Information specific to a Habitats Regulations Assessment of the impacts on the Ashdown Forest SPA and SAC pursuant to Regulation 63 of The Conservation of Habitats and Species Regulations 2017 (as amended)
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1. EXECUTIVE SUMMARY

1.1. This report concerns development proposals associated with land at Hesmonds Stud, East Hoathly (hereinafter referred to as the “Application Site”). It has been prepared in relation to the undertaking of an assessment under The Conservation of Habitats and Species Regulations 2017 (as amended) (“the Habitats Regulations”), pursuant to implications for the Ashdown Forest Special Protection Area (SPA) and Special Area of Conservation (SAC).

1.2. The focus of the assessment report is on the extent to which the development proposals could give rise to an adverse effect on the integrity of the Ashdown Forest SAC / SPA as a result of increased traffic emissions, assessed in combination with the Wealden Local Plan. Evidence suggests that relevant thresholds for Nitrogen deposition are currently being exceeded across the SAC / SPA and it is necessary to assess whether new development brought forward in the local area and the associated increase in traffic, will give rise to an adverse effect on the integrity of the site, with reference to the baseline situation. Specific and detailed traffic and air quality assessment have been undertaken in order to inform this assessment.

1.3. Natural England’s clear position is that in light of the evidence base, it can be concluded that the Wealden Local Plan will not give rise to an adverse effect on the integrity of the SAC / SPA and that this conclusion can be reached in the absence of any requirement to deliver specific mitigation.

1.4. From the work undertaken to support the Habitats Regulations Assessment process associated with the Submission Wealden Local Plan, it is clear that under the most realistic of the three emissions scenarios modelled (Scenario B), where some improvements to technology are accounted for over the plan period, a betterment over the current situation is realised. Under this same scenario the proposed development only serves to retard the betterment in a very small way and betterment is still achieved.

1.5. It is clear from the suite of available evidence that road traffic emissions are in fact not likely to be playing a significant role in the exceedances of relevant critical loads / levels across the SPA / SAC. A host of additional (identified) air quality impact pathways exist and a range of other pathways for potential habitat degradation have been documented. Notwithstanding that relevant critical loads and levels are currently understood to be exceeded in some instances, with the exception of one SSSI management unit, all are either in favourable condition or are currently classified as recovering towards favourable condition.

1.6. Natural England’s suggested approach to addressing the background (existing) situation is through a strategic approach such as through a Shared Nitrogen Action Plan (SNAP). This approach would employ a range of targeted measures including a more appropriate grazing regime and the process of securing this management measure is currently being progressed.
1.7. Specific regard has been had to evidence published by Natural England in relation to the tolerances of heathland habitats where the critical load for nitrogen is already exceeded. In such instances, even significant increases in nitrogen deposition, actually has a limited impact on the species richness of lowland heath habitats. Furthermore, no study has been able to clearly demonstrate harm, which is directly attributable to vehicular emissions, at a scale which leads to a conclusion that the Integrity of the SPA / SAC is under threat.

1.8. From the detailed assessment work undertaken even under the worst case, fanciful, scenario (where no improvements are accounted for), in combination, any effect is limited to only the A26 and A22, is extremely limited in extent and would only affect habitats which are not qualifying interest features of the SPA / SAC.

1.9. Any potential effects arising, even under the worst-case scenario only affect very narrow corridors adjacent to the relevant roads and habitats which are inconsequential to the qualification of the site as an SPA / SAC. Under the realistic emission factor “b” scenario, effects are either further reduced or non-existent.

Overall Conclusion

1.10. In the light of the best available scientific evidence, it can be concluded that the development proposals associated with the Application Site could come forward on the basis that they will not result in an adverse effect on the integrity of the Ashdown Forest SPA / SAC as a result of air quality impacts (traffic emissions), when the project is considered both alone and in combination with other plans or projects. It is considered that such a conclusion can be reached in the absence of any requirement for project specific mitigation / avoidance measures.
2. INTRODUCTION

2.1. Background

2.1.1. This report has been specifically prepared in relation to the undertaking of an assessment under The Conservation of Habitats and Species Regulations 2017 (as amended) (“the Habitats Regulations”), pursuant to implications for the Ashdown Forest Special Protection Area (SPA) and Special Area of Conservation (SAC). Specifically, this report concerns emerging development proposals associated with the Application Site. Due to the nature of the proposals and the distances involved, potential pathways for adverse effects to occur (as a result of the proposals, in combination with other plans and projects) at other European designated sites such as Pevensey Levels SAC / Ramsar site and Lewes Downs SAC, has been screened out of requiring assessment. In producing this report, due regard has been had (inter alia) to:

I. Information made available by Wealden District Council (WDC) regarding atmospheric pollution across the Ashdown Forest SPA / SAC;
II. Information made available by Natural England in relation to habitat conditions at the SPA / SAC;
III. Relevant proposed planning policies as contained within the “Submission Wealden Local Plan” (January 2019);
IV. The “Wealden Local Plan Habitats Regulations Assessment – Proposed Submission Document” (August 2018);
V. The “Wealden Local Plan Habitats Regulations Assessment – Submission Document” (January 2019);
VI. The “Wealden Local Plan Errata for the Habitats Regulations Assessment - Submission Document” (January 2019);
VII. Relevant, correspondence between Natural England and Wealden District Council in relation to implications for the SPA / SAC regarding air quality matters;
VIII. Natural England’s (Regulation 19) response to the Proposed Submission Wealden Local Plan (see Annex 1);
IX. Guidance for Competent Authorities, produced by Natural England in relation to assessing air quality implications for European designated sites;
X. Project specific traffic and air quality assessments undertaken in relation to the emerging development proposals for the Application Site.

2.1.2. Where appropriate, reference is made to relevant technical assessments undertaken in relation to the Application Site, namely the “Air Quality Analysis” prepared by Fichtner Consulting Engineers Ltd (May 2019) and the “Ashdown Forest Impact Assessment” prepared by i-Transport in relation to traffic related matters (December 2018). These two assessment reports should be read in conjunction with this report.
2.1.3. The focus of the assessment presented in this report is on air quality matters. All pathways other than those relating to air quality have been screened out of requiring any detailed consideration, at the first stage of the assessment process. Specifically in relation to effects relating to increased recreational pressure, Policy EA2 of the Submission Wealden Local Plan describes relevant zones of influence and associated restrictions or requirements in terms of mitigation. A net increase in residential development within 400m of the SPA / SAC will not be permitted and between 400m and 7km mitigation will be required. Further, for larger schemes located close to but beyond 7km, effects and the requirement for mitigation will be assessed on a case by case basis. Natural England has agreed this approach (See page 2 of Annex 1). The Application Site lies in excess of 10km from the SPA / SAC (see below), and it can therefore be concluded, in line with the emerging planning policy framework and Natural England advice, that the proposal will not give rise to a likely significant effect on the designated sites from impact pathways associated with recreational pressure, when considered both alone and in combination.

Application Site Context

2.1.4. The Application Site is located approximately 10.9km from the closest part of the Ashdown Forest SPA / SAC (straight line distance).

2.1.5. This report discusses the extent to which the development proposals associated with the Application Site may be considered to give rise to a likely significant adverse effect on the SPA / SAC by way of air quality impacts (through an increase in vehicular emissions) when the project is considered in line with Regulation 63(1) of the Habitats Regulations. With reference to relevant jurisprudence, this report also considers whether the emerging development proposals would give rise to an adverse effect on the integrity of the SPA / SAC if the emerging proposals are the subject of an Appropriate Assessment.

2.1.6. In presenting this assessment information, reference is made to relevant air quality and SPA / SAC habitat condition assessment information, in the context of the assessment work undertaken for the Wealden Local Plan and also project specific assessments undertaken for the emerging development proposals associated with the Application Site.

2.1.7. The planning application relates to outline permission being sought for the demolition of an equestrian worker’s dwelling, stables and horse walker, change of use of equestrian land to provide up to 205 C3 residential dwellings (including 35% affordable provision), access, landscaping and other associated infrastructure.
3. RELEVANT LEGISLATION, PLANNING POLICY, CASE LAW AND GUIDANCE

Legislation

3.1. The proximity of the Application Site to the nearby designated site of European importance, the Ashdown Forest SPA / SAC means that the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (Habitats Directive) and the EC Directive on Wild Birds (the Birds Directive) are relevant in this instance. These two Directives are transposed in UK legislation through the Habitats Regulations (2017 – as amended).

3.2. The relevant Directives and UK legislation are discussed below.

Habitats and Birds Directives

3.3. Under the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, commonly referred to as the Habitats Directive (Council Directive 92/43/EEC), Member States are required to take special measures to maintain the distribution and abundance of certain priority habitats and species (listed in Annexes I and II of the Directive). In particular each Member State is required to designate the most suitable sites as SACs. All such SACs will form part of the Natura 2000 network under article 3(1) of the Habitats Directive.

3.4. Article 2(3) sets out that member states have a duty, in exercising their obligations under the Habitats Directive to:

“... take account of economic, social and cultural requirements and local characteristics.”

3.5. Under the EC Directive on Wild Birds (the Birds Directive) (Council Directive 2009/147/EEC, previously 79/409/EEC), Member States are required to take special measures to conserve the habitats of certain rare species of birds (listed in Annex I of the Directive) and regularly occurring migratory birds. In particular each Member State is required to classify the most suitable areas of such habitats as SPAs. This is designed to protect wild birds, and to provide sufficient diversity of habitats for all species so as to maintain populations at an ecologically sound level. All Bird Directive SPAs will also be part of the Natura 2000 network under article 3(1) of the Habitats Directive.

3.6. Thus, there is an obligation under the Habitats Directive and the Birds Directive for member states to designate sites before turning to measures for their protection.

3.7. The protection afforded to SPAs is delivered through Article 6 of the Habitats Directive. Article 6(2) requires member states to take appropriate steps to avoid the deterioration of natural habitats and disturbance of species for which the sites have been designated, in so far as the disturbance could be significant in relation to the objectives of the Directive. Article 6(3) and Article 6(4) require that a plan or project not directly
connected with the management of the site, but likely to have a significant
effect upon it, either individually or in combination with other plans or
projects, must be subject to an appropriate assessment of its implications
on the site, in view of the sites conservation objectives.

3.8. Having undertaken an appropriate assessment, the competent authority
may agree to a plan or project where it can be concluded that it will not
adversely affect the integrity of the site. In light of a negative assessment
on the implications for the integrity of the site, Article 6(4) provides that the
plan or project may still proceed where it can be demonstrated that there
are no alternatives and there are imperative reasons of over-riding public
interest as to why it must proceed. In the event that a plan or project is to
proceed on the basis of imperative reasons of over-riding public interest, by
direction of Article 6(4), compensatory measures must be put in place to
ensure that the overall coherence of the Natura 2000 network is protected.

The Conservation of Habitats and Species Regulations 2017 (as amended)

3.9. The Habitats Regulations, transpose the requirements of the Habitats
Directive and Birds Directive into UK legislation. The Habitats Regulations
aim to protect a network of sites in the UK that have rare or important
habitats and species in order to safeguard biodiversity.

3.10. Under the Habitats Regulations, Competent Authorities have a duty to
ensure that all the activities they regulate have no adverse effect on the
integrity of any of the Natura 2000 sites. Regulation 63 of the Habitats
Regulations requires that:

“63(1) A competent authority, before deciding to undertake, or give any
consent, permission or other authorisation for a plan or project, which:-

(a) is likely to have a significant effect on a European site or a
European offshore marine site (either alone or in combination with
other plans or projects) and

(b) is not directly connected with or necessary for the management of
the site,

must make an appropriate assessment of the implications of the plan or
project for that site in view of that site’s conservation objectives.

63(3) The competent authority must for the purposes of the
assessment consult the appropriate nature conservation body and
have regard to any representations made by that body within such
reasonable time as the authority specifies.

63(5) In the light of the conclusions of the assessment, and subject to
regulation 64, the authority may agree to the plan or project only after
having ascertained that it will not adversely affect the integrity of the
European site or the European offshore marine site (as the case may
be).
63(6) In considering whether a plan or project will adversely affect the integrity of the site, the authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given.”

3.11. Regulation 63 of the Habitats Regulations therefore sets out a two-stage process. The first test is to determine whether the plan / project is likely to have a significant effect on the European site, the second test (if applicable) is to determine whether the plan / project will affect the integrity of the European site.

3.12. Some key concepts of the Habitats Directive and Habitats Regulations have been clarified through case law. The most pertinent cases in relation to Development Proposals are the “Waddenzee Judgment”, the Sweetman Cases, the Wealden Judgment 2017 and the Dutch Nitrogen Cases. These are discussed below.

Key Case Law

Waddenzee Judgement

3.13. In the ‘Waddenzee’ case the European Court of Justice considered the trigger for ‘Appropriate Assessment’. It decided that an appropriate assessment is required for a plan or project where there is a probability or a risk that it will have a significant effect on the SPA. The Judgement states [at paragraph 3(a)] that:

“…any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site’s conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects.”

3.14. Hence the need for an appropriate assessment should be determined on a precautionary basis.

3.15. The Judgement gives clarity that the test of ‘likely significant effect’ should also be undertaken in view of the European sites conservation objectives. It is stated at paragraph 3(b)] that:

“where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site’s conservation objectives, it must be considered likely to have a significant effect on that site.”

3.16. Paragraph 4 of the Judgement emphasises the requirement for the appropriate assessment to rely on objective scientific information:

“…an appropriate assessment…implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in
combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field. The competent national authorities, taking account of the appropriate assessment of the implications...for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects.”

**Sweetman Case**

3.17. Further guidance in relation to the consideration of impacts in the light of the Habitats Regulations is provided in the Sweetman case. The case as set out by the Advocate General considered in detail the test for likely significant effect in paragraphs 50 and 51:

“50. The test which that expert assessment must determine is whether the plan or project in question has ‘an adverse effect on the integrity of the site’, since that is the basis on which the competent national authorities must reach their decision. The threshold at this (the second) stage is noticeably higher than that laid down at the first stage. That is because the question (to use more simple terminology) is not ‘should we bother to check’ (the question at the first stage) but rather ‘what will happen to the site if this plan or project goes ahead; and is that consistent with “maintaining or restoring the favourable conservation status” of the habitat or species concerned…

It is plain, however, that the threshold laid down at this stage of Article 6(3) may not be set too high, since the assessment must be undertaken having rigorous regard to the precautionary principle. That principle applies where there is uncertainty as to the existence or extent of risks. The competent national authorities may grant authorisation to a plan or project only if they are convinced that it will not adversely affect the integrity of the site concerned. If doubt remains as to the absence of adverse effects, they must refuse authorisation.”

3.18. The Court of Justice of the European Union (CJEU) agreed with the Advocate General’s conclusions, and held:

“40. Authorisation for a plan or project, as referred to in Article 6(3) of the Habitats Directive, may therefore be given only on condition that the competent authorities – once all aspects of the plan or project have been identified which can, by themselves or in combination with other plans or projects, affect the conservation objectives of the site concerned, and in the light of the best scientific knowledge in the field – are certain that the plan or project will not have lasting adverse effects on the integrity of that site. That is so where no reasonable scientific doubt remains as to the absence of such effects.”

3.19. Hence a plan or project may be authorised only if no reasonable scientific doubt remains as to the absence of effects. Reasonable scientific doubt will
exist if the evidence is not sufficiently conclusive, or if there are gaps in the information.

_Wealden v SSCLG [2017] (‘the Wealden Judgment 2017’)_

3.20. Specifically in relation to air quality impacts on designated sites (most notably in relation to Nitrogen deposition), until relatively recently, Natural England’s advice regarding the screening threshold for a likely significant effect was as follows. Where either, the resulting deposition / concentration equates to ‘less than 1% of the relevant benchmark’, or the predicted AADT value is less than 1000, a likely significant effect can be screened out for the project when it is considered both alone and in combination with other plans or projects.

3.21. However, relevant guidance has changed in the light of the High Court judgment in Wealden v SSCLG [2017] (‘the Wealden Judgment 2017’).

3.22. The Wealden Judgment confirms that the use of the project / plan level 1000 AADT threshold (equivalent to 1% of the critical level/load for receiving habitat) as the only means of addressing in-combination effects was not appropriate, particularly where other AADT values are known and importantly which, when added together, breach the threshold. The 1000 AADT (and 1%) thresholds themselves were not questioned in terms of their use for assessment purposes.

3.23. The Judgment clarified that whilst the 1000 AADT (and 1% of the critical load / level) threshold is appropriate for use in screening assessments when applying the tests of the Habitats Regulations, a true in combination assessment must be undertaken, in view of all relevant AADT data.

3.24. Following from this judgment, significant concerns were raised in relation to the Ashdown Forest SPA / SAC by local authorities and developers in particular. It was known that relevant critical loads / levels were exceeded in many instances and several main roads (A26, A22 and A275) pass through or close to the SPA / SAC. AADT figures, when used as part of the screening threshold for development projects and emerging local plans, would in many instances result in a failure of the screening assessment. Given the strategic nature of the relevant roads, it was also unclear how effects could be mitigated, if further assessments under the Habitats Regulations concluded that mitigation was indeed required.

3.25. It was on this basis that Wealden District Council commenced a programme of air quality and habitat condition monitoring at Ashdown Forest, the results of which have informed its Development Plan level Habitats Regulations Assessment and the policy content of the Submission Wealden Local Plan.
People over Wind (Sweetman II) [C323/17]

3.26. This CJEU judgment concerned a Preliminary Ruling in Case C-323/17. A request for a preliminary ruling was made to the CJEU concerning the interpretation of Article 6(3) of Council Directive 92/43/EEC (the Habitats Directive). The request was made in relation to proceedings brought by 'People Over Wind', and Mr Peter Sweetman against Coillte Teoranta. The ruling is as follows:

“Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.”

3.27. The ruling from the CJEU, departs from previous domestic jurisprudence (in particular the Dilly Lane Decision), where it was deemed acceptable to include consideration of any mitigation / avoidance measures, which formed an integral part of the plan or project, when considering the first stage of assessment and screening for likely significant effects on a European site (or Ramsar site). In that case, where it could be concluded that no likely significant effect arises there was no recourse to move to Appropriate Assessment and address the Integrity test.

3.28. In view of this ruling from the CJEU, in addressing the test at Regulation 63(1) of the Habitats Regulations, it is necessary to undertake the screening assessment in the absence of any consideration of avoidance or mitigation measures.

ESB Wind Developments (Sweetman III) [Case C-164/17]

3.29. In this case a request for a preliminary ruling was made to the CJEU concerning the interpretation of Articles 6(3) and 6(4) of Council Directive 92/43/EEC (the Habitats Directive). The request was made in relation to proceedings brought by Mr Peter Sweetman and Edel Grace against the decision of An Bord Pleanála (National Planning Appeals Board, Ireland) concerning the latter’s decision to grant ESB Wind Developments Ltd and Coillte permission for a wind farm project within an SPA. The ruling was handed down on 25th July 2018.

3.30. This ruling distinguishes between, for the purpose of the application of Articles 6(3) and 6(4) of the Directive, ‘mitigation’ that consists of measures intended to avoid or reduce harm to the protected site, and measures intended to compensate for any harm (Compensatory measures). It is stated:

“Article 6 of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, where it is intended to carry out a project
on a site designated for the protection and conservation of certain species, of which the area suitable for providing for the needs of a protected species fluctuates over time, and the temporary or permanent effect of that project will be that some parts of the site will no longer be able to provide a suitable habitat for the species in question, the fact that the project includes measures to ensure that, after an appropriate assessment of the implications of the project has been carried out and throughout the lifetime of the project, the part of the site that is in fact likely to provide a suitable habitat will not be reduced and indeed may be enhanced may not be taken into account for the purpose of the assessment that must be carried out in accordance with Article 6(3) of the directive to ensure that the project in question will not adversely affect the integrity of the site concerned; that fact falls to be considered, if need be, under Article 6(4) of the directive.”

3.31. The ruling clarifies (in the context of the specifics of that project) what constitutes mitigation and what should correctly be termed compensation. It confirms that mitigation should be subject to Appropriate Assessment under article 6(3) but that measures designed to compensate for any harm rather than prevent it, cannot be considered under article 6(3) (Appropriate Assessment). In such instances, the proposal must be considered under article 6(4) and thus it cannot be permitted unless there are, “Imperative Reasons of Overriding Public Interest”.

Holohan Judgment

3.32. In the case of Holohan v. An Bord Pleanála the CJEU considered the appropriate assessment procedure to be adopted when considering potential impacts on a European Site. In considering this case, the CJEU ruled, amongst other matters:

a) An appropriate assessment (AA) must catalogue the entirety of the habitat types and species for which a site is protected.

b) It must also identify and examine the implications of the proposed project for the species present on that site and for which that site has not been listed. Additionally, it must examine the implications for habitat types and species outside the boundaries of the protected site, insofar as those implications are liable to affect the site’s Conservation Objectives.

c) Where the competent authority rejects findings of an expert that additional information must be obtained, the Appropriate Assessment must include a detailed statement dispelling all reasonable scientific doubt concerning effects on the protected site.

3.33. This assessment document is fully compliant with the relevant parts of the Holohan Judgment. The qualifying interest features are referred to wherever appropriate (described in detail at paragraphs 3.1 to 3.6 of this assessment report). The relevant information, as submitted to Europe relating to such matters, is included at Annex 2 and referenced where
appropriate. Consideration has been given to implications for habitats and species located outside of the SPA / SAC, with reference to the site’s Conservation Objectives and the possibility that an adverse effect on the integrity of the site could arise.

The Dutch Nitrogen Cases

3.34. On 7th November 2018 the Judgment of the CJEU was handed down pursuant to a reference for a Preliminary Ruling relating to the application of Article 6 of Directive 92/43/EEC (the Habitats Directive) in joined cases C-293/17 and C-294/17.

3.35. The cases concerned authorisation schemes for agricultural activities which cause nitrogen deposition on Natura 2000 (European) sites in the Netherlands.

3.36. Key parts of the ruling (insofar as they are relevant to this assessment) are discussed below.

3.37. In line with preceding case law (Waddenzee and Sweetman, discussed above) the need for scientific rigour and firm conclusions as to the absence of effects are a pre-requisite for authorisation of a plan / project. Ruling 3 in the case states:

“Article 6(3) of Directive 92/43 must be interpreted as not precluding national programmatic legislation which allows the competent authorities to authorise projects on the basis of an 'appropriate assessment' within the meaning of that provision, carried out in advance and in which a specific overall amount of nitrogen deposition has been deemed compatible with that legislation's objectives of protection. That is so, however, only insofar as a thorough and in-depth examination of the scientific soundness of that assessment makes it possible to ensure that there is no reasonable scientific doubt as to the absence of adverse effects of each plan or project on the integrity of the site concerned, which it is for the national court to ascertain.”

[emphasis added]

3.38. Ruling 4 in the case states:

“Article 6(3) of Directive 92/43 must be interpreted as not precluding national programmatic legislation, such as that at issue in the main proceedings, exempting certain projects which do not exceed a certain threshold value or a certain limit value in terms of nitrogen deposition from the requirement for individual approval, if the national court is satisfied that the 'appropriate assessment' within the meaning of that provision, carried out in advance, meets the criterion that there is no reasonable scientific doubt as to the lack of adverse effects of those plans or projects on the integrity of the sites concerned.”

[emphasis added]
3.39. Ruling 5 in the case states:

“Article 6(3) of Directive 92/43 must be interpreted as precluding national programmatic legislation, such as that at issue in the main proceedings, which allows a certain category of projects, in the present case the application of fertilisers on the surface of land or below its surface and the grazing of cattle, to be implemented without being subject to a permit requirement and, accordingly, to an individualised appropriate assessment of its implications for the sites concerned, unless the objective circumstances make it possible to rule out with certainty any possibility that those projects, individually or in combination with other projects, may significantly affect those sites, which it is for the referring court to ascertain.”

[emphasis added]

3.40. Ruling 6 in the case confirms that any measures which are relied upon to mitigate or avoid adverse effects on the integrity of the European site in question, must be certain at the time of assessment. It is stated:

“Article 6(3) of Directive 92/43 must be interpreted as meaning that an 'appropriate assessment' within the meaning of that provision may not take into account the existence of 'conservation measures' within the meaning of paragraph 1 of that article, 'preventive measures' within the meaning of paragraph 2 of that article, measures specifically adopted for a programme such as that at issue in the main proceedings or 'autonomous' measures, in so far as those measures are not part of that programme, if the expected benefits of those measures are not certain at the time of that assessment.”

[emphasis added]

Key Guidance and other Relevant Documents

3.41. Guidance on the interpretation of key terms and concepts contained within the European and UK legislation of relevance to European designated sites is provided through several documents issued by the European Commission and national organisations such as the Joint Nature Conservation Committee (JNCC) and Natural England. This guidance is discussed below.

Natura Standard Data Forms

3.42. A standard reporting format has been developed for Natura 2000 sites (SPAs and SACs) to ensure that the relevant site selection information is reported and stored in a consistent manner which can be easily made available.

3.43. A standard reporting form for SPAs and SACs was developed by the European Commission and published in 1996. The form is used for all sites.
designated, or proposed to be designated as SPAs and SACs under the relevant Directives, with the information to be stored on a central database.

3.44. Article 4 of the Habitats Directive provides the legal basis for providing the data. Article 4 states that information shall include a map of the site, its name, location, extent and the data resulting from application of the criteria specified in Annex III and that this shall be provided in a format established by the Commission. Under Article 4 (paragraph 3) of the Birds Directive Member States are required to provide the Commission with all relevant information to enable it to take any appropriate steps in order to protect relevant species in areas where the Directive applies.

3.45. Whilst it is the relevant country agency (i.e. Natural England) that is responsible for designating a site, it is the JNCC who are responsible for collating the lists of European and international designated sites, together with relevant supporting information. The Nature 2000 Data Forms for SPAs and SACs are therefore made available by the JNCC.

3.46. Within the explanatory notes for Natura Standard Data Forms (European Commission 1996) the following “main objectives” of the Natura data form / database are given:

1. “to provide the necessary information to enable the Commission, in partnership with the Member States, to co-ordinate measures to create a coherent NATURA 2000 network and to evaluate its effectiveness for the conservation of Annex I habitats and for the habitats of species listed in Annex II of Council Directive 92/43/EEC as well as the habitats of Annex I bird species and other migratory bird species covered by Council Directive 79/409/EEC.”

2. “to provide information which will assist the Commission in other decision making capacities to ensure that the NATURA 2000 network is fully considered in other policy areas and sectors of the Commission's activities in particular regional, agricultural, energy, transport and tourism policies.”

3. “to assist the Commission and the relevant committees in choosing actions for funding under LIFE and other financial instruments where data relevant to the conservation of sites, such as ownership and management practice, are likely to facilitate the decision making process.”

4. “to provide a useful forum for the exchange and sharing of information on habitats and species of Community interest to the benefit of all Member States.”

Managing Natura 2000 Sites (European Communities 2000)

3.47. The document entitled “Managing Natura 2000 Sites the provisions of article 6 of the Habitats Directive 92/43/CEE”, published by the European Commission in 2000, provides guidelines to the Member States on the
3.48. This document states at Section 2.3.3 that conservation measures must correspond to the ecological requirements of the habitats and species present for which the site is designated and that these requirements “involve all the ecological needs necessary to ensure their favourable conservation status”.

3.49. At section 3.5 the guidance states, in relation to deterioration and disturbance of habitats or species:

“Deterioration or disturbance is assessed against the conservation status of species and habitats concerned. At a site level, the maintenance of the favourable conservation status has to be evaluated against the initial conditions provided in the Natura 2000 standard data forms when the site was proposed for selection or designation, according to the contribution of the site to the ecological coherence of the network. This notion should be interpreted in a dynamic way according to the evolution of the conservation status of the habitat or the species.”

3.50. Section 4.4.1 sets out that in determining what may constitute a likely ‘significant’ effect one should take into account the conservation objectives for the site and other relevant baseline information. In the second paragraph of this section of the document it is stated:

“In this regard, the conservation objectives of a site as well as prior or baseline information about it can be very important in more precisely identifying conservation sensitivities.”

3.51. Section 4.5.3 of the document sets out the duty of member states to provide certain specific information in support of the inclusion of a site within the Natura 2000 network. This information is to be provided in a format specified by the European Commission (the Natura 2000 Standard Data Form).

3.52. A link is drawn between the Standard Data Form and the formation of the sites conservation objectives within the text box at the end of section 4.5.3 of the guidance where it is stated:

“The information provided according to the standard data form established by the Commission forms the basis for a Member State’s establishment of the site’s conservation objectives.”

3.53. With regard to an assessment of the effects of a plan / project on the integrity of a site, the ‘integrity of the site’ is defined at Section 4.6.3 as:
“… the coherence of the site’s ecological structure and function, across the whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified.”

3.54. The guidance is clear, within the text box at the foot of page 39, that an assessment as to the implications of the plan / project on the integrity of the site should be limited to an assessment against the site’s conservation objectives:

“The integrity of the site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site’s conservation objectives.”

3.55. Section 5 of the document deals with Article 6(4) of the Habitats Directive. Note that this section has been expanded upon, and replaced by further guidance issued by the European Commission entitled “Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC” (2007). This document is dealt with below at paragraphs 2.57 – 2.61.

**Assessment of Plans and Projects Significantly Affecting Natura 2000 sites:**

**Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission 2001)**

3.56. This document, published by the European Commission in 2001, gives guidance on carrying out and reviewing those assessments required under Article 6(3) and (4) of the Habitats Directive. It is provided as supplementary guidance and does not over-ride or replace any of that set out within Managing Natura 2000 (European Commission 2000) which as stated at page 6 of the document, “is the starting point for the interpretation of the key terms and phrases contained in the Habitats Directive”. The guidance provided is not mandatory and it is clearly set out that its use is “optional and flexible” and that it is for “Member States to determine the procedural requirements deriving from the directive”.

3.57. The guidance sets out the key stages in following the tests contained within the Habitats Directive. Pertinent to this application, stages one and two are relevant. Stage one is the screening stage assessing the likelihood of a plan / project resulting in a significant effect upon the European site. The second comprises the appropriate assessment.

3.58. Section 3.2.4 is concerned with Appropriate Assessment and specifically, the assessment against the conservation objectives of the European Site. Box 9 provides a list of five example conservation objectives for differing broad habitat types. One such example, that for a coastal site, taken from Box 9 is provided below:

“to maintain the status of the European features of this coastal site in favourable condition, allowing for natural change. Features include coastal shingle vegetation and lagoons (within a candidate special area of conservation (SAC), which is also an SPA).”
**Internal Guidance to decisions on ‘Site Integrity’: A framework for provision of advice to competent authorities (English Nature 2004)**

3.59. Natural England (formerly English Nature) has produced an internal guidance document on the provision of advice to competent authorities regarding the concept of “site integrity” in undertaking an appropriate assessment.

3.60. This guidance sets out a definition for integrity. It states that integrity is considered at the site level and gives the following definition, as taken from PPG9:

> “The coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and / or levels of populations of the species for which it was classified”.

3.61. Integrity is further defined within section 3.0 where it is stated that:

> “In a dynamic context ‘integrity’ can be considered as a site having a sense of resilience and ability to evolve in ways that are favourable to conservation.”

3.62. The need to maintain, or restore the site to, favourable conservation status is dealt with in the final paragraph of section 3.0. Natural England quotes guidance issued jointly by the Environment Agency, English Nature and Countryside Council for Wales.

3.63. The guidance provides a checklist within section 4.1, for assessing the likelihood of an adverse effect on integrity occurring as a result of the proposed plan / project. It is stated that if the answer to all of the questions posed within the checklist is “yes” then it is reasonable to conclude that there will be no adverse effect upon integrity. In the event that one or more of the answers is no, then the guidance suggests that a series of further site specific factors, listed at 4.2 – 4.7 of the guidance must be considered in detail.

**Common Standards Monitoring (JNCC February 2004)**

3.64. Common Standards Monitoring is a means by which condition objectives for habitats, species, or other features of designated sites (e.g. Sites of Special Scientific Interest – SSSIs, and SPAs) are set based on key attributes of the features.

3.65. The Joint Nature Conservation Committee (JNCC) and the country Conservation Agencies (e.g. Natural England) developed guidance on the setting and assessing of condition objectives, as required under the Birds and Habitats Directives and set out a framework for this in 1999. This framework is provided in the form of Common Standards Monitoring (CSM) guidance which comprises a suite of documents including an “Introduction to the Guidance Manual on Common Standards Monitoring” and several species / habitat specific documents, including those for lowland heathland,
birds, reptiles and invertebrates. The Introduction to the Guidance Manual covers various relevant concepts and terms. It also provides a background to the setting of conservation objectives and sets out the desired approach to setting targets, monitoring, management and reporting on conservation measures in designated sites.

3.66. The Introduction to CSM Guidance and CSM guidance for individual site attributes (e.g. its bird interest) set out specific criteria regarding the identification of interest features, targets and methods of assessment. There is in-built flexibility and allowances for ‘judgements to be made’ when assessing, for example, favourable condition.

3.67. It is understood that Natural England applies the Common Standards Monitoring approach to European designated sites through an assessment of the SSSI unit condition. This is undertaken on a cycle of approximately 6 years. The assessment does not relate to the Conservation Objectives of the European site, but provides a tool for tailoring future management of the SSSI such that favourable condition of the interest features can be maintained or restored as appropriate.


3.68. Paragraphs 170, 174 and 176 of the National Planning Policy Framework (2018) are of direct relevance. Paragraph 174 is concerned with the hierarchy of international, national and locally designated sites and paragraph 170 states such sites should be protected in “a manner commensurate with their statutory status or identified quality”. Paragraph 176 asserts that Ramsar sites, proposed SPAs, SACs and sites providing compensatory measures for adverse effects on “habitats” sites should be afforded the same level of protection as classified SPAs and designated SACs.

3.69. Guidance on the determination of whether an effect on a European designated site is likely to be significant, together with the scope of appropriate assessments and ascertaining the effect on the integrity are provided within the DEFRA Circular (ODPM & DEFRA, 2005). This DEFRA Circular was published in relation to Planning Policy Statement 9 (PPS(9), which was superseded by the National Planning Policy Framework (2012 and 2018). However, the National Planning Policy Framework retained reference to the DEFRA Circular (2005).

3.70. With respect to the significance test, the DEFRA Circular states at paragraph 13 that:

“The decision as to whether an appropriate assessment is necessary should be made on a precautionary basis”.

3.71. The Waddenzee Judgement is specifically referred to at paragraph 13 of the Circular. With regards to the need to undertake an appropriate assessment; this is only required where it is not possible to conclude, on the basis of objective information, that the plan / project will not have a
significant effect on the European site, either individually or in combination with other plans / projects.

3.72. Paragraph 14 clarifies that in considering the likely significance of an effect, the decision taker should assess whether the effect would be significant in terms of the site's conservation objectives.

3.73. Paragraph 15 clarifies the importance of assessing the likely significant effect on each of the interest features for which the site is designated.

3.74. Guidance on the scope of an Appropriate Assessment is provided at paragraph 17:

“If the decision-taker concludes that a proposed development (not directly connected with or necessary to the management of a site) is likely to significantly affect a European site, they must make an appropriate assessment of the implications of the proposal for the site in view of the site's conservation objectives. These relate to each of the interest features for which the site was classified…The scope and content of an appropriate assessment will depend on the nature, location, duration and scale of the proposed project and the interest features of the relevant site. It is important that an appropriate assessment is made in respect of each interest feature for which the site is classified; and for each designation where a site is classified under more than one international obligation…”

3.75. At paragraph 20 the definition of “integrity” for the purpose of interpreting the tests contained within the Habitats Regulations is given as:

“The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.”

3.76. The DEFRA Circular includes a flow diagram setting out the series of steps competent authorities are required to take in considering proposals affecting internationally designated Nature Conservation Sites. This is based on the information and flow charts given in guidance issued by the European Commission (European Commission Environment DG, 2001).

3.77. The information contained within this report follows the steps outlined in the flow diagram and takes account of the EC guidance on the basis of information currently available on the nature of the development in relation to those Internationally Designated Nature Conservation Sites identified within this assessment. Professional judgement has been applied to interpret this information within the context of the sites’ conservation objectives and the criteria under which they are designated.
Guidance document on Article 6(4) of the ‘Habitats Directive’ (European Commission 2007)

3.78. This document, published by the European Commission in 2007, is intended to provide clarification on key terms / concepts as referred to within “Managing Natura 2000 Sites” and replaces the section on Article 6(4) within that earlier document.


3.80. With regard to ensuring the quality of an appropriate assessment, and to define exactly what needs to be compensated, it is stated at Section 1.3 that:

“Assessment procedures of plans or projects likely to affect Natura 2000 sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity.”

3.81. The need to use information contained within the Natura Standard Data Form, in tandem with the sites conservation objectives when undertaking an appropriate assessment is specifically referred to (under the second hyphenated point at Section 1.3 on page 5).

3.82. Section 1.3.2 gives guidance on the application of Article 6(4) in respect of reasons of overriding public importance and Section 1.4.1 gives guidance on the application of Article 6(4) in respect of compensatory measures.


3.84. The primary purpose of the revision was to incorporate relevant rulings of the Court of Justice of the European Union (EU) which have been issued since the initial guidance was published in 2000. It also integrates, into a single document, other relevant European Commission notes / guidance documents. Those key rulings (of the Court of Justice of the EU) and other relevant European Commission notes / guidance are discussed above in this report. The revised guidance provides clarifications of key concepts to Member State, authorities and stakeholders involved in the management of Natura 2000 sites (e.g. SPAs and SACs).
Guidance on the application of the precautionary principle

3.85. As discussed above, relevant case law makes it clear that in applying the relevant tests of the Habitats Regulations, there is a need for certainty, both regarding the nature and extent of predicted effects on integrity and in relation to the effectiveness of any preventative measures relied upon. Furthermore, enshrined within the Habitats Directive and Regulations (though not explicitly set out in either), based upon article 191 of the Treaty on the Functioning of the European Union, is the need to apply the Precautionary Principle when assessing the risks posed to the integrity of the site/s. If a risk of significant effect to the integrity of a site cannot be excluded on the basis of objective information, then application of the precautionary principle requires no consent to be given for such a project. The Precautionary Principle is not however without limits. It cannot be based on a purely hypothetical approach founded simply on conjecture. A preventive measure, may be taken only if the risk appears nevertheless to be adequately backed up by scientific data available at the time the measure is taken.

3.86. Moreover, the document titled “Communication from the Commission on the Precautionary Principle” (2000) provides useful guidance in relation to the application of the Precautionary Principle in relation to European sites issues. Paragraph 6, sets out the six key matters for consideration when applying the Precautionary Principle. Paragraph 6 states:

“Where action is deemed necessary [emphasis added], measures based on the precautionary principle should be, inter alia:

- proportional to the chosen level of protection,
- non-discriminatory in their application,
- consistent with similar measures already taken,
- based on an examination of the potential benefits and costs of action or lack of action (including, where appropriate and feasible, an economic cost/benefit analysis),
- subject to review, in the light of new scientific data, and
- capable of assigning responsibility for producing the scientific evidence necessary for a more comprehensive risk assessment.”

3.87. Under these bulleted points, the guidance gives specific definitions in relation to each of the above at pages 4 and 5, with further detail provided within section 6.

3.88. In accordance with the Communication from the Commission it is clear that when they are deemed necessary, risk reduction measures should be proportionate and must not aim at zero risk. It is stated at section 6.3.1 of the Communication from the Commission that:

“The measures envisaged must make it possible to achieve the appropriate level of protection. Measures based on the precautionary principle must not be disproportionate to the desired level of protection and must not aim at zero risk, something which rarely exists. However, in certain cases, an incomplete assessment of the risk may
considerably limit the number of options available to the risk managers."

3.89. With reference to not aiming “at zero risk” in applying the precautionary principle, the judgement of the Appeal Court in the case of Morge vs Hampshire County Council [2010] EWCA Civ 608 is relevant. Lord Justice Ward considered what the level of disturbance was required in the Article 12(1)(b) and at paragraph 35 he described the level or risk of threatened habitat and species stating that:

“… It must be certain, that is to say, identifiable. It must be real, not fanciful.”

3.90. This is understood to mean that for the level of risk to be real and identifiable, it must be based upon objective evidence to substantiate the risk. Ecology Solutions does of course note the legal tests as set out within the case law described above and the need for certainty as to the absence of effects (for example). However, as part of the assessment process, in considering the available scientific information it is necessary to assess real (identifiable) risks as opposed to those of a purely hypothetical nature with no scientific grounding.

3.91. It is acknowledged that this case went before the Supreme Court [2011] UKSC 2 where Lord Brown was not in agreement with all parts of Lord Justice Wards’ judgement, but nevertheless did not expressly disagree with paragraph 35.

Conservation Objectives

3.92. The Conservation Objectives for SPAs and SACs are published by Natural England. Those for the Ashdown Forest are included at Annex 2. Also included at Annex 2 is a copy of the “Supplementary advice on conserving and restoring site features”, specific to the Ashdown Forest SAC and published by Natural England on 10th February 2019.
4. CONSIDERATION OF BASELINE INFORMATION

4.1. In undertaking this project level HRA it is necessary to have a proper understanding of the relevant qualifying interest features of the SPA / SAC and the formal Conservation Objectives as defined in relation to those interest features. It is also necessary to understand the baseline situation in terms of the current condition (in nature conservation terms) of the interest features, any identified threats to their favourable condition and the extent to which those threats could be exacerbated by the development proposals.

4.2. In undertaking this assessment, regard has been had to the following key questions;

a) What are the qualifying interest features of the SPA / SAC and what are the formal Conservation Objectives for the SPA / SAC;

b) To what extent are the relevant qualifying interest features of the SPA / SAC sensitive to changes in air quality?

c) At what concentrations could relevant qualifying interest features be adversely affected?

d) Are those threshold concentrations currently being exceeded at the SPA / SAC?

e) Is there evidence to suggest that relevant qualifying interest features are currently being adversely affected?

f) Would the development proposals exacerbate exceedances and if so, where, when considered both alone and in combination with other plans / projects?

g) Can it be ascertained, beyond reasonable scientific doubt, that the development proposals will not give rise to an adverse effect on the integrity of the SPA / SAC when considered both alone and in combination with other plans / projects?

4.3. Matters “a” to “e” concern the baseline situation and are discussed below, within this section of the assessment report. Matters “f” and “g” are discussed in detail within Section 4.

SPA Qualifying Features

4.4. The Ashdown Forest SPA covers an area of 3207.08ha.

4.5. The SPA qualifies under Article 4.1 of the Directive (79/409/EEC) on account of it supporting important breeding populations of the Annex I species Dartford Warbler *Sylvia undata* and Nightjar *Caprimulgus europaeus*.

4.6. The Natura 2000 Standard Data Form for the SPA is included at Annex 2.

SAC Qualifying Features

4.7. The Ashdown Forest SAC covers an area of 2715.88ha.

4.8. It qualifies on account of it supporting the Annex I habitats; Northern Atlantic wet heaths with Cross Leaved Heath *Erica tetralix*, European dry...
heath and wet heath. Great Crested Newt *Triturus cristatus* are cited as an Annex II species which is present as a qualifying feature, but not a primary reason for site selection.

4.9. The Natura 2000 Standard Data Form for the SAC, which contains that information submitted to the European Commission regarding the site’s qualification as a Natura 2000 site, is included at Annex 2.

**Conservation Objectives**

4.10. The Habitats Regulations require an appropriate assessment to be undertaken “in view of the site’s nature conservation objectives”. Conservation objectives are a statement of the measures required to maintain at, or restore to, favourable conservation status the natural habitats and / or the populations of species of wild fauna and flora for which the site has been selected. The conservation status of a species is defined as favourable when the population, range and natural habitats of the species are stable or increasing. Similarly, the conservation status of a habitat is favourable when the range, structure and function, and typical species thereof, are stable or increasing.

4.11. The Conservation Objectives for the Ashdown Forest SPA and SAC are included at Annex 2.

4.12. In February 2019, Natural England published supplementary advice regarding the conservation and restoration of SAC qualifying interest features at the Ashdown Forest SAC. The document prescribes measurable condition targets for site attributes, with associated explanatory notes and cited evidence sources. As confirmed on page 2 of this document:

“You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England when developing, proposing or assessing an activity, plan or project that may affect this site.”

4.13. Of direct relevance in this instance, the document specifically addresses air quality issues in relation to maintaining / restoring the condition of both wet and dry heath at the SAC (and SPA). The detail contained within the supplementary advice is discussed further below within this assessment where relevant.

**SSSI Condition**


4.15. Habitat condition information for each of the management units of the Ashdown Forest SSSI (which underpins its further designation as an SPA / SAC) is given within the 'condition assessment comment' of the document published by Natural England and included at Annex 3. There are currently 127 SSSI management units. From the habitat condition assessment
information, with the exception of one unit (unit 155) all units are documented as being in either “favourable condition”, or “unfavourable recovering” condition (i.e. favourable, or on a trajectory towards being in favourable condition and thereby meeting the sites conservation objectives). Unit 155 is stated as being in unfavourable declining condition and this is documented as being due to inappropriate management practices, not air quality issues. Indeed, there is no reference to air quality / pollution deposition issues as being a factor causing any decline in habitat quality across the SSSI (SPA / SAC). It is noted that whilst potential air quality effects are not specifically assessed as part of the site condition monitoring process, habitat condition certainly is and the conclusion of that monitoring process is that a change in management practices will reverse a documented unfavourable trajectory of condition.

Ashdown Forest Site Improvement Plan

4.16. To assist the UK government in meeting its responsibilities under the Habitat and Birds Directives and to draw together an evidence base to enable the development of a strategic approach to achieving favourable condition at European sites, the Improvement Programme for England’s Natura 2000 Sites (IPENS) was initiated¹. IPENS works with, government agencies, landowners, voluntary bodies, private companies, individuals and other stakeholders (e.g. who manage European sites) in reviewing the following:

- Risks and issues impacting on and/or threatening the condition of the site;
- Actions and measures which could be used to address them; and
- Relevant costs and funding sources.

4.17. This process provides Natural England and its partners with:

- An improved understanding of the issues affecting sites and means to address those issues;
- A clear plan of action for improving site condition and assistance in quantifying the associated costs;
- Recommendations to address gaps in evidence and funding.

4.18. One of the key outputs of IPENS are Site Improvement Plans (SIPs). These describe the priority measures needed to achieve and maintain the European species and habitats (qualifying interest features) within a site, in favourable condition. The aim of SIPs is to:

- Provide a high-level overview of the issues affecting the condition of the site;
- Identify priority actions to address the relevant issues; and
- Identify potential funding sources which may be available.

4.19. SIPs are based on Natural England’s current evidence and knowledge. These are live documents which are to be updated as further meetings take place with partners, landowners and managers and recommended actions are prioritised and put into effect. They are not habitat management plans, or fully agreed / funded programmes, but they are a key source of information in helping to direct the actions of organisations involved in the management of a European site.

4.20. The Ashdown Forest SIP, a copy of which is included at Annex 4, notes that existing background levels relating to air quality impacts are a “pressure” on the site, but are not listed as a “threat” or specifically identified as being responsible for the condition of SSSI units. Also listed as a pressure is “change in land management”, “Public access / disturbance” and “hydrological changes” are listed as threats. Whilst no definition for “pressure” and “threat” is given within the SIP, it is Ecology Solutions understanding, through correspondence with Natural England (pers comm Marian Ashdown), that a pressure is something which through continuity could bring about a physical change (e.g. in habitat quality / composition), whereas a threat is something which has been properly identified as being capable of harm or destruction.

Sensitivity of the relevant qualifying interest features

4.21. In relation to the qualifying bird interest features associated with the Ashdown Forest SPA, it is increased recreational pressure which is the recognised threat to these features. It is noted that the plan level HRA undertaken for the Submission Wealden Local Plan also concludes that the relevant pathways for potential significant effects on (SPA) bird interest features relate to “disturbance and urbanisation”. As previously discussed, implications for the SPA / SAC in relation to recreational pressure (e.g. disturbance) have been screened out at the very earliest stage of the assessment process.

4.22. It is concluded that no adverse effects would arise (alone or in combination) in relation to the SPA qualifying bird interest features.

4.23. Regarding Great Crested Newts (qualifying interest feature of the SAC), this species is considered not to be particularly sensitive to air quality impacts. Great Crested Newts are reliant upon both aquatic and terrestrial habitat as part of their life cycle. Regarding terrestrial habitat, it is the structure and function of this habitat (i.e. physical attributes and connectivity) as opposed to botanical composition, which is important. The breeding ponds are largely phosphate limited and thus air quality impacts are not likely to give rise to any adverse effects. This is a view shared by Natural England, as referenced in the Supplementary Advice to the Conservation Objective (extract included at Annex 2). Potential adverse effects on Great Crested Newts, resulting from the proposals (considered in

In

2 See for example Table 8 at page 65 of the Wealden Local Plan Habitats Regulations Assessment – Submission Document (January 2019)
3 European Sites Conservation Objectives: Supplementary advice on conserving and restoring site features: Ashdown Forest Special Area of Conservation (February 2019), Natural England.
combination) have therefore been screened out of requiring any further specific, detailed assessment.

4.24. The focus of this HRA report is necessarily therefore on the implications for wet and dry heathland as a result of atmospheric pollution, with a focus on that derived from traffic emissions.
Defining sensitivities

4.25. The primary pollutants which can (in some instances) give rise to adverse effects on European designated sites, including the Ashdown Forest, are oxides of nitrogen (NOx), sulphur dioxide (SO2) and ammonia (NH3).

4.26. SO2 is mainly derived from emissions from the combustion of fuels in industry (e.g. electricity generation) and domestic fuel combustion. Shipping at busy ports is also a significant source of increased SO2 around busy ports. SO2 concentrations attributable to vehicle emissions has however fallen drastically over recent years as a result of reductions in the sulphur content of vehicle fuels. Indeed, by 2015 traffic related emissions of SO2 accounted for only 1% of the total SO2 emissions in the UK.

4.27. In terms of environmental effects, SO2 is identified as a contributor to the acidification of soils and aquatic environments. However, given that it is no longer a significant component of traffic emissions due to improvements in vehicle technology, there is no requirement to consider it further within this assessment.

4.28. NOx are mainly formed through the (high temperature) combustion of nitrogen containing fuels and atmospheric nitrogen. Road traffic is a dominant source of NOx in the UK, with diesel engines the major contributor. Over the last few decades NOx emissions from traffic have fallen with the use of catalytic converters and stricter regulations (e.g. Euro Standards). It is however noted that decreases have not reached predicted levels.

4.29. Regarding environmental effects, NOx contributes to eutrophication (enrichment of nutrients / minerals) and acidification. In addition, it contributes to the formation of ground level ozone, when in the presence of Volatile Organic Compounds (VOCs). Ozone causes direct damage to vegetation. It enters leaves through the stomata during normal gas exchange and being a strong oxidant, it can cause significant damage to the plant.

4.30. The effects of NOx can be wide ranging on the basis that uptake in the atmosphere can lead to deposition a long distance from the original source. This matter is discussed in more detail further below.

4.31. Regarding acid deposition / acidification and nitrogen deposition, the key effects on habitats are described below.

4.32. Acid deposition relates to the acidifying effect of pollutants, which can be either acidic, such as in the case of nitric acid, or basic as in the case of ammonia, on soils and hydrological systems. Acidification can occur through either wet (affiliated with precipitation) or dry deposition (gasses or particles). With reductions in SO2, NOx (and reduced nitrogen compounds) are now the major contributor to acid deposition in the UK. Acid deposition can cause direct damage to plants, with liverworts and lichens, heather, moss species being susceptible to cell membrane damage due to excessive levels. Acidification causes a change in the chemical balance of...
soils and hydrological systems and can substantially reduce microbial activity.

4.33. Nitrogen deposition is the input of (reactive) nitrogen compounds, most notably in the form of NOx, NH₃ (ammonia), nitrous oxide and nitrates along with other chemical form of nitrogen. These inputs can be in the form of dry deposition (gasses or particles) or wet deposition (affiliation with precipitation). The key effects of nitrogen deposition are acidification (described above), eutrophication and an increase in the availability of reduced forms of nitrogen such as ammonium.

4.34. Nitrogen is a key plant growth nutrient and all plants require it to grow. Vascular plants take up the majority of their nitrogen through their root system but some nitrogen can be absorbed via stomata or the cuticle. Non-vascular plants (e.g. lichens and bryophytes) can absorb nitrogen through their entire surface. Most plants use reactive nitrogen (see above), but some can use organic nitrogen (e.g. amino acids). In the event that carbon assimilation is restricted, for example by insufficient phosphorous, light or water availability, then nitrogen can accumulate to excess and become toxic.

4.35. Eutrophication is the term given to the enrichment of soils and the aquatic environment by increased nutrients / minerals. Nitrogen deposition (by various means) is a major source of eutrophication. Those plant communities most at risk from nitrogen eutrophication are those which are rich in lichens and bryophytes and where species richness and value in ecological terms, comprises slow growing species. Aside from direct effects on non-vascular plants, over time adverse effects can occur on those plants which do not have capacity to assimilate nitrogen in the presence of increased nitrogen availability (for example from deposition). In this scenario such plants can be outcompeted by plants that can, such as many grass (graminoid) species. Overall species loss within the community is caused by shading and / or an inability to compete for other resources. Low growing species and non-vascular plants are at increased risk.

4.36. With specific regard to the extent to which road traffic can give rise to impacts from air pollution on sensitive habitats and species, the following information is relevant.

4.37. It is a commonly held view by air quality specialists that in the majority of instances, deposition at 200m from a road is at a level which is so small as to be insignificant (de minimis). Both Natural England and Highways England (the relevant statutory authorities in such matters) concur that 200m is an appropriate screening distance for use in assessment purposes⁴. That is to say, potential effects can be screened out of the assessment process where qualifying interest features of a European designate site do not fall within 200m of a road affected by the plan or project and this position is reflected in the Design Manual for Roads and Bridges (DMRB) and similarly in guidance issued by Natural England.
4.38. Figure 1, on page 12 of the Fichtner Consulting Air Quality Analysis report (reproduced below) shows how the predicted impact from nitrogen deposition reduces at greater distances from a road. In that instance the data relates to that modelled for the A26 (NOx and NH₃). At 50m deposition is 20% of that on the road itself. At 100m deposition is around 10% of that on the road and by 200m deposition is well below 10% of that on the road.

![Graph 1: Reduction in impact from edge of road (reproduced from Fichtner Consulting Report – April 2018)](image)

Concentrations at which relevant qualifying interest features could be adversely affected

4.39. The Air Pollution Information System (APIS) is a primary source of information relating to air pollution sensitivities and effects in relation to European designated sites and their relevant qualifying interest features. The APIS website is hosted and maintained by the Centre for Ecology and Hydrology (CEH), with the following partner organisations; Joint Nature Conservation Committee (JNCC), Natural England, Environment Agency, Northern Ireland Environment Agency (NIEA), Scottish Natural Heritage (SNH), Sniffer, Natural Resources Wales (NRW) and the Scottish Environment Protection Agency (SEPA).

4.40. To define pollution impacts, empirical evidence has been used to derive a series of thresholds, above which an adverse effect on a species or habitat may arise. These are termed critical loads and critical levels. A critical load relates specifically to the quantity of pollutant deposited from the air to the ground. A critical level relates specifically to the gaseous concentration of a pollutant in the air.
4.41. In accordance with the APIS website, Critical Loads are defined as:

"a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge"

4.42. Whereas, Critical Levels are defined as:

"concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge".

4.43. APIS provides critical loads and levels for pollutants relevant to each of the SAC qualifying interest features. Relevant information downloaded from APIS is included in full at Annex 5.

4.44. Table 1 below summarises relevant critical levels for qualifying interest features of the SAC.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Feature</th>
<th>Critical level</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>Wet heath</td>
<td>30 µg/NOx m³</td>
</tr>
<tr>
<td>NOx</td>
<td>Dry heath</td>
<td>30 µg/NOx m³</td>
</tr>
<tr>
<td>NH₃</td>
<td>Wet heath</td>
<td>1 µg/NH₃ m³</td>
</tr>
<tr>
<td>NH₃</td>
<td>Dry heath</td>
<td>1 µg/NH₃ m³</td>
</tr>
</tbody>
</table>

Table 1: relevant critical levels (annual mean)

4.45. Critical loads for relevant qualifying interest features are provided as thresholds for nutrient nitrogen and acidity.

4.46. Regarding nutrient nitrogen, for wet and dry heath the relevant critical load is 10-20 kg/Nha/yr.

4.47. Regarding acidity, the following critical loads are given by APIS for dwarf shrub heath (relevant to both wet and dry heath at the SPA / SAC):

MinCLminN: 0.499  MaxCLminN: 0.714
MinCLmaxS: 0.310  MaxCLmaxS: 1.730
MinCLmaxN: 0.952  MaxCLmaxN: 2.444

Are the relevant thresholds currently being exceeded?

4.48. Site specific air quality data is being gathered as part of a study into air quality impacts on Ashdown Forest. Regard has been had to the report titled “Ashdown Forest SAC – Air Quality Monitoring and Modelling” produced by Air Quality Consultants (AQC) (August 2018). That report describes the results of detailed air quality monitoring and modelling undertaken to date, specifically in respect of impacts on the Ashdown Forest, in order to inform the Habitats Regulations Assessment of the Wealden Local Plan. Regard has also been had to the Wealden Local Plan Habitats Regulations Assessment -Submission Document” (January 2019)
and the "Wealden Local Plan Errata for the Habitats Regulations Assessment - Submission Document" (January 2019).

4.49. Ecology Solutions has reviewed the AQC report (2018). For the detailed results and analysis, the reader is directed to that report, however key matters arising from Ecology Solutions review are discussed below in order to inform this project specific assessment.

4.50. Ecology Solutions are mindful of the position of Natural England (the statutory authority in relation to nature conservation matters) in relation to the air quality assessment work undertaken by AQC and relied upon by WDC in the preparation of its plan level Habitats Regulations Assessment. Natural England’s position is clearly described within its letter of 5th October 2018 (and supporting appendices) submitted as part of the Wealden Local Plan Examination (see Annex 1). Ecology Solutions concur with many of the comments / criticisms made by Natural England in relation to the air quality assessment work and where appropriate reference is made to Natural England’s position in this assessment.

4.51. The information presented in the AQC report is detailed and comprehensive in scope. It is noted that key information relating to the transect / assessment locations is redacted from the published document. This hampers detailed review of the published information and limits the extent to which certain information can be applied on a project specific basis. However, notwithstanding information presented below regarding the assertions and conclusions of the AQC report, it is considered to include helpful information which can be used to inform Habitats Regulations Assessments relating to the Ashdown Forest.

4.52. The key overall conclusions of the AQC report (2018) are as follows:

“At present, the critical levels for annual mean NOx and NH3 concentrations are being exceeded alongside roads and achieved elsewhere. The critical level for the maximum 24-hour mean NOx is likely to be being exceeded across much of the SAC; although these predictions are uncertain. The critical load for nitrogen deposition is being exceeded over virtually the entire SAC.

Predicting conditions in the future is difficult and a range of alternative emissions assumptions has been considered. Across all of these alternative assumptions, the critical loads are predicted to continue to be exceeded over almost the entire SAC in 2028, even without any traffic growth. The critical levels for 24-hour mean NOx and annual mean NH3 will also continue to be exceeded alongside roads, and potentially further afield in the case of 24-hour mean NOx. The critical level for annual mean NOx may be achieved across the entire SAC by 2028 without any traffic growth, but this only happens in the most optimistic of the emissions scenarios considered. In the other scenarios, exceedances of this critical level persist alongside key roads.

In

6 Air Quality Consultants, Ashdown Forest SAC – Air Quality Monitoring and Modelling, August 2018
The additional traffic caused by the Local Plan and by growth outside of Wealden, will increase concentrations and deposition fluxes. In those locations where the critical levels and critical loads are predicted to be exceeded already, this additional traffic growth will exacerbate these exceedances. There are also many areas where the critical levels would be achieved without this traffic growth but exceeded with it.”

4.53. The findings of the AQC monitoring and assessment work can be distilled into the following main points, as concluded by AQC:

- Currently, exceedance of critical levels for annual mean NOx and NH3 is limited to certain roadsides, to a distance of 5m from the curb for NOx and around 1m for NH3;
- Currently, the critical load for nitrogen deposition is being exceeded over virtually the entire SPA / SAC;
- Critical loads are predicted to continue to be exceeded over almost the entire SAC in 2028, in the absence any traffic growth;
- The critical level for annual mean NOx may be achieved across the SPA / SAC by 2028 in the absence of traffic growth, when future reductions in emissions are fully factored in. In other modelled scenarios (no or limited future reductions), exceedances of the critical level persist alongside key roads;
- Additional traffic arising from the Local Plan in combination with growth outside of Wealden, will increase concentrations and deposition of emissions; and
- Where the critical levels and critical loads are predicted to be exceeded already, this additional traffic growth will exacerbate these exceedances.

4.54. It is however considered important to view the AQC assessment work in context with other evidence relating to vehicle emissions (e.g. regarding deposition rates and concentrations) and relevant guidance.

4.55. As discussed further above, deposition at 200m from a road is at a level which is so small as to be insignificant (de minimis) and it for this reason that 200m is an accepted screening distance when considering road traffic emissions in the context of potential impacts on European designated site (and other sensitive ecological receptors).

4.56. As can be seen from the data presented within the AQC report, localised ‘hot spots’ for increased deposition / concentrations can be demonstrated for habitat adjacent to roads, but at greater distances (well within 200m from the road) the recorded or modelled, concentrations and deposition are decreased. The reader’s attention is drawn in particular to the series of figures included at appendix 4 to 12 of the AQC report (Volume 2). The figures, which depict deposition and concentrations across the SPA / SAC as modelled for a series of differing scenarios, show quite clearly that the highest deposition and concentrations as modelled across the SPA / SAC, are focussed within a narrow band, most often just a few meters in width either side of the road.
4.57. A series of relevant plans, extracted from the AQC report (Volume 2) are included at Annex 6 of this assessment. The reader's attention is drawn to Figures A6.13 to A6.16 of appendix 6 of the AQC report (Volume 2), which shows graphically that currently, the critical load for nitrogen deposition is being exceeded over virtually the entire SPA / SAC. However, it is not the case that traffic related emissions are a major contributing factor to the overall position in relation to air quality impacts across the designated site as a whole. This matter is discussed below.

4.58. In addition to the assessment values and thresholds for pollutants, discussed above, useful information in relation to the current baseline situation, is available from the Air Pollution Information System (APIS). This also demonstrates that the relevant critical loads and levels are exceeded across the SPA / SAC and thus the findings of the AQC assessment in this regard are not surprising.

4.59. Of significant note is the “source attribution” information available from APIS in relation to air quality impacts at the Ashdown Forest SPA / SAC. Copies of relevant information is included at Annex 7.

4.60. As can be seen from the APIS information included at Annex 7, the findings of that modelling work show that for Nitrogen deposition (kgN/ha/yr), road transport accounts for only 8% of the annual deposition. In contrast, it is stated that imports from Europe (long range atmospheric deposition) account for 31.45% of annual Nitrogen deposition, livestock 20.27% and international shipping 10.39%. All of these pathways are considered to have a greater impact on Nitrogen deposition at the SPA / SAC than road transport, together accounting for just over 62% of annual Nitrogen deposition (at the SPA / SAC). Other cited pathways include fertiliser, commercial industry, residential and industrial combustion, other transport and other non-agricultural sources.

4.61. In view of all available evidence, it can be concluded that air quality effects are relevant to Ashdown Forest and it can at least be said that defined critical loads and levels are exceeded across the site and increases in traffic emissions are likely to exacerbate the situation in very localised areas, where no improvements to background levels are achieved. However, it would plainly be wrong to conclude that traffic emissions are a significant source of air quality impacts at the SPA / SAC.

4.62. Traffic emissions are part of the perceived problem relating to an exceedance of critical loads and levels, but evidence strongly suggests that other sources (outwith the specific scope of study undertaken by AQC) have a far greater bearing on deposition rates at the SPA / SAC than traffic emissions. Within an assessment into traffic related air quality effects on the SAC it is important to consider the traffic related contribution, in view of the baseline position and also the future, predicted position. These two positions are examined in this document. For reasons given later in this assessment, with technological improvements in vehicles already being realised (leading to reduced emissions) and with such improvements set to continue, both in terms of further fine tuning of the technology being integrated into fleets over time and also the quantum of vehicles on the
road with these new technologies, the future traffic contribution per vehicle will be further reduced over time. It is not a realistic proposition (i.e. it is fanciful) to assume a scenario where no improvements in (per vehicle) emissions figures are forthcoming.

4.63. It is noted that in undertaking its review of the AQC report\(^7\) and Wealden Local Plan HRA, Natural England concluded that a scenario where no reduction in future emissions (AQC’s scenario A) is not appropriate for use in the assessment process as this is not a realistic proposition. In other words, it is a fanciful scenario. Natural England also concluded that a scenario where reductions are fully in line with original predictions (AQC’s scenario C), is also not appropriate for use in the assessment process. The correct scenario, for assessment purposes is one where some future reductions arise (AQC’s scenario B). Taken together, it is considered by both Ecology Solutions and Natural England that the adopted (mandatory) Euro 6/IV standards, the Government’s Clean Air Strategy and increasing (e.g. public) awareness will give rise to reductions in potentially harmful vehicular emissions. With reference to relevant case law (including the Dutch Nitrogen Cases) and the need for certainty regarding impacts and the effectiveness of measures relied upon to demonstrate a reduced effect; it is evident that improved technology (e.g. Euro 6/IV) is having the effect of reducing vehicular emissions and this is a mandatory requirement for new vehicles. It is therefore wholly appropriate to use AQC’s scenario B for assessment purposes since it can clearly be concluded that an increased proportion of newer, ‘cleaner’ engines will be in use on the road network.

4.64. Natural England states at paragraph 25 of appendix 1 to its letter (5\(^th\) October 2018 – see Annex 1):

“\textit{There is a long established trend of declining background concentrations close to roads in particular as a result of technological improvements in vehicles even allowing for additional growth in local plans. In other words, we can expect – even with the plan/project timeframe – the overall environmental loading will return to below critical level and loads within an appropriate timeframe.}”

4.65. Following from this, at paragraph 40 of appendix 1 to its letter (5\(^th\) October 2018) Natural England set the predicted decrease in potentially harmful traffic emissions in context with other inputs and the baseline position, whilst also describing the recommended approach to ameliorating existing / background pollution. It is stated:

“\textit{Ashdown Forest as a whole exceeds the critical load and there may or may not be existing implications for the site condition which is the purpose of noting air quality as a threat on the site condition report for Ashdown Forest. A SNAP\(^8\) is the recommended approach to tackling background pollution however this is on a whole site approach recognising that the source attribution on the Air Pollution Information System (APIS) notes other inputs including agriculture that have a much higher influence on the site than local transport. The SNAP will}”

\(^7\) Natural England Regulation 19 response to the Submission Wealden local Plan

\(^8\) Site Nitrogen Action Plan
4.66. The deposition data gathering currently being undertaken and reported (e.g. by AQC) is only one element of the relevant impact assessment. It is of course important to understand deposition rates / concentrations and trends (where assessed) across the designated features, but for assessment purposes in terms of the legal tests to be applied, it is more important is to understand what the actual effect is (if any) upon those features. Mindful in particular of the range associated with Critical Loads, it cannot be assumed that exceedance of the minimum Critical Load value results (or has resulted) in an adverse effect. It should be kept in mind that the minimum Critical Load value is set as a threshold below which one can confidently predict that no adverse effect will arise, based on empirical evidence, but above which an effect may arise and further site specific detailed assessment is required to quantify any effect.

4.67. SPA / SAC / SSSI habitat condition information available from Natural England points to management units either achieving their conservation objectives, or on a trajectory towards this. The one exception is for a woodland unit (not relevant to Habitats Regulations considerations) where inappropriate or ineffective tree management is taking place. It is recognised that SSSI unit condition monitoring is not a tool which assesses air quality impacts on habitats and it is also recognised that in accordance with Natural England guidance\(^9\) it is not considered appropriate to use current feature condition assessment information to screen out effects. Paragraph 4.20 of the relevant guidance states:

> “Note that the current reportable condition of a feature, based on latest condition assessment information, should not be used to justify screening out effects on a feature.”

4.68. However, whilst it may be necessary to look further than the current SSSI unit condition monitoring information in undertaking a robust assessment of potential adverse effects on the designated site, the information is clearly relevant and provides an important initial point for consideration in assessment purposes.

4.69. There are of course many factors which will influence habitat condition within the designated site. Air quality impacts constitute only one potential pathway for effects, with land management practices, recreational pressure (e.g. erosion, eutrophication from dog fouling) introduction of alien / invasive species and fire setting, to name but a few, all contributing to habitat feature quality and extent. Furthermore, air quality impacts from

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\(^9\) Natural England’s approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (June 2018), Natural England
road traffic sources represents only one pathway for air quality impacts on habitat features, a matter discussed previously within this report.

4.70. Information contained within the report titled “Ecological Monitoring at Ashdown Forest: Considering the Current and Future Impacts on the SAC caused by Air Quality and Nitrogen Deposition” (July 2018), produced by Ecus Ltd has been used to inform this assessment. Detailed information used to inform the project specific assessment (relevant to the emerging proposals associated with the Application Site) is considered within the following section of this report. At this point, key findings of the Ecus report are discussed in order to provide context.

4.71. The reader is directed to that report for detailed information regarding the survey and assessment work undertaken.

4.72. The Ecus report identifies that there are significant difficulties in directly attributing observed effects on habitat composition / quality to one source pathway. For example at paragraph 7.1.4 it is stated:

“Thirdly, disentangling the effects of subtle drivers of ecological change from the effects of other, stronger, or more pervasive, drivers is a challenge and usually requires dedicated experimental manipulation”.

4.73. Key conclusions drawn by Ecus on the recorded baseline, are as follows:

1. The aim of the monitoring over the first three years of the study was to establish a baseline for current habitat conditions at Ashdown Forest, not to assess the significance of any changes in habitat condition;
2. The baseline is purported to be robust and “has begun to uncover informative patterns in the composition of the vegetation community that are worthy of continued investigation”;
3. It was determined that for all quadrats along all transects surveyed degraded heathland habitat exists;
4. For most quadrats sampled, species richness was determined as low and well beneath the figure of 13 chosen by Ecus to be representative of average healthy heathland;
5. From the surveys, Ecus conclude that it seems likely that species richness actually declines with distance from a road, with factors such as verge maintenance and visitor pressure facilitating colonisation by non-heathland ruderal species, increasing species diversity in these locations;
6. On average, quadrats further from a road contained species more typical of nitrogen poor conditions compared with quadrats closer to a road;
7. The distribution of graminoids (grasses and grass like species) may be influenced by nitrogen deposition but firm conclusions could not be drawn and the work highlighted the importance of other variables such as grazing and visitor pressure in influencing graminoid distribution;
8. “Although nitrogen deposition and exceedance of the Critical Load has the potential to affect vegetation composition and thus has the potential to affect site condition, changes in vegetation composition may also be influenced by many other factors such as management or visitor pressure” (Ref: paragraph 5.8.9 of the Ecus report).

9. Foliar nitrogen concentrations and foliar amino acid concentrations in Heath Plait-moss and Heather did not reveal any consistent significant correlation with distance from a road. This possibly indicates that levels of nitrogen are already at high saturation levels at all sample locations or it may be that the sampling methodology is not accurate enough to pick up any subtle changes between quadrats.

10. It is possible that targeted experimental regimes of burning, cattle grazing and a reduction in visitor pressure could ameliorate some of the negative effects of elevated nitrogen deposition across the SPA / SAC by reducing the overall stress on heathland plant communities at the site.

4.74. The above points are noted and it is considered that the habitat mapping exercise undertaken as part of the Ecus study provides a valuable tool for assessment and importantly, site management purposes. However, it is very clear that the study does not demonstrate that there is any discernible correlation between traffic related air quality impacts and degradation of qualifying (heathland) habitat types. This is a matter also discussed by Natural England within its letter of 5th October 2018 (see Annex 1). At paragraph 49 of appendix 1 of that letter it is stated:

“In summary, generally through the ecological monitoring report, it is noted that background air quality is a pressure on Ashdown Forest but much of the specific ecological monitoring and analysis is generally unable to attribute road contributions to be a statistically significant contributor to this.”

4.75. Points “6, 8 and 9” above (paragraph 4.73) demonstrate that whilst the data appears to show that habitats further from a road are likely to contain more species typical of low nitrogen conditions, a range of factors are acting on the site and no firm conclusions can be drawn on the extent to which traffic related emissions are responsible for any modification in vegetation types across the SPA / SAC.

4.76. Of course the correct legal test to be applied in this instance is one which requires the demonstration of no adverse effect (on integrity) resulting from the Development Proposals, however the above is considered relevant in applying that test.

4.77. Several key points are of note in relation to habitat quality and extent, as follows:

a) SSSI unit condition assessment information highlights management issues as a key driver in condition being below favourable status
(although all but one unit is favourable or on a trajectory towards favourable condition);

b) In favourable conservation status terms, the existing deposition / concentration background levels, are noted as a “pressure” on the site within the SIP (as previously discussed), but they have not been specifically identified as being responsible for the condition of SSSI units;

c) The issue of habitat management at Ashdown Forest is complex given the difficulties associated with implementing traditional heathland management across the SPA and SAC, most notably on account of site-specific legislative provisions dictating that grazing is subject to significant restrictions;

d) Evidence is available which shows that for habitats which have already been subject to high background nitrogen deposition, these can develop an effective tolerance to the effects of further deposition.

4.78. In relation to “d” above, the Natural England Commissioned Report 210: “Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance” is of direct relevance.

4.79. It is understood that the objective of the NECR 210 report was to examine relevant vegetation survey data in order to understand the relationships that exist between species composition and richness and nitrogen deposition. Further, the aim was to determine the effect of incremental increases in nitrogen. As part of the study, vegetation data was analysed from 226 sites, comprising 5 UK priority habitats (sand dunes, bog, lowland heath, upland heath and acid grassland). Additional evidence was obtained for assessment purposes from published survey data (including that for the network of UK nitrogen addition experiments). Data from heath habitats in Thursley (Surrey) was analysed and given the proximity with Ashdown Forest, this would be expected to be subject to similar meteorological conditions.

4.80. Importantly, the report details how much additional nitrogen might lead to a loss of one species. Table 21 of that report (relevant extracts are included at Annex 8) identifies that for lowland heath (relevant to Ashdown Forest) which has a background of 20kg/ha, the increase in Nitrogen deposition required to reduce measured species richness by 1, would be 1.7 kgN/ha/yr.

4.81. The NECR 210 report clearly identifies that for heathland habitats, where the critical load for nitrogen is already exceeded, even significant increases in nitrogen deposition, for example an increase of up to 1kg N/ha/yr (which is equivalent to 100% above the threshold which would trigger further assessment under the AQTAG guidelines), actually has no measurable impact on the species richness of lowland heath habitats (e.g. less than 1 species). In simple terms, no change to habitat species richness would be discernible with an increase of 1kg N/ha/yr.
4.82. In this light, it is noted that measured outputs from the Ashdown Forest modelling (AQC and Ecus 2018) would not lead to a conclusion that species richness, for qualifying heathland habitats, would be degraded at a level which could be considered significant in terms of the structure and function of the habitat. This scenario fits squarely with the SIP, Conservation Objectives Supplementary Advice and the SSSI unit condition reporting published by Natural England. Furthermore, as previously discussed, heightened deposition / concentration rates associated with traffic emissions are localised and focussed within a narrow corridor adjacent to the road itself (easily concluded as de minimis at 200m). The relevant values decrease very quickly as distance is increased from the road (see Graph 1 above) and thus the significance of any increase in deposition is reduced further.

4.83. Ecology Solutions is mindful of the stated position of Natural England¹⁰ (as the statutory authority regarding nature conservation matters and more specifically, the statutory advisor insofar as considering adverse effects on the integrity of Ashdown Forest SPA / SAC) in relation to what it considers key to ameliorating the background deposition / concentration levels. Natural England is understood to be equally concerned that an overly precautionous approach to assessment has been undertaken by Wealden District Council and its relevant advisors. Natural England has raised a significant number of questions and concerns regarding the assessment process undertaken and clearly remains of the position that traffic related air quality issues are not a principle source for identified effects (current critical loads and levels) across the SPA / SAC. Indeed, Natural England has clarified, at paragraph 51 of appendix 1 to its letter of 5th October that:

“There is no doubt that large areas of the site are currently in unfavourable recovering condition however the reason for these to be classed as “recovering” is that there are measures in place to ameliorate the decline in the habitat which is considered to be wholly down to management constraints.”

4.84. In relation to this lack of management, Natural England has clarified at paragraph 60 of appendix 1 to its letter of 5th October that it is the lack of grazing over significant parts of the heathland habitat that has led to the majority of the heathland not meeting the SSSI monitoring targets. Paragraph 61 of appendix 1 (letter of 5th October) confirms:

“This is illustrated by the fact that the two heathland units that are meeting all objectives, and considered to be in favourable condition are within the fenced area, where regular grazing is being maintained. Analysis of the condition assessment data shows that four of the units failing within the fenced area are failing because of the bracken cover and / or age structure of dwarf shrubs only, not for poor species diversity, or a high grass:forb ratio, effects which the HRA appears to be attributing to nitrogen deposition. Where the fenced areas are failing on these attributes, it is likely to be because the fenced area,

¹⁰ Natural England’s (Regulation 19) response to the Proposed Submission Wealden Local Plan (5th October 2018)
which covers more than 500 ha cannot be divided into smaller grazing units, thus control of grazing is limited.”

4.85. It is understood from Natural England (pers comm Marian Ashdown 18\textsuperscript{th} March 2019) that measures are being put in place to restore and maintain appropriate management regimes across relevant parts of the SAC / SPA. For example, permissions are currently being sought to implement a fencing strategy which will facilitate a suitable grazing regime. This will directly address the matter discussed immediately above.

Summary Conclusion

4.86. In all the above, it is Ecology Solutions conclusion that there is no evidence which points to current road traffic emissions as being a cause of decline in the quality of qualifying interest features of the SPA / SAC. This is also the position of Natural England. The following conclusions can be drawn in relation to the baseline situation and predictions regarding increases in traffic along relevant roads:

1. There is no evidence that air quality impacts are currently causing harm to the SPA / SAC interest features;
2. There is no evidence that traffic emissions are causing harm to the SAC / SPA;
3. Non-traffic related baseline air quality / nitrogen deposition impacts can be expected to improve over time although the modelling undertaken as part of the HRA process does not take this into account;
4. Modelled scenario B indicates a decline in traffic related air quality impacts over time. Scenario A, which makes no allowance for improvements in (individual) traffic emissions can clearly be termed “fanciful” and is not appropriate for use in an HRA, particularly in view of guidance relating to the application of the precautionary principle;
5. It is necessary to take account of predicted future traffic growth, in view of a realistic scenario, where improvements in vehicular emissions are accounted for, in order to properly test the proposals against the baseline situation; and
6. Regarding the in combination effect of predicted traffic growth resulting from the Submission Wealden Local Plan and new traffic associated with the proposed development at Hesmonds Stud, it is necessary to also assess whether any qualifying interest features for the SAC / SPA fall within the zone of influence of the development proposals.

4.87. The following section of this report considers the relevant tests of the Habitats Regulations in the light of the development proposals and with reference to specific detailed studies undertaken.
5. **ASSESSMENT OF THE IMPLICATIONS OF THE EMERGING DEVELOPMENT PROPOSALS FOR THE SPA / SAC CONSERVATION OBJECTIVES**

5.1. This section of the assessment considers whether the development proposals will exacerbate any exceedances of the relevant Critical Loads and if so, where (when considered both alone and in combination with other plans / projects). It also presents evidence regarding whether it can be ascertained, beyond reasonable scientific doubt, that the development proposals will not give rise to an adverse effect on the integrity of the SPA / SAC when considered both alone and in combination with other plans / projects.

5.2. Section 3 of this document sets out the legislation, guidance and case law of relevance to an assessment of the implications of the plan / project on the European sites. Having regard to this legislation and supporting guidance it is clear that the assessment is a two-stage process, the first being the 'likely significant effect' stage, the second being the 'integrity test'.

5.3. It is clear that the Conservation Objectives of the European site are the most important consideration in determining whether the plan / project will have an adverse effect on the site, including any effects on its integrity.

5.4. It is evident that there is a clear hierarchical approach to assessing effects on European sites in line with the Habitats Directive / Regulations. The primary test is that against the Conservation Objectives with any other considerations following these.

5.5. In line with the above, whilst the qualifying interest features of the site and other baseline information have informed this assessment, the greatest weight has been placed upon the formal conservation objectives for the European sites, as set out by Natural England.

5.6. This section includes a description of the potentially significant effects arising from the development proposals at the Application Site on the SPA / SAC. The potential effects are assessed within this section in order to address the test under Regulation 63(1) in the first instance.

5.7. In undertaking this assessment, consideration has been given to the best available scientific knowledge. An appropriate assessment (if required) could therefore be undertaken consistent with the Waddenzee Judgement, which requires the use of the best scientific knowledge to inform a decision where no reasonable scientific doubt remains as to the presence and / or absence of effects that would adversely affect the integrity of the designated site (see Section 2 above).

5.8. The planning application relates to outline permission being sought for the demolition of an equestrian worker’s dwelling, stables and horse walker, change of use of equestrian land to provide up to 205 C3 residential dwellings (including 35% affordable provision), access, landscaping and other associated infrastructure.
5.9. In view of the reasons for the qualification of the SPA / SAC, the distance of the Application Site from these designated sites and the nature of the development proposals, the following pathways for potential significant effects have been screened out of requiring any further consideration:

- Effects from increased recreational pressure;
- Effects from increased noise and lighting during both the construction and operational phases of the Development Proposals;
- Effects relating to air quality during the construction phase of the development proposals;
- Matters relating to direct ‘land take’ at the SPA/SAC; and
- Matters relating to supporting habitat for the SPA/SAC.

5.10. In the light of the planning policy background (and supporting assessments), detailed consideration has been given to the potential for the development proposals to give rise to likely significant (adverse) effects on the SPA / SAC through traffic related air quality impacts.

### Increased Traffic Movements and the screening assessment

5.11. In terms of the screening assessment (Regulation 63(1) stage associated with the application of the relevant legal tests, guidance is found within the report titled ‘Natural England’s approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (June 2018). Figure 2 of that document includes a simple flow diagram which is used in order to guide the overall assessment process. A copy of that diagram is included at Annex 9 of this report.

5.12. As previously discussed, deposition at 200m from a road is at a level which is so small as to be insignificant (de minimis) and both Natural England and Highways England (the relevant statutory authorities in such matters) concur that 200m is an appropriate screening distance for use in assessment purposes. That is to say, potential effects can be screened out of the assessment process where qualifying interest features of a European designate site do not fall within 200m of a road affected by the plan or project and this position is reflected in the Design Manual for Roads and Bridges (DMRB) and similarly in guidance issued by Natural England.

5.13. In simple terms, once the distance criteria (200m zone of influence from road) and habitat sensitivities have been established, and effects remained screened in, it is necessary to establish the process contribution, that being either Annual Average Daily Traffic (AADT) Flow, or the % of the critical load / level benchmark. Where the screening assessment indicates that effects are screened out alone, the screening assessment is then applied in combination. In this instance, the Ashdown forest is located within 200m of several roads. A plan is included at Annex 10 which shows the relevant 200m corridors.

5.14. I-Transport LLP has undertaken a specific assessment of traffic movements on relevant roads associated with the Ashdown Forest SPA / SAC, in order to identify relevant increases in traffic movements as a result of the development proposals, when considered in combination with other
relevant plans or projects, notably the Submission Wealden Local Plan. The assessment information is contained within the report, titled “Technical Note” (December 2018).

5.15. The i-Transport assessment is broad and detailed in its scope, presenting AADT analysis for all key vehicular routes associated with the Ashdown Forest. The impact of the development proposals, in AADT terms, is described fully, with reference to the projected position at 2028 in combination with the Wealden Local Plan and those other plans and projects assessed as part of undertaking the Wealden Local Plan HRA. Thus for HRA purposes, an “in combination” assessment of AADT has been undertaken.

5.16. The resultant AADT values for all relevant roads are described at Table 4.1 of the i-Transport Technical Note (2018). This information is reproduced below for ease of reference.

<table>
<thead>
<tr>
<th>Road</th>
<th>Baseline AADT</th>
<th>AADT - 2028 Without Development Proposal (with Wealden Local Plan)</th>
<th>AADT - 2028 With Development Proposal (including Wealden Local Plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Impact of Development Proposal</td>
<td>Total Increase</td>
</tr>
<tr>
<td>A26</td>
<td>16,398</td>
<td>+4,204</td>
<td>20,602</td>
</tr>
<tr>
<td>A22: North of A275 Junction</td>
<td>12,042</td>
<td>+3,835</td>
<td>15,877</td>
</tr>
<tr>
<td>A22: South of A275 Junction</td>
<td>10,228</td>
<td>+3,752</td>
<td>13,980</td>
</tr>
<tr>
<td>A275</td>
<td>4,602</td>
<td>+1,094</td>
<td>5,696</td>
</tr>
<tr>
<td>B2026 – Between Crowborough Road and B2028</td>
<td>5,526</td>
<td>+1,318</td>
<td>6,844</td>
</tr>
<tr>
<td>B2026 – South of Crowborough Road</td>
<td>5,078</td>
<td>+847</td>
<td>5,925</td>
</tr>
<tr>
<td>B2026 – North of Kidd’s Hill</td>
<td>1,444</td>
<td>+655</td>
<td>2,099</td>
</tr>
<tr>
<td>B2026 – Between B2028 and Kidd’s Hill</td>
<td>3,957</td>
<td>+1,246</td>
<td>5,203</td>
</tr>
<tr>
<td>B2188</td>
<td>2,104</td>
<td>+73</td>
<td>2,177</td>
</tr>
<tr>
<td>Crowborough Road</td>
<td>3,221</td>
<td>+1,050</td>
<td>4,271</td>
</tr>
</tbody>
</table>
5.17. As can be seen from Table 4.1 of the i-Transport Technical Note (reproduced above), the AADT impact of the scheme is nugatory. Of the 19 roads assessed, only 10 are predicted to be affected by an increase in AADT resulting from the development proposals. Of these 10 roads, the highest increase in AADT is +51 on the A26, which is 0.25% of the total AADT calculated for the A26 (at 2028 including Wealden Local Plan and the Development Proposals). The next highest is +46 for the A22, south of the A275 junction, which is 0.33% of the total AADT calculated for the A22 (at 2028 including Wealden Local Plan and the Development Proposals).

For remaining roads, AADT values range between +22 (A22 north of the A275 junction) and +12 (relevant to five of the 10 relevant roads). Table 3, below, shows information relevant (only) to those roads where an increase in AADT is predicted as a result of the development proposals.

<table>
<thead>
<tr>
<th>Road Description</th>
<th>Baseline AADT</th>
<th>AADT - 2028 Without Development Proposal (with Wealden Local Plan)</th>
<th>AADT - 2028 With Development Proposal (including Wealden Local Plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Development Proposal Impact</td>
<td>Total Increase</td>
</tr>
<tr>
<td>A26</td>
<td>16,398</td>
<td>+4,204</td>
<td>+51</td>
</tr>
<tr>
<td>A22: North of A275 Junction</td>
<td>12,042</td>
<td>+3,835</td>
<td>+22</td>
</tr>
<tr>
<td>A22: South of A275 Junction</td>
<td>10,228</td>
<td>+3,752</td>
<td>+46</td>
</tr>
<tr>
<td>B2026</td>
<td>5,526</td>
<td>+1,318</td>
<td>+12</td>
</tr>
</tbody>
</table>
5.18. In line with the information presented in Tables 2 and 3, only those roads shown in Table 3 are considered to be of relevance to further considerations relating to traffic related emissions and air quality effects on the Ashdown Forest SPA / SAC resulting from the development proposals.

5.19. A maximum increase of +51 AADT (relevant to the A26), resulting from the emerging development proposals when assessed alone, is concluded by Ecology Solutions to be de minimis given the baseline AADT of 16,398. For clarity, +51 AADT represents an increase of approximately 0.3% of the current baseline AADT for the A26. This increase is so small that any effects arising would not be measurable against the baseline AADT.

5.20. In combination with the predictions associated with the Submission Wealden Local Plan, which in itself has been assessed in combination with other relevant plans and projects, the AADT screening threshold of 1000 is clearly breached, with the additional AADT values being added to a figure which already exceeds the threshold for some roads (see Table 2 above).

5.21. Taking a precautionary approach, and in view of Natural England’s published guidance and relevant case law, further detailed consideration of the proposals has been undertaken in order to ascertain whether an adverse effect on the Integrity of the SPA / SAC would arise as a result of the development proposals. As such, further detailed consideration has been given to site specific air quality data and this is discussed below.

### Table 3: Ashdown Forest roads were an increase in AADT is predicted as a result of the development proposals

<table>
<thead>
<tr>
<th>Between Crowborough Road and B2028</th>
<th>5,078</th>
<th>+847</th>
<th>5,925</th>
<th>+12</th>
<th>+859</th>
<th>5937</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2026 – South of Crowborough Road</td>
<td>1,444</td>
<td>+655</td>
<td>2,099</td>
<td>+12</td>
<td>+667</td>
<td>2111</td>
</tr>
<tr>
<td>B2026 – North of Kidd’s Hill</td>
<td>3,957</td>
<td>+1,246</td>
<td>5,203</td>
<td>+12</td>
<td>+1,258</td>
<td>5215</td>
</tr>
<tr>
<td>B2026 – Between B2028 and Kidd’s Hill</td>
<td>2,104</td>
<td>+73</td>
<td>2,177</td>
<td>+12</td>
<td>+85</td>
<td>2189</td>
</tr>
<tr>
<td>B2188 – Hindleap Lane</td>
<td>6,390</td>
<td>+514</td>
<td>6,904</td>
<td>+17</td>
<td>+531</td>
<td>6921</td>
</tr>
<tr>
<td>Plawhatch Lane</td>
<td>6,640</td>
<td>+496</td>
<td>7,136</td>
<td>+17</td>
<td>+513</td>
<td>7153</td>
</tr>
</tbody>
</table>
5.22. A project specific air quality assessment has been undertaken by Fichtner Consulting. The results of the assessment work undertaken are presented in the report titled “Land at Hesmonds Stud – Air Quality Analysis” (May 2019), which should be read in conjunction with this report.

5.23. With reference to the assessment work undertaken by i-Transport, dispersion modelling has been undertaken. Transects were selected such that the impact of emissions at increased distance from source can be assessed. Three scenarios were assessed; baseline traffic flows as measured in 2016, “Do-Minimum”, which includes traffic growth and measures as set out within the Submission Wealden Local Plan, and “Do-Something” which additionally includes the Development Proposals. Thus the assessment considers effects “in combination”.

5.24. The model used by Fichtner for assessment purposes, includes vehicle emissions factors from the Emissions Factors Toolkit (EFT). The EFT is published by Defra and the Devolved Administrations. It allows for the calculation of road vehicle pollutant emission rates for NOx (amongst other pollutants) for a specified year, road type, vehicle speed and fleet composition. The EFT is updated periodically to account for updates in available data, including emission factors.

5.25. The current version of the EFT (version 8.0.1) was released in December 2017 with the emission factors for NOx taken from the European Environment Agency COPERT 5 emission calculation tool. The EFT can be used to predict future year emissions based on assumptions on the change to the fleet composition. However, recent evidence has shown that vehicle emissions of NOx have not been reducing in line with these projections. As such, the Institute of Air Quality Management (IAQM) released a position statement which suggests that this is because emissions from Euro 6 diesel cars may be under-predicted and emissions during acceleration may not be fully represented.

5.26. However, emissions from current Euro 6 diesel vehicles are lower than Euro 5 vehicles, and Euro VI Heavy Duty Vehicles (HDVs) are delivering substantial benefits over Euro-V HDVs. Thus, even if the reductions are not as large as currently projected, evidence shows that emissions should reduce in the future. To account for these issues, the IAQM recommend that a sensitivity is applied.

5.27. Following from the above, the impact was assessed based upon three sets of emissions factors; (a) based on 2015 levels, (b) where reductions in emissions do occur over future years, but those reductions are not in line with projections to 2028, and (c) is based upon a reduction in emission levels consistent with projections to 2028. Emissions factor “b” (some reduction, but not as great as projections to 2028) is considered to be the most realistic scenario for assessment purposes. As discussed previously, this is a position which Natural England are in agreement (see Annex 1).
5.28. Specifically in relation to emissions factor “b”, this has been calculated using the “Calculator Using Realistic Emissions for Diesels (CURED) V3A calculator. This calculator was developed by AQc and has been used in AQc’s assessment work undertaken to support the evidence base for the Wealden Local Plan process.

5.29. With reference to the detailed assessment work undertaken by Fichtner Consulting, it is considered that the impact of vehicle emissions associated with the proposed development (when considered alone) is not significant (i.e. de minimis). As can be seen from Table 3 of the Fichtner report, which shows the maximum Nitrogen deposition (NOx and NH₃) impact as a percentage of the lower Critical Load, even using the emissions factor where no reductions in emissions are taken account of, the impact expressed as a percentage of the Critical Load is negligible in all instances. The relevant percentages range from 0.08% for Plawhatch Lane to 0.36% for the A26 (west). In line with the relevant legal tests and case law, it is of course however, necessary to assess the proposals in combination with other relevant plans and projects. It is also necessary to consider the background situation which includes nitrogen deposition impacts arising from other sources, to which any in combination traffic emissions effect will be added.

5.30. As discussed further above, the air quality assessment modelling work undertaken by Fichtner includes specific consideration of planned local growth as described (and indeed assessed in terms of air quality impacts) within the Submission Wealden Local Plan. The Do Something scenario which was modelled by Fichtner, adds the development proposals to this projected growth.

5.31. Section 2.4 of the Fichtner report gives the results of the analysis undertaken in relation to the various scenarios tested. The reader is directed to that information, in particular Tables 3 and 4 of that report, for the detailed results. For clarity, Table 3 of the Fichtner report shows the maximum Nitrogen deposition impact as a % of the lower Critical Load (road traffic emissions only), including both NOx and NH₃ (ammonia). It presents the information relevant to the Do Minimum and Do Something scenarios for the three emissions factors.

5.32. With reference to the results presented within the Fichtner report, the relevant impacts relating to road traffic are set out below in Table 4.

<table>
<thead>
<tr>
<th>Road</th>
<th>AADT impact of project</th>
<th>Total AADT - 2028 Developmen t Proposal and Wealden Local Plan</th>
<th>Distance &gt;100% lower CL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Emissions factor “a”</td>
</tr>
<tr>
<td>A26 (E)</td>
<td>+51</td>
<td>20,653</td>
<td>4m</td>
</tr>
<tr>
<td>A26 (W)</td>
<td>+51</td>
<td>20,653</td>
<td>9m</td>
</tr>
<tr>
<td>A22: North of A275</td>
<td>+22</td>
<td>15,899</td>
<td>4m</td>
</tr>
</tbody>
</table>
Table 4: Showing impacts of the development proposal; AADT and the distance at which impacts fall below the minimum Critical Load (NOx and NH3) under the three different emissions factors

5.33. As can be seen from Table 4 above, impacts from road traffic (excluding background levels) are limited to the A26 and A22. For the A26, in applying all three emissions factors (a, b and c), deposition greater than the minimum Critical Load occurs to the west (9m, 5m and 3m respectively). The east of the A26 sees deposition greater than the minimum Critical Load only in relation to emissions factors “a” and “b” (4m and 1m respectively).

5.34. For the A22 impacts are even more limited. To the east of the northern section of the A275, deposition is greater than the minimum Critical Load under emissions factors “a” and “b” (4m and 1m respectively) while to the west of the same stretch, deposition is only greater than the minimum Critical Load under emissions factors “a” (2m). For the stretch of the A22 running south of A275, deposition is greater than the minimum Critical Load only under emissions factors “a” and only to the east (1m).

5.35. For completeness, the modelling work undertaken by Fichtner has presented information pursuant to a ‘worst-case’ scenario, where no account has been taken of any reductions in emissions from 2015 levels (e.g. through technological improvements). This is not a realistic proposition for use in the assessment process, indeed it is a fanciful scenario. As already discussed, and as accepted by Natural England, improvements regarding emissions are being, and will continue to be realised. Thus
emissions factor “b” which is the most realistic and still provides an appropriate level of precaution, is that which should be included within a robust assessment, a position on which Ecology Solutions and Natural England agrees.

5.36. The Fichtner assessment confirms that, in assuming no reduction in emissions from 2015 levels, total nitrogen deposition (derived from both NOx and NH3) from road traffic sources (in combination) is predicted to exceed the Critical Load for heathland habitat to the west and east of the A26. However, this drops below the Critical Load at a maximum distance of just 9m from the edge of the road. For the A22 north of the A275, total deposition drops below the Critical Load at a maximum distance of 4m from the edge of the road. For the A22 south of the A275, this is reduced to just 1m from the edge of the road and is only relevant to the west.

5.37. As previously discussed, it is considered necessary, in undertaking a robust assessment, to include specific consideration of the background levels associated with Nitrogen deposition. Information in this regard is presented at Table 4 of the Fichtner Consulting report. That table shows the maximum nitrogen deposition impact including background levels in kg/N/ha/yr and the results are reproduced in the tables below for ease of reference.

<table>
<thead>
<tr>
<th>Road</th>
<th>Baseline</th>
<th>Scenario A</th>
<th>Change</th>
<th>&gt;1.7 kg/N/ha/yr (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deposition (kg/N/ha/yr)</td>
<td>Change (kg/N/ha/yr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A26 (E)</td>
<td>24.3</td>
<td>27.0</td>
<td>2.7</td>
<td>5</td>
</tr>
<tr>
<td>A26 (W)</td>
<td>29.2</td>
<td>32.8</td>
<td>3.6</td>
<td>10</td>
</tr>
<tr>
<td>A22: North of A275 Junction (E)</td>
<td>24.2</td>
<td>27.2</td>
<td>3.0</td>
<td>7</td>
</tr>
<tr>
<td>A22: North of A275 Junction (W)</td>
<td>22.5</td>
<td>25.0</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>A22: South of A275 Junction (E)</td>
<td>20.7</td>
<td>23.2</td>
<td>2.5</td>
<td>6</td>
</tr>
<tr>
<td>A22: South of A275 Junction (W)</td>
<td>19.7</td>
<td>21.8</td>
<td>2.2</td>
<td>2</td>
</tr>
<tr>
<td>B2026 – (E)</td>
<td>17.5</td>
<td>18.6</td>
<td>1.1</td>
<td>0</td>
</tr>
<tr>
<td>B2026 (W)</td>
<td>16.3</td>
<td>17.0</td>
<td>0.7</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 5: Maximum nitrogen deposition impact including background levels as relevant to Scenario A (no reduction in emissions)

<table>
<thead>
<tr>
<th>Road</th>
<th>Baseline</th>
<th>Scenario B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deposition (kg/N/ha/yr)</td>
<td>Change (kg/N/ha/yr)</td>
</tr>
<tr>
<td>A26 (E)</td>
<td>24.3</td>
<td>23.2</td>
</tr>
<tr>
<td>A26 (W)</td>
<td>29.2</td>
<td>27.6</td>
</tr>
<tr>
<td>A22: North of A275 Junction (E)</td>
<td>24.2</td>
<td>23.2</td>
</tr>
<tr>
<td>A22: North of A275 Junction (W)</td>
<td>22.5</td>
<td>21.6</td>
</tr>
<tr>
<td>A22: South of A275 Junction (E)</td>
<td>20.7</td>
<td>20.2</td>
</tr>
<tr>
<td>A22: South of A275 Junction (W)</td>
<td>19.7</td>
<td>19.2</td>
</tr>
<tr>
<td>B2026 – (E)</td>
<td>17.5</td>
<td>17.3</td>
</tr>
<tr>
<td>B2026 (W)</td>
<td>16.3</td>
<td>16.1</td>
</tr>
<tr>
<td>B2188 (E)</td>
<td>14.7</td>
<td>14.3</td>
</tr>
<tr>
<td>B2188 (W)</td>
<td>14.9</td>
<td>14.5</td>
</tr>
<tr>
<td>Plawhatch Lane (E)</td>
<td>17.2</td>
<td>16.4</td>
</tr>
<tr>
<td>Plawhatch Lane (W)</td>
<td>16.4</td>
<td>15.8</td>
</tr>
</tbody>
</table>

Table 6: Maximum nitrogen deposition impact including background levels as relevant to Scenario B (some reduction in emissions in line with CURED projections)
<table>
<thead>
<tr>
<th>Road</th>
<th>Baseline</th>
<th>Scenario C</th>
<th>Deposition (kg/N/ha/yr)</th>
<th>Change (kg/N/ha/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A26 (E)</td>
<td>24.3</td>
<td>21.9</td>
<td>-2.4</td>
<td></td>
</tr>
<tr>
<td>A26 (W)</td>
<td>29.2</td>
<td>25.8</td>
<td>-3.4</td>
<td></td>
</tr>
<tr>
<td>A22: North of A275 Junction (E)</td>
<td>24.2</td>
<td>22.0</td>
<td>-2.3</td>
<td></td>
</tr>
<tr>
<td>A22: North of A275 Junction (W)</td>
<td>22.5</td>
<td>20.6</td>
<td>-1.9</td>
<td></td>
</tr>
<tr>
<td>A22: South of A275 Junction (E)</td>
<td>20.7</td>
<td>19.4</td>
<td>-1.3</td>
<td></td>
</tr>
<tr>
<td>A22: South of A275 Junction (W)</td>
<td>19.7</td>
<td>18.5</td>
<td>-1.2</td>
<td></td>
</tr>
<tr>
<td>B2026 – (E)</td>
<td>17.5</td>
<td>16.7</td>
<td>-0.9</td>
<td></td>
</tr>
<tr>
<td>B2026 (W)</td>
<td>16.3</td>
<td>15.6</td>
<td>-0.6</td>
<td></td>
</tr>
<tr>
<td>B2188 (E)</td>
<td>14.7</td>
<td>14.1</td>
<td>-0.6</td>
<td></td>
</tr>
<tr>
<td>B2188 (W)</td>
<td>14.9</td>
<td>14.3</td>
<td>-0.6</td>
<td></td>
</tr>
<tr>
<td>Plawhatch Lane (E)</td>
<td>17.2</td>
<td>16.0</td>
<td>-1.3</td>
<td></td>
</tr>
<tr>
<td>Plawhatch Lane (W)</td>
<td>16.4</td>
<td>15.4</td>
<td>-1.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Maximum nitrogen deposition impact including background levels as relevant to Scenario C (reductions in line with EFT 2018)

5.38. As can be seen from tables 5, 6 and 7 above, the background (baseline) levels for relevant roads are all in exceedance of the lower (10kg/N/ha/yr) Critical Load threshold, with values of between 14.7 kg/N/ha/yr (B2188 east) and 29.2 kg/N/ha/yr (A26 west). Under the worst case (fanciful) Scenario A, the change in kg/n/ha/yr arising as a result of deposition from traffic emissions ranges from between 0.1 kg/n/ha/yr (B2188 east / west) and 3.6 kg/n/ha/yr (A26 west), whilst under the realistic Scenario B, betterment is achieved over the baseline for all roads assessed and this betterment increases further still in relation to Scenario C.

5.39. With reference to the NECR 210 report (extract included at Annex 8), Table 21 of that report shows the relationship between nitrogen deposition and
species richness expressed as the amount of incremental nitrogen deposition associated with a reduction in species richness of lowland heath by one species. Relevant information in this regard is reproduced in the table below.

<table>
<thead>
<tr>
<th>5kgN/ha/yr background</th>
<th>10kgN/ha/yr background</th>
<th>15kgN/ha/yr background</th>
<th>20kgN/ha/yr background</th>
<th>25kgN/ha/yr background</th>
<th>30kgN/ha/yr background</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4kg</td>
<td>0.8kg</td>
<td>1.3kg</td>
<td>1.7kg</td>
<td>2.0kg</td>
<td>2.4kg</td>
</tr>
</tbody>
</table>

Table 8: Amount of additional nitrogen deposition (kg/N/ha/yr) required to reduce species richness of lowland heath by one species. Reproduced from Table 21 of the NEC210 report

5.40. As can be seen from Table 8 above (and Annex 8) as background levels of nitrogen deposition increase, so the amount of additional nitrogen required to further reduce species diversity also increases. Under realistic Scenario B, the betterment over the current baseline gives rise to the conclusion that loss of even one species would not occur, indeed species richness could be expected to increase over time. In looking to the worst case (fanciful) Scenario A, for those roads where the baseline is circa 15 kg/N/ha/yr, as relevant to Plawhatch Lane, the B2188 and the B2026, in accordance with the NEC210 report an increase of 1.3 kg/N/ha/yr would be required in order for species richness to be reduced by one species. In all instances the predicted increases in deposition as a result of traffic emissions are well below the level at which species richness could be reduced, the highest being 1.1 kgN/ha/yr for the B2026 (east) and even then the baseline is 17.5 kgN/ha/yr so it would be expected that an increase of greater than 1.3 kgN/ha/yr would be required for species richness to be reduced.

5.41. With regard to the A26 and A22, a higher baseline is documented, ranging from 19.7 kgN/ha/yr to 29.2 kgN/ha/yr. In accordance with the NECR 210 report (and Table 8 above) at least 1.7 kgN/ha/yr would be required in order to bring about a reduction of species richness by one species. Whilst noting that for the A26 and northern section of the A22 even higher levels of nitrogen deposition would be required to bring about a loss in species richness (in the order of 2 – 2.4 kgN/ha/yr), by way of a precautionary exercise, Fichtner Consulting undertook to assess the distance (from the kerb) at which deposition falls below 1.7 kgN/ha/yr. As can be seen from Table 5 above, the maximum distance at which this occurs is 10m and this relates to the A26 (west). For the A26 (east) deposition falls below 1.7 kgN/ha/yr at 5m. For the A22, the maximum distance at which deposition falls below 1.7 kgN/ha/yr is 7m, north of the A275 junction (east), with 6m, 2m and 5m relevant to other modelled sections.

5.42. It follows from all the above, that any perceived effects which could arise as a result of increased traffic (when considered in combination) are relevant only to very localised parts of the SAC / SPA and that under realistic Scenario B a betterment over the current situation would be realised in any event.
5.43. To further inform this assessment and ensure that proper regard has been had to the relevant legal tests Ecology Solutions has reviewed the habitat composition present within those zones adjacent to the A26 and A22 which will see a continued increase in deposition over the minimum Critical Load.

5.44. Included at Annex 11 is a series of plans reproduced from a review of the Ecus reporting on habitat condition which forms part of the evidence base to the Submission Wealden Local Plan. These plans show the results of land cover (habitat) mapping, indicating where the various habitat features are present. The reader’s attention is drawn to these plans and also figures 3 and 4 appended to the Fichtner report, which depict the relevant ‘zones of influence’ attributed to the SPA / SAC on a worst-case basis (no reduction in emissions). In addition, to assist the reader in understanding the types of habitat present adjacent to the relevant roads and within the relevant ‘zones of influence’, a series of aerial images are included at Annex 12 of this assessment report.

5.45. With regard to the A26 the (fanciful) worst-case impact of the development proposals, when viewed in combination with other plans and projects, results in an increase in nitrogen deposition above the minimum Critical Load in three broad locations. The modelled deposition rates demonstrate that this impact extends to 9m from the kerb, thereby impacting a narrow corridor of vegetation associated with the SPA / SAC. A similar zone of effect is defined through the application of the 1.7 kgN/ha/yr threshold for loss of species richness (by one species), with the zone of effect in that instance being 10m.

5.46. Turning to the habitat mapping (see Annex 11), it is clear that for the A26, the worst case deposition scenario associated with the development proposals (emission factor “a”) would impact only broad leaved woodland and stands of Bracken. Neither of these habitats are qualifying interest features of the SPA / SAC.

5.47. Under the more realistic emission factor scenario “b”, these same two habitat types are affected adjacent to the A26, but at a reduced quantum, with the extent of impact reaching only 5m.

5.48. Again with reference to the habitat mapping (see Annex 11), in relation to the A22 north of the A275, the worst case traffic deposition scenario associated with the development proposals (emission factor “a”) would impact only broad leaved woodland, which is not a qualifying interest features of the SAC / SPA, to a distance of 4m to the east and 2m to the west. The relevant zone of effect as defined through the application of the 1.7 kgN/ha/yr threshold for loss of species richness (by one species) is 7m and in this location, again only woodland is present.

5.49. Under the more realistic emission factor scenario “b”, this same habitat (woodland) is affected adjacent to the A22, north of the A275, but only to a distance of 1m and only in relation to the east of the road.

5.50. Regarding the A22 south of the A275, the worst case deposition scenario associated with the development proposals (emission factor “a”) would only
give rise to an impact to the east of the road and only at a distance out to 1m. The relevant zone of effect as defined through the application of the 1.7 kgN/ha/yr threshold for loss of species richness (by one species) is 6m. Whilst for this part of the SPA / SAC, heath habitats do extend closer to the road than is the case for other roads associated with the SAC / SPA, they not to extend to the kerb. A mown verge of approximately 6m – 8m is present along this stretch of the A22, as can be seen by reference to the aerial imagery included at Annex 12. This matter is discussed further below.

5.51. Under the more realistic emission factor scenario “b”, for the A22 north of the A275, deposition would be at a level where the minimum Critical Load is not breached.

5.52. In the light of the above, it can be concluded that even under the worst case (fanciful) scenario any exceedance of the minimum critical load attributed to in combination effects would not result in adverse effects on qualifying interest features of the SPA / SAC (e.g. lowland dry and wet heath). Any effects would be minor in nature and focussed on grass verge, woodland and bracken habitats. Whereas, under the realistic Scenario B, any effects are further reduced and indeed a betterment over the existing situation would be realised. In this light the effect of the proposals when considered in combination can be considered to represent a minor retardation of overall theoretical levels of improvement.

Atmospheric concentrations

5.53. As previously discussed, the Critical Levels for annual average atmospheric concentrations of NOx and ammonia (NH₃) are 30 µg/m³ and 1 µg/m³ respectively.

5.54. As confirmed in section 2.5 of the Fichtner Consulting report, the maximum in combination concentration of NOx from all traffic emissions (baseline + Wealden Local Plan + proposed development), assuming the fanciful scenario of no reduction in emissions between now and 2028, is 76.89 µgm/m³. This is significantly higher than the Critical Level and exceedances occur along the A26 and A22. However, as shown in Table 5 of the Fichtner Consulting report, the impact of the proposed development traffic alone, is very small indeed at less than 0.5% of the Critical Level at the kerb and dropping off rapidly as distance is increased.

5.55. In line with realistic scenario (B) the impact is significantly reduced with the maximum NOx concentrations for all (in combination) traffic emissions, falling below the baseline level and the impact of the proposed development traffic reducing to 0.31% of the Critical Level.

5.56. In relation to ammonia, as can be seen from Table 7 of the Fichtner Consulting report, again the existing baseline shows an exceedance of the Critical Level at the A26 and along the northern part of the A22 and in this instance the Critical Level remains exceeded in all development scenarios. However, again the impact of the proposed development is very small at 0.003 µg/m³ (0.30% of the Critical Level) or less.
5.57. Following from the above, it should be highlighted again that that section of the A26 where any perceived effects could arise, comprises dense Bracken and woodland, not qualifying interest features of the SAC. Also, for the northern part of the A22, as already discussed the relevant part of the SAC comprises woodland and not qualifying interest features of the SAC.

Summary relating to the Integrity test

5.58. As discussed within this report, it is clear from the suite of available evidence that road traffic emissions are in fact not likely to be playing a significant role in the exceedances of relevant critical loads / levels across the SPA / SAC. A host of additional (identified) air quality impact pathways exist and other pathways for potential habitat degradation have been documented. Notwithstanding that relevant critical loads and levels are currently understood to be exceeded in some instances, with the exception of one SSSI management unit, all are either in favourable condition or are currently classified as recovering towards favourable condition.

5.59. Natural England’s suggested approach to addressing the background (existing) situation is through a strategic approach such as through a Shared Nitrogen Action Plan (SNAP). Such an approach could usefully employ a range of targeted measures. Vegetation management within Ashdown Forest will likely be a key element of any such strategy and it is understood from discussions with Natural England that this will include (but is not limited to), a more appropriate grazing regime and the process of securing this management measure is currently being progressed. In addition, other management measures which could come forward include widespread vegetation management / removal (stripping of 'locked in' Nitrogen). The SNAP would however have a broader remit than any measure/s focussed on localised traffic emissions and it would be expected that, with the exception of addressing European imports, other identified pathways such as those related to agriculture would be addressed.

5.60. Specific regard has been had to evidence published by Natural England in relation to the tolerances of heathland habitats where the critical load for nitrogen is already exceeded. In such instances, even significant increases in nitrogen deposition, actually has a limited impact on the species richness of lowland heath habitats. It is also noted that the Ecus study has not been able to clearly demonstrate harm, which is directly attributable to vehicular emissions, at a scale which leads to a conclusion that the Integrity of the SPA / SAC is under threat.

5.61. Reference is drawn to the plan included at Annex 10 of this report which shows the 200m (screening) corridors associated with the SPA / SAC, showing potential impacts in context. More importantly however, reference is drawn to Tables 4 to 8 of this report and to the suite of plans included at Annexes 11 and 12. This information, taken together demonstrates that even under the worst case, fanciful, scenario (where no improvements are accounted for), in combination, any effect is limited to only the A26 and A22, is extremely limited in extent and would only affect habitats which are not qualifying interest features of the SPA / SAC.
5.62. It can be deduced that the maximum impact of emissions from additional vehicle movements would not be significant when the project is considered alone. Through dispersion modelling, it has been demonstrated that effects can be considered nugatory when the project is considered alone. Further, when considered in combination, any potential effects arising, even under the worst-case scenario only affect habitats which are inconsequential to the qualification of the site as an SPA / SAC. Under the realistic emission factor “b” scenario, effects are either further reduced or non-existent.

5.63. As is demonstrated through the assessment work described above, any perceived effects are confined to narrow corridors adjacent to the relevant roads (e.g. the A26 and A22). Roadside habitats in general are subject to constant pressures which impact the structure and diversity of the habitat. In many instances (as is relevant to roads associated with the Ashdown Forest) mown verges are maintained and the habitats are subject to the effects of road salt / grit, run off / spray and regular turbulence caused by passing traffic, for example. These factors, especially when associated with main A roads, give rise to conditions which are not controllable for the purpose of management practices associated with a designated site such as the Ashdown Forest SAC / SPA. In simple terms, this habitat is ‘lost’ from the SAC / SPA and any perceived adverse effects in this zone cannot be considered significant for the purpose of the Habitats Regulations Assessment. With specific regard to the woodland and Bracken habitat which is affected to at least some degree by the development proposals, when considered in combination, retention of woodland, including roadside trees is a feature of the management regime and there is no intention to remove woodland in order to increase the area of wet and dry heath, for example. Further, regarding the area of Bracken at the A26, this small enclosed area, adjacent to the road would not likely form any part in heath restoration proposals being too small, isolated and subject to other pressures given its location.

5.64. It is noted that in undertaking its Appropriate Assessment of the Submission Wealden Local Plan, Wealden District Council have concluded that a range of mitigation / avoidance measures are required in order to conclude no adverse effect on the integrity of the SPA / SAC in view of the Plan. Ecology Solutions consider that this is an overly precautions assessment given the evidence base, a position supported by Natural England.

5.65. Natural England’s clear position regarding the effects resulting from the Proposed Submission Wealden Local Plan is described in its letter of 5th October 2018. It is stated (page 2 of the letter):

“Natural England is satisfied that it can be ascertained that the plan or project will not adversely affect the integrity of Ashdown Forest Special Area of Conservation (SAC), Lewes Downs SAC and Pevensey Levels SAC and Ramsar from air quality impacts. Natural England’s advice regarding air quality is that this conclusion can be reached without mitigation measures being needed under the specific requirements of the Habitats Regulations. This is based on the evidence provided, our expert knowledge of the particular
characteristics, interest features and management of the designated sites in question, and our professional judgement."

5.66. It is therefore clear that Natural England is content that in applying the legal tests of the Habitats Regulations when addressing the development growth (and thus traffic growth) associated with the Wealden Local Plan, a conclusion of no adverse effect on integrity can be reached. Importantly, this conclusion is reached without the need for any mitigation.

5.67. Proceeding on the basis that the growth proposed within the Wealden Local Plan does come forward, it is necessary to consider the development proposals in combination with that growth for the purpose of this assessment and this has been done.

5.68. Should the Submission Wealden Local Plan be held as sound and adopted on the basis that the effects of the Plan require mitigation, it follows that the required measures (or a requirement to deliver appropriate measures) will be enshrined within the Plan. To be legally compliant, the adopted Wealden Local Plan will not give rise to an adverse effect on the Ashdown Forest SPA / SAC. Any residual effect will be de minimis. The effects of the development proposals when considered in combination with the Wealden Local Plan would also be de minimis.

5.69. The very localised nature of any effect arising from the development proposals gives further weight to the fact that the integrity of the SPA / SAC would not be adversely affected.

5.70. Of course, Natural England’s position is that the effects of the Wealden Local Plan do not require mitigation in respect of air quality impacts on the Ashdown Forest SPA / SAC. Under this scenario (one with which Ecology Solutions agrees), again the nugatory effect of the proposed development cannot be held as one which gives rise to an adverse effect on the integrity of the SPA / SAC, when considered both alone and in combination with other plans or projects.

Overall Conclusion

5.71. In the light of the best available scientific evidence, it can be concluded that the development proposals associated with the Application Site could come forward on the basis that they will not result in an adverse effect on the integrity of the Ashdown Forest SPA / SAC as a result of air quality impacts (traffic emissions), when the project is considered both alone and in combination with other plans or projects. It is considered that such a conclusion can be reached in the absence of any requirement for project specific mitigation / avoidance measures.