlsbury Park that can be delivered through site enhancements.

6.2.26 There are six sites that have either been permitted or allocated within the local plan that will provide SANG as a part of their future development. These are shown in the table below.

Table 4. List of allocated or permitted sites with SANGs

Allocated or Permitted Sites with SANGS	Permitted	Potential Area
Bird In Eye farm (South), Bird In Eye Hill, Uckfield	7.13	N/A
Cysleys Farm, Eastbourne Road, Uckfield	2.8	N/A
Bird In Eye farm (North), Bird In Eye Hill, Uckfield	TBD	8.43
Land at Horstedpond Farm, Lewes Road, Uckfield	16.45	N/A
Land at Hempstead Lane, Uckfield	TBD	40
Land at Owlsbury Farm, Lewes Road, Uckfield	TBD	48.7

6.2.27 Combined these sites can provide a total of 115.07ha of suitable SANG which would be adequate to meet the need of the residential growth covered in the WLP.

Strategic Access Management and Monitoring (SAMM) Mitigation

6.2.28 The Ashdown Forest SPA / SAC is an attractive recreational resource attracting visitors from a wide area. Its unique habitat characteristics imply that this Habitats site will continue to draw local residents even if adequate SANG is provided. Given that SANGs are unlikely to fully prevent additional future recreational visits, it has been determined that on-site Strategic Access Management and Monitoring (SAMM) interventions are also required.

6.2.29 Work on a SAMM strategy has been ongoing between the local authorities of Wealden, Mid Sussex, Lewes, Tunbridge Wells, Tandridge and Sevenoaks in partnership with the Conservators of Ashdown Forest and Natural England since 2012. A SAMM Strategy document has been developed and as well as SAMM proposals includes up to date (2021/22) data on SPA bird distributions.

6.2.30 The work to date includes a published SAMM tariff guidance document, which has most recently been updated in October 2019[70]. SAMM is required because local residents, notwithstanding SANGs being in place, are still likely to visit the Ashdown Forest SPA / SAC occasionally. Local Authorities that deliver residential development within the site's core recreational catchment (400m – 7km) have committed to collecting developer contributions to deliver a programme of visitor management and monitoring, and fund research that is relevant to the SPA / SAC biodiversity interest. The following key measures have been identified in the recently developed SAMM Strategy[71] in consultation with the Conservators of Ashdown Forest and Natural England:

- Zoning Study – dividing the SAC / SPA into a series of zones with different approaches to visitor management; for example, this could include a focal area for tourism (e.g. visitor centre and well-maintained paths) and areas where access is more limited;
- Communication / Engagement Plan – targeting a range of visitor groups and wider stakeholders, including on where to go and how to behave, steering on design for visitor information and directing information dissemination (noting that further mitigation measures would arise from this); and

[70] (October 2019). Ashdown Forest Special Protection Area (SPA) – Strategic Access Management and Monitoring Strategy Tariff Guidance for Lewes District Council, Mid Sussex District Council, Sevenoaks District Council, District Council of Tandridge, Tunbridge Wells Borough Council and Wealden District Council. Available at: https://www.wealden.gov.uk/UploadedFiles/Ashdown-Forest-SPA-SAMM-Tariff-Guidance-October-2019.pdf [Accessed on the 17/04/2026]
[71] Liley D. & Lake S. (2023). Strategic access management and monitoring (SAMM) strategy for Ashdown Forest 2023-2027. Report by Footprint Ecology. 73pp.

- Parking Plan – This could consider improving car parks in locations that are most resilient (e.g. in the focal tourist areas) and considering how best to manage parking and visitors to protect the more sensitive areas of the SPA).

6.2.31 In contrast to other avoidance and mitigation strategies, the SAMM tariff contribution for residential development in the Ashdown Forest SPA / SAC catchment zone is calculated on a per unit basis and is the same for all housing types (house, flat, studio flat – including all affordable housing). The SAMM tariff has been calculated using a cash flow model, accounting for the current housing projections, estimated costs of SAMM projects and a requirement for mitigation in-perpetuity. Consequently, the per-dwelling tariff presently stands at £1,170. This inter-authority project budget is reviewed annually, in line with changes to housing numbers and the timing of housing delivery.

6.2.32 To date SAMM funding has been provided to the Conservators of Ashdown Forest to produce the Code of Conduct, related information leaflets, signage and publication of the Ashdown Forest quarterly magazine. As further monies are collected from developers, these will be directed towards other high-priority SAMM deliverables, including ground-nesting bird surveys. An Access Management Officer has been in place since 2022 to deliver the management of the programme and funding. WDC is continually engaging with Natural England to ensure that SAMM funding is used in a way that is economic and provides effective mitigation.

6.2.33 It is noted that the existing SAMM policy is being reviewed to ensure adequate funding is available for this work to continue.

Conclusion

6.2.34 Work on the mitigation approach for the projected growth in Wealden District has been ongoing. While an established framework for the delivery of SAMM is in place (a collaborative SAMM strategy approach with other adjoining authorities), research to identify adequately sited SANG(s) is ongoing to ensure that all housing developments can be effectively mitigated. The Council has developed a SANG strategy with Natural England to progress their SANG inventory in support of the WLP and potential SANG sites to mitigate growth in the emerging Local Plan have been identified. There are 2 sites that have planning permission at Birds in Eye Hill (South), Uckfield (4ha), Cysleys Farm, Uckfield (2.8ha) and one which has a resolution to approve, subject to S106 at Horstedpond Farm (16.45ha). This equates to a potential additional supply of 23.25ha of SANGS Provision. In addition, three proposed sites at Owlsbury Farm, Uckfield, Land at Hempstead Lane, Uckfield, and Bird In Eye Farm (North), Bird In Eye Hill, Uckfield would also deliver additional SANG of 48.7ha in size which would help meet this overall need. Policy NE5 (Protecting Ashdown Forest SPA) of the draft Wealden Local Plan (March 2024) specifically sets out the requirements for mitigation provision on development within the core recreational catchment of the Ashdown Forest SAC/SPA and will therefore ensure the Habitats site is protected from harm.

6.2.35 **Assuming that suitable SANG identified in the SANG strategy in consultation with Natural England will be secured, it can be concluded that the WLP contains adequate policy framework to exclude adverse impacts as a result of recreational pressure emerging from the WLP**

6.3 Water Quantity, Level and Flow

Pevensey Levels SAC / Ramsar

6.3.1 The previous chapter determined that LSEs of the Wealden Local Plan on the Pevensey Levels SAC / Ramsar cannot be excluded. The site is designated for various species that rely on sufficient water levels because they live in aquatic habitats. For example, the little whirlpool ram's-horn snail floats on the surface of freshwater ditches and land drainage has been identified as a key threat to this species. Young snails require annual winter floods to colonise new ditches and maintain healthy, genetically diverse populations. Furthermore, the Pevensey Levels Ramsar is designated for its assemblage of wetland plants and invertebrates (especially Coleoptera and Odonata), which all require appropriate water levels.

Hydrology Background

6.3.2 The Pevensey Levels SAC / Ramsar has a large hydrological catchment that extends considerably beyond the designated site boundary. As set out in the Appropriate Assessment of the Wealden and Rother Core Strategies[72] (prepared jointly regarding hydrological impacts in the Pevensey Levels Ramsar), the site is traversed by three river systems that supply freshwater from the uplands to the levels, including the following:

- Western system (or Pevensey Haven) – catchment of approx. 97km^2 on the western side of the levels, with artificially heightened water flows due to treated sewage effluent from Wastewater Treatment Works (WwTWs) at Hailsham North and South; no low flow conditions in summer present;
- Wallers Haven – catchment of approx. 92km^2 on the eastern side of the levels, partly managed as a linear reservoir for the public water supply; this system is prone to low summer flows partly due to South East Water (SEW) abstraction at Hazards Green. Due to the existing issues with water supply to the eastern part of the Pevensey Levels SAC / Ramsar, the abstraction license issued to SEW cannot be increased beyond the existing permit.
- East Stream.

6.3.3 The Environment Agency publishes Catchment Abstraction Management Strategies (CAMS) for different hydrological catchments across England with the aim to allow sustainable resource use while also protecting environmental needs. The most recent CAMS for the Cuckmere and Pevensey catchment[73] indicates that water is available for licensing at high flows (i.e. Q30, the flow of a river that is exceeded 30% of the time), while restricted water is available at intermediate flows (Q50) and no water is available at low flows (Q70 and Q95). Where water is not available for additional licensing this highlights a scenario where flows are below the indicative requirement to support a healthy riverine ecology. Overall, within the catchment, water is only available for additional licensing in periods of high-mid to high flows of Ml/d and this is subject to hands-off flows[74].

6.3.4 The Pevensey Levels SAC / Ramsar largely encompasses reclaimed land with extensively grazed wet meadows, which are actively maintained by a system of pumping stations, water control structures, sluice and channels. Discharge to the sea, and therefore the overall water level within the SAC / Ramsar, is controlled via large gates at the downstream end of drainage channels. This system is augmented by pumping stations (covering approx. 62% of the site), which are used to pump floodwater into embanked channels. Approx. 600km of freshwater ditches, which also harbour the ecological interest features of the site, reflect the historic reclamation for continued pastoral use. Therefore, there is an important direct link between water level management and the qualifying features of the SAC / Ramsar. It is recognised that active water level management is essential in helping to restore the site to favourable condition.

6.3.5 An initial WLMP was developed for the Pevensey Levels SSSI in 2006, which identified the future objectives of water level management and how to achieve them. It was also determined that water levels would be best managed at an intermediate scale of 42 Water Level Management Units (WLMUs) to provide the best balance of flexibility and cost effectiveness. Review of water control structures was implemented between 2009 and 2011 and has been important in maintaining adequate water levels. The WLMP review undertaken by Atkins in 2014[75] confirmed that the WLMU scale was still the preferred option, both environmentally and economically, to manage the hydrology in the Pevensey Levels SAC / Ramsar into the future. Since its implementation, the WLMP has successfully maintained a target water level of 0.3m below ground level in all WLMUs under normal flow conditions.

[72] Wealden & Rother District Councils. (September 2010). Wealden & Rother Core Strategies – Appropriate Assessment regarding hydrology local to the Pevensey Levels. 28pp. Available at: https://www.wealden.gov.uk/UploadedFiles/AA_Final_26.10.10-2.pdf [Accessed on the 11/11/2022]
[73] Environment Agency. (March 2019). Cuckmere and Pevensey Levels Abstraction Licensing Strategy. 24pp. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793425/Cuckmere_Pevensey_Abstraction_Licensing_Stategy.pdf [Accessed on the 13/10/2022]
[74] Hands-off flow conditions describe situations in which abstractions from a waterbody must seize, as flows are no longer sufficient to safeguard the environment.
[75] Atkins. (2014). Pevensey Levels Water Level Management Plan Review 2014. 21pp. Available at: https://www.wlma.org.uk/uploads/Operating_Manual_Pevensey_Levels_WLMP_2014_Section_1-3_v2.pdf [Accessed on the 14/10/2022]

Surface Run-Off

6.3.6 The development allocated in the emerging Wealden Local Plan has the potential to alter the water quantity / level in the SAC / Ramsar in two main ways. Firstly, an increase in the coverage of impermeable urban surfaces might result in faster water surface run-off, resulting in altered water supply to the site. This is a particular threat for settlements that lie close to the SAC / Ramsar, including Westham (directly adjoining the site) and Hailsham (approx. 175m from the site at its closest point). Run-off from these conurbations may result in variability of the SAC's / Ramsar's annual flooding regime, particularly by facilitating the occurrence of flash floods. Surface run-off is considered to be a risk factor for flooding up to several hundred metres from ecological receptors. Furthermore, it is noted that the Pevensey Levels SAC / Ramsar lies in the Environment Agency Pevensey Operational Catchment, which covers several settlements in the south-east part of Wealden District, highlighting that there is the potential for hydrological linkage to urban run-off. Due to the complexity of wetland habitats, it is very difficult to predict the impact of increased surface run-off on the qualifying features of the Pevensey Levels SAC / Ramsar. Any development that increases the volume of impermeable surfaces has the potential to increase the 'in-combination' water supply to the site, particularly following intense rainfall events. Provided the magnitude of effect is sufficiently high, local hydrological changes within the ditch network may occur.

6.3.7 A review of residential and employment site allocations indicates that several of the sites fall within the hydrological catchment of the Pevensey Levels SAC / Ramsar. Surface run-off from impermeable surfaces in these sites has the potential to increase hydrological flows to the SAC / Ramsar, particularly during intense rainfall events. In turn, this could result in the water levels being outside the required range of qualifying features. Table 5 below lists the residential sites and Strategic Employment Allocations within the hydrological catchment of the Pevensey Levels SAC / Ramar and for which a risk of surface run-off impacts is present.

Table 5: List of residential sites and Strategic Employment Sites allocated within the hydrological catchment of the Pevensey Levels SAC / Ramsar.

Type of allocation	Parish	Settlement	Address
	Hailsham	Hailsham	Land east of Battle Road, Harebeating Lane, Hailsham
			Land east of Battle Road, Hailsham
			Land at Harebeating Nursery, Harebeating Lane, Hailsham
			Hamlins Mill, Mill Road, Hailsham
			Bolneys Farm, South Road, Hailsham
			Land south of Howard Close, Hailsham
			Amberstone Council Depot, Amberstone, Hailsham
			Land at Hailsham Delivery Office, 11 North Street, Hailsham
			Land at the Market, Market Street, Hailsham
			Harebeating Farm, Harebeating Lane, Hailsham
			Land at the Paddocks, South Road, Hailsham
			Wellfield, 154 - 156 Station Road, Hailsham
			Land at Oaklands, west of Coldthorn Lane, Ersham Road, Hailsham
	Hellingly	Hailsham	Land at Park Farm, New Road, Hellingly
	Herstmonceux	Herstmonceux	Land at Collins Honda, Hailsham Road, Herstmonceux
			Land to north of James Avenue, Herstmonceux
	Ninfield	Ninfield	Land adjacent to Ninfield Reservoir, High Street, Ninfield
			Land south of Ninfield Road including Lunsford Cross Farm and the Croft, Ninfield Road
	Polegate	Polegate	Hindsland Fields (east), Eastbourne Road, Polegate

			Hindsland Fields (west), Eastbourne Road, Polegate
			Former Waterhouse Coaches site, Dittons Road, Polegate
			Land at Royal Mail Delivery Office, 74 High Street, Polegate
			Polegate Station Car Park, High Street, Polegate
	Westham	Westham	Land adjacent to 125 Rattle Road, Westham
			Land at Peelings Lane, Westham
		Stone Cross	Dittons Nursery, Dittons Road, Stone Cross
			Land at Hazlebank, Rattle Road, Stone Cross
			Land to the west of the B2104, Hankham
			Sharnfold Farm, Hailsham Road, Stone Cross
			Land at and adjacent to The Downs View and Emberson, Hailsham Road, Stone Cross
			Land to the west of Stone Cross Garden Centre, Dittons Road, Stone Cross
			Land south of Hankham Road, Stone Cross
	Willingdon and Jevington	Willingdon	Land at Mornings Mill Farm
Strategic Employment Sites	Hailsham	Hailsham	Land east of A22, South Hailsham

6.3.8 Sustainable Drainage Systems (SuDS) are considered the main approach to reduce the volume of surface run-off that reaches sensitive ecological receptors by limiting the occurrence and magnitude of flooding. SuDS are interventions that manage surface water at source by limiting run-off to pre-development greenfield rates. As summarised in the Wealden Strategic Flood Risk Assessment (SFRA)[76], depending on local drainage characteristics / soil type and the type of development proposed, a variety of different techniques may be employed as SuDS, including soakaways, infiltration trenches, permeable pavements, grassed swales, green roofs, ponds and wetlands. The ultimate aim of SuDS is to control the quantity of run-off (by slowing and / or holding back some of the water) to protect the natural water cycle. Due to the sensitivity of the Pevensey Levels SAC / Ramsar to hydrological changes, Natural England published an advice note on the use of SuDS in development adjoining the site in 2017, encouraging the inclusion of a SuDS-specific policy in emerging planning documents. This is reflected in the Local Plan through **Policy CC8 Sustainable Drainage and Protection of the Pevensey Levels SAC and Ramsar Site**. This identifies that '*All development proposals must… Integrate SuDS as a fundamental part of site design unless demonstrated to be inappropriate due to site-specific constraints*' Furthermore, regarding the Pevensey Levels SAC / Ramsar, the draft policy stipulates that '*All development proposals within or adjacent to the Pevensey Levels hydrological catchment must engage with the Pevensey and Cuckmere [Water Level Management Board] and other relevant bodies at the earliest stage, and … Demonstrate that drainage proposals will not result in adverse effects on the integrity of the SAC/Ramsar site… Incorporate SuDS that enhance water quality and ecological resilience… Ensure any SuDS scheme involves a minimum of three treatment stages and where necessary to avoid harm to the SAC/Ramsar site, include additional treatment stages*'.

6.3.9 Several sites in the settlements of Hailsham and Westham are draft allocations in the hydrological catchment of the Pevensey Levels SAC / Ramsar and have the potential to result in direct surface run-off to the site. **In line with Natural England guidance, it is recommended that SuDS should be mandatory in these site allocations. This would minimise the volume and increase the quality of surface run-off impacting sensitive ecological receptors.** Policy content to this effect is included in the emerging WLP.

[76] Strategic Flood Risk Assessment – Wealden District Council: https://www.wealden.gov.uk/planning-and-building-control/planning-policy/new-local-plan/planning-policy-evidence-base/strategic-flood-risk-assessment/ [Accessed on the 30/04/2026]

6.3.10 In their Regulation 18 response Natural England commented that regarding site allocations within the Pevensey Levels catchment, and specifically those hydrologically connected with Pevensey Levels SAC and Ramsar site, it needs to be demonstrated that there is reasonable certainty that all adverse impacts on the designated sites can be avoided or fully mitigated before proceeding sites to the Regulation 19 stage. This is only possible through actual design of SUDS for specific allocated sites, including size, layout and technology and related nutrient removal calculations. This is not possible until masterplans and planning applications are developed. However, the requirement for three stages of SUDS maximises protection of the SAC as this uses a sequence of natural drainage components to clean water incrementally before it leaves a developed site. A typical three-stage train includes:

- Stage 1: Captures and treats pollution directly where it lands (e.g., using permeable paving, green roofs, or filter strips).
- Stage 2: Manages and further filters local runoff from a street or small cluster of buildings (e.g., routing water through vegetated swales or detention basins).
- Stage 3: Provides the final layer of biological treatment and retention for the entire site before final discharge (e.g., using a constructed wetland or retention pond).

6.3.11 Passing stormwater through these three sequential "trains" ensures that sediment settles out and pollutants are naturally broken down, protecting the SAC from environmental degradation. **The management train concept promotes division of the area to be drained into sub-catchments with different drainage characteristics and land uses, each with its own drainage strategy. Dealing with the water locally not only reduces the quantity that has to be managed at any one point but also reduces the need for conveying the water off the site. Using the Simple Index Approach from The SuDS Manual (CIRIA C753, 2015), three trains of SUDS are confirmed to meet or exceed the pollution hazard index for all three pollutant groups (suspended solids, hydrocarbons and metals), associated with runoff from low-risk surfaces such as residential roofs, drives and car parks, providing adequate treatment with a pollution hazard index of approximately 1.3. It can therefore be concluded that an adequate policy framework exists to ensure no adverse effects of the WLP on the Pevensey Levels SAC / Ramsar will arise regarding water quality from surface runoff.**

Water Abstraction

6.3.12 The second main way in which the emerging Wealden Local Plan may impact upon the water level in the SAC / Ramsar is through abstraction of potable surface water and / or groundwater for the public water supply. If the regional water resources were sufficiently depleted, this would likely lead to a reduction in the water supply to the SAC / Ramsar with knock-on effects on its plant and invertebrate communities. The draft Wealden Local Plan seeks to allocate approx. 16,609 dwellings at an average occupancy of 2.4 people per household. Given that future water efficiency targets aim at a water consumption of 110 litres per person per day, the Plan would be expected to result in an additional water consumption of 4.4 million litres per day due to residential uses alone. Notably, public water supply is only considered to be an issue where new housing will require increases to existing Environment Agency (EA) abstraction consents or the use of previously unexploited water sources. This is because existing consents have already undergone the EA's Review of Consents (RoC) process, which considers the Conservation Objectives of Habitats sites.

6.3.13 Potable water in Wealden District is supplied by South East Water (SEW). The company's water supply area covers approx. 5,657km^2 across parts of Kent, Sussex, Surrey, Berkshire and Hampshire, supplying a population of roughly 2.2 million customers. SEW's supply area is divided into eight Water Resource Zones (WRZs) and Wealden District is spread across WRZ2 and WRZ3. In turn, for management purposes, the WRZs are organised into three larger areas, namely Sussex (within which Wealden District is included), West and Kent.

6.3.14 SEW serves an area that is under serious water stress, which is defined by the EA as a geographic area where current and future household demand covers a high proportion of effective rainfall. This places significant pressure on water resources as there is a high risk that additional abstraction will result in depletion of freshwater bodies, including those that are in hydrological continuity with the Pevensey Levels SAC / Ramsar. Positively, the existing stress on water resources has resulted in a compulsory metering programme that commenced in 2011.

6.3.15 The Water Resources Management Plan (WRMP) for South East Water for a 50-year period between 2025 and 2075[77], indicates that the supply-demand balance for its Sussex area will go into a deficit of early on in the plan period. Clearly, active steps will need to be undertaken by SEW to address the supply-demand balance, which may include a range of demand and resource management options. In the next instance, an appraisal of the options proposed in the WRMP is undertaken, particularly to explore whether these may include any resource development schemes (such as increases to the deployable output from groundwater or surface water resources).

6.3.16 A range of demand and supply management options have been identified in SEW's Preferred WRMP, which are forecast to bring the baseline supply-demand balance into surplus (including in summer peak periods towards the end of the WRMP, where projected water demand would have reached its peaks). These include:

- Leakage reductions;
- Water efficiency measures;
- Regional water transfer with collaborating water companies (e.g. SES Water);
- Improved connectivity between component WRZs; and
- New surface water reservoirs (New Arlington Reservoir and Broad Oak Reservoir).

6.3.17 Most of these options are demand-management options, which are positive because they seek a higher degree of sustainability without the need for increased water abstraction. However, a potential impact on water quantity, level and flow is associated with the construction of new surface water reservoirs, such as those identified at New Arlington and Broad Oak. The WRMP identifies that part of the increased water demand in WRZ3 (which partly covers Wealden District) will be met by a new reservoir at New Arlington, with a projected intake from the River Ouse of 13 Ml/d. However, review of the EA catchment data explorer indicates that this new reservoir lies relatively far from the hydrological catchment of the Pevensey Levels SAC / Ramsar and therefore there is no potential for this new water abstraction to affect the hydrological regime in the site. Importantly, the WRMP does not indicate that any additional water abstractions are planned at Hazards Green in the Wallers Haven, which is experiencing depleted flows as a result of existing abstraction consents. These findings are in accordance with the HRA undertaken by SEW on the WRMP[78], which assessed potential in-combination impacts resulting from the plan on 33 Habitats Sites, including the Pevensey Levels SAC / Ramsar. This assessed multiple preferred and alternative options (including the new surface water reservoirs) and concluded that the WRMP will not result in adverse effects on the integrity of any Habitats Sites.

6.3.18 **Given that there is no hydrological linkage between the new surface water reservoirs proposed by SEW and the Pevensey Levels SAC / Ramsar, it is concluded that the Wealden Local Plan will not result in adverse effects on the integrity of the site regarding water quantity, level and flow, both alone and in-combination.**

Ashdown Forest SAC

6.3.19 LSEs of the Wealden Local Plan on the Ashdown Forest SAC were not excluded at the screening stage. Designated wet heaths with *Erica tetralix* are specifically adapted to humid conditions and may be at risk of drying if freshwater supply to a site decreases. An increase in water abstraction is the primary pathway through which water levels in the SAC could be affected. As highlighted in the previous section, Wealden District is supplied with potable water by SEW and is situated in an area of high water stress. It is noted that the HRA of SEW's WRMP does not consider impacts on the Ashdown Forest SAC, but the site is discussed here as a precautionary measure.

6.3.20 SEW's WRMP indicates that the supply-demand balance for the Sussex supply area was projected to be in deficit from early on in the plan period, requiring supply and demand management options to be

[77] South East Water. (2024). Water Resources Management Plan 2025 to 2075. Available at: https://cdn.southeastwater.co.uk/SewHousehold/Documents/WRMP2023/Final/SEW_WRMP24_Technical_Overview_Document.pdf
[78] South East Water. (2024). WRMP24 Habitats Regulations assessment report. Available at: https://cdn.southeastwater.co.uk/SewHousehold/Documents/WRMP2023/Final/SEW_WRMP24_HRA_Report.pdf

delivered to meet the increasing water demand. For a detailed appraisal of the WRMP please refer to the previous section, as this information will not be reassessed here. Aside from demand management measures (discussed previously), several supply options with the potential for increased water abstraction are included in SEW's Preferred Plan, including a new groundwater scheme (Aylesford Newsprint) and two new surface water reservoirs (New Arlington and Broad Oak Reservoirs). The potential hydrological implications of these schemes for the Ashdown Forest SAC are discussed below.

6.3.21 All groundwater options (including the Aylesford Newsprint scheme) proposed for SEW's WRMP Unconstrained Options list, were assessed by the EA and most proposals were deemed to be too risky in terms of sustainability to be included in the Preferred Plan. The Aylesford Newsprint scheme, a component of the Preferred Plan, involves the purchase of existing abstraction licenses for the site's boreholes and streams (approx. 18.2 Ml/d). Given that it does not increase existing abstraction consents, it is determined that it has no potential to affect the water level in the Ashdown Forest SAC. The proposed surface water reservoirs that involve increased / new abstractions (i.e. New Arlington and Broad Oak) lie in different catchments to the SAC (far beyond the 5km inclusionary buffer zones typically used in HRAs of WRMPs) and have no hydrological connectivity with wet heathland in the site boundary.

6.3.22 **Given that there is no hydrological linkage between the resource options proposed in SEW's WRMP and the Ashdown Forest SAC, it is concluded that the Wealden Local Plan will not result in adverse effects on the integrity of the site regarding water quantity, level and flow, both alone and in-combination.**

6.4 Water Quality

Pevensey Levels SAC / Ramsar

6.4.1 Aquatic pollution poses a significant threat to biodiversity in the English lowlands. The major problem is the excessive input of phosphorus (the limiting nutrient in freshwater environments) and / or nitrogen (the limiting nutrient in the marine environment) from diffuse and point sources, potentially resulting in eutrophication. Water quality may also be impacted as a result of surface run-off from impermeable urban surfaces, carrying anthropogenic pollutants (e.g. phosphorus, nitrogen and toxic chemical substances) into waterbodies and hydrologically connected Habitats sites.

6.4.2 The Pevensey Levels SAC / Ramsar is an area of extensively grazed wet meadows, which is maintained by a network of drainage ditches. The site's interest features, including the little whirlpool ram's-horn snail (SAC feature) and its assemblages of freshwater molluscs, Coleoptera and Odonata (all Ramsar features) are directly dependent on freshwater input from its hydrological catchment. As such, phosphorus input from surface water and groundwater bodies as well as in the run-off from urban surfaces has the potential to affect designated features through a deterioration in water quality.

6.4.3 The Environment Agency provides data on the quality of surface waterbodies on their Catchment Data Explorer. Both chemical and ecological characteristics are assessed against relevant thresholds in the Water Framework Directive (WFD). Table 6 provides an overview of all eight waterbodies in the Pevensey Operational Catchment, indicating that six do not achieve good chemical status and all eight not achieving good ecological status. Notably, for six of the eight waterbodies, the water industry is identified as a reason for not achieving good (RNAG) status, specifically intermittent and continuous treated wastewater discharge from point sources such as Wastewater Treatment Works (WwTW). The parameters most influenced by treated sewage effluent and a determinant of water quality are phosphorus (the limiting nutrient in freshwater environments) and dissolved oxygen concentration. High nutrient concentrations can cause excessive algal growth and resulting low oxygen concentrations, with potential knock-on impacts on ecological parameters. Considering the available evidence base, future development and its likely implication for water quality could be a serious threat to the integrity of the Pevensey Levels SAC / Ramsar.

Table 6: Quality of waterbodies supplying water to the Pevensey Levels SAC / Ramsar as highlighted by their chemical and ecological characteristics.

Waterbody	Chemical Status		Ecological Status		Reasons for not achieving good (RNAG) status
Year	2016	2019	2016	2019	
Ashbourne and Hugletts Streams	High	Good	Poor	Poor	No sector responsible
East Stream	Moderate	Moderate	Moderate	Poor	Various, including point-source continuous treated sewage discharge
Horse Eye Sewer	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Hurst Haven at Hailsham	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Langney Sewer at Eastbourne	Moderate	Moderate	Poor	Poor	Various, including point-source continuous / intermittent treated sewage discharge
Nunningham Stream	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Pevensey Haven	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Waller Haven between Windmill Hill and Coast	Good	Good	Moderate	Moderate	No sector responsible

6.4.4 Natural England's Site Improvement Plan (SIP) for the Pevensey Levels SAC / Ramsar also indicates that nutrient emission from WwTWs is one of the key drivers of the spread of invasive non-native species (INNS), such as floating pennywort *Hydrocotyle ranunculoides* and the genus *Crassula*. These INNS clog ditches outcompete the designated native flora, while also preventing oxygen exchange with the air and leading to long-term deoxygenation. For example, at the time of writing, the SIP identified that there were over 45km of floating pennywort and 100ha of *Crassula*. AECOM is not aware of any nutrient neutrality requirements that are currently in place for the Pevensey Levels SAC / Ramsar.

6.4.5 The Supplementary Advice on the Conservation Objectives for the SAC identifies the following water quality targets that must be met for the SAC to be considered to be achieving its objectives:

- The mean range of soluble reactive phosphorous: 0.085 mgl^{-1} near Hailsham to 0.063mgl^{-1} near Windmill Hill;
- Dissolved Oxygen 70% saturation 10th centile;
- Biochemical Oxygen Demand 4 Mgl^{-1} 90th Centile; and
- 0.6 Ammonia $mgNl^{-1}$

6.4.6 A primary factor in determining whether the Pevensey Levels SAC / Ramsar could be affected by the emerging WLP, is whether there is potential hydrological connectivity between the WwTWs serving sites allocated in the emerging WLP and the SAC / Ramsar catchment. Owing to the low-lying nature of the Pevensey Levels, its hydrological catchment zone is delineated by a relatively clear boundary. The Environment Agency Catchment Explorer shows that the Pevensey Operational Catchment extends from Eastbourne in the west to Bexhill-on-Sea in the east. Two WwTWs discharge into the north-western end of the Pevensey catchment (Hailsham North WwTW and Hailsham South WwTW), which are likely to serve growth coming forward in the wider area around Hailsham.

6.4.7 According to Natural England's Site Improvement Plan, treated sewage effluent from both WwTWs flows into the SAC's / Ramsar's catchment. It is also highlighted that the storm water tank of one plant sits directly on the site, posing a further threat to its water quality. Water quality analysis undertaken by the EA indicates that phosphorus concentrations are higher than 0.1mg/l downstream of the WwTWs, which are beyond the maximum levels that can be tolerated by designated freshwater invertebrates and plant assemblages. This problem is exacerbated by low flows that are insufficient to dilute phosphorus levels in treated effluent. The existing threat to water quality is supported by the condition assessment of recipient waterbodies. The Pevensey Haven Water Body (in which Hailsham South WwTW sits) is classified as having 'Moderate Ecological Status', partly due to a 'Poor' score for dissolved oxygen and a 'Moderate' score for phosphorus. The Hurst Haven at Hailsham Water Body also has overall 'Moderate Ecological Status' with a 'Moderate' score for dissolved oxygen.

6.4.8 Protecting the integrity of Habitats sites regarding water quality is primarily the responsibility of wastewater treatment companies in consultation with the EA. The EA sets limits on the discharge of pollutants such as phosphorus, which helps determine the available headroom at WwTWs to serve residential growth coming forward under development plans. Generally, unless more prominent issues are present, remaining within the consented available headroom will ensure that there are no adverse effects on the integrity of Habitats sites. Southern Water is the statutory sewerage provider for Wealden District that owns and operates the two WwTWs at Hailsham. In relation to population growth, Southern Water has confirmed, that wastewater treatment capacity is not a constraint to future new development even if investment requirements are significant. This is because Southern Water has a statutory obligation to find solutions and provide infrastructure to serve new development.

6.4.9 For some of the proposed allocations, it may be the case that a new or revised environmental permit will be required from the Environment Agency. The Environment Agency would normally permit increased flows provided that treatment standards are improved so that the total load to the environment is not increased. This is in line with the 'no deterioration' principle. In the case of the Hailsham North and South WwTW any future permit will need to ensure the integrity of the Pevensey Levels (SAC).

6.4.10 In a December 2018 Wastewater Position Statement, Southern Water set out that '*further review and trialling of current wastewater treatment technology identified a high rate biological treatment process that is capable of meeting the requirement to achieve a high quality effluent*'. An 'Operating Agreement' was developed with the Environment Agency to achieve the required high-quality effluent from the works. While the permit itself will include an annual average phosphorus level of 0.25mg/l, known as the 'Technically Achievable Limit' with current technology, Southern Water has committed to more stringent phosphorus reductions at Hailsham South and Hailsham North. The Operating Agreement will stipulate an annual average phosphorus concentration in treated sewage effluent of 0.1mg/l at Hailsham South WwTW and 0.08mg/l at Hailsham North WwTW. The construction, commissioning and operation of the process improvements was completed in 2022.

6.4.11 As of 2023 Southern Water has developed their Drainage and Wastewater Management Plan (DWMP) for the Cuckmere and Pevensey Levels Catchment[79]. The DWMP includes two specific commitments relating to the Pevensey Levels designations: Investigating the potential impact of wastewater discharges on Good Ecological Status in designated Habitats at Cuckmere, Pevensey and Hastings, and developing a nutrient budget by investigating the sources impacting designated habitats sites at Cuckmere and the Pevensey Levels. The DWMP also notes that '*the options and investment needs are not committed funding but an identification of the needs for funding. We will include these options*

[79] Available here: https://www.southernwater.co.uk/about-us/our-plans/drainage-and-wastewater-management-plans/cuckmere-and-pevensey-levels-catchment/ [Accessed 30/04/2026]

in our future business plans as part of the Ofwat periodic review of water company funding to secure the investment needed to implement these options'.

6.4.12 In relation to the Hailsham WwTWs, these now operate in accordance with Environmental Permits set by the Environment Agency, so that water quality objectives are protected. Water is now being treated to the best standard (the technically achievable limit – TAL), substantially reducing the phosphorus concentration in the treated sewerage that is released into the Pevensey Levels. In the longer term, it is understood that Southern Water are considering an additional outfall or an additional treatment works post-2030 to deal with any water quality concerns at Dry Weather Flow (DWF).

6.4.13 For some of the proposed allocations, it may be the case that a new or revised environmental permits will be required from the Environment Agency. The Environment Agency would normally permit increased flows provided that treatment standards are improved so that the total load to the environment is not increased. This is in line with the 'no deterioration' principle. In the case of the Hailsham North and South WwTW any future permit will need to ensure the integrity of the Pevensey Levels (SAC).

6.4.14 All development sites will be required to provide a connection to the sewerage systems at the nearest point of available capacity. In order for any development to be granted planning permission, the release of the land should be conditional on sufficient wastewater treatment capacity (or headroom) being available in the relevant WwTW at the time of occupation / development.

6.4.15 It is noted that, policies regarding infrastructure and natural environment were largely unchanged from prior versions of the Regulation 18 Wealden Local Plan (March 2024). The infrastructure and natural environment policies of this prior Regulation 18 Wealden Local Plan (March 2024) contained adequate policy wording for ensuring that development with the potential to cause water quality issues from treated sewage effluent does not come forward. For example, **Policy INF4 Utilities** stated that '*All development proposals should demonstrate that the infrastructure capacity for surface water disposal, water supply, wastewater treatment, gas, electricity and oil will be sufficient to meet the forecast demands arising from the development over its lifetime and that appropriate connections can be made to the development created*'. Furthermore, **Policy NE13 Water Environment and Water Infrastructure** extended specific protection to the water environment, stating that '*Development will only be permitted where it can be demonstrated that it would not result in an unacceptable risk to, or adversely affect, the quality, quantity, levels and ecology of surface water and groundwater resources within the district, including reservoirs.* Furthermore, the policy stipulates that '*Development proposals must demonstrate that there is adequate existing water supply infrastructure (foul and surface drainage as well as drinking water provision) to serve the development over its lifetime. Where provision is inadequate / not available, proposals must set out how the appropriate infrastructure improvements will be completed prior to the development's occupation. Any such proposals must be approved by the statutory undertaker…*'. These policies are not materially changed in the Regulation 19 Wealden Local Plan and this ensures that there is adequate policy framework to avoid potential adverse effects.

6.4.16 In addition, Southern Water has also undertaken investigations on the surface water sewer network serving Hailsham, which has identified several misconnections that allow foul discharges to escape into the surface water system. The location of these faults has been shared with the Environmental Health team (part of Wealden District Council) to undertake their removal. It is considered that the repair of the sewer system is a very important step in improving the water quality in the Pevensey Levels SAC / Ramsar.

6.4.17 Overall, process improvements at the two Hailsham WwTWs have been completed and the WLP effectively prohibits adverse effects on Habitats sites through its policy framework. Consultation with Southern Water has highlighted that Hailsham North and Hailsham South are already treating to below technical achievable limits (TAL) during this investment period (2025 to 2030) and the Water Cycle Study indicates each WwTW has 13% headroom. However, taking into account the full Local Plan allocations (post 2030), the Water Cycle Study identifies that further capacity improvements would be needed at both WwTW. Based on current technologies there could therefore be post-2030 constraints to future growth where these are found to be 'beyond permit'. Southern Water has highlighted that additional options would need to be explored in more detail on a case-by-case basis.

6.4.18 Since both these WwTW are now confirmed to be treating to below BAT this removes a large amount of phosphorus from entering the system (as it is applied to the entire housing stock served by those WwTW) which creates some headroom for new development. However, further upgrades are likely to be required post-2030. Due to the manner in which WwTW upgrades are identified and funded (in AMP periods) investment plans post-2030 will only be developed in future in line with the Environment Agency determined WINEP of schemes that are yet to be announced for AMP9 (2030 to 2035) and beyond. Continued liaison with Southern Water should therefore occur in later reviews of the Local Plan to ensure that adequate infrastructure continues to be in place prior to development within the Hailsham sewerage catchments being permitted.

7. Conclusions

7.1.1 This HRA assessed the potential implications of the policies and site allocations included in the Regulation 19 Wealden Local Plan on the following Habitats sites:

- Ashdown Forest SAC / SPA;
- Pevensey Levels SAC / Ramsar;
- Lewes Downs SAC; and
- Castle Hill SAC.

7.1.2 Considering the scale and location of growth and site-specific ecological sensitivities, the impact pathways that required consideration were atmospheric pollution, recreational pressure, water quantity, level and flow, and water quality. All identified impact pathways were taken forward to Appropriate Assessment.

7.2 Atmospheric Pollution

Ashdown Forest SAC

7.2.1 To evaluate the potential impact of the WLP on air quality in the Ashdown Forest SAC, air quality modelling was undertaken at 20 transects throughout the SAC, including eight transects along the B2026 (WDC1 – WDC8), two transects along New Road (WDC9 and WDC10), two transects along Crowborough Road (WDC11 and WDC12), four transects along the A22 (WDC13, WDC14, WDC17, WDC18), two transects along the A275 (WDC15 and WDC16), one transect along the A26 (WDC19) and one transect off the B2188 (WDC20). Modelled atmospheric pollutants were NH_3, NOx and overall N deposition.

Ammonia (NH_3)

7.2.2 The release of NH_3 will not have an adverse effect on the integrity of Ashdown Forest SAC because total ammonia is not forecast to exceed the lower critical level for protection of lichens and bryophytes at any locations where a diverse lower plant flora is found or would be expected, or to exceed the upper critical level at any area of heathland.

Oxides of Nitrogen (NOx)

7.2.3 In all future 2040 scenarios the NOx concentrations are not forecast to exceed the critical level on any transect.

Nitrogen Deposition

7.2.4 While data are modelled for the immediate roadside, IAQM guidance is that immediate roadside data are not used in the assessment due to the reduced model accuracy when in close proximity to the road. Using the 10m point as the worst-case therefore the nitrogen data can be summarised as follows:

- For nine transects (WDC3, WDC4, WDC9, WDC10, WDC11, WDC12, WDC15, WDC16, WDC19) the in-combination nitrogen dose, while naturally greater than in a situation with no traffic growth, is imperceptible (being below 1% or 0.05 kgN/ha/yr) by 10m from the roadside. The contribution of the WLP to this dose (DS – DM scenarios) is also imperceptible at all of these transects (i.e. 0.05 kg N/ha/yr or below by 10-20m from the roadside). Guidance from National Highways as set out in the Design Manual for Roads and Bridges (DMRB) Volume LA105 (Air Quality)[80] indicates that, based on analysis of nitrogen dose-response relationships, a nitrogen dose below 0.4 kgN/ha/yr is not expected to have a significant botanical effect even if it did constitute a net deterioration. This underlines the precautionary nature of the '1% of the critical

[80] LA 105 - Air quality (standardsforhighways.co.uk)

load' threshold for deeming an impact imperceptible as it is an order of magnitude below the threshold used in DMRB.

- For all other modelled transects in-combination nitrogen deposition doses as a result of the local plan are either consistent with or slightly lower (better) than the Future Baseline (i.e. the future situation than in a situation of no traffic growth). As discussed above, the most likely reason for this is that the traffic model allows for dynamic reassignment of traffic to take account of the fact that once flows increase to a certain point drivers are more likely to use alternative routes. All these links are routes which the traffic modelling identifies as locations where delays increase, resulting in rerouting. Therefore, there will be no adverse effect on integrity alone or in combination from increased nitrogen deposition due to Local Plan growth either alone or in combination.

7.2.5 In summary, 'in combination' nitrogen deposition is forecast to be below a maximum of c. 0.3kgN/ha/yr or below at the nearest area of heathland on all transects. This in combination dose declines exponentially with distance from the road.

7.2.6 Finally, Natural England have previously confirmed in discussions over the Wealden, Mid-Sussex, Tunbridge Wells and South Downs National Park Local Plans that nitrogen deposition from traffic is not preventing the SAC from achieving its Conservation Objectives, but that the principal issue is a lack of management, which is ultimately a land stewardship issue for site owners and managers rather than a consequence of the implementation of Local Plans. For these reasons it is considered that the ability of the SAC and SPA to achieve its Conservation Objectives would not be significantly compromised by the WLP growth either alone or in combination with other plans or projects.

Lewes Downs SAC

7.2.7 Air quality modelling was undertaken at two transects in the Lewes Downs SAC, including one transect along the A26 at South Malling, and one transect along the B2192. Modelled atmospheric pollutants included NH_3, NOx and overall N deposition.

Ammonia (NH_3)

7.2.8 The total annual NH_3 concentrations exceeded the lowest Critical Level at both modelled transects. However, Natural England confirmed that lichens and bryophytes are not a significant element of the international interest of the Lewes Downs SAC. Therefore, it is considered that the 1 µg/m^3 Critical Level is not applicable and a 3 µg/m^3 Critical Level is more appropriate. This higher Critical Level is not presently exceeded and is not forecast to be exceeded.

Oxides of Nitrogen (NOx)

7.2.9 The Critical Level for the general protection of vegetation is not currently exceeded at the closest area of calcareous grassland and is not forecast to be exceeded under any future scenario for 2040.

Nitrogen Deposition

7.2.10 The current annual mean nitrogen deposition at both transects exceeds the reduced minimum Critical Load of calcareous grassland of 10 kg N/ha/yr at the nearest modelled point to the roadside. However, at all modelled points along both transects, the in-combination nitrogen dose is imperceptible (below 1% or 0.1 kgN/ha/yr). Therefore, it is considered that the ability of the SAC and SPA to achieve its Conservation Objectives would not be significantly compromised by the emerging WLP growth either alone or in combination with other plans or projects.

7.3 Recreational Pressure

Ashdown Forest SAC / SPA

7.3.1 The qualifying features of the Ashdown Forest SAC / SPA are sensitive to a wide range of impacts that arise from recreation, including trampling damage, soil compaction, nutrient enrichment and disturbance. Data from previous visitor surveys highlight that Wealden District contributes a large proportion to the recreational burden in the SAC / SPA, which requires mitigation in line with the established frameworks in place for these Habitats sites.

7.3.2 The Appropriate Assessment indicates that the 2,970 dwellings and 10 Gypsy, Traveller and Traveling showpeople pitches allocated in Wealden Local Plan within the 7km mitigation zone established around the Ashdown Forest SAC / SPA would require the delivery of 57.2ha of bespoke and / or strategic SANG. Two SANGs (Walshes Park and Owlsbury Park) are operational within Wealden District, but the remaining capacity in both sites is limited to support additional growth in the emerging Local Plan and new SANGs will be required unless additional capacity can be provided through further enhancements at the existing SANG sites.

7.3.3 Work on the mitigation approach for the projected growth in Wealden District has been ongoing. While an established framework for the delivery of SAMM is in place (a collaborative SAMM strategy approach with other adjoining authorities), research to identify adequately sited SANG(s) is ongoing to ensure that all housing developments can be effectively mitigated. The Council has developed a SANG strategy with Natural England to progress their SANG inventory in support of the WLP and potential SANG sites to mitigate growth in the emerging Local Plan have been identified. There are 2 sites that have planning permission at Birds in Eye Hill (South), Uckfield (4ha), Cysleys Farm, Uckfield (2.8ha) and one which has a resolution to approve, subject to S106 at Horstedpond Farm (16.45ha). This equates to a potential additional supply of 23.25ha of SANGS Provision. In addition, three proposed sites at Owlsbury Farm, Uckfield, Land at Hempstead Lane, Uckfield, and Bird In Eye farm (North), Bird In Eye Hill, Uckfield would also deliver additional SANG of 48.7ha in size which would help meet this overall need. Policy NE5 (Protecting Ashdown Forest SPA) of the draft Wealden Local Plan (March 2024) specifically sets out the requirements for mitigation provision on development within the core recreational catchment of the Ashdown Forest SAC/SPA and will therefore ensure the Habitats site is protected from harm.

7.3.4 **Assuming that suitable SANG identified in the SANG strategy in consultation with Natural England will be secured, it can be concluded that the WLP contains adequate policy framework to exclude adverse impacts as a result of recreational pressure emerging from the WLP**

7.4 Water Quantity, Level and Flow

Pevensey Levels SAC / Ramsar

Surface Run-Off

7.4.1 The Pevensey Levels SAC / Ramsar is sensitive to potential changes in water quantity, level and flow that are mediated through surface run-off from impermeable surfaces, which would typically arise in the form of flash floods. The ultimate aim of SuDS is to control the quantity of run-off (by slowing and / or holding back some of the water) to protect the natural water cycle. Due to the sensitivity of the Pevensey Levels SAC / Ramsar to hydrological changes, Natural England published an advice note on the use of SuDS in development adjoining the site in 2017, encouraging the inclusion of a SuDS-specific policy in emerging planning documents. This is reflected in the WLP through **Policy CC8 Sustainable Drainage and Protection of the Pevensey Levels SAC and Ramsar Site**. Given that policy wording to protect the characteristic hydrological regime in the Pevensey Levels SAC / Ramsar is included in the emerging WLP, there will be no adverse effects of the WLP regarding water quantity, level and flow through increased surface run-off.

Water Abstraction

7.4.2 The WLP will increase residential and employment development within Wealden District, for which there is a statutory obligation to deliver potable water. If the water supply to new developments would require the exploitation of additional water sources in hydrological connectivity with the Pevensey Levels SAC / Ramsar, this could reduce the freshwater supply to these sites. However, a review of SEW's WRMP indicates that the supply-demand deficit will be primarily addressed through demand management measures. The supply-side options identified in the WRMP (New Arlington and Broad Oak Reservoirs) do not extract freshwater from the hydrological catchment of the SAC / Ramsar, implying that there is no potential for impacting the site's water supply. This assessment is in agreement with the SEW's screening HRA of the WRMP, which concluded no LSEs on Habitats sites, including the Pevensey Levels SAC / Ramsar.

Ashdown Forest SAC / SPA

7.4.3 The wet heathland components in the Ashdown Forest SAC / SPA are sensitive to potential changes in freshwater supply. SEW's WRMP indicates that the supply-demand balance for the Sussex supply area was projected to be in deficit from early on in the plan period, requiring supply and demand management options to be delivered to meet the increasing water demand. The Aylesford Newsprint scheme, a component of the Preferred Plan, involves the purchase of existing abstraction licenses for the site's boreholes and streams (approx. 18.2 Ml/d). Given that it does not increase existing abstraction consents, it is determined that it has no potential to affect the water level in the Ashdown Forest SAC. The proposed surface water reservoirs that involve increased / new abstractions (i.e. New Arlington and Broad Oak) lie in different catchments to the SAC (far beyond the 5km inclusionary buffer zones typically used in HRAs of WRMPs) and have no hydrological connectivity with wet heathland in the site boundary.

7.5 Water Quality

Pevensey Levels SAC / Ramsar

7.5.1 Water quality impacts from treated sewage effluent, particularly in relation to the two Hailsham WwTWs, has been a long-standing issue for the Pevensey Levels SAC / Ramsar and is also highlighted in Natural England's SIP. Therefore, Southern Water have implemented process improvements that reduce phosphorus concentrations in treated effluent. In relation to the Hailsham WwTWs, these now operate in accordance with Environmental Permits set by the Environment Agency, so that water quality objectives are protected. Water is now being treated to the best standard (the technically achievable limit – TAL), substantially reducing the phosphorus concentration in the treated sewerage that is released into the Pevensey Levels. In the longer term it is understood that Southern Water are considering an additional outfall or an additional treatment works post-2030 to deal with any water quality concerns at Dry Weather Flow (DWF).

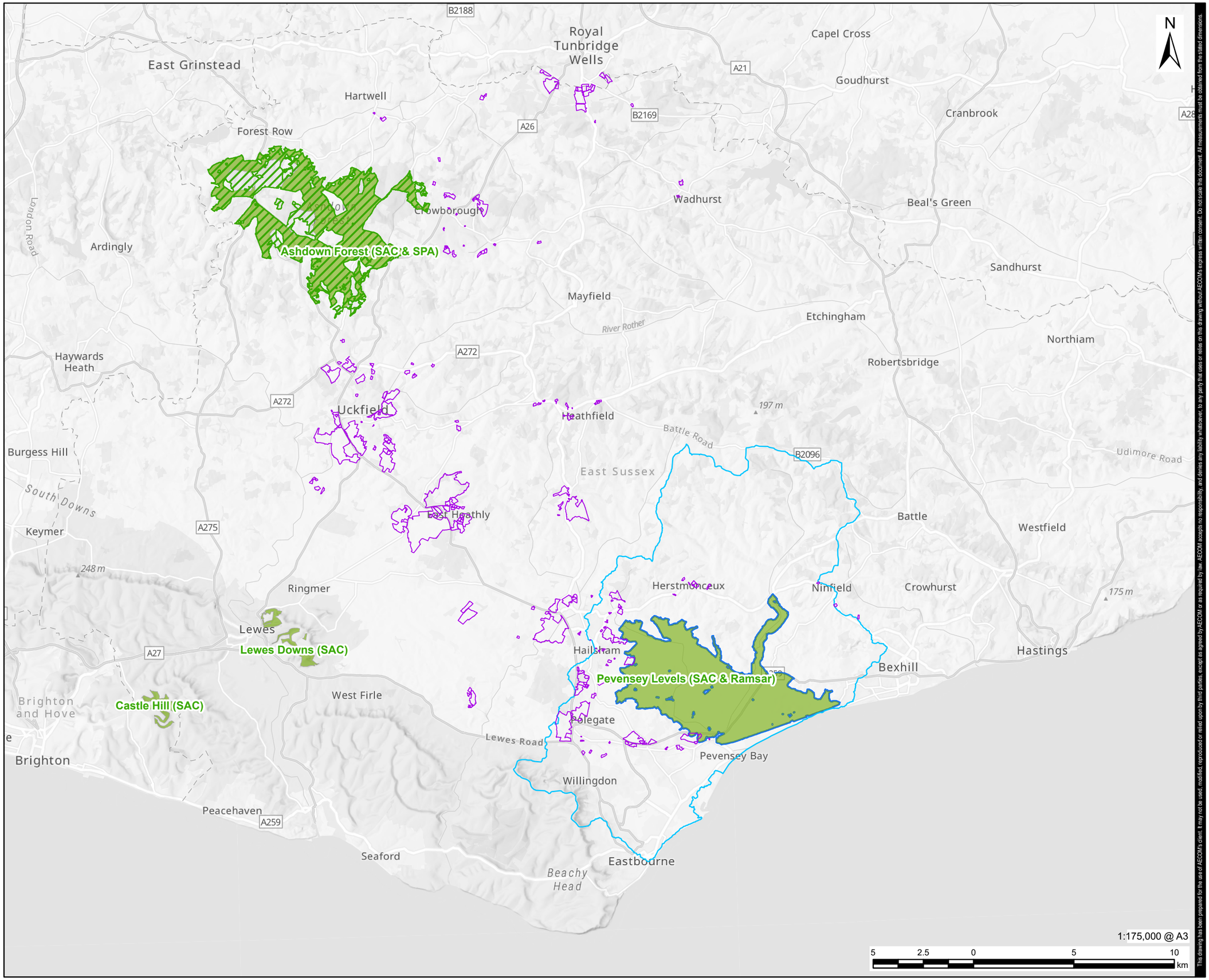
7.5.2 For some of the proposed allocations, it may be the case that a new or revised environmental permit will be required from the Environment Agency. The Environment Agency would normally permit increased flows provided that treatment standards are improved so that the total load to the environment is not increased. This is in line with the 'no deterioration' principle. In the case of the Hailsham North and South WwTW any future permit will need to ensure the integrity of the Pevensey Levels (SAC).

7.5.3 It is noted that, policies regarding infrastructure and natural environment were largely unchanged from prior versions of the Regulation 18 Wealden Local Plan published in March 2024. The infrastructure and natural environment policies of this prior Regulation 18 Wealden Local Plan contained adequate policy wording for ensuring that development with the potential to cause water quality issues from treated sewage effluent does not come forward. This wording was contained in **Policy INF4 Utilities** and **Policy NE13 Water Environment and Water Infrastructure,** which extended specific protection to the water environment. These policies are not materially changed in the Regulation 19 Wealden Local Plan and this ensures that there is adequate policy framework to avoid potential adverse effects.

7.5.4 Overall, process improvements at the two Hailsham WwTWs have been completed and the WLP effectively prohibits adverse effects on Habitats sites through its policy framework. Notwithstanding this, consultation with Southern Water has highlighted that Hailsham North is already treating to below technical achievable limits (TAL) and, as discussed in responses to the Water Cycle Study, based on current technologies there could be constraints to future growth where these are found to be 'beyond permit'. Since both these WwTW are now confirmed to be treating to below BAT this removes a large amount of phosphorus from entering the system (as it is applied to the entire housing stock served by those WwTW) which creates some headroom for new development. However, further upgrades are likely to be required post-2030. Due to the manner in which WwTW upgrades are identified and funded (in AMP periods) investment plans post-2030 will only be developed in future in line with the Environment Agency determined WINEP of schemes that are yet to be announced for AMP9 (2030 to 2035) and beyond. Continued liaison with Southern Water should therefore occur in later reviews of the Local Plan to ensure that adequate infrastructure continues to be in place prior to development within the Hailsham sewerage catchments being permitted.

Appendix A Maps

Figure 4: Habitats sites in and within 10km of Wealden District in relation to sites allocated in the Wealden Local Plan.



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Revision: 0 Drawn: JA Checked: JH Approved: SK Date: 2026-09-10

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PROJECT
Wealden Local Plan

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LEGEND
- Pevensey Levels Catchment Area
- Allocations

Habitat Sites
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar Sites



NOTES
1: Basemapping: Esri, Intermap, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, USGS
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ISSUE PURPOSE
FINAL

PROJECT NUMBER
60778093

FIGURE TITLE
European Sites

FIGURE NUMBER
Figure 1_4

Appendix B Likely Significant Effects (LSEs) Screening

Table 7: Likely Significant Effects (LSEs) screening assessment of policies contained in the WLP.

Where the 'LSEs Screening Outcome' column is shaded orange, LSEs of the policy cannot be excluded, and it is taken forward to Appropriate Assessment (AA). Where that final column is shaded green, a realistic pathway of impact is not present, and the policy is screened out from AA.

Policy Number & Name	Policy Content	LSEs Screening Outcome
Policy SS1 – Spatial Strategy for Wealden	Sustainable Development 1. The Council will expect the development proposals and use of land to contribute positively to the social, economic and environmental enhancement of Wealden. Planning applications that are consistent with the policies in the plan will be supported, unless material considerations indicate otherwise. General Principles 2. During the plan period up to 2042 the Local Plan will: a) Deliver sustainable and high-quality development that meets the needs of our communities for homes and jobs, whilst balancing the impact of growth on our natural environment, protected landscapes and the countryside. b) Contribute to the continued sustainability of our towns and villages. This will involve supporting the improvements that are required to local services, community facilities and infrastructure. Subject to other policies in the plan, we will safeguard our existing employment and tourism sites and seek to deliver new employment and tourism sites, ensuring that people can access jobs, services and facilities locally. c) Support our towns and villages to be 'complete, compact and connected neighbourhoods' to help provide health, social, environmental and economic benefits to our communities. d) Support Neighbourhood Plans where Parishes have designated such areas for this purpose, including supporting site allocations for housing and employment purposes, providing such developments are consistent with the policies in this plan. Development Boundaries 3. Subject to other policies in the plan, new development will be permitted within those settlements with an identified development boundary as shown on the Policies Map. This includes the following settlements: Crowborough, Uckfield, Hailsham, Heathfield, Polegate, Willingdon, Stone Cross, Westham, Pevensey, Forest Row, Horam, Mayfield, Wadhurst, Bells Yew Green, Berwick Station, Blackboys, Buxted, Cross in	This policy is not associated with LSEs on Habitats sites. The policy lays out the spatial strategy for the WLP. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	Hand, East Hoathly, Five Ash Down, Framfield, Frant, Groombridge, Hartfield, Herstmonceux, Isfield, Lower Horsebridge, Maresfield, Ninfield and Rotherfield. 4. Within these settlements, development proposals should make the best use of previously developed land, apply an appropriate density to its use, ensure the creation of strong, sustainable, cohesive and inclusive communities including required infrastructure provision. Development proposals should also consider land take and the impact this may have on the natural environment and resources, whilst also relating well to the existing and surrounding character of the area. <u>Employment</u> 5. The Council will support economic development proposals which deliver a growth in high-skilled jobs and/or an expansion of tourism that contributes towards the delivery of sustainable economic prosperity in the district. 6. New strategic employment floorspace will be allocated for development within this local plan in line with policy SS6 (and the district's strategic employment sites will also be protected, alongside non-strategic employment land). Improvements to existing strategic employment sites (redevelopment, conversion, upgrading, intensification or reconfiguration) will also be supported where this meets other policies in the plan in order to meet the district's employment need. These sites will contribute to meeting an increase in employment land and jobs within the plan period. <u>District, Service and Local Centres</u> 7. The role of our district, service and local centres will be protected and enhanced by encouraging a range of uses consistent with the scale and function of the centre having regard to its position in the hierarchy. Retail growth during the plan period will be focused within these centres in accordance with the town centre hierarchy and policies TC1 (District, Service and Local Centre Hierarchy and 'Town Centre' First Principles) and TC2 (Sequential and Local Impact Test). 8. The Council will support improvements to district, service and local centres where this will support the vitality and viability of centres including improvements to the quality of our town centres and public realm, the provision of a diverse offer, the provision of community services, improvements to active travel infrastructure and the night-time economy. Development that is associated with the 'greening' of our town centres will be particularly supported. <u>Countryside</u> 9. Land outside development boundaries will be considered as the countryside. The countryside will be protected unless development is supported by a specific policy referenced elsewhere in this plan.	
Policy SS2 – Provision of Homes	<u>New homes</u>	LSEs of Policy SS2 on Habitats sites cannot be excluded.

	1. A housing target of 16,833 (net) dwellings will be delivered in the district between 1 April 2025 to 31 March 2042. The provision of homes will be met through committed schemes (with planning permission), site allocations within this local plan and windfall development. 2. New housing (allocations and windfall) development is supported in the district's most sustainable settlements and will be located within the defined settlement areas within the district, as defined on the policies map.	Policy SS2 identifies a net increase of 16,833 dwellings that will be delivered during the Local Plan period. These allocations will result in a population increase and, depending on their location, may contribute to the following impact pathways: • Atmospheric pollution • Recreational pressure • Water quantity, level and flow • Water quality Overall, Policy SS2 is screened in for Appropriate Assessment.
Policy SS3 – Gypsy, Traveller and Travelling Showpeople – Accommodation needs	To meet the identified accommodation need for Gypsies, Travellers and Travelling Showpeople within the District up to 2040, the Council will make provision for 51 pitches for Gypsies and Travellers and 3 plots for Travelling Showpeople in accordance with the needs identified in the GTAA for those who meet the PPTS definitions.	LSEs of Policy SS3 on Habitats sites cannot be excluded. Policy SS3 identifies 51 pitches for gypsies and travellers, and 3 plots for Travelling Showpeople will be delivered during the Local Plan period. These allocations will result in a population increase and, depending on their location, may contribute to the following impact pathways: • Atmospheric pollution • Recreational pressure • Water quantity, level and flow • Water quality Overall, Policy SS3 is screened in for Appropriate Assessment.
Policy SS4 – Retail Provision and Town Centres	The Council will support the provision of between 7,600 sqm and 9,700 sqm of convenience retail floorspace and between 7,600 sqm and 11,900 sqm of comparison retail floorspace by 2040. This will be achieved within our District, Service and Local Centres as defined in Policy TC1 (District, Service and Local Centre Hierarchy and 'Town Centre' First Principles).	LSEs of Policy SS4 on Habitats sites cannot be excluded. Policy SS4 sets out the retail hierarchy and where town centre uses will be located. As such, it at least partly dictates where employment development will be situated across Wealden District.

<table>
<tr><td></td><td></td><td>This development will result in a net increase in employment opportunities and, depending on their location, may contribute to the following impact pathways:
Atmospheric pollution
Water quantity, level and flow
Water quality
Overall, Policy SS4 is screened in for Appropriate Assessment.</td></tr>
<tr><td>Policy SS5 – Provision of Employment Floorspace</td><td>1. The Council will support the provision of at least 197,780 sqm of employment floorspace in use Classes E(g), B2 and B8 by 2042. This will be achieved through the following measures:
a) The allocation of land as employment sites as listed within Policy SS6 Strategic Employment Sites;
b) The delivery of existing commitments for employment uses, with the largest commitments (above 5,000 sqm) already identified in Policy SS6 Strategic Employment Sites;
c) The retention of existing employment premises across the district and particularly strategic employment sites identified in Policy EC2: Existing Strategic Employment Sites;
d) Supporting existing businesses through the provision of new employment premises/floorspace or the redevelopment, conversion, upgrading, intensification or reconfiguration of employment premises or floorspace on existing employment sites as identified in Policy EC2: Existing Strategic Employment Sites;
e) The delivery of new economic development in rural areas in line with Policy EC4 Rural Economy; and
f) The provision of new office floorspace (Use Class E(g)(i)) within Wealden's designated district, service and local centres as identified in Policy TC1: District, Service and Local Centre Hierarchy and 'Town Centre' First Principles.</td><td>LSEs of Policy SS5 on Habitats sites cannot be excluded.

Policy SS5 identifies that at least 197,780m^2 of employment floorspace of different use classes will be delivered in Wealden District over the Local Plan period. The provision of employment floorspace will result in a net increase in employment opportunities and, depending on its location, may contribute to the following impact pathways:
Atmospheric pollution
Water quantity, level and flow
Water quality
Overall, Policy SS5 is screened in for Appropriate Assessment.</td></tr>
<tr><td>Policy SS6 – Strategic Employment Allocations</td><td>1. To meet the employment and growth aspirations of the District, the following sites are allocated for business and employment purposes:

<table><tr><th>Site Reference</th><th>SHELAA Reference</th><th>Allocations</th><th>Employment floorspace (net)</th></tr><tr><td>EMP1</td><td>896/1510</td><td>Land at North Polegate A22</td><td>66,370 sqm</td></tr></table></td><td>LSEs of Policy SS6 on Habitats sites cannot be excluded.

Policy SS6 identifies the Strategic Employment Allocations that will be delivered in Wealden District over the Local Plan period. These allocations will result in a net increase in employment opportunities and, depending on their location, may contribute to the following impact pathways:</td></tr>
</table>

EMP2	1039/1310	Knights Farm West, Hailsham	40,000 sqm
EMP3	1115/1310	Woodside Park, Land East of A22, Hailsham	10,000 sqm
EMP4	1029/1310	Natewood Farm, Pol	9,300 sqm
OEMP4	980/3120 (720/3120)	Ashdown Business Park Extension, Maresfield	45,000 sqm

Large Employment Commitments	Employment floorspace (net)
Land at Natewood Farm, Polegate Road, Hailsham	5,999 sqm
Land West of Uckfield, Uckfield	12,511 sqm
Mornings Mill Farm, Eastbourne Road, Lower Willingdon	8,600 sqm

2. The sites are allocated to provide employment uses E(g), B2 and B8. Retail uses and other Main Town Centre uses (excluding offices) will not be permitted at these sites. Once delivered these sites will be considered as strategic employment sites and will form part of the sites listed in Policy EC2 – Existing Strategic Employment Sites. Development must be in accordance with the site-specific requirements set out in the policies of this draft Local Plan.

- Atmospheric pollution
- Water quantity, level and flow
- Water quality

Overall, Policy SS6 is screened in for Appropriate Assessment.

Policy CC8 – Sustainable Drainage and Protection of the Pevensey Levels SAC and Ramsar Site	**Sustainable Drainage Requirements** a) Development proposals which could affect drainage on or around the site must incorporate Sustainable Drainage Systems (SuDS) and, where relevant, demonstrate that surface water management will not adversely affect the integrity of the Pevensey Levels SAC and Ramsar site where the development proposal falls within the Pevensey Levels hydrological catchment. b) All development proposals must:	Policy CC8 is not associated with LSEs on Habitats sites. Policy CC8 addresses flood risk by making Sustainable Drainage Systems (SuDS) mandatory in new developments (including in small-scale

	i. Integrate SuDS as a fundamental part of site design unless demonstrated to be inappropriate due to site-specific constraints (e.g. geology or groundwater levels). ii. Provide sufficient space within the site layout to accommodate SuDS features. iii. Ensure SuDS are multi-functional, contributing to flood risk reduction, water quality improvement, biodiversity enhancement, and green/blue infrastructure. iv. Deliver discharge rates agreed with the Lead Local Flood Authority (LLFA) and the Pevensey and Cuckmere Water Level Management Board (WLMB), where relevant, considering site-specific conditions. v. Follow the discharge hierarchy: Rainwater re-use (e.g. harvesting); then Discharge into the ground; then Discharge to a surface water body; and then Discharge to a surface water sewer or other drainage system. vi. Be designed and implemented in accordance with the latest local, regional and national guidance on SuDS, including early engagement with the LLFA. Infiltration-based drainage should be considered where viable, but it is recognised that infiltration may not be appropriate in some circumstances due to underlying geology and hydrology. vii. Ensure that the site's drainage system includes a clearly defined and viable point of discharge, with appropriate connectivity to the wider drainage network. Proposals should demonstrate how surface water will be taken from the site to an agreed outfall location, in consultation with the LLFA. viii. For phased developments, provide a strategic drainage approach across all phases. **Water Quality and Treatment** c) All development proposals located outside the Pevensey Levels hydrological catchment, and where no part of the site discharges to the Pevensey Levels hydrological catchment area must: i. Ensure surface water passes through a minimum of two treatment stages, referencing the Construction Industry Research and Information Association (CIRIA) SuDS Manual and pollution hazard indices; and ii. Reference the SuDS Manual and CIRIA guidance to support appropriate treatment design. **Pevensey Levels SAC and Ramsar Site Protection.** d) All development proposals within or adjacent to the Pevensey Levels hydrological catchment must engage with the Pevensey and Cuckmere WLMB and other relevant bodies at the earliest stage, and: i. Provide sufficient detail of surface water drainage schemes at the outline stage if a Habitats Regulations Assessment (HRA) is triggered, specifically where hydrology is identified as a potential impact pathway; ii. Demonstrate that drainage proposals will not result in adverse effects on the integrity of the SAC/Ramsar site; iii. Incorporate SuDS that enhance water quality and ecological resilience; iv. Ensure any SuDS scheme involves a minimum of three treatment stages and where necessary to avoid harm to the SAC/Ramsar site, include additional treatment stages; and v. Avoid direct discharge of untreated surface water into the Pevensey Levels.	residential development). In providing SuDS the latest local, regional and national guidance should be followed. Incidentally, the deployment of SuDS is also beneficial to maintaining adequate water levels and quality in Habitats sites. SuDS reduce runoff velocities to greenfield rates, minimising the potential for excessive flooding downstream. Furthermore, this also reduces the risk of water pollution, such as from sediment in solution and urban synthetic / non-synthetic contaminants. This policy requires cooperation with the Pevensey and Cuckmere WLMB and relevant bodies to ensure drainage schemes will not negatively impact Pevensey Levels SAC/Ramsar. Overall, Policy CC8 is screened out from further appraisal in the Appropriate Assessment.

	e) The Council will support development that incorporates strategic-scale mitigation, including the use of off-site sustainable drainage systems designed to collectively address the impacts of multiple sites and deliver comprehensive flood and water quality management. **Implementation and Maintenance** f) All development proposals must: i. Submit a management and maintenance plan for SuDS over the lifetime of development, demonstrating permanent arrangements for repair and replacement; and ii. Use the LLFA's SuDS Decision Support Tool for small-scale development, where applicable. g) All major development proposals must secure approval from the LLFA for the design and long-term maintenance of SuDS prior to commencement.	
Policy HO8 – Affordable Housing	<u>Affordable housing requirement</u> 1. To meet the district's need for affordable housing, all residential development proposals of 10 or more units (net), or proposals for 6 or more units (net) within the High Weald National Landscape, or sites of 0.5 hectares or more outside the High Weald National Landscape, will be required to provide on-site affordable housing. Affordable housing will be expected to be provided at a level of 35% of the total number of dwellings. The application of this policy relates to use class C3, including permanent residential caravan sites and C2 self-contained units. Financial contributions will be sought in lieu of on-site affordable housing on permanent residential caravan sites only. 2. Where a proposal comes forward with an affordable housing contribution higher than that required under criterion 1 above, the Council will consider this on a case-by-case basis and will only seek to support schemes that deliver mixed and balanced communities, as well as provide sufficient infrastructure contributions and/or on-site infrastructure necessary to make the development acceptable in planning terms. 3. If a development site is sub-divided to create two or more separate development schemes, one or more of which falls below the relevant affordable housing threshold, the Council will require an appropriate level of affordable housing to reflect the provision that would have been achieved on site as a whole, had it come forward as a single scheme. <u>Tenure</u> 4. Affordable housing provision should incorporate a mix of tenures.The Council will expect a tenure mix of 55% social rent, 25% affordable rent and 20% through other affordable routes to home ownership, including shared ownership, First Homes, Rent to Buy and other types of intermediate accommodation. In the case where First Homes are provided, at least a discount of 30% will be expected to ensure that the actual housing cost is genuinely affordable for first time buyers within Wealden. <u>Exceptional circumstances</u> 5. There may be exceptional circumstances where the provision of on-site affordable housing is not viable or desirable. The Council considers that the following issues may represent exceptional circumstances, where the applicant is unable to comply with this policy:	Policy HO8 is not associated with LSEs on Habitats sites. Policy HO8 specifies the delivery of affordable housing across Wealden District. For example, it sets out the proportion of affordable homes to be delivered on development sites of different sizes. The policy also provides guidance on the design of affordable homes. However, affordable housing provision has no relevance for Habitats sites. Furthermore, the policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO8 is screened out from further appraisal in the Appropriate Assessment.

	a. The developer has provided written evidence that no Council Approved Registered Provider will take the units, and this has been demonstrated to the satisfaction of the Council that this is the case; or b. It is demonstrated that there is no realistic prospect of providing affordable housing by another means, such as the District Council; or c. It can be demonstrated that the provision of the policy-compliant level of affordable housing would make the development unviable. 6. Where it can be proven that the affordable housing requirement cannot be achieved, due to economic viability, there will be flexibility in meeting stated targets. It will be the responsibility of the applicant to demonstrate that the requirements of the policy cannot be met, and that the closest alternative provision that can be achieved is provided taking into account viability and need in agreement with the Local Planning Authority. The alternative provision should initially consider a change in tenure mix before considering reducing the overall totality of provision on site. If provision is not shown to be viable, then serviced plots for affordable housing could be provided, should this be acceptable to the Council. If this is not viable or considered appropriate by the Council, a commuted sum in lieu of on-site delivery will be required. This will be subject to independent assessment by the Council's appointed consultant, of which, the costs will be paid for by the applicant. <u>Affordable Housing Design.</u> 7. The design of all new affordable dwellings should be such that the quality and appearance of the homes (including the site layout) are indistinguishable from market housing. Any new housing scheme should make use of good quality materials and be designed in such a way as to reduce ongoing management, maintenance and repair costs. Such proposals should be designed to ensure that service charges for any affordable housing are kept relatively low. Affordable housing should be provided in small clusters throughout the development scheme to ensure the creation of mixed and balanced communities. <u>Community Land Trusts, Co-Housing and Almhouses</u> 8. The Council supports CLTs, Co-Housing and Almhouse schemes that provide affordable housing subject to other policies within this Local Plan.	
Policy HO9 – Gypsy, Traveller and Travelling Showpeople - Site Criteria	The following criteria will be taken into account when determining planning applications for new or extended permanent sites and transit sites for Gypsies, Travellers and Travelling Showpeople: a. That the site or extension satisfies a clearly defined need, as evidenced by the GTAA for Wealden District and the occupiers of the site meet the definition as set out in the Planning Policy for Traveller Sites (PPTS) (2024), or any subsequent update; b. That the site is well related to an existing sustainable settlement (as defined within the settlement hierarchy) with local services and facilities, particularly shops, public transport provision, primary health care and schools; c. That new sites or the extension of existing sites in rural areas are of a scale appropriate to their surroundings and would not individually or cumulatively dominate the nearest settled community, or cause undue impact upon local infrastructure or services in the area;	Policy HO9 is not associated with LSEs on Habitats sites. Policy HO9 specifies design criteria and planning considerations for the development of sites for Gypsies, Travellers and Travelling Showpeople.

	d. That the site avoids locations where there is a risk of flooding of all types, given the vulnerability of residential caravans. Where a site is identified as being at risk from surface water flooding, a site-specific flood risk assessment must be undertaken in line with Policy CC7: Managing Flood Risk; e. That the proposal has a safe vehicular and pedestrian access to the surrounding principal highway network, and that the site will be large enough to enable vehicle movements within the site, including parking and circulation to take place, having regard to the total number of pitches/plots provided on site; f. That any new site or extension provides for proper consideration of the effect of local environmental quality (such as through noise pollution or odour impact) on the health and well-being of any Gypsy, Traveller or Travelling Showpeople located close to such uses that may impact the occupiers of the site; g. That the site has existing or can be provided with power, drinking water, suitable sewage treatment and waste disposal facilities; h. In cases where proposals are in or adjacent to the High Weald National Landscape, or where the proposal is within the setting of the South Downs National Park, the scale and the extent of development should be limited, sensitively located and designed to avoid or fully mitigate adverse impacts on these designated landscapes; i. The proposal must be well-screened by existing or new native vegetation that contains the site visually. The screening should be maintained permanently, and any planning application should be accompanied by a landscape management plan to ensure it remains in perpetuity. The use of high fences or walls to supplement the existing screening of the site will not be supported; j. That the proposal is well designed and laid out, ensuring that suitable amenity space is provided in terms of open space and soft landscaping. For permanent sites, all pitches/plots should incorporate an amenity block/day room; hardstanding space for storage/drying; garden/amenity area; minimum firebreaks between site boundaries, and static/touring standings, whilst limiting the use of hard standing and further permanent structures. Each pitch/plot should at least be able to accommodate 1 mobile home, 1 touring caravan and 2 car parking spaces. Where proposals for amenity blocks/day rooms are provided, these must be of appropriate scale to the pitch/plot, well-designed and collocated where possible; and k. Any proposal for a new or extended site for Travelling Showpeople plots will need to demonstrate sufficient space for the storage and maintenance of equipment/or the exercising of animals commensurate with any business needs of the site. In addition, suitable bays for lorries/trailers should be provided.	However, the policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO9 is screened out from further appraisal in the Appropriate Assessment.
Policy SA1 – Housing and Mixed Use Sites	The Council has identified 'Housing and Mixed-Use Site Allocations' within the Wealden Local Plan and these are identified on the Council's Policies Map with the references identified below (for employment sites, see Policy SS6 – Strategic Employment Allocations). All housing and mixed-use site allocations must be delivered in accordance with the development plan when read as a whole. The following sites shown in table 13 are allocated within the draft Local Plan.	LSEs of Policy SA1 on Habitats sites cannot be excluded. Policy SA1 allocates a number of sites for residential development (see Appendix C). These

		allocations will result in a net increase in available housing and, depending on their location, may contribute to the following impact pathways: • Atmospheric pollution • Recreational pressure • Water quantity, level and flow • Water quality Overall, Policy SA1 is screened in for Appropriate Assessment.

Appendix C Site Allocations and distances to Ashdown Forest SPA / SAC

Table 8: Number of residential dwellings to be delivered and distance to the Ashdown Forest SPA / SAC)

Parish	Site Allocation	Size	Number of Dwellings	Floorspace sqm	Approx. Distance to Ashdown Forest SPA / SAC (km)
Berwick	Land North of Recreation Ground, Berwick Station	2.71	45	0	>10 NW
	Land West of Station Road, Berwick Station	1.29	27	0	>10 NW
	Land to north east of Berwick, Station Road, Berwick Station	5.3	10	0	>10 NW
	Land at Brookfield Nursery, Station Road, Berwick Station	0.52	5	0	>10 NW
Buxted	Land east of Coopers Green Road, Ringles Cross	2.76	20	0	2.8 N
	Land opposite Roundwood, Coopers Green Road, Ringles Cross	1.35	15	0	3.2 N
	Lower Totease Farm, Framfield Road, Buxted	0.44	10	0	4.2 N
	Land at The Walled Garden, Five Ash Down	1.56	15	0	2.5 N
	Land east of Great Totease Farm, Church Road, Buxted	0.8	20	0	3.8 N
	Land at Holly Farm, Station Road, Buxted	3.45	35	0	3.8 N
	Land at Limes Lane, Buxted	1.30	25	0	4.5 NW
Crowborough	Kingswood, Luxford Lane, Crowborough	0.35	6	0	2.4 W
	Land adjacent to the London Road and Pilmer Road junction, Crowborough	1.24	40	0	0.9 W

	Land at Steel Cross Farm, Green Lane, Crowborough	21.05	95	0	2.4 W
	Land at Byeways, Palesgate Lane, Crowborough	2.22	30	0	2.5 W
	Land at Millbrook Road, Crowborough	0.49	15	0	1.4 W
	Spring Cottage, Eridge Road, Crowborough	0.67	10	0	2.3 W
	Crowborough Police Station, Crowborough Hill, Crowborough	0.22	5	0	1.9 W
	Land at junction of Eridge Road and A26, Steel Cross, Crowborough	2.54	20	0	2.2 W
	Land at Beechenwood Farm, Crowborough	8.26	120	0	0.8 W
East Hoathly with Halland	Land at Hesmonds Stud, East Hoathly	16.1	176	0	>10 NW
	Broomy Lodge Field, London Road, East Hoathly	1.94	30	0	>10 NW
	Land east of South Street (Site A), East Hoathly	9.72	30	0	>10 NW
	Harrison's, south of London Road, East Hoathly	6.67	150	0	>10 NW
Framfield	Land off Old Eastbourne Road, Uckfield	8.28	30	0	6.6 N
	Blackboys Inn and Adjoining Land, Lewes Road, Blackboys	4.02	9	0	7.6 NW
	Land adjoining Old Mill House, Framfield Road, Blackboys	1.33	10	0	7.4 NW
	Land at Bird In Eye (North), Bird In Eye Hill, Uckfield	17.41	215	0	5.3 NW
	Land north of Eastbourne Road	3	45	0	6.2 N
	Land at Hempstead Lane, Uckfield	36.02	300	0	4.5 N
Frant	Land at Benhall Mill Road, Tunbridge Wells	4.13	60	0	>10 SW

	Land at Bayham Road, Tunbridge Wells	3.72	60	0	9.8 SW
	Land between Court Lodge and Bells Yew Green Industrial Estate, B2169, Bells Yew Green	1.31	20	0	>10 SW
	Pinewood Farm, Frant Road, Tunbridge Wells	25.7	170	0	8.8 SW
	Land to the west of Frant Road, Tunbridge Wells	3.73	70	0	9.3 SW
	Land to the east of Benhall Mill Road,Tunbridge Wells	6.11	120	0	>10 SW
	Land between Frant Road and Bayham Road, Tunbridge Wells	10.44	150	0	9.2 SW
	Land at Ramslye Farm (Spratsbrook Farm), Tunbridge Wells	39.69	300	0	7.7 SW
	Strawberry Hill Farm, Eridge Road, Tunbridge Wells	2.97	35	0	8.0 SW
Hailsham	Land east of Battle Road, Harebeating Lane, Hailsham	24.38	300	0	>10 NW
	Land to the east of Battle Road, Hailsham	7.14	100	0	>10 NW
	Land at Harebeating Nursery, Harebeating Lane, Hailsham	0.51	10	0	>10 NW
	Hamlins Mill, Mill Road, Hailsham	0.24	6	0	>10 NW
	Bolneys Farm, South Road, Hailsham	3.57	60	0	>10 NW
	Grovelands Primary School, Gleneagles Drive, Hailsham	1.1	40	0	>10 NW
	Land south of Howard Close, Hailsham	1.8	40	0	>10 NW
	Amberstone Council Depot, Amberstone, Hailsham	0.58	15	0	>10 NW
	Land at Hailsham Delivery Office, 11 North Street, Hailsham	0.14	8	0	>10 NW
	Land at the Market, Market Street, Hailsham	1.18	40	0	>10 NW

	Harebeating Farm, Harebeating Lane, Hailsham	13.32	20	0	>10 NW
	Land at The Paddocks, South Road, Hailsham	1.32	8	0	>10 NW
	Wellfield, 154 - 156 Station Road, Hailsham	0.63	9	0	>10 NW
	Land at Oaklands, west of Coldthorn Lane, Ersham Road, Hailsham	2.75	40	0	>10 NW
Hartfield	Land at Castle Farm, Withyham Road, Hartfield	3.44	5	0	2.4 S
	Land at Old Crown Farm, Edenbridge Road, Hartfield	0.57	6	0	2.6 S
Heathfield and Waldron	Land to the east of Burnetts Farm, Firgrove Road, Cross-in-Hand	1.78	10	0	9.9 NW
	Land to the south west of Ghyll Road, Tilsmore, Heathfield	4.49	35	0	>10 NW
	Land south of Burwash Road and east of Tower Street, Heathfield	0.72	22	0	>10 NW
	Land at 15 Tower Street, Heathfield	1.15	10	0	>10 NW
	Land at and surrounding Rothershaw, High Street, Heathfield	1.79	22	0	>10 NW
	Land to rear of Breton House, B2102, Cross in Hand	0.82	15	0	>10 NW
	Land at Heathfield Police Station, High Street, Heathfield	0.1	6	0	>10 NW
	Land at Snatchells Farm, A265, Heathfield	0.57	9	0	>10 NW
	Land at Sunnyside, A267, Cross in Hand	4.49	35	0	9.2 W
	Parklands, Burwash Road, Heathfield	0.8	8	0	>10 NW
	The Old Half Moon, Burwash Road, Heathfield	0.84	7	0	>10 NW
	5 Farthing Cottage, Back Lane, Cross in Hand	0.30	5	0	>10 NW

	Land on north side of Burwash Road, Heathfield	0.55	15	0	>10 NW
	Former Broad Oak Primary School, Scotsford Road, Broad Oak, Heathfield	0.55	12	0	>10 NW
Hellingly	Land adjoining 13 Station Road, Hellingly	0.52	10	0	>10 NW
	Woods Corner, North Street, Lower Horsebridge	0.54	15	0	>10 NW
	Field at North Street, Lower Horsebridge	0.48	14	0	>10 NW
	Land at Horselunges Manor, Hellingly	6.13	60	0	>10 NW
	Land at Park Farm, New Road, Hellingly	12.40	100	0	>10 NW
	Land at Broad Farm, south of New Street, Lower Horsebridge	16.38	400	0	>10 NW
	Land at Chestnut Cross, Hellingly	13.36	280	0	>10 NW
	Swingate Gardens, Mill Lane, Hellingly	2.40	70	0	>10 NW
Herstmonceaux	Land at Collins Honda, Hailsham Road, Herstmonceux	0.53	12	0	>10 NW
	Land to north of James Avenue, Herstmonceux	0.46	10	0	>10 NW
Horam	Land adjoining Discovery Way and Village Hall, Horam	0.42	10	0	>10 NW
	Land at Great Easterfields, Chiddingly Road, Horam	0.35	6	0	>10 NW
	Clearview Farm, Chiddingly Road, Horam	2.44	35	0	>10 NW
	Coxlow Farm, Horam Road, Horam	86.36	750	4,000sqm Employment, 1,500sqm community floorspace, 2.4ha Two-Form Entry Primary School	>10 NW

Isfield	Holly Gap Farm, Station Road, Isfield	8.49	10	0	8.5 N
	Land to rear of Sandpit Cottage. Station Road, Isfield	0.86	10	0	8 N
Laughton	Briars, Church Lane, Laughton	0.32	8	0	>10 NW
Little Horstead	Land at Owlsbury Farm, Lewes Road, Uckfield	167.22	1300	0	6.0 N
Maresfield	Land south of Maresfield, A22, Maresfield	24.29	185	0	2.3 N
	Land east of Top Drive, Maresfield Park, Maresfield	1.59	10	0	1.6 N
	Stumblewood, The Drive, Maresfield Park	2.45	10	0	1.1 N
Ninfield	Land adjacent to Ninfield Reservoir, High Street, Ninfield	0.82	20	0	>10 NW
	Land south of Ninfield Road including Lunsford Cross Farm and the Croft, Ninfield Road	20.00	300		>10 NW
Polegate	Hindsland Fields (east), Eastbourne Road, Polegate	1.15	30	0	>10 NW
	Hindsland Fields (west), Eastbourne Road, Polegate	1.84	60	0	>10 NW
	Former Waterhouse Coaches site, Dittons Road, Polegate	0.36	8	0	>10 NW
	Land at Royal Mail Delivery Office, 74 High Street, Polegate	0.14	8	0	>10 NW
	Polegate Station Car Park, High Street, Polegate	0.76	25	0	>10 NW
Rotherfield	Highfields Farm, Rotherfield	1.55	8	0	5.6 W
Uckfield	Land at Thorncrest, Lewes Road, Uckfield	2.13	30	0	6 S
	Sunview, 46 New Road, Ridgewood, Uckfield	1.56	30	0	6.6 S
	Land South West Of Ridgedown, Lewes Road, Uckfield	1.87	55	0	6.8 S

	Cress Farm, 20 Lewes Road, Ridgewood, Uckfield	0.29	8	0	6.5 S
	Land rear of Oakley Court, Selby Road, Uckfield	0.18	6	0	5.5 S
	Uckfield Police Station, New Town, High Street, Uckfield	0.3	10	0	5.3 S
	Land at White House Farm, London Road, Uckfield	11.2	200	0	3 S
Wadhurst	Land at Windmill House, Windmill Lane, Wadhurst	1.14	20	0	>10 W
Westham	Land adjacent to 125 Rattle Road, Westham	4.47	7	0	>10 NW
	Dittons Nursery, Dittons Road, Stone Cross	5.94	20	0	>10 NW
	Land at Hazlebank, Rattle Road, Stone Cross	0.61	8	0	>10 NW
	Land to the west of the B2104, Hankham	1.48	15	0	>10 NW
	Sharnfold Farm, Hailsham Road, Stone Cross	32.74	230	0	>10 NW
	Land at and adjacent to The Downs View and Emberson, Hailsham Road, Stone Cross	2.44	60	0	>10 NW
	Land at Peelings Lane, Westham	7.50	140	0	>10 NW
	Land to the west of Stone Cross Garden Centre, Dittons Road, Stone Cross	1.97	20	0	>10 NW
	Land south of Hankham Road, Stone Cross	5.75	30	0	>10 NW
Willingdon and Jevington	Land at Mornings Mill Farm	3.15	40	0	>10 NW
Withyham	Land south of Back Lane and to the west of railway line, Groombridge	3.24	21	0	4.9 SW
	Land to the rear of Cooks Corner Farm and to the north of London Road, Crowborough	1.33	15	0	0.75 W

Table 9: Gypsy, Traveller and Travelling Show peoples sites Number of residential dwellings to be delivered and distance to the Ashdown Forest SPA / SAC)

Parish	Site Allocation	Live Yield	SHELAA. Ref	Approx. Distance to Ashdown Forest SPA / SAC (km)
Hailsham	Development Land at Station Road, Hailsham (part)	6	467/1310	>10 NW
Heathfield	Monkhurst Field, Sandy Cross Lane, Heathfield	5	230/1210	>10 NW
Hellingly	Land adjoining Laurel Cottage, The Dicker, Lower Dicker	8	940/3090	>10 NW
Hadlow Down	Five Badgers and Little Robins, Stonehurst Lane, Mayfield	4	1262/1980	5.6 NW
Frant	The Stables, Hawkenbury Road, Bells Yew Green	2	1261/1610	>10 SW
Mayfield and Five Ashes	Little Rose, Meres Lane, Cross in Hand, Heathfield	2	959/1210	9.3 NW
Rotherfield	Green Hedges Nursery, Mark Cross	4	1281/1630	7.4 W
Buxted	Kiowa, Water Treatment Works, Buxted	3	Existing site	3.6 NW
Hartfield	The Chalet, Hartfield/Cowden	2	Existing site	5.6 S
Long Man	Milton Field, Milton Gate, Wilmington	1	Existing site	>10 N
Chiddingly	Randalls, Whitesmith	2	Existing site	>10 NW
Framfield	Fir Tree View, Easons Green	2	Existing site	9.1 N
Mayfield and Five Ashes	Little Oaks, Argos Hill	3	Existing site	7.7 W
Mayfield and Five Ashes	The Plot, Horleigh Green Road, Mayfield	1	Existing site	6.9 W
Hellingly	Gracelands, Hackhurst Lane, Lower Dicker	3	Existing site	>10 NW

Appendix D Air Quality Modelling Results

D.1 Ashdown Forest SAC/SPA

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC1_1m	23.52	6.60	6.90	6.85	-0.06	0.25	14.58	11.89	12.15	12.11	-0.05	0.22	1.04	0.85	0.87	0.86	0.00	0.02	1.15	1.04	1.08	1.07	-0.01	0.039
WDC1_10m	14.86	6.20	6.32	6.30	-0.02	0.10	13.30	11.52	11.63	11.61	-0.02	0.09	0.95	0.82	0.83	0.83	0.00	0.01	1.02	0.97	0.99	0.99	0.00	0.015
WDC1_20m	12.69	6.10	6.17	6.16	-0.01	0.06	12.98	11.43	11.49	11.48	-0.01	0.05	0.93	0.82	0.82	0.82	0.00	0.00	0.98	0.95	0.97	0.96	0.00	0.009
WDC1_30m	11.77	6.06	6.11	6.10	-0.01	0.04	12.84	11.39	11.44	11.43	-0.01	0.04	0.92	0.81	0.82	0.82	0.00	0.00	0.97	0.95	0.96	0.95	0.00	0.007
WDC1_40m	11.25	6.04	6.08	6.07	-0.01	0.03	12.76	11.37	11.40	11.40	-0.01	0.03	0.91	0.81	0.81	0.81	0.00	0.00	0.96	0.94	0.95	0.95	0.00	0.005
WDC1_50m	10.92	6.02	6.05	6.05	-0.01	0.03	12.71	11.36	11.38	11.38	0.00	0.02	0.91	0.81	0.81	0.81	0.00	0.00	0.95	0.94	0.95	0.95	0.00	0.004
WDC1_60m	10.70	6.01	6.04	6.03	-0.01	0.02	12.68	11.35	11.37	11.37	0.00	0.02	0.91	0.81	0.81	0.81	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.004
WDC1_70m	10.53	6.00	6.03	6.02	0.00	0.02	12.65	11.34	11.36	11.36	0.00	0.02	0.90	0.81	0.81	0.81	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.003
WDC1_80m	10.41	6.00	6.02	6.02	0.00	0.02	12.63	11.33	11.35	11.35	0.00	0.02	0.90	0.81	0.81	0.81	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.003
WDC1_90m	10.31	5.99	6.01	6.01	0.00	0.02	12.62	11.33	11.35	11.34	0.00	0.02	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.003
WDC1_100m	10.23	5.99	6.01	6.00	0.00	0.02	12.61	11.33	11.34	11.34	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.002
WDC1_110m	10.16	5.99	6.00	6.00	0.00	0.01	12.60	11.32	11.34	11.33	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.002
WDC1_120m	10.11	5.98	6.00	6.00	0.00	0.01	12.59	11.32	11.33	11.33	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.002
WDC1_130m	10.06	5.98	6.00	5.99	0.00	0.01	12.58	11.32	11.33	11.33	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.002
WDC1_140m	10.02	5.98	5.99	5.99	0.00	0.01	12.57	11.32	11.33	11.33	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.002
WDC1_150m	9.98	5.98	5.99	5.99	0.00	0.01	12.57	11.31	11.33	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.002
WDC1_160m	9.95	5.98	5.99	5.99	0.00	0.01	12.56	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.002
WDC1_170m	9.92	5.97	5.99	5.98	0.00	0.01	12.56	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.001
WDC1_180m	9.90	5.97	5.98	5.98	0.00	0.01	12.56	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.001
WDC1_190m	9.87	5.97	5.98	5.98	0.00	0.01	12.55	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.93	0.00	0.001
WDC1_200m	9.85	5.97	5.98	5.98	0.00	0.01	12.55	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.93	0.00	0.001
WDC2_1m	20.89	6.48	6.73	6.68	-0.05	0.20	14.19	11.78	12.00	11.96	-0.04	0.18	1.01	0.84	0.86	0.85	0.00	0.01	1.11	1.02	1.06	1.05	-0.01	0.032
WDC2_10m	13.39	6.13	6.22	6.21	-0.02	0.07	13.08	11.46	11.54	11.52	-0.01	0.07	0.93	0.82	0.82	0.82	0.00	0.00	0.99	0.96	0.97	0.97	0.00	0.012
WDC2_20m	11.72	6.06	6.11	6.10	-0.01	0.04	12.83	11.39	11.44	11.43	-0.01	0.04	0.92	0.81	0.82	0.82	0.00	0.00	0.97	0.95	0.96	0.95	0.00	0.007
WDC2_30m	11.03	6.03	6.06	6.06	-0.01	0.03	12.73	11.36	11.39	11.39	-0.01	0.03	0.91	0.81	0.81	0.81	0.00	0.00	0.96	0.94	0.95	0.95	0.00	0.005
WDC2_40m	10.65	6.01	6.04	6.03	-0.01	0.02	12.67	11.34	11.37	11.36	0.00	0.02	0.90	0.81	0.81	0.81	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.004
WDC2_50m	10.42	6.00	6.02	6.02	0.00	0.02	12.64	11.33	11.35	11.35	0.00	0.02	0.90	0.81	0.81	0.81	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.003
WDC2_60m	10.25	5.99	6.01	6.01	0.00	0.02	12.61	11.33	11.34	11.34	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.003
WDC2_70m	10.14	5.98	6.00	6.00	0.00	0.01	12.59	11.32	11.34	11.33	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.002
WDC2_80m	10.05	5.98	5.99	5.99	0.00	0.01	12.58	11.32	11.33	11.33	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.002
WDC2_90m	9.98	5.98	5.99	5.99	0.00	0.01	12.57	11.31	11.33	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.002
WDC2_100m	9.92	5.97	5.99	5.98	0.00	0.01	12.56	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.002
WDC2_110m	9.88	5.97	5.98	5.98	0.00	0.01	12.55	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.94	0.94	0.00	0.001
WDC2_120m	9.84	5.97	5.98	5.98	0.00	0.01	12.55	11.31	11.32	11.32	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.001
WDC2_130m	9.81	5.97	5.98	5.98	0.00	0.01	12.54	11.31	11.32	11.31	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.001
WDC2_140m	9.78	5.97	5.98	5.97	0.00	0.01	12.54	11.31	11.31	11.31	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.001

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC2_150m	9.76	5.97	5.97	5.97	0.00	0.01	12.54	11.31	11.31	11.31	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.001
WDC2_160m	9.74	5.97	5.97	5.97	0.00	0.01	12.53	11.30	11.31	11.31	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.001
WDC2_170m	9.72	5.97	5.97	5.97	0.00	0.01	12.53	11.30	11.31	11.31	0.00	0.00	0.89	0.81	0.81	0.81	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.001
WDC2_180m	9.70	5.96	5.97	5.97	0.00	0.01	12.53	11.30	11.31	11.31	0.00	0.00	0.89	0.81	0.81	0.81	0.00	0.00	0.93	0.93	0.93	0.93	0.00	0.001
WDC2_190m	9.69	5.96	5.97	5.97	0.00	0.01	12.53	11.30	11.31	11.31	0.00	0.00	0.89	0.81	0.81	0.81	0.00	0.00	0.93	0.93	0.93	0.93	0.00	0.001
WDC2_200m	9.68	5.96	5.97	5.97	0.00	0.00	12.52	11.30	11.31	11.31	0.00	0.00	0.89	0.81	0.81	0.81	0.00	0.00	0.93	0.93	0.93	0.93	0.00	0.001
WDC3_1m	23.10	6.52	6.92	6.88	-0.04	0.36	14.73	12.06	12.40	12.37	-0.03	0.31	1.05	0.86	0.89	0.88	0.00	0.02	1.11	0.99	1.05	1.05	-0.01	0.056
WDC3_10m	14.87	6.15	6.31	6.29	-0.01	0.15	13.52	11.72	11.86	11.84	-0.01	0.13	0.97	0.84	0.85	0.85	0.00	0.01	0.98	0.93	0.96	0.95	0.00	0.023
WDC3_20m	12.72	6.05	6.15	6.14	-0.01	0.09	13.19	11.63	11.71	11.70	-0.01	0.08	0.94	0.83	0.84	0.84	0.00	0.01	0.94	0.92	0.93	0.93	0.00	0.014
WDC3_30m	11.78	6.01	6.08	6.07	-0.01	0.07	13.05	11.59	11.65	11.64	-0.01	0.06	0.93	0.83	0.83	0.83	0.00	0.00	0.93	0.91	0.92	0.92	0.00	0.010
WDC3_40m	11.26	5.98	6.04	6.04	-0.01	0.05	12.98	11.57	11.62	11.61	-0.01	0.05	0.93	0.83	0.83	0.83	0.00	0.00	0.92	0.91	0.91	0.91	0.00	0.008
WDC3_50m	10.93	5.97	6.02	6.01	0.00	0.04	12.93	11.55	11.59	11.59	0.00	0.04	0.92	0.83	0.83	0.83	0.00	0.00	0.92	0.90	0.91	0.91	0.00	0.007
WDC3_60m	10.70	5.96	6.00	5.99	0.00	0.04	12.89	11.54	11.58	11.57	0.00	0.03	0.92	0.82	0.83	0.83	0.00	0.00	0.91	0.90	0.91	0.91	0.00	0.006
WDC3_70m	10.53	5.95	5.99	5.98	0.00	0.03	12.87	11.53	11.57	11.56	0.00	0.03	0.92	0.82	0.83	0.83	0.00	0.00	0.91	0.90	0.91	0.90	0.00	0.005
WDC3_80m	10.40	5.94	5.98	5.97	0.00	0.03	12.85	11.53	11.56	11.55	0.00	0.03	0.92	0.82	0.83	0.83	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.005
WDC3_90m	10.30	5.94	5.97	5.97	0.00	0.03	12.83	11.52	11.55	11.55	0.00	0.02	0.92	0.82	0.83	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.004
WDC3_100m	10.22	5.93	5.96	5.96	0.00	0.02	12.82	11.52	11.55	11.54	0.00	0.02	0.92	0.82	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.004
WDC3_110m	10.15	5.93	5.96	5.95	0.00	0.02	12.81	11.52	11.54	11.54	0.00	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.004
WDC3_120m	10.09	5.93	5.95	5.95	0.00	0.02	12.80	11.52	11.54	11.53	0.00	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC3_130m	10.04	5.93	5.95	5.95	0.00	0.02	12.79	11.51	11.53	11.53	0.00	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC3_140m	10.00	5.92	5.95	5.94	0.00	0.02	12.79	11.51	11.53	11.53	0.00	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC3_150m	9.96	5.92	5.94	5.94	0.00	0.02	12.78	11.51	11.53	11.53	0.00	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC3_160m	9.93	5.92	5.94	5.94	0.00	0.02	12.77	11.51	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC3_170m	9.90	5.92	5.94	5.94	0.00	0.02	12.77	11.51	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC3_180m	9.87	5.92	5.94	5.93	0.00	0.02	12.77	11.51	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC3_190m	9.85	5.92	5.93	5.93	0.00	0.01	12.76	11.50	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC3_200m	9.82	5.92	5.93	5.93	0.00	0.01	12.76	11.50	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC4_1m	18.69	6.32	6.60	6.57	-0.03	0.25	14.08	11.88	12.12	12.10	-0.02	0.22	1.01	0.85	0.87	0.86	0.00	0.02	1.04	0.96	1.00	1.00	0.00	0.039
WDC4_10m	12.69	6.05	6.15	6.14	-0.01	0.09	13.19	11.62	11.71	11.71	-0.01	0.08	0.94	0.83	0.84	0.84	0.00	0.01	0.94	0.92	0.93	0.93	0.00	0.014
WDC4_20m	11.32	5.99	6.05	6.04	-0.01	0.06	12.98	11.57	11.62	11.61	-0.01	0.05	0.93	0.83	0.83	0.83	0.00	0.00	0.92	0.91	0.91	0.91	0.00	0.009
WDC4_30m	10.75	5.96	6.00	6.00	0.00	0.04	12.90	11.54	11.58	11.58	0.00	0.03	0.92	0.82	0.83	0.83	0.00	0.00	0.91	0.90	0.91	0.91	0.00	0.006
WDC4_40m	10.44	5.95	5.98	5.98	0.00	0.03	12.85	11.53	11.56	11.56	0.00	0.03	0.92	0.82	0.83	0.83	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.005
WDC4_50m	10.25	5.94	5.96	5.96	0.00	0.03	12.82	11.52	11.55	11.55	0.00	0.02	0.92	0.82	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.004
WDC4_60m	10.11	5.93	5.95	5.95	0.00	0.02	12.80	11.52	11.54	11.54	0.00	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC4_70m	10.01	5.93	5.95	5.95	0.00	0.02	12.79	11.51	11.53	11.53	0.00	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC4_80m	9.94	5.92	5.94	5.94	0.00	0.02	12.78	11.51	11.53	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.003
WDC4_90m	9.88	5.92	5.94	5.94	0.00	0.02	12.77	11.51	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC4_100m	9.83	5.92	5.93	5.93	0.00	0.01	12.76	11.50	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC4_110m	9.79	5.92	5.93	5.93	0.00	0.01	12.75	11.50	11.52	11.52	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC4_120m	9.76	5.91	5.93	5.93	0.00	0.01	12.75	11.50	11.51	11.51	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC4_130m	9.73	5.91	5.93	5.92	0.00	0.01	12.75	11.50	11.51	11.51	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC4_140m	9.70	5.91	5.92	5.92	0.00	0.01	12.74	11.50	11.51	11.51	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC4_150m	9.68	5.91	5.92	5.92	0.00	0.01	12.74	11.50	11.51	11.51	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.90	0.89	0.00	0.002
WDC4_160m	9.66	5.91	5.92	5.92	0.00	0.01	12.74	11.50	11.51	11.51	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.002
WDC4_170m	9.65	5.91	5.92	5.92	0.00	0.01	12.73	11.50	11.51	11.50	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC4_180m	9.63	5.91	5.92	5.92	0.00	0.01	12.73	11.50	11.50	11.50	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC4_190m	9.62	5.91	5.92	5.92	0.00	0.01	12.73	11.50	11.50	11.50	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC4_200m	9.61	5.91	5.92	5.92	0.00	0.01	12.73	11.50	11.50	11.50	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC5_1m	32.52	6.89	7.44	7.38	-0.06	0.50	16.23	12.62	13.11	13.07	-0.05	0.45	1.16	0.90	0.94	0.93	0.00	0.03	1.23	1.04	1.13	1.12	-0.01	0.079
WDC5_10m	18.49	6.26	6.49	6.46	-0.02	0.20	14.26	12.07	12.27	12.25	-0.02	0.18	1.02	0.86	0.88	0.88	0.00	0.01	1.02	0.95	0.98	0.98	0.00	0.032
WDC5_20m	14.79	6.09	6.23	6.22	-0.01	0.13	13.72	11.92	12.05	12.04	-0.01	0.11	0.98	0.85	0.86	0.86	0.00	0.01	0.97	0.92	0.94	0.94	0.00	0.020
WDC5_30m	13.21	6.02	6.13	6.12	-0.01	0.09	13.49	11.86	11.95	11.94	-0.01	0.08	0.96	0.85	0.85	0.85	0.00	0.01	0.94	0.91	0.92	0.92	0.00	0.015
WDC5_40m	12.33	5.98	6.07	6.06	-0.01	0.07	13.37	11.83	11.90	11.89	-0.01	0.07	0.95	0.84	0.85	0.85	0.00	0.00	0.93	0.90	0.92	0.91	0.00	0.012
WDC5_50m	11.77	5.96	6.03	6.02	-0.01	0.06	13.28	11.81	11.86	11.86	-0.01	0.05	0.95	0.84	0.85	0.85	0.00	0.00	0.92	0.90	0.91	0.91	0.00	0.010
WDC5_60m	11.38	5.94	6.00	5.99	-0.01	0.05	13.23	11.79	11.84	11.84	0.00	0.05	0.94	0.84	0.85	0.85	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.008
WDC5_70m	11.10	5.93	5.98	5.97	-0.01	0.05	13.18	11.78	11.82	11.82	0.00	0.04	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.89	0.90	0.90	0.00	0.007
WDC5_80m	10.88	5.92	5.96	5.96	0.00	0.04	13.15	11.77	11.81	11.81	0.00	0.04	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.89	0.90	0.90	0.00	0.006
WDC5_90m	10.71	5.91	5.95	5.95	0.00	0.04	13.13	11.76	11.80	11.80	0.00	0.03	0.94	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.006
WDC5_100m	10.56	5.91	5.94	5.94	0.00	0.03	13.11	11.76	11.79	11.79	0.00	0.03	0.94	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.005
WDC5_110m	10.45	5.90	5.93	5.93	0.00	0.03	13.09	11.75	11.78	11.78	0.00	0.03	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.005
WDC5_120m	10.35	5.90	5.93	5.92	0.00	0.03	13.07	11.75	11.78	11.77	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.004
WDC5_130m	10.27	5.89	5.92	5.92	0.00	0.03	13.06	11.75	11.77	11.77	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.004
WDC5_140m	10.19	5.89	5.92	5.91	0.00	0.02	13.05	11.74	11.77	11.77	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.004
WDC5_150m	10.13	5.89	5.91	5.91	0.00	0.02	13.04	11.74	11.76	11.76	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.004
WDC5_160m	10.07	5.88	5.91	5.90	0.00	0.02	13.03	11.74	11.76	11.76	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC5_170m	10.03	5.88	5.90	5.90	0.00	0.02	13.03	11.74	11.76	11.75	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC5_180m	9.98	5.88	5.90	5.90	0.00	0.02	13.02	11.74	11.75	11.75	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC5_190m	9.94	5.88	5.90	5.90	0.00	0.02	13.01	11.73	11.75	11.75	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC5_200m	9.91	5.88	5.90	5.89	0.00	0.02	13.01	11.73	11.75	11.75	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC6_1m	24.64	6.53	6.93	6.89	-0.04	0.35	15.13	12.31	12.66	12.63	-0.03	0.32	1.08	0.88	0.90	0.90	0.00	0.02	1.11	0.99	1.05	1.04	-0.01	0.056
WDC6_10m	14.48	6.08	6.22	6.20	-0.01	0.12	13.68	11.91	12.03	12.02	-0.01	0.11	0.98	0.85	0.86	0.86	0.00	0.01	0.96	0.92	0.94	0.94	0.00	0.020
WDC6_20m	12.25	5.98	6.06	6.05	-0.01	0.07	13.35	11.82	11.90	11.89	-0.01	0.07	0.95	0.84	0.85	0.85	0.00	0.00	0.93	0.90	0.91	0.91	0.00	0.011
WDC6_30m	11.33	5.94	6.00	5.99	-0.01	0.05	13.22	11.79	11.84	11.83	0.00	0.05	0.94	0.84	0.85	0.85	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.008
WDC6_40m	10.84	5.92	5.96	5.96	0.00	0.04	13.15	11.77	11.81	11.80	0.00	0.04	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.89	0.90	0.90	0.00	0.006
WDC6_50m	10.53	5.90	5.94	5.94	0.00	0.03	13.10	11.76	11.79	11.79	0.00	0.03	0.94	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.005
WDC6_60m	10.31	5.89	5.92	5.92	0.00	0.03	13.07	11.75	11.77	11.77	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.004
WDC6_70m	10.16	5.89	5.91	5.91	0.00	0.02	13.05	11.74	11.77	11.76	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.004
WDC6_80m	10.04	5.88	5.91	5.90	0.00	0.02	13.03	11.74	11.76	11.76	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC6_90m	9.95	5.88	5.90	5.90	0.00	0.02	13.02	11.73	11.75	11.75	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC6_100m	9.87	5.87	5.89	5.89	0.00	0.02	13.00	11.73	11.75	11.75	0.00	0.02	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.003
WDC6_110m	9.81	5.87	5.89	5.89	0.00	0.02	12.99	11.73	11.74	11.74	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.002
WDC6_120m	9.76	5.87	5.89	5.88	0.00	0.01	12.99	11.73	11.74	11.74	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC6_130m	9.72	5.87	5.88	5.88	0.00	0.01	12.98	11.72	11.74	11.74	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC6_140m	9.68	5.87	5.88	5.88	0.00	0.01	12.98	11.72	11.74	11.73	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC6_150m	9.65	5.86	5.88	5.88	0.00	0.01	12.97	11.72	11.73	11.73	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC6_160m	9.62	5.86	5.88	5.87	0.00	0.01	12.97	11.72	11.73	11.73	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC6_170m	9.59	5.86	5.87	5.87	0.00	0.01	12.96	11.72	11.73	11.73	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC6_180m	9.57	5.86	5.87	5.87	0.00	0.01	12.96	11.72	11.73	11.73	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.89	0.88	0.00	0.002
WDC6_190m	9.55	5.86	5.87	5.87	0.00	0.01	12.96	11.72	11.73	11.73	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.001
WDC6_200m	9.53	5.86	5.87	5.87	0.00	0.01	12.95	11.72	11.73	11.72	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.001
WDC7_1m	15.39	6.16	6.42	6.40	-0.03	0.24	13.95	12.08	12.32	12.29	-0.02	0.21	1.00	0.86	0.88	0.88	0.00	0.02	0.98	0.92	0.96	0.96	0.00	0.038
WDC7_10m	11.44	5.99	6.08	6.07	-0.01	0.09	13.37	11.93	12.01	12.01	-0.01	0.08	0.95	0.85	0.86	0.86	0.00	0.01	0.91	0.90	0.91	0.91	0.00	0.014
WDC7_20m	10.58	5.95	6.01	6.00	-0.01	0.05	13.24	11.90	11.95	11.94	0.00	0.05	0.95	0.85	0.85	0.85	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.008
WDC7_30m	10.22	5.94	5.98	5.97	0.00	0.04	13.19	11.88	11.92	11.91	0.00	0.03	0.94	0.85	0.85	0.85	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.006
WDC7_40m	10.03	5.93	5.96	5.96	0.00	0.03	13.16	11.87	11.90	11.90	0.00	0.03	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.005
WDC7_50m	9.91	5.92	5.95	5.95	0.00	0.02	13.14	11.87	11.89	11.89	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.004
WDC7_60m	9.83	5.92	5.94	5.94	0.00	0.02	13.13	11.87	11.89	11.88	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.003
WDC7_70m	9.77	5.92	5.94	5.93	0.00	0.02	13.12	11.86	11.88	11.88	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.003
WDC7_80m	9.73	5.91	5.93	5.93	0.00	0.02	13.11	11.86	11.88	11.88	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.003
WDC7_90m	9.70	5.91	5.93	5.93	0.00	0.02	13.11	11.86	11.88	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC7_100m	9.67	5.91	5.93	5.93	0.00	0.01	13.10	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC7_110m	9.65	5.91	5.93	5.92	0.00	0.01	13.10	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC7_120m	9.63	5.91	5.92	5.92	0.00	0.01	13.10	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC7_130m	9.62	5.91	5.92	5.92	0.00	0.01	13.10	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.88	0.00	0.002
WDC7_140m	9.61	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002
WDC7_150m	9.60	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002
WDC7_160m	9.59	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.87	11.86	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002
WDC7_170m	9.58	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.87	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002
WDC7_180m	9.58	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002
WDC7_190m	9.57	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.001
WDC7_200m	9.56	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.001
WDC8_1m	15.55	6.17	6.43	6.41	-0.03	0.24	13.97	12.09	12.33	12.30	-0.02	0.21	1.00	0.86	0.88	0.88	0.00	0.02	0.98	0.92	0.97	0.96	0.00	0.038
WDC8_10m	11.41	5.99	6.08	6.07	-0.01	0.08	13.36	11.93	12.01	12.00	-0.01	0.07	0.95	0.85	0.86	0.86	0.00	0.01	0.91	0.90	0.91	0.91	0.00	0.013
WDC8_20m	10.53	5.95	6.00	6.00	-0.01	0.05	13.23	11.89	11.94	11.94	-0.01	0.04	0.95	0.85	0.85	0.85	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.008
WDC8_30m	10.18	5.93	5.97	5.97	0.00	0.04	13.18	11.88	11.91	11.91	0.00	0.03	0.94	0.85	0.85	0.85	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.006
WDC8_40m	9.98	5.93	5.96	5.95	0.00	0.03	13.15	11.87	11.90	11.90	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.004
WDC8_50m	9.85	5.92	5.94	5.94	0.00	0.02	13.13	11.87	11.89	11.89	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.004
WDC8_60m	9.77	5.92	5.94	5.94	0.00	0.02	13.12	11.86	11.88	11.88	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.003
WDC8_70m	9.70	5.91	5.93	5.93	0.00	0.02	13.11	11.86	11.88	11.88	0.00	0.02	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.003
WDC8_80m	9.65	5.91	5.93	5.93	0.00	0.01	13.10	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC8_90m	9.62	5.91	5.92	5.92	0.00	0.01	13.10	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.002
WDC8_100m	9.58	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.87	11.87	0.00	0.01	0.94	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002
WDC8_110m	9.56	5.91	5.92	5.92	0.00	0.01	13.09	11.86	11.87	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC8_120m	9.54	5.91	5.92	5.92	0.00	0.01	13.08	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.002
WDC8_130m	9.52	5.91	5.92	5.91	0.00	0.01	13.08	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.89	0.88	0.88	0.88	0.00	0.001
WDC8_140m	9.50	5.90	5.91	5.91	0.00	0.01	13.08	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.88	0.88	0.88	0.88	0.00	0.001
WDC8_150m	9.49	5.90	5.91	5.91	0.00	0.01	13.08	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.88	0.88	0.88	0.88	0.00	0.001
WDC8_160m	9.48	5.90	5.91	5.91	0.00	0.01	13.07	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.88	0.88	0.88	0.88	0.00	0.001
WDC8_170m	9.47	5.90	5.91	5.91	0.00	0.01	13.07	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.88	0.88	0.88	0.88	0.00	0.001
WDC8_180m	9.46	5.90	5.91	5.91	0.00	0.01	13.07	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.88	0.88	0.88	0.88	0.00	0.001
WDC8_190m	9.45	5.90	5.91	5.91	0.00	0.01	13.07	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.88	0.88	0.88	0.88	0.00	0.001
WDC8_200m	9.44	5.90	5.91	5.91	0.00	0.01	13.07	11.85	11.86	11.86	0.00	0.01	0.93	0.85	0.85	0.85	0.00	0.00	0.88	0.88	0.88	0.88	0.00	0.001
WDC9_1m	24.17	6.51	6.68	6.72	0.04	0.21	14.61	11.87	11.99	12.03	0.04	0.16	1.04	0.85	0.86	0.86	0.00	0.01	1.10	0.98	1.00	1.01	0.01	0.028
WDC9_10m	15.16	6.15	6.22	6.23	0.01	0.08	13.37	11.55	11.60	11.61	0.01	0.06	0.95	0.82	0.83	0.83	0.00	0.00	0.97	0.93	0.94	0.94	0.00	0.011
WDC9_20m	12.86	6.06	6.10	6.11	0.01	0.05	13.04	11.47	11.50	11.51	0.01	0.04	0.93	0.82	0.82	0.82	0.00	0.00	0.94	0.91	0.92	0.92	0.00	0.007
WDC9_30m	11.89	6.02	6.05	6.05	0.01	0.04	12.90	11.43	11.46	11.46	0.01	0.03	0.92	0.82	0.82	0.82	0.00	0.00	0.93	0.91	0.91	0.91	0.00	0.005
WDC9_40m	11.35	6.00	6.02	6.02	0.00	0.03	12.83	11.41	11.43	11.44	0.01	0.02	0.92	0.82	0.82	0.82	0.00	0.00	0.92	0.90	0.91	0.91	0.00	0.004
WDC9_50m	11.00	5.98	6.00	6.01	0.00	0.02	12.78	11.40	11.42	11.42	0.00	0.02	0.91	0.81	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC9_60m	10.77	5.97	5.99	5.99	0.00	0.02	12.75	11.39	11.41	11.41	0.00	0.02	0.91	0.81	0.81	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC9_70m	10.59	5.96	5.98	5.98	0.00	0.02	12.72	11.39	11.40	11.40	0.00	0.01	0.91	0.81	0.81	0.81	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC9_80m	10.46	5.96	5.97	5.98	0.00	0.02	12.70	11.38	11.39	11.40	0.00	0.01	0.91	0.81	0.81	0.81	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.002
WDC9_90m	10.35	5.95	5.97	5.97	0.00	0.02	12.69	11.38	11.39	11.39	0.00	0.01	0.91	0.81	0.81	0.81	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.002
WDC9_100m	10.27	5.95	5.96	5.97	0.00	0.01	12.67	11.38	11.39	11.39	0.00	0.01	0.91	0.81	0.81	0.81	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC9_110m	10.19	5.95	5.96	5.96	0.00	0.01	12.66	11.37	11.38	11.38	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC9_120m	10.13	5.95	5.96	5.96	0.00	0.01	12.66	11.37	11.38	11.38	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC9_130m	10.08	5.94	5.95	5.96	0.00	0.01	12.65	11.37	11.38	11.38	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC9_140m	10.04	5.94	5.95	5.95	0.00	0.01	12.64	11.37	11.38	11.38	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC9_150m	10.00	5.94	5.95	5.95	0.00	0.01	12.64	11.37	11.37	11.38	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC9_160m	9.97	5.94	5.95	5.95	0.00	0.01	12.63	11.37	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC9_170m	9.94	5.94	5.95	5.95	0.00	0.01	12.63	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC9_180m	9.91	5.94	5.95	5.95	0.00	0.01	12.62	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC9_190m	9.89	5.94	5.94	5.94	0.00	0.01	12.62	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC9_200m	9.86	5.94	5.94	5.94	0.00	0.01	12.62	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC10_1m	18.66	6.29	6.40	6.42	0.02	0.13	13.86	11.67	11.75	11.78	0.02	0.10	0.99	0.83	0.84	0.84	0.00	0.01	1.02	0.95	0.96	0.97	0.00	0.018
WDC10_10m	12.67	6.05	6.09	6.10	0.01	0.05	13.02	11.46	11.49	11.50	0.01	0.04	0.93	0.82	0.82	0.82	0.00	0.00	0.94	0.91	0.92	0.92	0.00	0.007
WDC10_20m	11.33	5.99	6.02	6.02	0.00	0.03	12.82	11.41	11.43	11.44	0.01	0.02	0.92	0.82	0.82	0.82	0.00	0.00	0.92	0.90	0.91	0.91	0.00	0.004
WDC10_30m	10.76	5.97	5.99	5.99	0.00	0.02	12.74	11.39	11.41	11.41	0.00	0.02	0.91	0.81	0.81	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC10_40m	10.46	5.96	5.97	5.98	0.00	0.02	12.70	11.38	11.39	11.40	0.00	0.01	0.91	0.81	0.81	0.81	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.002
WDC10_50m	10.26	5.95	5.96	5.97	0.00	0.01	12.67	11.38	11.39	11.39	0.00	0.01	0.91	0.81	0.81	0.81	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC10_60m	10.13	5.95	5.96	5.96	0.00	0.01	12.65	11.37	11.38	11.38	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC10_70m	10.03	5.94	5.95	5.95	0.00	0.01	12.64	11.37	11.38	11.38	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.002
WDC10_80m	9.95	5.94	5.95	5.95	0.00	0.01	12.63	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC10_90m	9.90	5.94	5.94	5.95	0.00	0.01	12.62	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC10_100m	9.85	5.93	5.94	5.94	0.00	0.01	12.61	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC10_110m	9.81	5.93	5.94	5.94	0.00	0.01	12.61	11.36	11.37	11.37	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_120m	9.77	5.93	5.94	5.94	0.00	0.01	12.60	11.36	11.36	11.36	0.00	0.01	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_130m	9.74	5.93	5.94	5.94	0.00	0.01	12.60	11.36	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_140m	9.72	5.93	5.94	5.94	0.00	0.01	12.60	11.36	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_150m	9.70	5.93	5.93	5.93	0.00	0.01	12.59	11.36	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_160m	9.68	5.93	5.93	5.93	0.00	0.01	12.59	11.36	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_170m	9.66	5.93	5.93	5.93	0.00	0.01	12.59	11.36	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_180m	9.64	5.93	5.93	5.93	0.00	0.01	12.59	11.35	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_190m	9.63	5.93	5.93	5.93	0.00	0.01	12.58	11.35	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC10_200m	9.62	5.93	5.93	5.93	0.00	0.00	12.58	11.35	11.36	11.36	0.00	0.00	0.90	0.81	0.81	0.81	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC11_1m	13.96	6.14	6.19	6.22	0.04	0.09	13.30	11.62	11.66	11.69	0.03	0.07	0.95	0.83	0.83	0.84	0.00	0.01	0.86	0.82	0.83	0.84	0.01	0.013
WDC11_10m	11.26	6.01	6.03	6.05	0.02	0.04	12.91	11.51	11.53	11.54	0.01	0.03	0.92	0.82	0.82	0.82	0.00	0.00	0.82	0.80	0.81	0.81	0.00	0.006
WDC11_20m	10.52	5.98	5.99	6.00	0.01	0.02	12.80	11.48	11.49	11.50	0.01	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.81	0.80	0.80	0.80	0.00	0.003
WDC11_30m	10.21	5.96	5.97	5.98	0.01	0.02	12.76	11.47	11.48	11.48	0.01	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.80	0.80	0.80	0.00	0.003
WDC11_40m	10.04	5.95	5.96	5.97	0.00	0.01	12.73	11.46	11.47	11.47	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.80	0.80	0.80	0.00	0.002
WDC11_50m	9.93	5.95	5.96	5.96	0.00	0.01	12.71	11.46	11.46	11.47	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.80	0.80	0.00	0.002
WDC11_60m	9.85	5.95	5.95	5.96	0.00	0.01	12.70	11.45	11.46	11.46	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.80	0.80	0.00	0.002
WDC11_70m	9.79	5.94	5.95	5.95	0.00	0.01	12.69	11.45	11.46	11.46	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.79	0.80	0.00	0.001
WDC11_80m	9.75	5.94	5.95	5.95	0.00	0.01	12.69	11.45	11.45	11.46	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.79	0.79	0.00	0.001
WDC11_90m	9.72	5.94	5.95	5.95	0.00	0.01	12.68	11.45	11.45	11.45	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.79	0.79	0.00	0.001
WDC11_100m	9.69	5.94	5.94	5.95	0.00	0.01	12.68	11.45	11.45	11.45	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.79	0.79	0.00	0.001
WDC11_110m	9.67	5.94	5.94	5.94	0.00	0.01	12.68	11.45	11.45	11.45	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.79	0.79	0.00	0.001
WDC11_120m	9.65	5.94	5.94	5.94	0.00	0.01	12.67	11.44	11.45	11.45	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.79	0.79	0.00	0.001
WDC11_130m	9.63	5.94	5.94	5.94	0.00	0.01	12.67	11.44	11.45	11.45	0.00	0.00	0.91	0.82	0.82	0.82	0.00	0.00	0.80	0.79	0.79	0.79	0.00	0.001
WDC11_140m	9.62	5.94	5.94	5.94	0.00	0.01	12.67	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.79	0.79	0.79	0.79	0.00	0.001
WDC11_150m	9.61	5.93	5.94	5.94	0.00	0.01	12.67	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.79	0.79	0.79	0.79	0.00	0.001
WDC11_160m	9.60	5.93	5.94	5.94	0.00	0.01	12.67	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.79	0.79	0.79	0.79	0.00	0.001
WDC11_170m	9.59	5.93	5.94	5.94	0.00	0.01	12.66	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.79	0.79	0.79	0.79	0.00	0.001
WDC11_180m	9.58	5.93	5.94	5.94	0.00	0.01	12.66	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.79	0.79	0.79	0.79	0.00	0.001
WDC11_190m	9.57	5.93	5.94	5.94	0.00	0.00	12.66	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.79	0.79	0.79	0.79	0.00	0.001
WDC11_200m	9.57	5.93	5.94	5.94	0.00	0.00	12.66	11.44	11.44	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.79	0.79	0.79	0.79	0.00	0.001
WDC12_1m	12.21	6.05	6.09	6.11	0.02	0.06	13.05	11.55	11.57	11.59	0.02	0.05	0.93	0.82	0.83	0.83	0.00	0.00	0.94	0.92	0.93	0.93	0.00	0.008
WDC12_10m	10.39	5.97	5.98	5.99	0.01	0.02	12.78	11.48	11.48	11.49	0.01	0.02	0.91	0.82	0.82	0.82	0.00	0.00	0.92	0.91	0.91	0.91	0.00	0.003
WDC12_20m	9.99	5.95	5.96	5.97	0.00	0.01	12.72	11.46	11.47	11.47	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.91	0.91	0.91	0.91	0.00	0.002
WDC12_30m	9.82	5.94	5.95	5.95	0.00	0.01	12.70	11.45	11.46	11.46	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.91	0.00	0.001
WDC12_40m	9.73	5.94	5.95	5.95	0.00	0.01	12.69	11.45	11.45	11.45	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC12_50m	9.68	5.94	5.94	5.94	0.00	0.01	12.68	11.45	11.45	11.45	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC12_60m	9.64	5.94	5.94	5.94	0.00	0.01	12.67	11.44	11.45	11.45	0.00	0.00	0.91	0.82	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC12_70m	9.61	5.93	5.94	5.94	0.00	0.01	12.67	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_80m	9.59	5.93	5.94	5.94	0.00	0.01	12.66	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_90m	9.57	5.93	5.94	5.94	0.00	0.00	12.66	11.44	11.45	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001

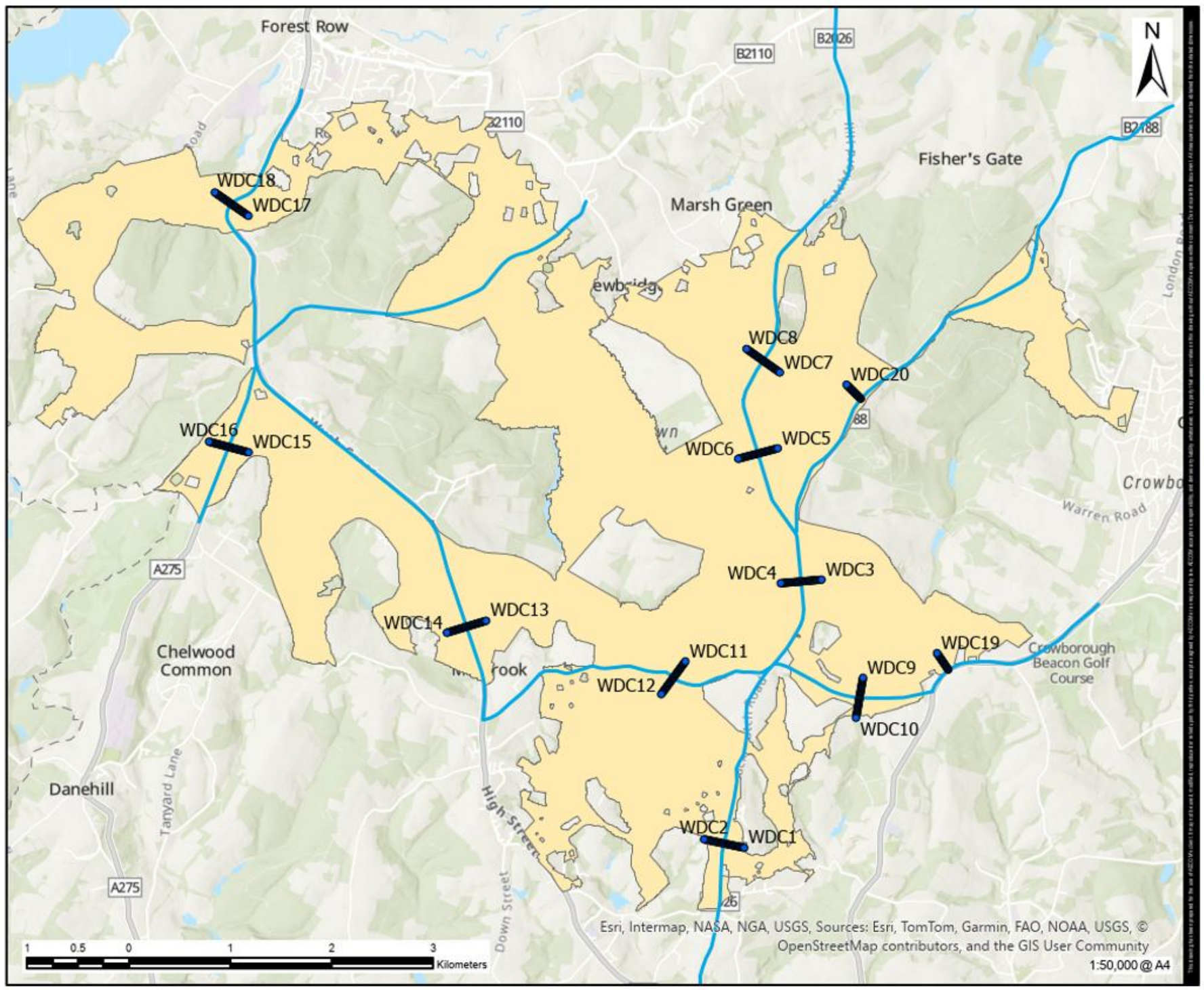
	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC12_100m	9.56	5.93	5.94	5.94	0.00	0.00	12.66	11.44	11.44	11.45	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_110m	9.55	5.93	5.94	5.94	0.00	0.00	12.66	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_120m	9.54	5.93	5.93	5.94	0.00	0.00	12.66	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_130m	9.53	5.93	5.93	5.93	0.00	0.00	12.66	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_140m	9.52	5.93	5.93	5.93	0.00	0.00	12.65	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_150m	9.51	5.93	5.93	5.93	0.00	0.00	12.65	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_160m	9.51	5.93	5.93	5.93	0.00	0.00	12.65	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_170m	9.50	5.93	5.93	5.93	0.00	0.00	12.65	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_180m	9.50	5.93	5.93	5.93	0.00	0.00	12.65	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC12_190m	9.49	5.93	5.93	5.93	0.00	0.00	12.65	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC12_200m	9.49	5.93	5.93	5.93	0.00	0.00	12.65	11.44	11.44	11.44	0.00	0.00	0.90	0.82	0.82	0.82	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC13_1m	31.19	7.06	7.16	7.07	-0.08	0.01	16.14	12.71	12.80	12.71	-0.08	0.01	1.15	0.91	0.91	0.91	-0.01	0.00	1.23	1.06	1.08	1.06	-0.01	0.001
WDC13_10m	18.84	6.48	6.52	6.49	-0.04	0.01	14.35	12.16	12.20	12.17	-0.04	0.00	1.03	0.87	0.87	0.87	0.00	0.00	1.04	0.96	0.97	0.96	-0.01	0.001
WDC13_20m	15.23	6.31	6.34	6.32	-0.02	0.00	13.82	12.01	12.03	12.01	-0.02	0.00	0.99	0.86	0.86	0.86	0.00	0.00	0.98	0.94	0.94	0.94	0.00	0.001
WDC13_30m	13.64	6.24	6.26	6.24	-0.02	0.00	13.58	11.94	11.95	11.94	-0.02	0.00	0.97	0.85	0.85	0.85	0.00	0.00	0.96	0.92	0.93	0.92	0.00	0.000
WDC13_40m	12.74	6.20	6.21	6.20	-0.01	0.00	13.44	11.90	11.91	11.90	-0.01	0.00	0.96	0.85	0.85	0.85	0.00	0.00	0.94	0.92	0.92	0.92	0.00	0.000
WDC13_50m	12.16	6.17	6.18	6.17	-0.01	0.00	13.36	11.87	11.88	11.87	-0.01	0.00	0.95	0.85	0.85	0.85	0.00	0.00	0.93	0.91	0.91	0.91	0.00	0.000
WDC13_60m	11.76	6.15	6.16	6.15	-0.01	0.00	13.30	11.85	11.86	11.86	-0.01	0.00	0.95	0.85	0.85	0.85	0.00	0.00	0.93	0.91	0.91	0.91	0.00	0.000
WDC13_70m	11.46	6.14	6.15	6.14	-0.01	0.00	13.25	11.84	11.85	11.84	-0.01	0.00	0.95	0.85	0.85	0.85	0.00	0.00	0.92	0.91	0.91	0.91	0.00	0.000
WDC13_80m	11.23	6.13	6.13	6.13	-0.01	0.00	13.22	11.83	11.84	11.83	-0.01	0.00	0.94	0.84	0.85	0.85	0.00	0.00	0.92	0.90	0.91	0.90	0.00	0.000
WDC13_90m	11.05	6.12	6.13	6.12	-0.01	0.00	13.19	11.82	11.83	11.82	-0.01	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.92	0.90	0.90	0.90	0.00	0.000
WDC13_100m	10.90	6.11	6.12	6.11	-0.01	0.00	13.17	11.82	11.82	11.82	-0.01	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC13_110m	10.78	6.10	6.11	6.11	-0.01	0.00	13.15	11.81	11.82	11.81	-0.01	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC13_120m	10.68	6.10	6.11	6.10	0.00	0.00	13.13	11.81	11.81	11.81	0.00	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC13_130m	10.59	6.10	6.10	6.10	0.00	0.00	13.12	11.80	11.81	11.80	0.00	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC13_140m	10.51	6.09	6.10	6.09	0.00	0.00	13.11	11.80	11.80	11.80	0.00	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC13_150m	10.44	6.09	6.09	6.09	0.00	0.00	13.10	11.80	11.80	11.80	0.00	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC13_160m	10.38	6.09	6.09	6.09	0.00	0.00	13.09	11.79	11.80	11.79	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC13_170m	10.33	6.08	6.09	6.09	0.00	0.00	13.08	11.79	11.79	11.79	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC13_180m	10.28	6.08	6.09	6.08	0.00	0.00	13.07	11.79	11.79	11.79	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC13_190m	10.24	6.08	6.08	6.08	0.00	0.00	13.07	11.79	11.79	11.79	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC13_200m	10.20	6.08	6.08	6.08	0.00	0.00	13.06	11.79	11.79	11.79	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC14_1m	23.43	6.70	6.76	6.71	-0.06	0.01	15.03	12.37	12.43	12.37	-0.06	0.01	1.07	0.88	0.89	0.88	0.00	0.00	1.11	1.00	1.01	1.00	-0.01	0.001
WDC14_10m	14.76	6.29	6.32	6.30	-0.02	0.00	13.75	11.98	12.01	11.99	-0.02	0.00	0.98	0.86	0.86	0.86	0.00	0.00	0.97	0.93	0.94	0.93	0.00	0.001
WDC14_20m	12.59	6.19	6.20	6.19	-0.01	0.00	13.42	11.89	11.90	11.89	-0.01	0.00	0.96	0.85	0.85	0.85	0.00	0.00	0.94	0.91	0.92	0.92	0.00	0.000
WDC14_30m	11.67	6.15	6.16	6.15	-0.01	0.00	13.28	11.85	11.86	11.85	-0.01	0.00	0.95	0.85	0.85	0.85	0.00	0.00	0.93	0.91	0.91	0.91	0.00	0.000
WDC14_40m	11.17	6.12	6.13	6.12	-0.01	0.00	13.21	11.83	11.84	11.83	-0.01	0.00	0.94	0.84	0.85	0.84	0.00	0.00	0.92	0.90	0.91	0.90	0.00	0.000
WDC14_50m	10.85	6.11	6.12	6.11	-0.01	0.00	13.16	11.81	11.82	11.81	-0.01	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC14_60m	10.62	6.10	6.10	6.10	0.00	0.00	13.13	11.80	11.81	11.80	0.00	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC14_70m	10.46	6.09	6.10	6.09	0.00	0.00	13.10	11.80	11.80	11.80	0.00	0.00	0.94	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.000
WDC14_80m	10.34	6.08	6.09	6.09	0.00	0.00	13.08	11.79	11.80	11.79	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC14_90m	10.24	6.08	6.08	6.08	0.00	0.00	13.07	11.79	11.79	11.79	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC14_100m	10.16	6.08	6.08	6.08	0.00	0.00	13.06	11.78	11.79	11.78	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC14_110m	10.10	6.07	6.08	6.07	0.00	0.00	13.05	11.78	11.78	11.78	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC14_120m	10.05	6.07	6.07	6.07	0.00	0.00	13.04	11.78	11.78	11.78	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.000
WDC14_130m	10.00	6.07	6.07	6.07	0.00	0.00	13.03	11.78	11.78	11.78	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.90	0.89	0.00	0.000
WDC14_140m	9.96	6.07	6.07	6.07	0.00	0.00	13.03	11.77	11.78	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.000
WDC14_150m	9.92	6.06	6.07	6.07	0.00	0.00	13.02	11.77	11.78	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.000
WDC14_160m	9.89	6.06	6.07	6.06	0.00	0.00	13.01	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.000
WDC14_170m	9.87	6.06	6.06	6.06	0.00	0.00	13.01	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.000
WDC14_180m	9.84	6.06	6.06	6.06	0.00	0.00	13.01	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.000
WDC14_190m	9.82	6.06	6.06	6.06	0.00	0.00	13.00	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.000
WDC14_200m	9.80	6.06	6.06	6.06	0.00	0.00	13.00	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.000
WDC15_1m	20.13	6.86	6.96	7.01	0.05	0.15	14.89	12.63	12.72	12.77	0.05	0.14	1.06	0.90	0.91	0.91	0.00	0.01	1.05	0.97	0.99	1.00	0.01	0.025
WDC15_10m	13.80	6.56	6.60	6.62	0.02	0.06	13.96	12.35	12.39	12.41	0.02	0.05	1.00	0.88	0.88	0.89	0.00	0.00	0.95	0.92	0.93	0.93	0.00	0.010
WDC15_20m	12.29	6.49	6.52	6.53	0.01	0.04	13.73	12.29	12.31	12.32	0.01	0.03	0.98	0.88	0.88	0.88	0.00	0.00	0.93	0.91	0.91	0.91	0.00	0.006
WDC15_30m	11.64	6.46	6.48	6.49	0.01	0.03	13.63	12.26	12.27	12.28	0.01	0.02	0.97	0.88	0.88	0.88	0.00	0.00	0.92	0.90	0.91	0.91	0.00	0.004
WDC15_40m	11.28	6.44	6.46	6.46	0.01	0.02	13.58	12.24	12.25	12.26	0.01	0.02	0.97	0.87	0.88	0.88	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC15_50m	11.04	6.43	6.44	6.45	0.01	0.02	13.54	12.23	12.24	12.24	0.00	0.01	0.97	0.87	0.87	0.87	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC15_60m	10.88	6.43	6.44	6.44	0.00	0.01	13.52	12.22	12.23	12.24	0.00	0.01	0.97	0.87	0.87	0.87	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.002
WDC15_70m	10.76	6.42	6.43	6.43	0.00	0.01	13.50	12.22	12.22	12.23	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC15_80m	10.67	6.42	6.42	6.43	0.00	0.01	13.49	12.21	12.22	12.22	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC15_90m	10.60	6.41	6.42	6.42	0.00	0.01	13.48	12.21	12.22	12.22	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC15_100m	10.54	6.41	6.42	6.42	0.00	0.01	13.47	12.21	12.21	12.22	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC15_110m	10.49	6.41	6.41	6.42	0.00	0.01	13.46	12.21	12.21	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC15_120m	10.45	6.41	6.41	6.41	0.00	0.01	13.45	12.20	12.21	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC15_130m	10.42	6.40	6.41	6.41	0.00	0.01	13.45	12.20	12.21	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.90	0.00	0.001
WDC15_140m	10.39	6.40	6.41	6.41	0.00	0.01	13.44	12.20	12.21	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC15_150m	10.37	6.40	6.41	6.41	0.00	0.01	13.44	12.20	12.20	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC15_160m	10.34	6.40	6.40	6.41	0.00	0.01	13.44	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC15_170m	10.32	6.40	6.40	6.40	0.00	0.01	13.43	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC15_180m	10.31	6.40	6.40	6.40	0.00	0.00	13.43	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC15_190m	10.29	6.40	6.40	6.40	0.00	0.00	13.43	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC15_200m	10.28	6.40	6.40	6.40	0.00	0.00	13.43	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_1m	19.08	6.81	6.90	6.95	0.05	0.14	14.74	12.58	12.66	12.71	0.04	0.13	1.05	0.90	0.90	0.91	0.00	0.01	1.03	0.96	0.98	0.98	0.01	0.022
WDC16_10m	13.16	6.53	6.57	6.58	0.02	0.05	13.86	12.32	12.35	12.37	0.02	0.04	0.99	0.88	0.88	0.88	0.00	0.00	0.94	0.92	0.92	0.92	0.00	0.008
WDC16_20m	11.85	6.47	6.49	6.50	0.01	0.03	13.66	12.27	12.28	12.29	0.01	0.03	0.98	0.88	0.88	0.88	0.00	0.00	0.92	0.91	0.91	0.91	0.00	0.005
WDC16_30m	11.30	6.45	6.46	6.47	0.01	0.02	13.58	12.24	12.25	12.26	0.01	0.02	0.97	0.87	0.88	0.88	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC16_40m	11.00	6.43	6.44	6.45	0.01	0.02	13.54	12.23	12.24	12.24	0.00	0.01	0.97	0.87	0.87	0.87	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.003
WDC16_50m	10.80	6.42	6.43	6.44	0.00	0.01	13.51	12.22	12.23	12.23	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC16_60m	10.67	6.42	6.42	6.43	0.00	0.01	13.49	12.21	12.22	12.22	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002
WDC16_70m	10.58	6.41	6.42	6.42	0.00	0.01	13.47	12.21	12.22	12.22	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.002

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC16_80m	10.50	6.41	6.41	6.42	0.00	0.01	13.46	12.21	12.21	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC16_90m	10.45	6.41	6.41	6.41	0.00	0.01	13.45	12.20	12.21	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.90	0.90	0.00	0.001
WDC16_100m	10.40	6.40	6.41	6.41	0.00	0.01	13.45	12.20	12.21	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_110m	10.36	6.40	6.41	6.41	0.00	0.01	13.44	12.20	12.20	12.21	0.00	0.01	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_120m	10.33	6.40	6.40	6.41	0.00	0.01	13.43	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_130m	10.30	6.40	6.40	6.40	0.00	0.01	13.43	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_140m	10.28	6.40	6.40	6.40	0.00	0.00	13.43	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_150m	10.26	6.40	6.40	6.40	0.00	0.00	13.42	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_160m	10.24	6.40	6.40	6.40	0.00	0.00	13.42	12.20	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_170m	10.22	6.40	6.40	6.40	0.00	0.00	13.42	12.19	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC16_180m	10.21	6.39	6.40	6.40	0.00	0.00	13.42	12.19	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC16_190m	10.20	6.39	6.40	6.40	0.00	0.00	13.42	12.19	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC16_200m	10.18	6.39	6.40	6.40	0.00	0.00	13.41	12.19	12.20	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC17_1m	26.51	7.25	7.29	7.25	-0.04	0.01	15.79	12.94	12.97	12.94	-0.04	0.00	1.13	0.92	0.93	0.92	0.00	0.00	1.19	1.06	1.07	1.06	-0.01	0.000
WDC17_10m	16.36	6.75	6.77	6.76	-0.01	0.00	14.31	12.47	12.49	12.47	-0.01	0.00	1.02	0.89	0.89	0.89	0.00	0.00	1.03	0.98	0.98	0.98	0.00	0.000
WDC17_20m	13.96	6.64	6.65	6.64	-0.01	0.00	13.95	12.36	12.37	12.37	-0.01	0.00	1.00	0.88	0.88	0.88	0.00	0.00	0.99	0.96	0.96	0.96	0.00	0.000
WDC17_30m	12.96	6.59	6.60	6.59	-0.01	0.00	13.81	12.32	12.33	12.32	-0.01	0.00	0.99	0.88	0.88	0.88	0.00	0.00	0.97	0.95	0.95	0.95	0.00	0.000
WDC17_40m	12.40	6.56	6.57	6.56	-0.01	0.00	13.72	12.29	12.30	12.29	0.00	0.00	0.98	0.88	0.88	0.88	0.00	0.00	0.97	0.95	0.95	0.95	0.00	0.000
WDC17_50m	12.05	6.54	6.55	6.54	0.00	0.00	13.67	12.28	12.28	12.28	0.00	0.00	0.98	0.88	0.88	0.88	0.00	0.00	0.96	0.95	0.95	0.95	0.00	0.000
WDC17_60m	11.81	6.53	6.54	6.53	0.00	0.00	13.63	12.27	12.27	12.27	0.00	0.00	0.97	0.88	0.88	0.88	0.00	0.00	0.96	0.94	0.94	0.94	0.00	0.000
WDC17_70m	11.63	6.52	6.53	6.52	0.00	0.00	13.61	12.26	12.26	12.26	0.00	0.00	0.97	0.88	0.88	0.88	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_80m	11.50	6.52	6.52	6.52	0.00	0.00	13.59	12.25	12.26	12.25	0.00	0.00	0.97	0.88	0.88	0.88	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_90m	11.39	6.51	6.52	6.51	0.00	0.00	13.57	12.25	12.25	12.25	0.00	0.00	0.97	0.87	0.88	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_100m	11.31	6.51	6.51	6.51	0.00	0.00	13.56	12.24	12.25	12.24	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_110m	11.24	6.50	6.51	6.50	0.00	0.00	13.55	12.24	12.24	12.24	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_120m	11.18	6.50	6.50	6.50	0.00	0.00	13.54	12.24	12.24	12.24	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_130m	11.13	6.50	6.50	6.50	0.00	0.00	13.53	12.23	12.24	12.24	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_140m	11.09	6.50	6.50	6.50	0.00	0.00	13.52	12.23	12.24	12.23	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC17_150m	11.05	6.49	6.50	6.50	0.00	0.00	13.52	12.23	12.23	12.23	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC17_160m	11.02	6.49	6.50	6.49	0.00	0.00	13.51	12.23	12.23	12.23	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC17_170m	11.00	6.49	6.49	6.49	0.00	0.00	13.51	12.23	12.23	12.23	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC17_180m	10.97	6.49	6.49	6.49	0.00	0.00	13.51	12.23	12.23	12.23	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC17_190m	10.95	6.49	6.49	6.49	0.00	0.00	13.50	12.23	12.23	12.23	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC17_200m	10.93	6.49	6.49	6.49	0.00	0.00	13.50	12.23	12.23	12.23	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC18_1m	27.29	7.28	7.33	7.29	-0.04	0.01	15.90	12.97	13.01	12.97	-0.04	0.00	1.14	0.93	0.93	0.93	0.00	0.00	1.20	1.07	1.08	1.07	-0.01	0.000
WDC18_10m	16.43	6.76	6.77	6.76	-0.01	0.00	14.32	12.48	12.49	12.48	-0.01	0.00	1.02	0.89	0.89	0.89	0.00	0.00	1.03	0.98	0.98	0.98	0.00	0.000
WDC18_20m	13.75	6.63	6.64	6.63	-0.01	0.00	13.92	12.36	12.36	12.36	-0.01	0.00	0.99	0.88	0.88	0.88	0.00	0.00	0.99	0.96	0.96	0.96	0.00	0.000
WDC18_30m	12.58	6.57	6.58	6.57	-0.01	0.00	13.75	12.30	12.31	12.30	-0.01	0.00	0.98	0.88	0.88	0.88	0.00	0.00	0.97	0.95	0.95	0.95	0.00	0.000
WDC18_40m	11.94	6.54	6.54	6.54	0.00	0.00	13.65	12.27	12.28	12.27	-0.01	0.00	0.98	0.88	0.88	0.88	0.00	0.00	0.96	0.94	0.95	0.94	0.00	0.000
WDC18_50m	11.55	6.52	6.52	6.52	0.00	0.00	13.59	12.25	12.26	12.25	0.00	0.00	0.97	0.88	0.88	0.88	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC18_60m	11.28	6.51	6.51	6.51	0.00	0.00	13.55	12.24	12.25	12.24	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC18_70m	11.09	6.50	6.50	6.50	0.00	0.00	13.53	12.23	12.24	12.23	0.00	0.00	0.97	0.87	0.87	0.87	0.00	0.00	0.95	0.94	0.94	0.94	0.00	0.000
WDC18_80m	10.96	6.49	6.49	6.49	0.00	0.00	13.50	12.23	12.23	12.23	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC18_90m	10.85	6.48	6.49	6.49	0.00	0.00	13.49	12.22	12.23	12.22	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC18_100m	10.77	6.48	6.48	6.48	0.00	0.00	13.48	12.22	12.22	12.22	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.94	0.94	0.94	0.00	0.000
WDC18_110m	10.70	6.48	6.48	6.48	0.00	0.00	13.47	12.22	12.22	12.22	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_120m	10.65	6.48	6.48	6.48	0.00	0.00	13.46	12.21	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_130m	10.61	6.47	6.47	6.47	0.00	0.00	13.45	12.21	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_140m	10.57	6.47	6.47	6.47	0.00	0.00	13.45	12.21	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_150m	10.54	6.47	6.47	6.47	0.00	0.00	13.44	12.21	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_160m	10.51	6.47	6.47	6.47	0.00	0.00	13.44	12.21	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_170m	10.49	6.47	6.47	6.47	0.00	0.00	13.43	12.21	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_180m	10.47	6.47	6.47	6.47	0.00	0.00	13.43	12.21	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_190m	10.45	6.47	6.47	6.47	0.00	0.00	13.43	12.20	12.21	12.21	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.94	0.93	0.93	0.93	0.00	0.000
WDC18_200m	10.44	6.46	6.47	6.47	0.00	0.00	13.43	12.20	12.21	12.20	0.00	0.00	0.96	0.87	0.87	0.87	0.00	0.00	0.93	0.93	0.93	0.93	0.00	0.000
WDC19_1m	40.40	7.46	7.66	7.63	-0.03	0.17	17.04	12.74	12.91	12.88	-0.03	0.14	1.22	0.91	0.92	0.92	0.00	0.01	1.37	1.12	1.15	1.15	-0.01	0.025
WDC19_10m	21.33	6.56	6.63	6.62	-0.01	0.07	14.32	11.90	11.97	11.95	-0.01	0.06	1.02	0.85	0.85	0.85	0.00	0.00	1.07	0.97	0.98	0.98	0.00	0.010
WDC19_20m	16.64	6.33	6.38	6.37	-0.01	0.04	13.63	11.69	11.73	11.73	-0.01	0.03	0.97	0.84	0.84	0.84	0.00	0.00	0.99	0.94	0.94	0.94	0.00	0.006
WDC19_30m	14.58	6.24	6.27	6.27	0.00	0.03	13.32	11.60	11.63	11.62	0.00	0.02	0.95	0.83	0.83	0.83	0.00	0.00	0.96	0.92	0.92	0.92	0.00	0.004
WDC19_40m	13.41	6.18	6.21	6.20	0.00	0.02	13.15	11.55	11.57	11.57	0.00	0.02	0.94	0.82	0.83	0.83	0.00	0.00	0.94	0.91	0.91	0.91	0.00	0.004
WDC19_50m	12.66	6.14	6.17	6.16	0.00	0.02	13.03	11.51	11.53	11.53	0.00	0.02	0.93	0.82	0.82	0.82	0.00	0.00	0.93	0.90	0.91	0.91	0.00	0.003
WDC19_60m	12.13	6.12	6.14	6.14	0.00	0.02	12.95	11.49	11.51	11.51	0.00	0.01	0.93	0.82	0.82	0.82	0.00	0.00	0.92	0.90	0.90	0.90	0.00	0.002
WDC19_70m	11.75	6.10	6.12	6.12	0.00	0.01	12.90	11.47	11.49	11.49	0.00	0.01	0.92	0.82	0.82	0.82	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.002
WDC19_80m	11.46	6.09	6.10	6.10	0.00	0.01	12.85	11.46	11.47	11.47	0.00	0.01	0.92	0.82	0.82	0.82	0.00	0.00	0.91	0.89	0.90	0.90	0.00	0.002
WDC19_90m	11.22	6.08	6.09	6.09	0.00	0.01	12.82	11.45	11.46	11.46	0.00	0.01	0.92	0.82	0.82	0.82	0.00	0.00	0.91	0.89	0.89	0.89	0.00	0.002
WDC19_100m	11.04	6.07	6.08	6.08	0.00	0.01	12.79	11.44	11.45	11.45	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.002
WDC19_110m	10.89	6.06	6.07	6.07	0.00	0.01	12.77	11.44	11.45	11.44	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC19_120m	10.76	6.05	6.06	6.06	0.00	0.01	12.75	11.43	11.44	11.44	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC19_130m	10.66	6.05	6.06	6.06	0.00	0.01	12.73	11.43	11.43	11.43	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC19_140m	10.57	6.05	6.05	6.05	0.00	0.01	12.72	11.42	11.43	11.43	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.90	0.89	0.89	0.89	0.00	0.001
WDC19_150m	10.49	6.04	6.05	6.05	0.00	0.01	12.71	11.42	11.42	11.42	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC19_160m	10.43	6.04	6.05	6.05	0.00	0.01	12.70	11.42	11.42	11.42	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC19_170m	10.37	6.04	6.04	6.04	0.00	0.01	12.69	11.41	11.42	11.42	0.00	0.01	0.91	0.82	0.82	0.82	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC19_180m	10.32	6.03	6.04	6.04	0.00	0.01	12.68	11.41	11.42	11.42	0.00	0.00	0.91	0.82	0.82	0.82	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC19_190m	10.28	6.03	6.04	6.04	0.00	0.01	12.68	11.41	11.41	11.41	0.00	0.00	0.91	0.81	0.82	0.82	0.00	0.00	0.89	0.89	0.89	0.89	0.00	0.001
WDC19_200m	10.24	6.03	6.04	6.04	0.00	0.01	12.67	11.41	11.41	11.41	0.00	0.01	0.90	0.81	0.82	0.82	0.00	0.00	0.89	0.88	0.89	0.89	0.00	0.001
WDC20_1m	14.63	6.11	6.18	6.17	-0.01	0.06	13.77	11.99	12.05	12.05	-0.01	0.06	0.98	0.86	0.86	0.86	0.00	0.00	0.99	0.94	0.95	0.95	0.00	0.010
WDC20_10m	11.22	5.95	5.98	5.98	0.00	0.02	13.26	11.84	11.87	11.86	0.00	0.02	0.95	0.85	0.85	0.85	0.00	0.00	0.93	0.92	0.92	0.92	0.00	0.004
WDC20_20m	10.40	5.91	5.93	5.93	0.00	0.02	13.14	11.81	11.82	11.82	0.00	0.02	0.94	0.84	0.84	0.84	0.00	0.00	0.92	0.91	0.91	0.91	0.00	0.003
WDC20_30m	10.05	5.90	5.91	5.91	0.00	0.01	13.09	11.79	11.80	11.80	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.92	0.91	0.91	0.91	0.00	0.002
WDC20_40m	9.87	5.89	5.90	5.90	0.00	0.01	13.06	11.78	11.79	11.79	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.91	0.91	0.91	0.00	0.002
WDC20_50m	9.75	5.88	5.89	5.89	0.00	0.01	13.04	11.78	11.79	11.79	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.91	0.91	0.91	0.00	0.001

	NOx						N Deposition						N Acid Deposition						NH3					
Receptor	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB
WDC20_60m	9.67	5.88	5.89	5.89	0.00	0.01	13.03	11.77	11.78	11.78	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.91	0.91	0.00	0.001
WDC20_70m	9.61	5.87	5.88	5.88	0.00	0.01	13.02	11.77	11.78	11.78	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.91	0.91	0.00	0.001
WDC20_80m	9.57	5.87	5.88	5.88	0.00	0.01	13.01	11.77	11.78	11.78	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_90m	9.53	5.87	5.88	5.88	0.00	0.01	13.01	11.77	11.78	11.77	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_100m	9.50	5.87	5.88	5.88	0.00	0.01	13.00	11.77	11.77	11.77	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_110m	9.48	5.87	5.88	5.87	0.00	0.01	13.00	11.77	11.77	11.77	0.00	0.01	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_120m	9.46	5.87	5.87	5.87	0.00	0.01	13.00	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_130m	9.45	5.87	5.87	5.87	0.00	0.01	12.99	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_140m	9.44	5.87	5.87	5.87	0.00	0.01	12.99	11.77	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_150m	9.42	5.87	5.87	5.87	0.00	0.01	12.99	11.76	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_160m	9.41	5.87	5.87	5.87	0.00	0.01	12.99	11.76	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_170m	9.41	5.86	5.87	5.87	0.00	0.01	12.99	11.76	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.91	0.90	0.90	0.90	0.00	0.001
WDC20_180m	9.40	5.86	5.87	5.87	0.00	0.01	12.99	11.76	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC20_190m	9.39	5.86	5.87	5.87	0.00	0.01	12.99	11.76	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001
WDC20_200m	9.39	5.86	5.87	5.87	0.00	0.01	12.99	11.76	11.77	11.77	0.00	0.00	0.93	0.84	0.84	0.84	0.00	0.00	0.90	0.90	0.90	0.90	0.00	0.001



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- Ecological Receptor Transects
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FIGURE TITLE

Modelled Road Network and Ecological Receptor Transects

FIGURE NUMBER

Figure 1

D.2 Lewes Downs SAC

		NOx						N Deposition						N Acid Deposition						NH3					
Receptor	Distance From Road	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DS	DS-DM	DS-FB	2023	2042 Future Base	2042 DM	2042 DM	DS-DM	DS-FB
T1_12.35m	12.35	28.94	8.06	8.16	8.15	-0.02	0.09	18.55	13.56	13.90	13.87	-0.03	0.31	1.32	0.97	0.99	0.99	0.00	0.02	2.07	1.53	1.60	1.59	-0.01	0.06
T1_20m	20.00	24.82	7.88	7.96	7.95	-0.01	0.07	16.98	12.95	13.20	13.17	-0.02	0.23	1.21	0.92	0.94	0.94	0.00	0.02	1.82	1.42	1.46	1.46	0.00	0.04
T1_30m	30.00	21.81	7.74	7.81	7.80	-0.01	0.05	15.83	12.49	12.68	12.67	-0.02	0.17	1.13	0.89	0.91	0.90	0.00	0.01	1.63	1.33	1.37	1.36	0.00	0.03
T1_40m	40.00	19.98	7.66	7.71	7.71	-0.01	0.04	15.13	12.22	12.37	12.36	-0.01	0.14	1.08	0.87	0.88	0.88	0.00	0.01	1.52	1.28	1.31	1.31	0.00	0.03
T1_50m	50.00	18.76	7.61	7.65	7.65	-0.01	0.04	14.67	12.03	12.16	12.15	-0.01	0.12	1.05	0.86	0.87	0.87	0.00	0.01	1.45	1.24	1.27	1.27	0.00	0.02
T1_60m	60.00	17.88	7.57	7.61	7.60	-0.01	0.03	14.33	11.90	12.01	12.00	-0.01	0.10	1.02	0.85	0.86	0.86	0.00	0.01	1.39	1.22	1.24	1.24	0.00	0.02
T1_70m	70.00	17.22	7.54	7.57	7.57	0.00	0.03	14.07	11.80	11.90	11.89	-0.01	0.09	1.00	0.84	0.85	0.85	0.00	0.01	1.35	1.20	1.22	1.22	0.00	0.02
T1_80m	80.00	16.70	7.52	7.55	7.54	0.00	0.02	13.87	11.72	11.81	11.80	-0.01	0.08	0.99	0.84	0.84	0.84	0.00	0.01	1.32	1.19	1.20	1.20	0.00	0.01
T1_90m	90.00	16.28	7.50	7.53	7.52	0.00	0.02	13.71	11.66	11.74	11.73	-0.01	0.07	0.98	0.83	0.84	0.84	0.00	0.01	1.29	1.17	1.19	1.19	0.00	0.01
T1_100m	100.00	15.94	7.49	7.51	7.51	0.00	0.02	13.58	11.61	11.68	11.67	-0.01	0.06	0.97	0.83	0.83	0.83	0.00	0.00	1.27	1.16	1.18	1.18	0.00	0.01
T1_110m	110.00	15.65	7.47	7.49	7.49	0.00	0.02	13.47	11.56	11.63	11.62	0.00	0.06	0.96	0.83	0.83	0.83	0.00	0.00	1.25	1.16	1.17	1.17	0.00	0.01
T1_120m	120.00	15.40	7.46	7.48	7.48	0.00	0.02	13.37	11.53	11.59	11.58	0.00	0.06	0.96	0.82	0.83	0.83	0.00	0.00	1.24	1.15	1.16	1.16	0.00	0.01
T1_130m	130.00	15.20	7.45	7.47	7.47	0.00	0.02	13.29	11.50	11.55	11.55	0.00	0.05	0.95	0.82	0.83	0.82	0.00	0.00	1.23	1.14	1.15	1.15	0.00	0.01
T1_140m	140.00	15.02	7.45	7.46	7.46	0.00	0.01	13.22	11.47	11.52	11.52	0.00	0.05	0.94	0.82	0.82	0.82	0.00	0.00	1.22	1.14	1.15	1.15	0.00	0.01
T1_150m	150.00	14.86	7.44	7.45	7.45	0.00	0.01	13.16	11.45	11.49	11.49	0.00	0.05	0.94	0.82	0.82	0.82	0.00	0.00	1.21	1.13	1.14	1.14	0.00	0.01
T1_160m	160.00	14.72	7.43	7.45	7.45	0.00	0.01	13.11	11.42	11.47	11.47	0.00	0.04	0.94	0.82	0.82	0.82	0.00	0.00	1.20	1.13	1.14	1.14	0.00	0.01
T1_170m	170.00	14.59	7.43	7.44	7.44	0.00	0.01	13.06	11.41	11.45	11.45	0.00	0.04	0.93	0.81	0.82	0.82	0.00	0.00	1.19	1.13	1.13	1.13	0.00	0.01
T1_180m	180.00	14.48	7.42	7.44	7.43	0.00	0.01	13.02	11.39	11.43	11.43	0.00	0.04	0.93	0.81	0.82	0.82	0.00	0.00	1.18	1.12	1.13	1.13	0.00	0.01
T1_190m	190.00	14.38	7.42	7.43	7.43	0.00	0.01	12.98	11.37	11.41	11.41	0.00	0.04	0.93	0.81	0.82	0.81	0.00	0.00	1.18	1.12	1.13	1.13	0.00	0.01
T1_200m	200.00	14.29	7.41	7.43	7.42	0.00	0.01	12.94	11.36	11.40	11.39	0.00	0.03	0.92	0.81	0.81	0.81	0.00	0.00	1.17	1.12	1.12	1.12	0.00	0.01
T2_63.1m	63.10	13.66	7.13	7.15	7.15	0.01	0.02	13.10	11.51	11.56	11.59	0.02	0.07	0.94	0.82	0.83	0.83	0.00	0.01	1.18	1.13	1.14	1.14	0.00	0.01
T2_70m	70.00	13.52	7.12	7.14	7.14	0.00	0.02	13.05	11.49	11.54	11.56	0.02	0.07	0.93	0.82	0.82	0.83	0.00	0.00	1.17	1.12	1.13	1.14	0.00	0.01
T2_80m	80.00	13.36	7.11	7.13	7.13	0.00	0.02	12.99	11.47	11.51	11.53	0.02	0.06	0.93	0.82	0.82	0.82	0.00	0.00	1.16	1.12	1.13	1.13	0.00	0.01
T2_90m	90.00	13.24	7.11	7.12	7.13	0.00	0.02	12.94	11.45	11.49	11.51	0.02	0.05	0.92	0.82	0.82	0.82	0.00	0.00	1.16	1.12	1.12	1.13	0.00	0.01
T2_100m	100.00	13.13	7.10	7.12	7.12	0.00	0.01	12.90	11.44	11.47	11.49	0.01	0.05	0.92	0.82	0.82	0.82	0.00	0.00	1.15	1.11	1.12	1.12	0.00	0.01
T2_110m	110.00	13.05	7.10	7.11	7.11	0.00	0.01	12.87	11.43	11.46	11.47	0.01	0.04	0.92	0.82	0.82	0.82	0.00	0.00	1.15	1.11	1.12	1.12	0.00	0.01
T2_120m	120.00	12.98	7.10	7.11	7.11	0.00	0.01	12.85	11.42	11.45	11.46	0.01	0.04	0.92	0.82	0.82	0.82	0.00	0.00	1.14	1.11	1.11	1.12	0.00	0.01
T2_130m	130.00	12.92	7.10	7.10	7.11	0.00	0.01	12.83	11.41	11.44	11.45	0.01	0.04	0.92	0.81	0.82	0.82	0.00	0.00	1.14	1.11	1.11	1.11	0.00	0.01
T2_140m	140.00	12.87	7.09	7.10	7.10	0.00	0.01	12.81	11.40	11.43	11.44	0.01	0.04	0.91	0.81	0.82	0.82	0.00	0.00	1.14	1.11	1.11	1.11	0.00	0.01
T2_150m	150.00	12.82	7.09	7.10	7.10	0.00	0.01	12.79	11.39	11.42	11.43	0.01	0.03	0.91	0.81	0.82	0.82	0.00	0.00	1.13	1.11	1.11	1.11	0.00	0.01
T2_160m	160.00	12.78	7.09	7.10	7.10	0.00	0.01	12.78	11.39	11.41	11.42	0.01	0.03	0.91	0.81	0.82	0.82	0.00	0.00	1.13	1.10	1.11	1.11	0.00	0.01
T2_170m	170.00	12.75	7.09	7.09	7.10	0.00	0.01	12.76	11.38	11.40	11.41	0.01	0.03	0.91	0.81	0.81	0.82	0.00	0.00	1.13	1.10	1.11	1.11	0.00	0.01
T2_180m	180.00	12.72	7.09	7.09	7.09	0.00	0.01	12.75	11.38	11.40	11.41	0.01	0.03	0.91	0.81	0.81	0.81	0.00	0.00	1.13	1.10	1.11	1.11	0.00	0.01
T2_190m	190.00	12.69	7.08	7.09	7.09	0.00	0.01	12.74	11.37	11.39	11.40	0.01	0.03	0.91	0.81	0.81	0.81	0.00	0.00	1.13	1.10	1.11	1.11	0.00	0.00
T2_200m	200.00	12.66	7.08	7.09	7.09	0.00	0.01	12.73	11.37	11.39	11.39	0.01	0.02	0.91	0.81	0.81	0.81	0.00	0.00	1.12	1.10	1.10	1.11	0.00	0.00



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FIGURE TITLE

Modelled Road Network and Ecological Receptor Transects

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Figure 2

Appendix E Air Quality Modelling Methodology Report

Ashdown Forest SAC & Lewes Downs SAC - Air Quality Modelling Methodology

Habitats Regulations Assessment of the planned Local Plan of Wealden District Council

Wealden District Council

Project number: 60778093

September 2026

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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
1.0	April 2026	Draft	AS	Anna Savage	Technical Director
2.0	April 2026	Final	AS	Anna Savage	Technical Director
3.0	August 2026	Draft – updated modelling with interim traffic data.			

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1. Introduction

1.1 Wealden District Council (WDC)'s Local Development Scheme (LDS) was adopted on 29 January 2026 by Full Council. A new Local Plan is in preparation, which will provide policies to manage growth in the district and guide development over a 15 year period from its adoption. The Local Plan will become the key planning document against which planning applications are assessed in accordance with the timetable set out in the adopted LDS (Wealden District Council, 2026).

1.2 In March 2024, WDC published a draft Local Plan outlining the Council's proposed policies and growth strategies. The Local Plan is likely to affect traffic flows on the roads operating through the Ashdown Forest Special Area of Conservation (SAC) located within Wealden District, and adjacent to the Lewes Downs SAC, which lies outside the district boundary within Lewes District. These SACs were identified as part of the Regulation 18 Wealden Local Plan (March 2024) Habitats Regulations Assessment (HRA) as being at risk of air quality impacts. In accordance with the Habitats Regulations, potential effects of the Local Plan must be assessed for all designated sites that could be affected by plan-related changes, regardless of whether those sites fall within the Local Authority boundary. The Council has therefore commissioned AECOM Limited to conduct an air quality assessment to inform this Regulation 19 Wealden Local Plan HRA. This report presents an interim air quality assessment based on traffic data provided by the project team on 11 August 2026. When provided, these represented the latest available traffic forecasts. Updated traffic data are expected to become available at a later stage and may be considered in future iterations of the assessment.

1.3 The assessment focuses on the impact of traffic related nitrogen-based emissions due to the planned development in the Wealden Local Plan on sensitive ecosystems within the Ashdown Forest SAC and the Lewes Downs SAC. The Ashdown Forest SAC is designated for heathland, which is sensitive to nitrogen and ammonia (NH_3) deposition and includes lichens and bryophytes that can be particularly sensitive. The Lewes Downs SAC is designated for semi-natural dry calcareous grassland, which is sensitive to nitrogen and NH_3 deposition and includes rare orchid species.

1.4 This assessment considers the following key pollutants shown to affect sensitive ecosystems: NH_3, oxides of nitrogen[1] (NO_X), total nitrogen deposition and nitrogen acid deposition. All pollutants are considered at receptor locations within transects up to a distance of 200m from the roadside of affected road links - within the SACs.

1.5 WDC undertook monitoring of nitrogen dioxide (NO_2) and NH_3 between 2022 and 2025 within the Ashdown Forest SAC. Monitoring data has been used to verify the model performance with regards to NOx and NH_3 concentrations.

1.6 The following scenarios have been modelled:

- Baseline year (2023): represents air quality conditions in the selected base year using verified traffic data and background pollutant concentrations for the same year;
- Future Baseline (2042): represents the future assessment year using baseline traffic flows but applying projected vehicle emission factors and background pollutant concentrations from the future assessment year to account for anticipated improvements in the vehicle fleet;
- 2042 Option1: future assessment year including forecast traffic growth and committed development, but excluding development allocations proposed within the Local Plan commonly also referred to as Do Minimum scenario (DM); and
- 2042 Option 2: future assessment year including forecast traffic growth, committed development and the development allocations proposed within the Local Plan commonly also referred to as Do Something (DS) scenario.

1.7 The results of the modelling of the above scenarios are assessed to compare against NO_x and NH_3 critical levels, and nitrogen and acid deposition critical loads within the Ashdown Forest SAC and Lewes Downs SAC. The results are presented in the accompanying report 'Habitats Regulations Assessment of the Local Plan of Wealden District Council'.

[1] Nitrogen oxides emitted from combustion processes are collectively known as NOx and primarily include nitric oxide (NO) which is quickly oxidised in the atmosphere to nitrogen dioxide (NO_2).

2. Policy Context

Clean Air Strategy

2.1 In 2019, the UK government released its Clean Air Strategy 2019 (Defra, 2019) as part of its 25 Year Environment Plan (Defra, 2018). These documents include targets to reduce emissions of NH_3 from farming activities, and nitrogen oxides from combustion processes, and thus reduce the deposition of nitrogen to sensitive ecosystems.

Environment Act

2.2 The Environment Act 2021 (HM Government, 2021) amends the Environment Act 1995 (HM Government, 1995). On 9 November 2021, the Act received Royal Assent after being first introduced to Parliament in January 2020 to address environmental protection and the delivery of the Government's 25 Year Environment Plan. It includes provisions to establish a post-Brexit set of statutory environmental principles to ensure environmental governance through an environmental watchdog, the Office for Environmental Protection (OEP).

2.3 The Secretary of State must publish a review report every five years (as a minimum and with yearly updates to Parliament). The 25 Year Environment Plan was adopted as the first Environmental Improvement Plan (EIP) of the Environment Act 2021. The first statutory Environmental Improvement Plan, EIP 23 (DEFRA, 2023), sets out long-term legally binding targets and outlines the Governments environmental priorities and actions.

Habitats Regulations Assessment (HRA)

2.4 While the UK is no longer a member of the EU, a requirement for HRA will continue as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

2.5 The HRA process applies the 'Precautionary Principle'[2] to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the European site(s) in question. To ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the Plan or project in question.

2.6 Following evidence gathering, the first stage of any HRA is the screening for Likely Significant Effects (LSEs), a high-level assessment to decide whether the Appropriate Assessment is required. Where it is determined that a conclusion of 'no Likely Significant Effects' cannot be drawn, the analysis proceeds to the Appropriate Assessment.

2.7 The Local Plan will significantly increase the population and employment opportunities within the District, which may result in more journeys being undertaken within 200m of sensitive features. Therefore, LSEs cannot be excluded, and the Ashdown Forest SAC and Lewes Downs SAC have been screened in for Appropriate Assessment regarding this impact pathway. This is in accordance with Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (Natural England, 2018).

2.8 As such, the air quality modelling methodology and analyses presented in this report have been undertaken to inform the HRA for the Ashdown Forest SAC and Lewes Downs SAC.

Regional Policy

2.9 WDC currently does not have an Air Quality Action Plan (AQAP) in place, as the district has not identified any designated Air Quality Management Areas (AQMAs) or exceedances of air quality objectives.

[2] The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: *"When human activities may lead to morally unacceptable harm* [to the environment] *that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis".*

Lewes District Council Air Quality Action Plan (2025)

2.10 Lewes District Council (LDC) currently has two AQMAs within their jurisdiction, both of which have been declared for exceedances of the annual mean NO_2 objective. These are:

- Lewes Town Centre (approximately 16km from Ashdown Forest SAC, and 1km from Lewes Downs SAC); and
- A259 Newhaven Ring Road (approximately 24km from Ashdown Forest SAC, and 7.5km from Lewes Downs SAC).

2.11 LDC's Air Quality Action Plan (AQAP) (Lewes District Council, 2025), was published in 2025 and includes actions to improve air quality across their two AQMAs. The plan outlines a total of 32 measures, which are based around the following priorities:

- Priority 1: Transport – aims to reduce pollutant emissions from transport, which contributes a significant portion of emissions across the district;
- Priority 2: Planning and Infrastructure – ensures that new development will not cause adverse effects on air quality;
- Priority 3: Public Information and Behavioural Change – focuses on improving air quality to ensure good health across the District, and aims to ensure that health of the public is communicated effectively;
- Priority 4: Strategies and Policy Guidance – ensures that any relevant policies or strategies relating to air quality are considered; and
- Priority 5: Air Quality Monitoring – ensures air quality is effectively and closely monitored across the District.

2.12 These measures to reduce road traffic emissions, are expected to improve air quality within Ashdown Forest SAC and Lewes Downs SAC. Progress on the measures outlined in the AQAP will be discussed annually within LDC's Annual Status Reports (ASR).

East Sussex Local Transport Plan (2024-2050)

2.13 East Sussex County Council (ESCC) have developed a Local Transport Plan (LTP) (East Sussex County Council, 2024) which includes ambitions and objectives for towns across East Sussex, including Wealden and Lewes. The plan recognises the negative impact of congestion on air quality and aims to improve air quality by encouraging modal shift and decarbonisation.

2.14 The LTP includes a number of objectives that align with air quality considerations including: objective 2 which focuses on healthier lifestyles and communities, including considerations around active travel and reducing emissions to air, objective 3, which aims to decarbonise transport across ESCC and objective 4, which includes considerations around conservation of natural habitats.

2.15 Policies A1 and A2 aim to reduce vehicle emissions, to improve air quality. These policies focus on reducing the need for travel, encouraging modal shifts for shorter journeys, and fleet decarbonisation.

Air Quality and Emissions Mitigation Guidance for Sussex (2021)

2.16 The Air Quality and Emissions Mitigation Guidance for Sussex (Sussex Air, 2021) provides a framework for addressing air quality and emissions issues across the Sussex region. This guidance was developed collaboratively by local authorities within Sussex to ensure a consistent and effective approach to mitigating air quality impacts from development and transport activities.

2.17 The guidance outlines a series of principles and measures aimed at reducing emissions and improving air quality. These measures are structured around key themes, which include:

- Planning and Development Control: Ensures that new developments incorporate air quality mitigation measures to prevent adverse impacts on local air quality. This includes the use of air quality assessments, low-emission strategies, and the integration of green infrastructure.
- Transport Emissions Reduction: Focuses on reducing emissions from transport sources, which are a major contributor to air pollution in Sussex. This includes promoting active travel (walking and cycling), enhancing public transport options, and encouraging the adoption of low-emission vehicles.

- Public Health and Awareness: Aims to raise awareness of air quality issues among residents and stakeholders, promoting behavioural changes that contribute to emission reductions and improved public health outcomes.
- Monitoring and Evidence-Based Action: Emphasises the importance of robust air quality monitoring to inform decision-making and track progress on mitigation measures. This includes the use of air quality data to guide local policies and interventions.

2.18 The implementation of the Air Quality and Emissions Mitigation Guidance for Sussex is expected to contribute significantly to improving air quality across the region, including areas such as the Ashdown Forest SAC and Lewes Downs SAC. By addressing emissions at the source and promoting sustainable practices, the guidance supports the conservation of natural habitats and aligns with broader regional and national air quality strategies.

Other Guidance documents

2.19 Best practice and advice / guidance contained within documents from Natural England (Natural England, 2018), the Institute of Air Quality Management (IAQM) (IAQM, 2020), the Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM, 2021), National Highways (Design Manual for Roads and Bridges DMRB LA105) (DMRB, 2024), and Local Air Quality Management Technical Guidance (Defra, 2025) have been used to determine the methodology presented in this report, and in the accompanying ecological interpretation of the results.

Critical Levels

2.20 Annual mean critical levels of NO_x and NH_3 are summarised in Table 1. These are concentrations above which adverse effects on ecosystems may occur based on present knowledge. The critical level for NO_x is taken from the EU Ambient Air Quality Directive 2008/50/EU (EU Directives, 2008) which has also been set as the Air Quality Strategy objective for the protection of vegetation and ecosystems and has been incorporated into English legislation.

2.21 The EU Directive (EU Directives, 2008) states that the sampling point to determine compliance should be sited more than 20 km away from agglomerations or more than 5 km away from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50,000 vehicles per day, which means that a sampling point must be sited in such a way that is representative of an area of at least 1,000 km^2. Applying the critical level for NO_x to designated nature conservation sites that are located close to busy roads is therefore precautionary.

2.22 The critical levels for NH_3 have not been incorporated into legislation and are a recommendation made by the United Nations Economic Commission for Europe (UNECE) Executive Body for the Convention on Long-Range Transboundary Air Pollution (CLRTAP) (UNECE, 2013).

Table 1: Annual Mean Critical Levels (NO_x and NH_3)

Pollutant	Critical Level
NOx	30 µg/m^3
NH_3	3 µg/m^3 for higher plants 1 µg/m^3 for lichens and bryophytes

3. Methodology

3.1 This section presents the methodology used to model air quality within the Ashdown Forest SAC and Lewes Downs SAC. The assessment is based on the latest interim traffic data available at the time of reporting. The following sources of information and data have been used to form the basis of the interim air quality assessment:

- Department for Environment, Food and Rural Affairs (Defra)'s Air Quality Background Concentration Maps based on a 2021 base year (Defra, 2024);
- Defra's Emissions Factor Toolkit (EFT) v14.1 (Defra, 2026);
- Driver Vehicle Licencing Agency (DVLA) statistics on licensed road-using cars and light goods vehicles dataset for 2024 (DVLA, 2025);
- Department for Transport (DfT)'s Transport Decarbonisation Plan of future vehicle fleet projections (DfT, 2024);
- Emission rates as published in the Calculator for Road Emissions of Ammonia (CREAM v2A) tool (Air Quality Consultants, 2025);
- 1x1 km modelled nitrogen and acid deposition data and NH_3 background concentrations from the Air Pollution Information System (APIS, 2026);
- Air quality monitoring data for 2022-2025 undertaken by WDC; and
- Interim traffic flow and speed data analysed by East Sussex County Council, WSP and Jacobs, representing the latest available information at the time of assessment.

Pollutants of Interest

3.2 The pollutants of interest with regards to sensitive ecosystems for which critical levels and critical loads exist, and which are included in the air quality modelling and assessment of impacts on the Ashdown Forest SAC and Lewes Downs SAC, are NO_x, NH_3, and nitrogen and acid deposition. Modelling of these pollutants is undertaken to assess the air quality impacts of planned development in the draft Local Plan, both alone and 'in combination' with that which is in the jurisdiction of surrounding authorities.

3.3 Whilst emissions of NO_x from road vehicles are regulated according to Euro standards, emissions of NH_3 are generally not regulated. This means that emissions of NH_3 from individual vehicle types are highly uncertain, particularly as measurements are rarely made (as this is not required for regulatory purposes). The uncertainty associated with the predicted nitrogen deposition rates from NH_3 is also greater than for NO_2, with the NH_3-derived nitrogen deposition rates representing an upper estimate.

3.4 There is currently no tool publicly available for the assessment of road traffic emissions of NH_3 from National Highways, Defra, Natural England, or other nature conservation bodies. However, there is evidence that exclusion of NH_3 from assessments leads to an underestimate of deposited nitrogen (Air Quality Consultants, 2025).

3.5 The methodology used to model NH_3 concentrations from road traffic, using ADMS Roads, and the subsequent contribution to nitrogen deposition within the SACs (described below), is considered the most appropriate that is publicly available at this time. The methodology has been applied by AECOM in several Appropriate Assessments to inform HRAs in neighbouring authorities and further afield including that for Tunbridge Wells Borough Council, the South Downs National Park Authority and Epping Forest District Council.

Nitrogen Oxides

3.6 Detailed dispersion modelling of road traffic emissions of NO_x has been undertaken using the latest version of ADMS Roads (currently v5.1), combined with the latest version – at the time of assessment – of Defra's EFT v14.1. The subsequent contribution of emitted NO_x to nitrogen and acid deposition within the SAC has also been assessed, as well as concentrations of NO_x.

3.7 Future fleet predictions were updated in EFT v14.1 for the fleet operating outside of London. However, the UK government's policy to ban the sale of new petrol and diesel cars and vans by 2035 (recently postponed from 2030) are not accounted for in the fleet information within the current version of the EFT. As such, a more up-to-date fleet projection for the future year fleet has been used, in line with recent DfT policy, which is discussed in more detail below in the "Modelled Vehicle Fleet" subsection. This takes account of the fact that a significant shift in the constitution of the UK vehicle fleet is forecast to arise during the 2030s.

3.8 Associated LAQM tools to the EFT v14.1 currently only support assessment years 2021-2040. AECOM has therefore used 2040 emission and concentration information for any later modelled years (2042). This offers a precautionary approach for Local Plan modelling as it would not account for any improvements in vehicle emission factors in the latter part of the plan period.

Ammonia

3.9 In February 2020, Air Quality Consultants developed and published the Calculator for Road Emissions of Ammonia (CREAM) tool, "*in order to allow tentative predictions regarding trends in traffic-related ammonia emissions over time"*. The tool is based upon remotely sensed pollutant measurements, published real-world fuel consumption data, and ambient measurements of NH_3 recorded in Ashdown Forest (2014-2016).

3.10 The report that was published alongside the CREAM tool states that:

"*It should be recognised that these emissions factors remain uncertain. Using them to make future year predictions will clearly be an improvement on any assessment which omits ammonia. They are also considered to be more robust than the emissions factors contained in the EEA Guidebook, which risk significantly under-predicting ammonia emissions. The emissions factors contained in the CREAM model can be considered to provide the most robust estimate of traffic-related ammonia possible at the present time, but they may be updated in the future as more information becomes available"*.

3.11 The CREAM v2A tool was updated in February 2025 and currently uses vehicle fleet information from Defra's EFT v12.0 which has now been superseded. This reliance on outdated data introduces a degree of uncertainty in the emissions estimates produced by the tool.

3.12 The latest version of ADMS Roads has been employed to model the dispersion of emissions of NH_3 from road traffic, consistent with the approach for modelling emissions of NOx, and the subsequent contribution of emitted NH_3 to nitrogen deposition within the SAC has also been assessed.

Traffic Data

3.13 Traffic flows used within this assessment have been provided to AECOM by Jacobs and WSP in the form of Interim Annual Average Daily Traffic (AADT) flows, and percentage of heavy duty vehicles (HDV). The assessment presented in this report is based on these interim traffic forecasts, issued on 11 August 2026.

3.14 The Ashdown Forest SAC modelled road links are shown in Figure 1, and Lewes Downs SAC road links presented in Figure 2.

3.15 Traffic data were provided for four scenarios:

- Baseline traffic (2023) flows - from traffic counts;
- Future year (2042) Option 1 - from the baseline traffic counts with a growth factor applied;
- Future year (2042) Option 2 - from baseline traffic counts with the Local Plan and accounting for growth from the Local Plan.

A summary of the traffic data used in the air quality assessment is provided in A.1.

Modelled Vehicle Fleet

3.16 For the baseline modelling of the SAC, the nominal EFT v14.1 "Basic Split" rural fleet for the 2023 year was used, as this aligns well with the 2023 base year traffic data, 2023 meteorological data, and 2023 Ashdown Forest SAC monitoring data.

3.17 Vehicle emission factors were derived using Defra's EFT v14.1. The EFT provides emission factors for different vehicle types, fuel types and Euro emission standards and is widely applied in LAQM, Environmental Impact Assessments (EIAs) and Habitats Regulations Assessments (HRAs).

3.18 To ensure the vehicle fleet composition used within the EFT reflects current vehicle characteristics, the most recent Driver and Vehicle Licensing Agency (DVLA) statistics on licensed road-using vehicles were reviewed (DVLA, 2025). This data provides an up-to-date representation of the distribution of vehicle fuel types and technologies within the vehicle fleet.

3.19 For the future assessment year (2040), vehicle emissions were derived using the EFT fleet projection functionality, which accounts for anticipated changes in vehicle technology and fleet turnover over time.

3.20 The current (2024) fleet composition, from which the 2040 fleet projection is based, is derived from the most up-to-date available full-year dataset (2024) of registered light-duty vehicles (LDV) from DVLA (DVLA, 2025). A high-level review of the fleet characteristics for WDC, neighbouring districts, and West and East Sussex counties, revealed a high level of similarity at local and county levels. Given this similarity, and to incorporate a dataset with a greater number of overall vehicles, it was decided to use the fleet characteristics at the combined East Sussex, West Sussex, and Hampshire County level as the starting point for the fleet projections.

3.21 DfT's Decarbonising Transport Plan (TDP) (DfT, 2024), provides projections for the UK's intended decarbonisation of the transport fleet, aligned with achieving Net Zero by 2050. These projections include both high and low ambition scenarios, detailing annual rates of decarbonisation up to 2050. To inform the future vehicle fleet composition, these projections were adjusted and applied within the EFT v14.1 to determine the breakdown of individual fuel types.

3.22 A precautionary approach was adopted by selecting the lower ambition "Decarbonising Transport Upper" scenario. This scenario was used to project the baseline (2023) fleet composition to the future assessment year (2040), providing a conservative estimate of future emissions by assuming a slower rate of fleet decarbonisation.

Receptors

3.23 Pollutant concentrations and deposition rates have been predicted along defined transects within the SAC within 200m of affected roads, in accordance with National Highways guidance for ecological assessments (LA105) (DMRB, 2024), Natural England guidance (Natural England, 2018), and is consistent with the approach taken to modelling impacts on Ashdown Forest for the South Downs National Park, Lewes and Mid Sussex Local Plans. The greatest impacts from changes in road traffic emissions will be observed and modelled closest to the roadside. Consideration of the road network within 200m of the SACs is therefore deemed robust and background concentrations utilised in the assessment account for all other sources that are not defined explicitly in the model.

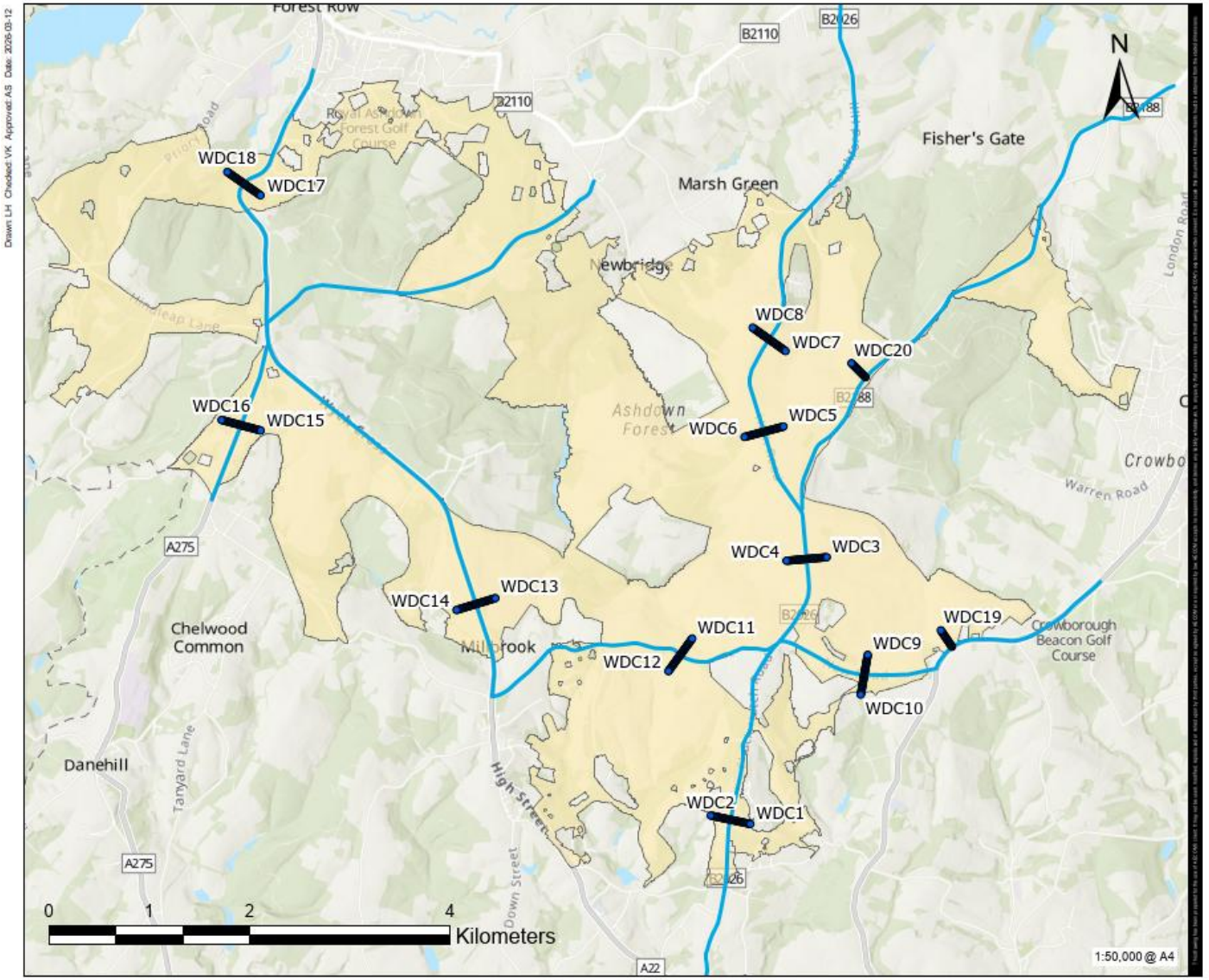
3.24 The transects are situated at key locations where the greatest impacts upon the SACs are likely to occur. The locations are presented in Figure 1 and Figure 2, with further details presented in Annex A.2.

3.25 The receptors are situated at the closest point to the road within the SACs, and spaced every 10m within the transects, up to 200m from the roadside. All receptors are modelled at ground level.

3.26 The greatest impacts will generally occur where both the greatest change in traffic flows is expected, and the sensitive habitat lies closest to the road. This information has been used to select transect locations. The approach taken is to place a transect adjacent to a modelled link (sometimes having a transect either side of the road to account for differences in the dispersion of emissions due to meteorology), with each link being defined as a stretch of road between changes in emissions (i.e. where there are changes in traffic flows and/or speeds).

3.27 The Ashdown Forest SAC modelled transects (Figure 1) and Lewes Downs SAC modelled transects (Figure 2) provide good coverage of the SACs, match well with air quality monitoring locations and previously modelled transects, and avoid modelling in areas where there is only woodland within 200m of the road. This is based on confirmation from Natural England that woodland is not an SAC interest feature, only a Site of Specific Scientific Interest (SSSI) feature.

Figure 1: Ashdown Forest SAC Modelled Road Network and Ecological Receptor Transects



AECOM

PROJECT
Ashdown Forest SAC & Lewes Downs SAC - Air Quality Modelling

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LEGEND
- Ecological Receptor Transects
- Road Links
- SAC

NOTES
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ISSUE PURPOSE
FINAL

PROJECT NUMBER
60778093

FIGURE TITLE
Modelled Road Network and Ecological Transects

FIGURE NUMBER
Figure 1

Figure 2: Lewes Downs SAC Modelled Road Network and Ecological Receptor Transects



Model Setup

3.28 As detailed above, road traffic emissions of NO_x were derived using v14.1 of Defra's EFT and associated guidance and tools (Defra, 2026). For the base year (2023), emission factors and vehicle fleet assumptions representative of the base year were applied. For all future year (2042) scenarios, the 2040 projected fleet as described in the methodology above (Paragraph 3.16) was used with the default 2040 EFT emission factors. Road traffic emissions of NH_3 were derived using emission rates from CREAM V2A (Air Quality Consultants, 2025), combined with the EFT v14.1 vehicle fleet for the relevant year, using the same vehicle fleet methodology as described above for NO_X.

3.29 Detailed dispersion modelling was undertaken using the current version of ADMS-Roads (v5.1) to model concentrations of NO_x and NH_3 using the parameters in Table 2 for the following scenarios:

- Baseline traffic (2023) flows - 2023 AADT, 2023 emission factors and 2023 background concentrations for model verification;
- 2042 Future Baseline – 2023 AADT, 2040 emission factors (latest supported year), 2040 projected vehicle fleet, and 2040 background concentrations (the latest projected year available from Defra);
- Future year (2042) Option 1 - 2042 AADT without Local Plan, 2040 emission factors (latest supported year), 2040 projected vehicle fleet, and 2040 background concentrations; and
- Future year (2042) Option 2 - 2042 AADT with Local Plan, 2040 emission factors (latest supported year), 2040 projected vehicle fleet, and 2040 background concentrations.

3.30 The future baseline is a hypothetical scenario as it applies improvements in vehicle emissions standards to the baseline vehicle fleet without allowing for any traffic growth. However, such an approach enables the 'in combination' effect of development and traffic growth to be seen, unobscured by improvements in emissions technology / performance.

3.31 The difference between the Option 2 and the Option 1 scenarios provides the impact of the Draft Local Plan, alone. The difference between the Option 2 and the 'future baseline' scenarios provides a thorough and precautionary assessment of the impact of the Draft Local Plan 'in combination', as the 'future baseline' accounts for no future growth.

Table 2: General ADMS-Roads Model Conditions

Variables	ADMS-Roads Model Input
Surface roughness at source	0.5 m
Surface roughness at Meteorological Site	0.2 m
Minimum Monin-Obukhov length for stable conditions	30 m
Terrain types	Flat
Receptor location	x, y coordinates determined by GIS, z = 0 m
Emissions	NO_x – Defra's EFT v14.1 NH_3 – CREAM V2A
Meteorological data	1 year (2023) hourly sequential data from Gatwick meteorological station.
Receptors	Ecological transects
Model output	Long-term (annual) mean NO_x and NH_3 concentrations.

Plume Depletion

3.32 Plume depletion due to dry deposition onto vegetation was taken into account in the model. This was enabled by using the ADMS-Roads 'Dry Deposition' module, applying the 'grassland'

deposition rates presented in the Air Quality Technical Advisory Group (AQTAG) deposition velocities that are cited in 2020 IAQM guidance (IAQM, 2020), as shown in Table 3.

3.33 The deposition velocity for NO_2 was applied to raw modelled NO_x. This assumes that 100% of NO_x is emitted as NO_2 and therefore represents an optimistic depletion of NO_x from the atmosphere.

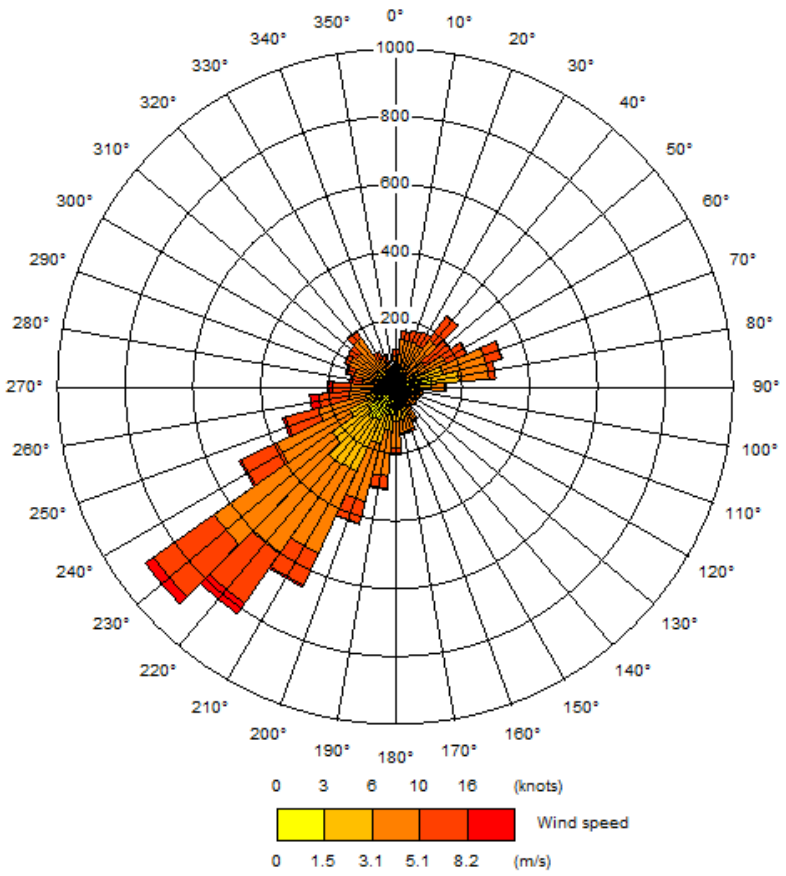
Table 3: Nitrogen Deposition Velocities and Conversion Rates

Pollutant	Habitat	Nitrogen deposition conversion rates	Deposition velocity
NO_2	Grassland / short vegetation	1 µg/m^3 NO_2 = 0.14 kgN/ha/yr	0.0015 m/s
NH_3	Grassland / short vegetation	1 µg/m^3 NH_3 = 5.2 kgN/ha/yr	0.020 m/s

Meteorological Data

3.34 One year (2023) of hourly sequential observation data from Gatwick meteorological station has been used in this assessment to correspond with the baseline traffic data and emission factors. The station is located approximately 26 km and 33 km northwest of Ashdown Forest SAC and Lewes Downs SAC, respectively, and experiences meteorological conditions that are representative of those experienced within the air quality study areas. Figure 3 shows that the dominant direction of wind was from the south-west, as is typical for the UK.

Figure 3: Wind Rose, Gatwick Airport Meteorological Data, 2023



Background Data

3.35 Background concentrations of NO_2 and NO_x for 2023 and 2040 were extracted from Defra's 2021-based 1x1 km background maps (Defra, 2024). Contributions from explicitly modelled source sectors were removed from the background concentrations, in accordance with Defra guidance

(Defra, 2025). The data presented in Table 4 show that the concentrations are predicted to decrease between 2023 and 2040 and NO_x concentrations are well below the Critical Load shown in Table 1.

3.36 Whilst fleet data beyond 2040 are provided within the EFT, 2040 is the latest year for which the accompanying tools are available e.g. mapped background concentrations and the NO_x-to-NO_2 calculator (Defra, 2024).

Table 4: Defra Mapped Background Pollutant Concentrations

Transects	Road Name	Grid Square (X, Y)	Annual Mean Concentrations(µg/m³)			
			2023 NO_2	**2023 NO_x**	**2040 NO_2**	**2040 NO_x**
WDC1	B2026	546500, 127500	7.34	9.39	4.76	5.95
WDC2	B2026	546500, 127500	7.34	9.39	4.76	5.95
WDC3	B2188	547500, 129500	7.22	9.23	4.72	5.89
WDC4	B2188	547500, 129500	7.22	9.23	4.72	5.89
WDC5	B2026	546500, 130500	7.13	9.10	4.68	5.84
WDC6	B2026	546500, 130500	7.13	9.10	4.68	5.84
WDC7	B2026	546500, 131500	7.19	9.18	4.71	5.89
WDC8	B2026	546500, 131500	7.19	9.18	4.71	5.89
WDC9	New Road	547500, 128500	7.25	9.27	4.73	5.91
WDC10	New Road	547500, 128500	7.25	9.27	4.73	5.91
WDC11	Crowborough Road	546500, 128500	7.27	9.29	4.74	5.92
WDC12	Crowborough Road	546500, 128500	7.27	9.29	4.74	5.92
WDC13	A22	544500, 129500	7.35	9.40	4.83	6.04
WDC14	A22	544500, 129500	7.35	9.40	4.83	6.04
WDC15	A275	541500, 131500	7.72	9.90	5.09	6.38
WDC16	A275	541500, 131500	7.72	9.90	5.09	6.38
WDC17	A22	541500, 133500	7.89	10.13	5.14	6.45
WDC18	A22	541500, 133500	7.89	10.13	5.14	6.45
WDC19	A26	548500, 128500	7.48	9.58	4.80	6.00
WDC20	B2188	547500, 131500	7.12	9.08	4.68	5.85
LD1	A26	542500, 110500	9.68	12.61	5.82	7.34
LD2	B2192	542500, 111500	9.18	11.91	5.6	7.05

Note: Sectors removed as emissions included in detailed dispersion modelling: Trunk A road (in of 1x1km grid square)

Monitoring Data

3.37 Monitoring within Ashdown Forest has been undertaken on behalf of WDC (Figure 4). Data for NO_2, NOx and NH_3 is available for 2022-2025. NO_2 concentrations have been annualised using the National Bias adjustment factor for the appropriate year (Defra, 2025) and converted to NOx using the NOx-NO_2 calculator.

The data is presented in Table 5 and

3.38 Table 6.

Figure 4: Air Quality Monitoring Sites in Ashdown Forest SAC

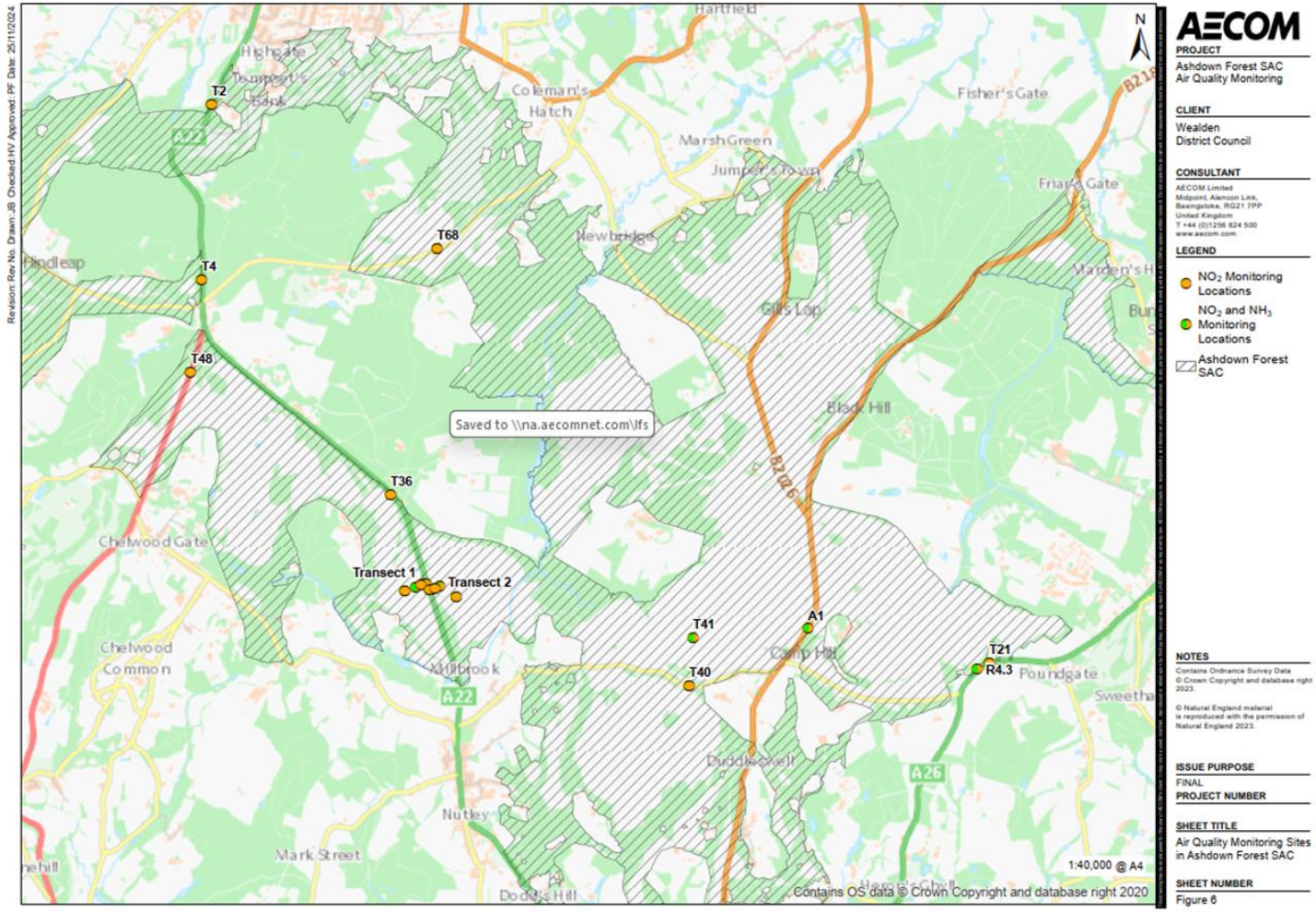


Table 5: Monitored NO_2 and NO_x Concentrations

Tube ID	Annualised Mean Concentrations (µg/m³)							
	2022*		2023		2024		2025	
	NO_2	NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	NO_x
T2	12.83	20.41	11.09	16.80	9.15	12.90	10.86	16.58
T4	25.63	51.37	18.90	34.27	18.81	34.16	20.88	39.25
T21	20.06	37.32	16.16	28.18	16.95	30.11	17.05	30.45
T36	18.90	34.45	13.14	21.38	14.64	24.80	17.10	30.50
T40	8.31	11.27	6.52	7.79	6.91	8.84	7.44	9.91
T41	7.24	9.31	5.642	6.89	6.31	7.54	5.90	7.05
T48	13.03	20.92	12.83	20.59	10.03	14.77	10.24	15.33
A1	9.49	13.73	7.90	10.60	7.55	10.02	7.11	9.27
T68	8.49	11.64	7.55	9.86	6.79	8.71	7.17	9.35
R1.1	27.16	55.97	20.94	39.56	20.62	38.84	22.43	43.43
R1.2	20.11	37.46	14.63	24.72	12.49	20.14	14.84	25.43
R1.3	12.21	19.31	9.49	13.68	8.95	12.70	10.13	15.28
R1.4	10.27	15.18	8.49	11.62	7.87	10.50	9.07	13.08
R1.5	9.03	12.61	7.26	9.22	6.81	8.37	8.03	10.95
R1.6	8.35	11.21	6.58	7.81	5.88	7.06	8.23	11.36
R1.7	7.57	9.63	6.00	7.23	5.87	7.05	6.08	7.22
R1.8	7.90	10.29	6.26	7.49	6.05	7.23	6.03	7.16
R2.1	17.25	30.61	14.89	25.30	15.13	25.95	16.76	29.76
R2.2	16.01	27.74	13.83	22.94	13.11	21.49	14.54	24.75
R2.3	12.82	20.63	10.76	16.33	10.98	16.92	13.94	23.43
R2.4	11.46	17.70	9.47	13.63	9.38	13.58	9.06	13.07
R2.5	9.75	14.10	8.15	10.93	10.62	16.17	8.74	12.41
R2.6	6.90	8.36	6.06	7.31	5.00	6.20	8.39	11.77
R2.7	7.00	8.56	6.47	7.72	6.08	7.28	7.52	10.01
R2.8	6.90	8.36	7.03	9.01	5.86	7.06	6.22	7.42
R4.3	14.32	23.92	12.10	19.19	11.52	18.08	12.87	21.11

Note: This data represents monitored annual mean concentrations for NO_2 following annualisation and bias adjustment. These measured values were used to calculate annual mean NO_x concentrations presented in this table.

* 2022 monitoring started in June, DT23 and DT25 with especially low data capture.

Table 6 Monitored NH_3 Concentrations

Tube ID	Mean Concentrations (µg/m³)			
	2022*	2023	2024	2025
T41	0.15	0.34	0.53	0.84
A1	0.68	0.55	0.72	1.21
R1.1	1.85	1.38	1.61	1.08
R1.3	0.69	0.40	0.57	1.25
R1.4	0.60	0.38	0.49	1.05
R1.5	0.61	0.31	0.57	1.06
R1.7	0.57	0.32	0.27	1.64
R2.1	1.09	0.76	1.09	0.58
R2.3	0.76	0.57	0.68	0.76
R2.4	0.60	0.52	0.57	1.34
R2.5	0.32	0.27	0.40	1.31
R2.7	0.41	0.46	0.51	0.84
R4.3	1.21	0.50	0.63	1.21

Note: * Monitoring started in June 2022, with missing data for July 2022. $ Monitoring data is only available up to September 2025, with data missing for June 2025.

3.39 Monitoring data at Ashdown shows a sharp increase in NH_3 concentrations in 2025, compared to 2023 and 2024 concentrations. Annual mean NH_3 concentrations at Ashdown increased at all but 2 monitoring locations with an average concentration of 0.53 µg/m³ being measured in 2023 compared to an average of 1.06 µg/m³ in 2025, representing an increase in the average of 0.53 µg/m³ (approximately 100%). It should be noted that the two locations which did not experience an increase are both kerbside sites, meaning that they are very close to the road and therefore less influenced by meteorological influenced dispersion conditions.

3.40 Traffic count data for road links from the Department for Transport (DfT) (DfT, 2026) surrounding the Ashdown Forest monitoring locations were reviewed to determine whether changes in road traffic could explain the increase in NH_3 concentrations observed in 2025.

3.41 Road 1 (the A22), is representative of the road serving the majority of transect monitoring locations (R1.4-R1.8 and R2.1-R2.7) showed an increase in AADT flows from 9,695 vehicles/day in 2023 to 9,937 vehicles/day in 2025, equivalent to approximately 2.5%. Similar comparisons were undertaken for all road links with available traffic count data within the Ashdown Forest road network. The changes in traffic flows between 2023 and 2025 were generally small and are not considered sufficient to explain the magnitude of the increase in monitored NH_3 concentrations across the Ashdown Forest SAC.

3.42 A review of the available NH_3 monitoring data in the wider region indicates that the increase observed at Ashdown between 2023 and 2025 is not an isolated occurrence. Comparable increases in NH_3 monitoring data were also recorded at four nearby rural monitoring sites. The change between 2023 and 2025 ranged from 0.07 µg/m³ to 0.35 µg/m³, with all comparison sites showing higher concentrations in 2025 than in 2023. In particular, Lullington Heath increased by 0.32 µg/m³ (0.284 to 0.607 µg/m³), an increase of approximately 114%. Percentage increases in other sites include Detling (~16%), Old Winchester Hill (~36%) and Thursley Common (~47%).

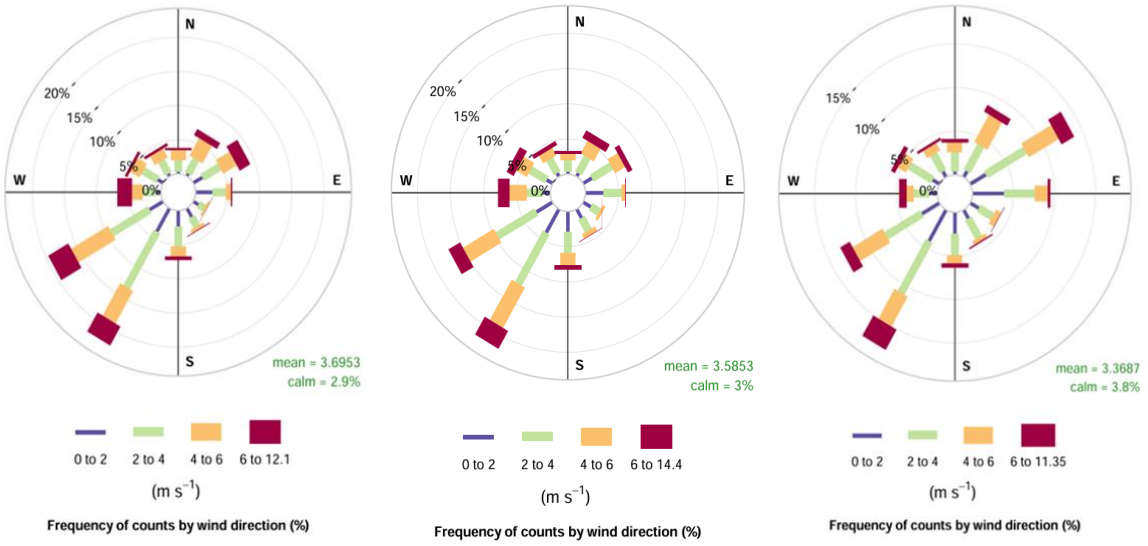
3.43 The consistent increase across all nearby monitoring locations suggests that the elevated concentration recorded at Ashdown Forest is likely to reflect a broader regional variation in atmospheric NH_3 concentrations between the two years, rather than a site-specific anomaly.

3.44 Meteorological data were obtained from the NOAA Integrated Surface Database (ISD), a quality-controlled dataset comprising observations from established monitoring stations to further review this trend. The dataset provides quality-controlled hourly observations, including wind speed and

direction. NOAA data been analysed to assess whether changes in dispersion conditions may have influenced the monitored concentrations (NOAA, 2025).

3.45 Comparison of the annual and seasonal wind roses in Figure 5 indicates that average wind speeds were generally lower and the proportion of calm conditions was higher during 2025 than in 2023 and 2024. For Gatwick, calm conditions increased from 2.4% during spring 2023 and 2024 to 4.2% during spring 2025, and from 2.6% to 3.2% during winter 2023 and 2024 to 4.9% during winter 2025.

Figure 5: Annual wind roses for Gatwick meteorological station - 2023 - 2024 - 2025



3.46 Reduced wind speeds and more frequent calm periods can limit atmospheric dispersion, allowing locally emitted NH_3 to accumulate leading to elevated concentrations at the monitoring sites. The increase in NH_3 concentrations recorded during 2025 therefore may, in part, reflect less favourable dispersion conditions alongside changes in the transport of emissions from surrounding sources.

Ecological Data

3.47 The Air Pollution Information System (APIS[3]) provides '*a searchable database and information on pollutants and their impacts on habitats and species*'. Data for the appropriate habitats have been applied for each receptor in the study. This includes critical loads of nitrogen and the average nitrogen and acid deposition rates to the habitat, as presented in Table 7. It should be noted that the critical loads (both nitrogen and acid) differ between the Ashdown Forest and Lewes Downs SACs in Table 7 due to the presence of different sensitive features.

3.48 While gorse scrub and other shrubs are present in Ashdown Forest SAC, they are not of significance to heathland integrity in dense stands. The deposition velocity to short vegetation is applicable where such shrubs are interspersed as part of the heathland matrix. Lewes Downs SAC is designated for semi-natural dry calcareous grassland, which is sensitive to nitrogen and NH_3 deposition and includes rare orchid species. The deposition velocity to short vegetation is therefore also applicable.

3.49 Background concentrations of NH_3 were also sourced from modelled maps available from APIS, thereby accounting for all sources that are not explicitly defined in the model. The NH_3 background concentrations from APIS presented in Table 7 are greater than the average monitored concentration of 0.16µg/m^3, which is used in the Ashdown Forest SAC model verification and calculations for the baseline and future year assessments.

3.50 In order to create a robust and scientifically agreed projection for background nitrogen deposition trends in the UK, even allowing for growth, the Joint Nature Conservation Committee (JNCC) commissioned the Nitrogen Futures project, which reported in 2020 (JNCC, 2020). The JNCC Nitrogen Futures project investigated whether a net improvement in nitrogen deposition

[3] https://www.apis.ac.uk/

(including expected development over the same period) was expected to occur to 2030 under a range of scenarios ranging from the most cautious scenario (Business As Usual (BAU), reflecting simply existing emission reduction commitments / measures already in place) to much more ambitious scenarios that would require varying amounts of additional, currently uncommitted, measures from the UK government and devolved administrations.

3.51 The report concluded that *'The scenario modelling predicts a substantial decrease in risk of impacts on sensitive vegetation by 2030, under the most likely future baseline [a scenario called '2030 NAPCP+DA (NECR NOx)']. This is estimated to achieve the UK Government's Clean Air Strategy (CAS) target for England, defined as a 17% decrease in total reactive N deposition onto protected priority sensitive habitats, with a predicted 18.9% decrease [for England] from a 2016 base year'*. The report predicted a fall in nitrogen deposition by 2030 under every modelled scenario, including the most cautious (2030 BAU). For the BAU scenario, nitrogen deposition was forecast to decrease between 2017 and 2030 from 277.1 kt N to 239.5 kt N (i.e. a reduction of 37.6 kt N).

3.52 Background nitrogen deposition at Ashdown Forest was specifically discussed in Annex 5 of the report as a case study. The report predicted a 1-2 kgN/ha/yr reduction in background nitrogen deposition to low growing vegetation (i.e. the heathland interest feature) at the SAC between 2016 and 2030, depending on scenario, and noted that *'The emission reductions predicted between the 2017 and 2030 baseline scenarios cover a range of sectors, including road transport, and so improvements are predicted to occur over the whole site, including the worst-affected roadside locations'*. This was the case under all modelled scenarios.

3.53 In summary, the Nitrogen Futures study forecast a minimum rate of improvement in background nitrogen deposition of 0.07 kgN/ha/yr at Ashdown Forest, with other forecasts indicating a greater rate of reduction. In line with the forecast for Ashdown Forest, and therefore taking a precautionary approach, this study applies a projected decrease in background nitrogen of 0.07 kgN/ha/yr. The corresponding decrease is also reflected in the total average acid deposition rate for nitrogen in the future scenarios.

3.54 Over the 17-year period (2023-2040), this equates to a reduction in the APIS background nitrogen deposition rate presented in Table 7 (3-year average, 2020-22) of 1.19 kg N/ha/yr for the 2042 model scenarios. This decrease is also reflected in the total average acid deposition rate for nitrogen in the 2042 scenarios (reduction of 0.09 keq/ha/yr N).

3.55 No other adjustments to the 2023 APIS data (APIS, 2026) have been made from those presented for any modelled scenario.

3.56 Not to make *any* allowance for improvements in emission factors or background concentrations would result in increased emissions, and hence concentrations, over the plan period as an increased number of vehicles is expected on the roads. This is not expected to occur as can be seen from previous long-term trends in the UK, which show the slowing of improvements over extended periods, not worsening. Historical records (e.g. Defra monitoring trends of NOx) show that the increasing number of vehicles entering the fleet is offset by improvements in the emissions of the newer vehicles and the removal of older vehicles.

3.57 In 2018 the Court of Justice of the European Union (CJEU) ruled in cases C-293/17 and C-294/17 (often dubbed the Dutch Nitrogen cases). One aspect of that ruling concerned the extent to which autonomous measures (i.e. improvements in baseline nitrogen deposition that are not attributable to the Local Plan) can be taken into account in appropriate assessment. The CJEU ruled that it *was* legally compliant to take such autonomous measures into account provided the benefits were not 'uncertain' (paras. 130&132). Note that previous case law on the interpretation of the Habitats Directive has clarified that 'certain' does not mean absolute certainty but '*where no reasonable scientific doubt remains'*[4] [emphasis added].

3.58 The forecasts for improvements in NO_x emission factors, background concentrations and background deposition rates used in this report are considered to be precautionary but realistic and have the requisite level of certainty. This is because a) data are used and to a large extent they build upon established historic trends in NO_x and oxidised nitrogen deposition and b) for

[4] Case C-239/04 Commission v Portugal [2006] ECR 10183, para. 24; Holohan et al vs. An Bord Pleanála (C-461/17), para. 33

total nitrogen deposition they are based on a cautious use of evidenced central government forecasts associated with uptake of technology that has either already been introduced or is widely expected within the professional community to be introduced and effective before 2030, as illustrated in the Nitrogen Futures project:

- When it comes to forecasting the NO_x emissions of additional traffic, it would overestimate those emissions to assume that by 2042 the emission factors will be no different to those in 2023; to make such an assumption would be to fail to take account of the expected continued uptake of Euro 6 compliant vehicles between 2023 and 2042 and would assume (putting it simply) that no motorists would replace their cars during the entire plan period. For example, the latest (Euro 6/VI) emissions standard only became mandatory in 2014 (for heavy duty vehicles) and 2015 (for cars) and the effects will not therefore be visible in the data available from APIS because relatively few people will have been driving vehicles compliant with that standard as early as 2023. Far more drivers can be expected to be using Euro 6 compliant vehicles by the end of the Local Plan period.
- The vehicle emission factors within the air quality modelling tools available only project out to 2040. As the fuel technology is projected out to 2040 following the DfT decarbonisation pathway, and the breakdown of euro classifications published in the EFT extends to 2040, the 2042 assessment year does not recognise continued uptake of more stringent emissions standards. Therefore, the results are likely to be cautious in terms of emissions related to vehicle age.

Table 7: APIS Data for Ecological Transects for 2022-2024

Transect	Average N Dep kgN/ha/yr[$]	Critical Load N Dep kgN/ha/yr	Total Av. Acid Dep keq/ha/yr N[$]	Critical Load N Acid Dep keq/ha/yr MinCLMaxN	Background NH_3 (µg/m^3)*
WDC1	12.48	5 - 15	0.89	0.809	0.93
WDC2	12.48	5 - 15	0.89	0.809	0.93
WDC3	12.67	5 - 15	0.90	0.809	0.89
WDC4	12.67	5 - 15	0.90	0.809	0.89
WDC5	12.89	5 - 15	0.92	0.809	0.88
WDC6	12.89	5 - 15	0.92	0.809	0.88
WDC7	13.03	5 - 15	0.92	0.809	0.88
WDC8	13.03	5 - 15	0.92	0.809	0.88
WDC9	12.53	5 - 15	0.89	0.809	0.89
WDC10	12.53	5 - 15	0.89	0.809	0.89
WDC11	12.62	5 - 15	0.90	0.809	0.79
WDC12	12.62	5 - 15	0.90	0.809	0.90
WDC13	12.94	5 - 15	0.92	0.809	0.89
WDC14	12.94	5 - 15	0.92	0.809	0.89
WDC15	13.37	5 - 15	0.95	0.809	0.89
WDC16	13.37	5 - 15	0.95	0.809	0.89
WDC17	13.38	5 - 15	0.95	0.809	0.93
WDC18	13.38	5 - 15	0.95	0.809	0.93
WDC19	12.57	5 - 15	0.90	0.809	0.88
WDC20	12.94	5 - 15	0.92	0.809	0.90
LD1	12.30	10 - 20	0.89	4.856	1.07
LD2	12.45	10 - 20	0.90	4.856	1.08

Note: [$] Average nitrogen deposition rate (kgN/ha/yr) projected to decrease by 1.33 kgN/ha/yr from base year to future year (i.e. 0.07 x 17 years = 1.19 kgN/ha/yr). This results in a corresponding decrease in acid deposition of 0.09 keq/ha/yr N.

Verification

3.59 Model verification is the process by which the performance of the model is assessed to identify any discrepancies between modelled and measured concentrations at air quality monitoring sites within the study area.

3.60 Monitoring data have been used to make a direct comparison between 'road source' modelled and measured concentrations at the same location, so as to calculate an adjustment factor – or 'verification factor' – for each pollutant, to enable adjustment of the model results to account for any model bias.

3.61 Defra provide guidance regarding verification of NO_x and NO_2 concentrations (Defra, 2025). There are currently no guidelines for verifying against NH_3 measurements. However, the same principles have been followed as for other road sources (i.e. comparing modelled and monitored road source contributions, separate from background concentrations). This is aligned with general air quality modelling convention.

3.62 Statistical evaluations have been used to evaluate the model performance e.g. correlation coefficient, fractional bias and Root Mean Square Error (RMSE), allowing for a better understanding of how the model results agree or diverge from the monitored observations.

NOx Verification

3.63 Modelled predictions were made for annual mean NO_x concentrations at monitoring locations in the Ashdown Forest SAC to compare monitored and modelled pollutant concentrations. The comparison of model outputs was made against 2023 monitoring data to correspond with the baseline year of assessment. Due to the absence of suitable air quality monitoring data within the Lewes Downs SAC model domain, site-specific verification could not be undertaken for this location.

3.64 Following detailed analysis of each monitoring location in the study area, a total of 8 roadside monitoring sites were taken forward in the model verification process. Duplicate sites on transects were removed, as well as T40, A1, and T68 which were lower than background concentrations. Table 8 details the sites used in model verification and these are shown in Figure 6.

3.65 Model performance was analysed at these monitoring sites. Without adjustment the RMSE was 3.8 µg/m^3. A model adjustment factor was calculated (1.51) and applied to the model results. After adjustment the RMSE was reduced to 3.0 µg/m^3 as shown in Table 9.

3.66 The factor of 1.51 was applied to both Ashdown and Lewes Downs SAC, as this is higher than the standard adjustment factor commonly adopted in the absence of appropriate local monitoring data and is therefore considered to be conservative in professional practice.

Table 8: Local Authority NO_2 Monitoring Sites used in Model Verification

Site ID	Total modelled NO_2 before adjustment (µg/m^3)	Total modelled NO_2 after adjustment (µg/m^3)
T2	11.00	12.58
T4	10.57	11.91
T21	13.90	16.97
T36	10.01	11.24
T48	9.52	10.42
R1.3	9.60	10.65
R2.3	11.01	12.75
R4.3	11.92	14.09

Table 9: NO_2 Model Verification details

Number of Sites	Number of Monitoring Sites within ±10% of the Monitored Concentration Pre-Adjustment	RMSE pre-adjustment (µg/m^3)	Model Adjustment Factor Applied	Number of Sites within ±10% of the Monitored Concentration Post Adjustment	RMSE post adjustment (µg/m^3)	Fractional Bias post adjustment)
17	7	3.8	1.51	1	3.0	0.0

NH_3 Verification

3.67 Modelled predictions were made for annual mean NH_3 concentrations at monitoring locations in order to compare monitored and modelled pollutant concentrations. The comparison of model outputs was made against 2023 monitoring data so as to correspond with the baseline year of assessment.

3.68 Following detailed analysis of each monitoring location in the study area, a total of 3 monitoring sites were taken forward in the model verification process. Duplicate sites on transects were removed, as well as background sites. R1.1 and R2.1 were considered too close to the kerb, and R1.5 was below the background concentrations. Table 10 summarises the sites used in model verification, and these are indicated in Figure 6.

3.69 A model adjustment factor was calculated (0.25) and applied to the model results. The RMSE was reduced to 0.06 µg/m^3 (from 0.42 µg/m^3) following adjustment. It should be noted that the 0.28 verification factor derived above applies only to the Ashdown Forest SAC, where site-specific NH_3 monitoring data were available to support this adjustment. In the absence of equivalent monitoring data within the Lewes Downs SAC model domain, a verification factor of 1.0 has been applied to NH_3 model outputs for Lewes Downs.

Table 10: Local Authority NH_3 Monitoring Sites used in Model Verification

Site ID	Total modelled NH_3 before adjustment (µg/m^3)	Total modelled NH_3 after adjustment (µg/m^3)
R1.3	0.41	0.42
R2.3	0.70	0.49
R4.3	0.88	0.54

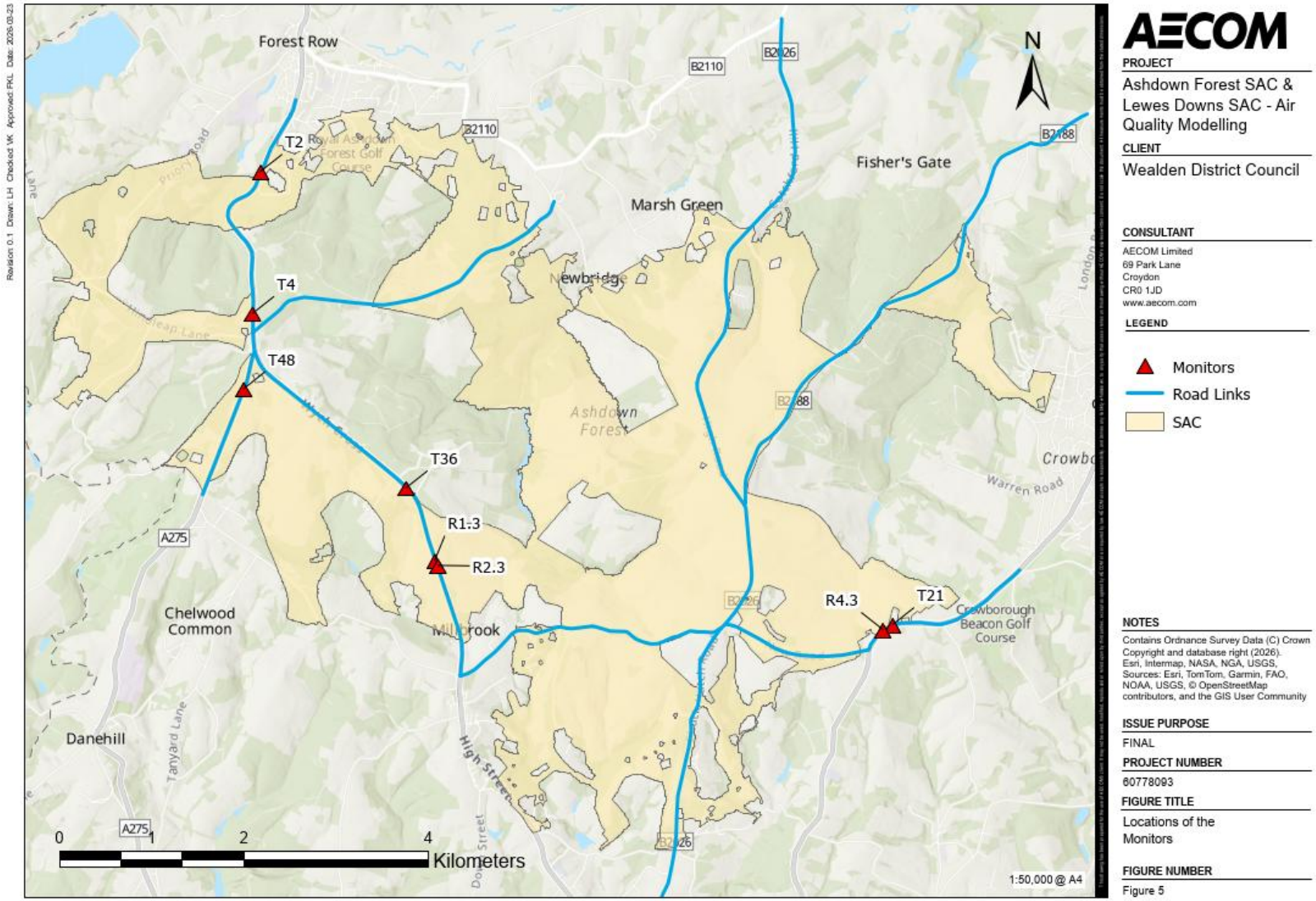
Table 11: NH_3 Model Verification details

Number of Sites	Number of Monitoring Sites within ±10% of the Monitored Concentration Pre-Adjustment	RMSE pre-adjustment (µg/m^3)	Model Adjustment Factor Applied	Number of Sites within ±10% of the Monitored Concentration Post Adjustment	RMSE post adjustment (µg/m^3)	Fractional Bias post adjustment)
10	0	0.4	0.25	1	0.1	0.0

Deposition velocities

Deposited nitrogen from road traffic derived NH_3 and NO_2 was estimated using the deposition velocities presented in Table 3. The conversion rates were applied to the final modelled NO_2 and NH_3 concentrations from road traffic, to provide kgN/ha/year. All of the transects were modelled and analysed as heathland / grassland (i.e. 'short vegetation' was used at all locations as Ashdown Forest SAC is designated for heathland and Lewes Downs SAC is designated for calcareous grassland).

Figure 6: WDC Monitoring Sites used for verification



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5. Annexes

A.1 Traffic Data

Link	2023 Base			2042 Option 1			2042 Option 2		
	AADT	HDV %	Speed (kph)	AADT	HDV %	Speed (kph)	AADT	HDV %	Speed (kph)
Road 0 - A22	11626	5.9	71.5	12998	4.5	70.5	12828	3.7	71.0
Road 1 – A22	15836	4.1	75.0	17339	4.2	74.5	16614	3.3	75.5
Road 2 – A22	15836	4.1	75.0	17339	4.2	74.5	16614	3.3	75.5
Road 3 – A26	23253	4.1	70.0	26986	3.5	65.5	26488	3.4	66.5
Road 4 – A275	6622	4.5	76.5	8284	3.7	76.0	9110	3.7	75.5
Road 5 – Crowborough Road	2675	3.4	51.5	3093	4.5	51.0	3668	3.9	51.0
Road 6 – B2026	9354	3.0	62.5	13961	2.7	58.5	13127	2.7	59.5
Road 7 – B2026	9077	2.8	61.0	14896	2.5	56.0	14417	2.5	56.5
Road 8 – B2188	3346	0.3	63.5	4425	0.3	63.5	4357	0.3	63.5
Road 9 – New Road	8486	3.0	48.0	10638	2.8	43.5	11349	2.7	44.0
Road 10 – Colemans Hatch Road	2613	3.4	50.0	3488	2.9	49.5	3904	2.9	49.5
Road 11 – B2026	3729	1.5	52.5	8192	2.1	50.0	7769	2.1	50.0
Road 12 – B2026	14538	2.2	51.0	25734	2.1	48.0	24834	2.1	48.5
Road 13 – Crowborough Road	2675	3.4	51.5	3093	4.5	51.0	3668	3.9	51.0
Road 14 – B2188	3370	4.2	63.0	4401	3.6	62.5	4301	3.5	63.0
Road 15 – A26	21719	4.4	70.5	25439	3.7	65.5	24878	3.7	64.5
Road 16 – A275	6622	4.5	76.5	8284	3.7	76.0	9110	3.7	75.5
Road 17 – A22	9649	6.6	35.0	10577	5.0	33.5	10381	4.1	34.0
Road 18 – A22	9649	6.6	45.5	10577	5.0	45.0	10381	4.1	45.0
Road 19 – B2026	8466	3.3	63.5	13234	2.8	59.5	12584	2.8	60.5
Road 20 – A22	14538	2.2	51.0	25734	2.1	48.0	24834	2.1	48.5
Lewes Road 0 – B2192	16240	4.0	44.5	20119	3.5	40.5	22370	3.3	46.0

Link	2023 Base			2042 Option 1			2042 Option 2		
	AADT	HDV %	Speed (kph)	AADT	HDV %	Speed (kph)	AADT	HDV %	Speed (kph)
Lewes Road 1 – B2192	16240	4.0	57.5	20119	3.5	55.0	22370	3.3	53.0
Lewes Road 2 – A26	16259	4.3	29.5	17767	4.1	28.5	14953	4.0	23.5
Lewes Road 3 – A26	32478	4.2	26.5	37425	3.8	23.5	37280	3.6	24.0
Lewes Road 4 – A26	29099	4.3	34.0	33732	3.8	32.0	33529	3.7	32.0

A.2 Modelled Ecological Receptor Locations

Transect WDC1	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC2	X co-ordinate (m)	Y co-ordinate (m)
WDC1_1m	546585	127072	WDC2_1m	546579	127073
WDC1_10m	546594	127070	WDC2_10m	546570	127075
WDC1_20m	546604	127068	WDC2_20m	546560	127077
WDC1_30m	546614	127066	WDC2_30m	546550	127079
WDC1_40m	546624	127064	WDC2_40m	546541	127081
WDC1_50m	546633	127062	WDC2_50m	546531	127083
WDC1_60m	546643	127060	WDC2_60m	546521	127086
WDC1_70m	546653	127058	WDC2_70m	546511	127088
WDC1_80m	546663	127055	WDC2_80m	546501	127090
WDC1_90m	546672	127053	WDC2_90m	546492	127092
WDC1_100m	546682	127051	WDC2_100m	546482	127094
WDC1_110m	546692	127049	WDC2_110m	546472	127096
WDC1_120m	546702	127047	WDC2_120m	546462	127098
WDC1_130m	546712	127045	WDC2_130m	546453	127100
WDC1_140m	546721	127043	WDC2_140m	546443	127102
WDC1_150m	546731	127041	WDC2_150m	546433	127104
WDC1_160m	546741	127039	WDC2_160m	546423	127106
WDC1_170m	546751	127037	WDC2_170m	546413	127108
WDC1_180m	546761	127035	WDC2_180m	546404	127110
WDC1_190m	546770	127033	WDC2_190m	546394	127113
WDC1_200m	546780	127031	WDC2_200m	546384	127115
Transect WDC3	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC4**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC3_1m	547344	129673	WDC4_1m	547338	129672
WDC3_10m	547353	129673	WDC4_10m	547329	129671
WDC3_20m	547363	129674	WDC4_20m	547319	129670
WDC3_30m	547373	129675	WDC4_30m	547309	129669
WDC3_40m	547383	129676	WDC4_40m	547299	129669
WDC3_50m	547393	129677	WDC4_50m	547289	129668
WDC3_60m	547403	129678	WDC4_60m	547279	129667
WDC3_70m	547413	129679	WDC4_70m	547269	129666
WDC3_80m	547423	129679	WDC4_80m	547259	129665
WDC3_90m	547433	129680	WDC4_90m	547249	129664
WDC3_100m	547443	129681	WDC4_100m	547239	129663
WDC3_110m	547453	129682	WDC4_110m	547229	129662
WDC3_120m	547463	129683	WDC4_120m	547219	129662
WDC3_130m	547473	129684	WDC4_130m	547209	129661

WDC3_140m	547483	129685	WDC4_140m	547199	129660
WDC3_150m	547493	129686	WDC4_150m	547189	129659
WDC3_160m	547503	129686	WDC4_160m	547179	129658
WDC3_170m	547512	129687	WDC4_170m	547169	129657
WDC3_180m	547522	129688	WDC4_180m	547159	129656
WDC3_190m	547532	129689	WDC4_190m	547149	129655
WDC3_200m	547542	129690	WDC4_200m	547139	129655
Transect WDC5	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC6**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC5_1m	546918	130941	WDC6_1m	546913	130940
WDC5_10m	546927	130944	WDC6_10m	546904	130938
WDC5_20m	546937	130946	WDC6_20m	546895	130935
WDC5_30m	546946	130949	WDC6_30m	546885	130932
WDC5_40m	546956	130951	WDC6_40m	546875	130930
WDC5_50m	546966	130954	WDC6_50m	546866	130927
WDC5_60m	546975	130956	WDC6_60m	546856	130925
WDC5_70m	546985	130959	WDC6_70m	546846	130922
WDC5_80m	546995	130962	WDC6_80m	546837	130920
WDC5_90m	547004	130964	WDC6_90m	546827	130917
WDC5_100m	547014	130967	WDC6_100m	546817	130914
WDC5_110m	547024	130969	WDC6_110m	546808	130912
WDC5_120m	547033	130972	WDC6_120m	546798	130909
WDC5_130m	547043	130975	WDC6_130m	546789	130907
WDC5_140m	547053	130977	WDC6_140m	546779	130904
WDC5_150m	547062	130980	WDC6_150m	546769	130901
WDC5_160m	547072	130982	WDC6_160m	546760	130899
WDC5_170m	547082	130985	WDC6_170m	546750	130896
WDC5_180m	547091	130988	WDC6_180m	546740	130894
WDC5_190m	547101	130990	WDC6_190m	546731	130891
WDC5_200m	547110	130993	WDC6_200m	546721	130888
Transect WDC7	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC8**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC7_1m	546969	131861	WDC8_1m	546965	131863
WDC7_10m	546976	131855	WDC8_10m	546957	131868
WDC7_20m	546985	131850	WDC8_20m	546949	131874
WDC7_30m	546993	131844	WDC8_30m	546941	131880
WDC7_40m	547001	131838	WDC8_40m	546933	131886
WDC7_50m	547009	131832	WDC8_50m	546925	131892
WDC7_60m	547017	131826	WDC8_60m	546916	131898
WDC7_70m	547025	131820	WDC8_70m	546908	131903
WDC7_80m	547033	131815	WDC8_80m	546900	131909

WDC7_90m	547042	131809	WDC8_90m	546892	131915
WDC7_100m	547050	131803	WDC8_100m	546884	131921
WDC7_110m	547058	131797	WDC8_110m	546876	131927
WDC7_120m	547066	131791	WDC8_120m	546868	131932
WDC7_130m	547074	131786	WDC8_130m	546860	131938
WDC7_140m	547082	131780	WDC8_140m	546851	131944
WDC7_150m	547090	131774	WDC8_150m	546843	131950
WDC7_160m	547099	131768	WDC8_160m	546835	131956
WDC7_170m	547107	131762	WDC8_170m	546827	131961
WDC7_180m	547115	131757	WDC8_180m	546819	131967
WDC7_190m	547123	131751	WDC8_190m	546811	131973
WDC7_200m	547131	131745	WDC8_200m	546803	131979
Transect WDC9	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC10**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC9_1m	547915	128521	WDC10_1m	547915	128515
WDC9_10m	547917	128530	WDC10_10m	547914	128506
WDC9_20m	547919	128540	WDC10_20m	547912	128496
WDC9_30m	547921	128550	WDC10_30m	547910	128486
WDC9_40m	547922	128560	WDC10_40m	547908	128476
WDC9_50m	547924	128569	WDC10_50m	547907	128467
WDC9_60m	547926	128579	WDC10_60m	547905	128457
WDC9_70m	547927	128589	WDC10_70m	547903	128447
WDC9_80m	547929	128599	WDC10_80m	547901	128437
WDC9_90m	547931	128609	WDC10_90m	547900	128427
WDC9_100m	547933	128619	WDC10_100m	547898	128417
WDC9_110m	547934	128629	WDC10_110m	547896	128407
WDC9_120m	547936	128638	WDC10_120m	547894	128398
WDC9_130m	547938	128648	WDC10_130m	547893	128388
WDC9_140m	547940	128658	WDC10_140m	547891	128378
WDC9_150m	547941	128668	WDC10_150m	547889	128368
WDC9_160m	547943	128678	WDC10_160m	547888	128358
WDC9_170m	547945	128688	WDC10_170m	547886	128348
WDC9_180m	547947	128697	WDC10_180m	547884	128338
WDC9_190m	547948	128707	WDC10_190m	547882	128329
WDC9_200m	547950	128717	WDC10_200m	547881	128319
Transect WDC11	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC12**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC11_1m	546084	128719	WDC12_1m	546080	128714
WDC11_10m	546089	128726	WDC12_10m	546075	128707
WDC11_20m	546095	128734	WDC12_20m	546069	128699
WDC11_30m	546101	128742	WDC12_30m	546063	128691

WDC11_40m	546107	128750	WDC12_40m	546057	128683
WDC11_50m	546112	128758	WDC12_50m	546051	128675
WDC11_60m	546118	128767	WDC12_60m	546045	128667
WDC11_70m	546124	128775	WDC12_70m	546040	128659
WDC11_80m	546130	128783	WDC12_80m	546034	128650
WDC11_90m	546136	128791	WDC12_90m	546028	128642
WDC11_100m	546142	128799	WDC12_100m	546022	128634
WDC11_110m	546148	128807	WDC12_110m	546016	128626
WDC11_120m	546154	128815	WDC12_120m	546010	128618
WDC11_130m	546159	128823	WDC12_130m	546004	128610
WDC11_140m	546165	128831	WDC12_140m	545998	128602
WDC11_150m	546171	128839	WDC12_150m	545993	128594
WDC11_160m	546177	128847	WDC12_160m	545987	128586
WDC11_170m	546183	128856	WDC12_170m	545981	128578
WDC11_180m	546189	128864	WDC12_180m	545975	128570
WDC11_190m	546195	128872	WDC12_190m	545969	128561
WDC11_200m	546201	128880	WDC12_200m	545963	128553

Transect WDC13	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC14	X co-ordinate (m)	Y co-ordinate (m)
WDC13_1m	544048	129224	WDC14_1m	544041	129222
WDC13_10m	544057	129226	WDC14_10m	544032	129219
WDC13_20m	544066	129229	WDC14_20m	544023	129216
WDC13_30m	544076	129232	WDC14_30m	544013	129213
WDC13_40m	544085	129235	WDC14_40m	544004	129210
WDC13_50m	544095	129238	WDC14_50m	543994	129207
WDC13_60m	544104	129241	WDC14_60m	543984	129204
WDC13_70m	544114	129244	WDC14_70m	543975	129202
WDC13_80m	544124	129247	WDC14_80m	543965	129199
WDC13_90m	544133	129250	WDC14_90m	543956	129196
WDC13_100m	544143	129253	WDC14_100m	543946	129193
WDC13_110m	544152	129256	WDC14_110m	543937	129190
WDC13_120m	544162	129259	WDC14_120m	543927	129187
WDC13_130m	544171	129261	WDC14_130m	543918	129184
WDC13_140m	544181	129264	WDC14_140m	543908	129181
WDC13_150m	544191	129267	WDC14_150m	543898	129178
WDC13_160m	544200	129270	WDC14_160m	543889	129175
WDC13_170m	544210	129273	WDC14_170m	543879	129172
WDC13_180m	544219	129276	WDC14_180m	543870	129169
WDC13_190m	544229	129279	WDC14_190m	543860	129166
WDC13_200m	544238	129282	WDC14_200m	543851	129164

Transect WDC15	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC16	X co-ordinate (m)	Y co-ordinate (m)
WDC15_1m	541706	131005	WDC16_1m	541700	131007
WDC15_10m	541715	131002	WDC16_10m	541691	131009
WDC15_20m	541725	131000	WDC16_20m	541682	131012
WDC15_30m	541735	130997	WDC16_30m	541672	131014
WDC15_40m	541744	130995	WDC16_40m	541662	131017
WDC15_50m	541754	130992	WDC16_50m	541653	131020
WDC15_60m	541763	130989	WDC16_60m	541643	131022
WDC15_70m	541773	130987	WDC16_70m	541633	131025
WDC15_80m	541783	130984	WDC16_80m	541624	131027
WDC15_90m	541792	130982	WDC16_90m	541614	131030
WDC15_100m	541802	130979	WDC16_100m	541605	131033
WDC15_110m	541812	130976	WDC16_110m	541595	131035
WDC15_120m	541821	130974	WDC16_120m	541585	131038
WDC15_130m	541831	130971	WDC16_130m	541576	131040
WDC15_140m	541841	130969	WDC16_140m	541566	131043
WDC15_150m	541850	130966	WDC16_150m	541556	131046
WDC15_160m	541860	130964	WDC16_160m	541547	131048
WDC15_170m	541870	130961	WDC16_170m	541537	131051
WDC15_180m	541879	130958	WDC16_180m	541527	131053
WDC15_190m	541889	130956	WDC16_190m	541518	131056
WDC15_200m	541899	130953	WDC16_200m	541508	131058

Transect WDC17	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC18	X co-ordinate (m)	Y co-ordinate (m)
WDC17_1m	541734	133412	WDC18_1m	541728	133417
WDC17_10m	541741	133407	WDC18_10m	541721	133422
WDC17_20m	541750	133401	WDC18_20m	541713	133428
WDC17_30m	541758	133395	WDC18_30m	541704	133434
WDC17_40m	541766	133390	WDC18_40m	541696	133439
WDC17_50m	541774	133384	WDC18_50m	541688	133445
WDC17_60m	541782	133378	WDC18_60m	541680	133451
WDC17_70m	541790	133372	WDC18_70m	541672	133456
WDC17_80m	541799	133367	WDC18_80m	541663	133462
WDC17_90m	541807	133361	WDC18_90m	541655	133468
WDC17_100m	541815	133355	WDC18_100m	541647	133474
WDC17_110m	541823	133350	WDC18_110m	541639	133479
WDC17_120m	541831	133344	WDC18_120m	541631	133485
WDC17_130m	541840	133338	WDC18_130m	541622	133491
WDC17_140m	541848	133332	WDC18_140m	541614	133497
WDC17_150m	541856	133327	WDC18_150m	541606	133502

WDC17_160m	541864	133321	WDC18_160m	541598	133508
WDC17_170m	541872	133315	WDC18_170m	541590	133514
WDC17_180m	541881	133309	WDC18_180m	541582	133520
WDC17_190m	541889	133304	WDC18_190m	541573	133525
WDC17_200m	541897	133298	WDC18_200m	541565	133531
Transect WDC19	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC20**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC19_1m	548790	128796	WDC20_1m	547928	131484
WDC19_10m	548785	128804	WDC20_10m	547922	131490
WDC19_20m	548779	128812	WDC20_20m	547915	131497
WDC19_30m	548774	128820	WDC20_30m	547908	131504
WDC19_40m	548768	128829	WDC20_40m	547901	131511
WDC19_50m	548763	128837	WDC20_50m	547894	131518
WDC19_60m	548757	128845	WDC20_60m	547887	131525
WDC19_70m	548751	128854	WDC20_70m	547880	131533
WDC19_80m	548746	128862	WDC20_80m	547872	131540
WDC19_90m	548740	128870	WDC20_90m	547865	131547
WDC19_100m	548735	128878	WDC20_100m	547858	131554
WDC19_110m	548729	128887	WDC20_110m	547851	131561
WDC19_120m	548723	128895	WDC20_120m	547844	131568
WDC19_130m	548718	128903	WDC20_130m	547837	131575
WDC19_140m	548712	128912	WDC20_140m	547830	131582
WDC19_150m	548707	128920	WDC20_150m	547823	131589
WDC19_160m	548701	128928	WDC20_160m	547816	131596
WDC19_170m	548695	128936	WDC20_170m	547809	131603
WDC19_180m	548690	128945	WDC20_180m	547802	131610
WDC19_190m	548684	128953	WDC20_190m	547795	131617
WDC19_200m	548679	128961	WDC20_200m	547788	131624
Transect LD1	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect LD2**	**X co-ordinate (m)**	**Y co-ordinate (m)**
LD1_12.35m	542275	110918	LD2_63.1m	542821	111422
LD1_20m	542282	110921	LD2_70m	542822	111415
LD1_30m	542292	110925	LD2_80m	542824	111405
LD1_40m	542301	110929	LD2_90m	542826	111395
LD1_50m	542310	110933	LD2_100m	542827	111386
LD1_60m	542319	110936	LD2_110m	542829	111376
LD1_70m	542328	110940	LD2_120m	542831	111366
LD1_80m	542338	110944	LD2_130m	542833	111356
LD1_90m	542347	110948	LD2_140m	542834	111346
LD1_100m	542356	110952	LD2_150m	542836	111336
LD1_110m	542365	110956	LD2_160m	542838	111327

LD1_120m	542374	110960	LD2_170m	542839	111317
LD1_130m	542384	110964	LD2_180m	542841	111307
			LD2_190m	542843	111297
			LD2_200m	542845	111287