Harlow Local Development Plan Examination

Habitats Regulations Assessment of Harlow Local Development Plan – March 2019

Further to our representations at the Harlow Local Plan Examination in Public on the 28th of March 2019 and your letter dated the 9th of April 2019 Natural England provides the following advice on the March 2019 iteration of the Habitats Regulations Assessment ('HRA').

This response should be read in conjunction with our previous Local Plan responses, our Matters and Questions response and our advice relating to Epping Forest District Local Plan HRA included in appendix 1. We will continue to work with Harlow Council to agree a Statement of Common Ground and address any outstanding issues not yet agreed and work with them and neighbouring Local Authorities to ensure that the mitigation strategy mentioned below is implementable and effective.

These comments are based on the information and evidence which has been presented to us within the HRA, other information put forward through the local plan and examination process, our expert knowledge of the particular characteristics, interest features and management of the designated sites in question and our professional judgement.

Natural England are assuming in these comments that the Planning Inspector will determine that despite overlapping policies such *HGT1 Development and Delivery of Garden Town Communities in the Harlow and Gilston Garden Town* the Harlow Local Plan can be considered separate and distinct from the other Housing Market Authority ('HMA') plans. If the inspector determines that HMA growth must be considered jointly then our comments relating to Epping Forest Local Plan HRA in appendix 1 are likely to be directly applicable to Harlow Local Plan.

Recreational Pressure on Lee Valley Special Protection Area ('SPA') and Ramsar
Natural England confirm that we do not disagree with the conclusion that Harlow Local Plan will have no adverse effect the integrity of the Lee Valley SPA and Ramsar as a result of recreational pressure.

Recreational Pressure on Epping Forest Special Area of Conservation ('SAC')
Natural England cannot currently agree with the conclusion that Harlow Local Plan will have no adverse effect on Epping Forest SAC in combination as a result of visitor pressure. The HRA correctly states that available data suggest that Harlow lies on the fringes of the core catchment, however:

- A small part of Harlow District will fall within the identified Zone of Influence ('ZoI') for Epping Forest SAC. Whilst we accept that there is only one allocation (HS2-9) proposed within the ZoI (plus any potential windfall) it is necessary to ensure that this is appropriately considered alongside other development within the ZoI. The approach to mitigating these developments should be in accordance with the mitigation strategy and the effectiveness of the strategy should be ensured by appropriately worded policy.
- The ZoI is based on autumn/winter surveys with summer surveys due to take place in June 2019. Whilst we agree that the winter data is robust and best available, some of the site allocations may need to be screened back in to address recreational pressure impacts should the results from the summer visitor survey expand the ZoI. Plan policy should be constructed in such a way that it will not be undermined by the provision of new evidence.

- There is no complete mitigation strategy currently agreed or in place for dealing with recreational pressure on Epping Forest SAC. We welcome the HMA work undertaken to date in terms of agreeing an interim Mitigation Strategy to address Site Access Management Mitigation Measures (SAMMs) and the commitment to update this. We also welcome the commitment to undertake a further summer visitor survey to confirm the Zone of Influence. However we do have a number of outstanding concerns, particularly relating to SANGS as outlined below, which means that we cannot currently discount an adverse effect on site integrity.

The provision of alternative recreational land is needed to attract new residents away from protected sites and can therefore be considered as a mechanism for avoiding harm. We have concerns that some of the strategic allocations within the HMA will not have the capacity to accommodate the required level of natural green space within the boundaries of the proposed developments. Where this is the case alternative provisions for strategic SANGS need to be identified to ensure there is sufficient recreational land provision close by to the new development to draw visitors away from the SAC.

In Natural England's view a combination of Strategic Access Management Measures and SANGS are required to address the recreational impacts of residential growth and development. Both of these measures should be included in the final Mitigation Strategy, with a commitment to having these in place by the time of local plan adoption.

We will continue to work with Harlow Council, the City of London Conservators, and other LPA's within the ZoI to develop the Mitigation Strategy in this regard. In our view a Green Infrastructure / SANG Strategy will be needed to identify the location and amount of high quality green infrastructure/SANG provision needed to mitigate recreational impacts on the SAC from residential allocations and the Garden Communities.

Natural England are of the view that these issues can be resolved with further policy rewording, commitments to identifying the needs for the provision of green infrastructure including Suitable Alternative Natural Green Space (SANG), updating the MOU and commitments to formalising the need for any mitigation strategy to be adopted as an SPD and ensuring there is a policy commitment for a recreational mitigation strategy (to include SAMMs and SANGs) to be put in place by the time the plan is adopted.

There is currently no policy in the Harlow District Plan relating to internationally designated sites. Paragraph 9.2 of the HRA makes recommendations that are not currently reflected in Local Plan policy. We advise that it would be appropriate to include the following wording or similar into plan policy:

'Developments that are likely to have an adverse impact, either alone or in-combination, on European Designated Sites must satisfy the requirements of the Habitats Regulations, determining site specific impacts and avoiding or mitigating against impacts where identified. Mitigation to address recreational impacts may involve providing or contributing towards a combination of the following measures:

i. Access and visitor management measures within the European Site;
ii. Improvement of existing greenspace and recreational routes;
iii. Provision of alternative natural greenspace and recreational routes;
iv. Monitoring of the impacts of new development on European designated sites to inform the necessary mitigation requirements and future refinement of any mitigation measures.

A Recreational Mitigation Strategy document concerning Epping Forest SAC will be produced by the time of adoption of the Harlow Local Plan. Development proposals will need to take account of this Mitigation Strategy. Where necessary, this will include new residential development contributing towards implementation of this Mitigation Strategy.'

Air Pollution on Epping Forest SAC
Natural England confirms on the basis of the evidence provided that we are able to conclude that:

- There will be no adverse effect on integrity of Epping Forest SAC as a result of Harlow District Local Plan **alone** as its effect is considered to be small/negligible.

- There will be no adverse effect on integrity for the HMA and London Authorities excluding Epping Forest in combination with each other for similar reasons.
- The in combination effect of the HMA authorities and the London Authorities including Epping Forest District Council Local Plan shows that it is the EFDC local plan which is the dominating contributor of pollutant emissions.

It should be noted that when the London Authorities are undertaking their own Local Plan HRAs there may be other roads within the respective authorities that have the capacity to impact on Epping Forest SAC. The assessment within the Harlow Council Local Plan HRA is restricted to key roads of relevance to Harlow Council.

Responsibility for Mitigation to Air Pollution Impacts

Whilst Natural England recognises that Harlow District Local Plan will contribute a small/negligible amount to air quality issues at Epping Forest SAC we advised at the hearing that a line has to be drawn somewhere. Following scrutiny of the Epping Forest District Local Plan HRA and the information provided in paragraphs 6.6 to 6.8 we advise that it would not be inappropriate for the planning inspector to conclude that responsibility for mitigating air quality impacts on Epping Forest SAC should fall on Epping Forest District Council. This accords with the advice that we have presented in response to Epping Forest District Local Plan HRA (see appendix 1).

Uncertainty

You will note from our response to Epping Forest District Local Plan HRA (appendix 1) that we have raised a number of questions relating to the air quality modelling which may require further assessment and may affect the nitrogen contributions of the planned growth in Epping Forest district, other HMA and the London Authorities. We do not anticipate that the contribution from the non-Epping Forest District Council HMA's will increase significantly, however, in the event that further work is carried out ideally any revised figures for the modelled scenarios should be carried through the Harlow District Local Plan HRA to enable confirmation of this conclusion.

Water Quality

Natural England notes from the HRA that Thames Water has confirmed that Rye Meads Waste Water Treatment Works is expected to have headroom until 2036 based on a recent position statement which has only recently be supplied to us. It would be helpful if this could be presented as an Annex to the updated HRA. It is not clear based on our initial viewing of the document whether there is sufficient certainty within the mission statement to meet the tests of the Habitats Regulations.

The appropriate assessment concludes that *"it will be necessary to ensure that development within the catchment of Rye Meads WwTW [~~to~~] keep pace with the provision of wastewater treatment infrastructure and environmental capacity there."*

There is currently nothing within plan policy to ensure this. If there is uncertainty about the capacity of the WWTW then we recommend the following policy wording:

'The Authority will co-operate with utilities and service providers to ensure that appropriate capacity is available to serve new development and ensure new development does not have an adverse effect on the Lee Valley Special Protection Area. New development post 2026 will only be permitted if the required capacity is available at Rye Meads Sewage Treatment Works, including any associated sewer connections.'

Appendix 1

Matter 1 Issue 5: Have the requirements of the Conservation of Habitats and Species Regulations 2017 been met?

1. NE's summary of advice:

The advice contained in this letter should be read in conjunction with the advice we provided to the examination in relation to Matter 1. This response provides our comments on the updated Habitats Regulations Assessment (HRA) dated January 2019. We will continue to work with Epping Forest District Council and partners in relation to the HRA and the Mitigation Strategy. These comments are based on the information and evidence which has been presented to us as part of the examination, our expert knowledge of the particular characteristics, interest features and management of the designated sites in question and our professional judgement. We recognise that further work is ongoing but is not yet in a state of completion. We have based our response around the Inspectors broad question as posed above.

Air Pollution

1.1 Natural England agrees with the updated HRA in relation to the air pollution impacts on Epping Forest Special Area of Conservation (SAC) where it **identifies the need for mitigation measures to enable a conclusion of no adverse effect on integrity to be reached**. The conclusion of the appropriate assessment for air pollution impacts of the HRA (paragraph 6.24) states that " ….*it is considered that the delivery of the planned mitigation will ensure that no adverse effect on the integrity of the SAC will arise*". Whilst NE agrees that mitigation measures are required, we have concerns that the mitigation measures proposed in Policies T1 and DM22 may not be wholly effective in this regard. This is consistent to the advice we have given in relation to Ashdown Forest. The measures proposed in Policies T1 and DM22 include the introduction of electric vehicle charging points in new developments, promoting sustainable transport choice, revised stringent parking standards, public transport improvements, and promotion of high speed broadband. Whilst these are measures that may make some contribution to reducing background nitrogen loads, there is no supporting evidence provided as to their efficacy or certainty as to their delivery. We recognise that this is ultimately a matter for the competent authority.

Natural England also has the following additional concerns:

- When considering the figures provided in the submitted HRA, the critical loads for Total Nitrogen deposition will continue to be exceeded (see Epping Forest SAC CO Supplementary Advice 2019) and the indicated delays in reaching the critical load will most significantly impact on the woodland SAC habitat features (effectively exacerbating the adverse effects of excessive nitrogen deposition) by virtue of the habitats that are present in the vicinity of location N and the proximity of woodland features (notably trees, bryophytes/lichens and ground flora) to the roadside at A1, B1, C1, C2, D1, D2, H, I, K, L and P. This includes specific concerns about conserving and sustaining a viable population of the endangered and vulnerable Knothole moss *Zygodon forsterii*. This species is an important SAC woodland feature and is vulnerable to local extinction, with nitrogen deposition identified as a threat. Natural England cannot currently therefore discount an adverse effect on the SAC woodland feature.

- In addition to this, there is predicted to be a smaller magnitude of effect on the heathland features of B1, C1 and C2 in areas located close to key roads, and this will prolong and exacerbate the negative trends described above. Surprisingly and fortuitously, the increases in Total Nitrogen deposition associated with DS2 are predicted to be small at distances understood to be relevant for the more sensitive sundew species. In summary, the delays will perpetuate undesirable soil and air conditions (i.e., degrading chemical and biological processes that support SAC habitats) for woodland SAC features thus contributing to adverse trends that affect the vitality and regeneration capacity of key and character species (i.e. Changing the composition of SAC habitats by reducing species abundance or diversity). There is also a risk that heathland areas closest to key roads and the Wake Arms roundabout will be subject to long-term exceedances and an affected seedbank/soil mycorrhiza that will cause progressive deterioration in species diversity and limit its capacity for restoration, beyond the delay of a few years suggested. Based on the HRA data supplied, Natural England advises that it is the marginal areas of the heathland that are likely to be affected most by the prolonged exceedances of Total Nitrogen and DS2 attributed depositions rather than the core areas and is regarded on a precautionary basis as having an adverse effect on the SAC heathland features, but subject to additional targeted management interventions (not yet agreed) may be regarded as principally a temporary delay in SAC heathland habitat restoration.

- The HRA may have underestimated Nitrogen and Ammonia deposition. Appendix D para 6.4 states that a single deposition velocity for short vegetation has been used for modelling NO2 deposition rates. A deposition velocity for forest should have been used as all of the transects are located in woodland / forest habitat, some also include lowland heathland. A similar approach appears to have been taken for modelling the Ammonia deposition in that the deposition velocity has been used for short vegetation rather than forest. It is therefore not possible in our view to regard the DS2 outputs as the worst-case scenario as higher deposition velocities could have been used which would result in considerably higher deposition rates/dose in the unmitigated scenario DS2. Furthermore, Natural England has therefore taken a precautionary approach noting these are all modelled predictions with only 6 months verification monitoring, particularly considering Section 5 of Appendix D of the HRA which indicates the model systematically under-predicts monitored concentrations by over 25% (see Figure 3), and therefore it is possible further verification monitoring will increase outputs further.

- The Defra Emission Factor Toolkit (EFT) helps LPAs account for the incidental reduction in emissions expected from changes in the vehicle fleet/ Euro standard and has reduction values up to 2030. The HRA only used the DEFRA EFT reductions to 2023 to account for uncertainty and was used to model the positive effects of any improvements in the vehicular fleet. The table on page 15 of the HRA explains that the DS2 scenario is the worst case in-combination option taking into account negative projects and plans as well as positive ones such as scientifically allowable improvements in baseline and a shift in the vehicle fleet of better emissions. The DS5 / mitigated growth scenario is effectively DS2 but with the added on DEFRA EFT to 2030 to reflect the air quality benefits of sustainable transport and non-physical air quality interventions outlined in the local plan policies. There is therefore the potential of double-counting of EFT reductions for years modelled up to 2023 but no double-counting after 2023 because the EFT was not used after this time frame.

- As well as the potential; for double counting as detailed above we also have concerns that the Defra 2030 Emission Factor Toolkit has been used as a proxy to assess the reductions in air pollutant resulting from the non-physical infrastructure and transport policy mitigation measures identified in the local plan. Natural England does not disagree with the use of the toolkit when used for its intended purpose. However, we do have concerns that it has been used for a different purpose to what it was designed for. We recommend that DEFRA is consulted on whether this is an appropriate use of their toolkit.

- Even with the proposed non-physical infrastructure and transport policy mitigation measures in the local plan the HRA still acknowledges there will still be non-negligible impacts within the SAC

arising from NOx and there will still be an effect on ammonia concentrations (see para 6.24, page 156 of the HRA).

- Whilst we welcome the commitment made in the HRA (para 6.25) to the development of an Air Quality Mitigation Strategy, there is not currently a version available for Natural England to consider. It is therefore not currently possible to provide detailed advice as to whether the mitigation measures will be deliverable or effective. We also advise that there needs to be a policy commitment to having the Air Quality Mitigation Strategy in place by the time the local plan is adopted.

- The HRA has not included an assessment of the impacts on Epping Forest SAC of improving the Wake Arms Roundabout, which is listed as being essential in the Infrastructure Delivery Plan.

Recreational Impacts

1.3 Natural England cannot currently discount an Adverse Effect on Integrity in relation to the recreational impacts on Epping Forest SAC, but are of the view that these issues can be resolved with further policy rewording, commitments to identifying the needs for the provision of green infrastructure including Suitable Alternative Natural Green Space (SANG), updating the MOU and commitments to formalising the need for any mitigation strategy to be adopted as an SPD and ensuring there is a policy commitment for a recreational mitigation strategy (to include SAMMs and SANGs) to be put in place by the time the plan is adopted. Please see further details in section 4.

1.4 Natural England agrees with the likely significant effect screening conclusions as detailed in Table 4 of the HRA in relation to policies. We also agree with the likely significant screening conclusions in relation to site allocations (Table 5) Traveller Site allocations (Table 6) and Employment sites (Table 7). However, some of the site allocations may need to be screened back in to address recreational pressure impacts should the results from the summer visitor survey expand the zone of influence for Epping Forest SAC, particularly those which are currently located just out with the current Zone of Influence (ZOI) of 6.2Km, e.g. certain allocations at North Weald Bassett which are currently 6.3Km from the ZoI.

1.5 Natural England agrees with the conclusions of the HRA in relation to the Lee Valley SPA and Wormley- Hoddesdon Park Woods SAC in relation to water quantity, air pollution and recreational pressure impacts.

2.0 *People Over Wind, Peter Sweetman v Coillte Teoranta Judgment and the "Dutch Nitrogen cases"*

2.1 In light of the *People Over Wind* judgment, the updated January 2019 version of the HRA now includes the Appropriate Assessment stage of the HRA process. It also takes into account mitigation measures at the Appropriate Assessment stage of the HRA process rather than at the 'screening' stage. Natural England agrees with this approach.

2.2 We advised in our previous advice to this Matter and Issue that other recent CJEU Judgments (namely, Cases C-293/17 and C-294/17 Coöperatie Mobilisation for the Environment UA and Others v College van gedeputeerde staten van Limburg and Others, referred to as the "Dutch nitrogen cases") were also relevant to the HRA of the local plan and were likely to have significant implications for the updated HRA, particularly in relation to assessing and mitigating air pollution impacts. There are three matters that the Dutch nitrogen cases raise.

Firstly, the extent to which "autonomous measures" (i.e. improvements in baseline nitrogen deposition that are not attributable to the plan or project in question) can be taken into account in an appropriate assessment. Secondly, the certainty needed for mitigation measures relied on in the HRA. Thirdly, authorising new plans which may adversely affect the ecological situation where a European site is already in unfavourable conservation status. Natural England cannot provide legal advice to be relied upon by the competent authority. The competent authority may wish to seek its own legal advice on the implications of this latest judgment.

2.3 **Improvements in baseline nitrogen deposition -** Paragraph 2.40 of the HRA uses the following justification for relying on autonomous measures to address air pollution impacts:

"*The CJEU ultimately ruled that it was legally compliant to take such autonomous measures into account provided the benefits were not uncertain. They defined uncertain as 'because the procedures needed to accomplish them have not yet been carried out or because the level of scientific knowledge does not allow them to be identified or quantified with certainty'. Note that previous case law on the interpretation of the Habitats Directive has clarified that 'certain' does not mean absolute certainty but 'beyond reasonable scientific doubt'. As explained above, the allowance made for improvements in baseline NOx concentrations and nitrogen deposition rates is notably lower than that which would be justified by recent precedent and is associated with procedures that have already been implemented (i.e. the introduction of vehicles into the fleet which are compliant with increasingly stringent emissions standards up to Euro 6/VI). Therefore, they are scientifically reasonable. It should also be noted that the simple fact that there is forecast to be an improving baseline is not used by itself as a justification for concluding no adverse effect on integrity*".

It will be a matter for the competent authority to determine whether the relevant legal tests have been met in relation to the certainty of future benefits from improvements in baseline nitrogen deposition, which are relied upon in the HRA. In particular, case law has established that:

- It is only when it is sufficiently certain that a measure will make an effective contribution to avoiding harm to the integrity of the site concerned, by guaranteeing beyond all reasonable doubt that the plan or project at issue will not adversely affect the integrity of that site, that such a measure may be taken into consideration in the 'appropriate assessment'[1]

- The appropriate assessment of the implications of a plan or project for the sites concerned is not to take into account the future benefits of such 'measures' if those benefits are uncertain, inter alia because the procedures needed to accomplish them have not yet been carried out or because the level of scientific knowledge does not allow them to be identified or quantified with certainty.[2]

- An appropriate assessment may not take into account the existence of measures specifically adopted for a [plan/project] or 'autonomous' measures, in so far as those measures are not part of that [plan/project], if the expected benefits of those measures are not certain at the time of that assessment.[3]

- The competent authority is to authorise 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.[4]

- The assessment carried out under Article 6(3) of the Habitats Directive cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned.[5]

The Advocate General gave a lengthy opinion in the Dutch nitrogen cases and raised concerns about relying on future general decreases in nitrogen emissions in some cases.[6] It is recognised that the Advocate General opinion is not law, and it is a matter of interpretation for the competent authority as to whether/how that adds to the court's judgment in relation to the facts in this HRA. In

[1] Dutch nitrogen cases, para. 126.
[2] *Ibid*, para. 130.
[3] *Ibid*, para. 131.
[4] *Waddenzee* (C-127/02), para. 59.
[5] *Sweetman* (C-258/11), para 44.
[6] In particular, paras 92-98.

Natural England's view, where the expected benefits of 'autonomous' measures are certain at the time of assessment, they may be taken into account in an appropriate assessment.

2.4 **Certainty in respect of other mitigation measures relied on in the HRA -** The case law described at [2.3] above is also relevant to the mitigation measures relied on in the HRA. The HRA has devised a proxy estimate (scenario DS5 in the HRA) to assess the air quality benefits of the sustainable transport and non-physical air quality interventions in the Epping Forest Local Plan (e.g. Policy T1, the revised stringent parking standards, the requirement for electric vehicle charging within all new developments, public transport improvement, promotion of high speed broadband etc.) using the Defra Emissions Toolkit figures for 2030.This has been used as there are not any specific emission factors which can be applied to assess the local plan policy measures. The HRA proposes that since traffic is generated predominantly from housing and employment in Epping Forest District, a reasonable outcome would be for these interventions to result in total NOx concentrations (and thus nitrogen deposition rates) under Scenario DS2 that better reflected the Defra emission factors for 2030 than those for 2023 (which have been used to model unmitigated traffic growth).

For this to meet the requirements of the Habitats Regulations, there needs to be 'certainty' that the quanta of air quality improvements attributable to the Emissions Factor Toolkit measures (expected within the Defra Emissions Toolkit for the period 2023 – 2030 and considering improvements to vehicle fleet changes and vehicle technology improvements) are predicted to be at least equal in quanta to the predicted improvements attributable to the EFDC Local Plan measures. This approach has not been used before and therefore it is not currently possible for Natural England to be adequately 'certain' that the Local Plan measures will deliver a minimum 'quanta' of air quality improvement that is equivalent to the air quality improvements predicted by Emissions Factors Toolkit between the 2023 – 2030 period. We therefore advise that this is a matter for the competent authority to make a decision on informed by further technical advice from DEFRA as to whether this is an appropriate use of their toolkit.

Any mitigation measures relied upon in an appropriate assessment to avoid an Adverse Effect on Integrity, must be certain enough to satisfy the relevant Habitats Regulations tests. The competent authority should consider whether the proposed transport policy measures relied on meet that certainty standard. For example, will reliance on modal shift guarantee beyond reasonable scientific doubt that the benefits will be achieved to the scale and timescale required? Similarly, with electric car charging points, is there sufficient certainty that people will use electric vehicles taking into account the recent reduction on government incentive grants?

2.5 **Authorising new plans which may adversely affect the ecological situation where a European site is already in unfavourable conservation status -** In the Dutch nitrogen cases[7], the CJEU recognises the importance of achieving favourable conservation status in the long term. It notes that where conservation status is unfavourable, the possibility of authorising activities which may subsequently affect the ecological situation seems "necessarily limited". The Advocate General appears more cautious of further increases from new plans/projects where a site is over the relevant benchmark in the long term[8]. In Natural England's view, where a site is considered unfavourable and there is the possibility of further loading, these scenarios should be considered particularly carefully.

There is a strong argument for concluding that Epping Forest SAC is currently in Unfavourable Conservation Status (due to air pollution impacts). There are numerous SSSI unit condition assessments (2010 onwards) that express concern about evidence of stress in veteran trees within the SAC woodland community and air pollution is either identified as a 'High' Threat for unfavourable recovering/favourable units or Reasons for Unfavourability on unfavourable units on Natural England's Designated Site System. The SSSI unit condition assessments for SAC heathland areas also express concern about limited plant species diversity, low heather cover and high tussocky grasses/bracken cover and Air Pollution is identified as a 'High' Threat for unfavourable recovering

[7] Paras. 102-103.

[8] In particular, paras 56-67.

units or Reasons for Unfavourability on unfavourable units. Air pollution is also identified as an Issue for the SAC woodland and wet/dry heath habitat features within the Epping Forest SAC Site Improvement Plan 2016 and the Epping Forest SAC CO Supplementary Advice 2019 .

The MoU (2017) signed by EFDC and the Housing Market Area authorities including Highways Authority Essex County also acknowledge the threats posed by air pollution and recreational pressures. Finally, the HRA EFDC (2019) acknowledges the threats posed by air pollution and recreational pressure.

From the information provided in the updated HRA, air quality thresholds will continue to be exceeded over an extended period of time, which will result in the SAC being in unfavourable conservation status for an extended time period. This will be contrary to a number of the Site's Conservation Objectives as detailed in Annex 1.

2.6 **Impacts of delaying the site falling below the critical loads for Nitrogen** – With respect to DS2 (EFDC in combination without mitigation) and Total Nitrogen Deposition tables in section 6.8 – 6.10 of the HRA summarise the predicted Total Nitrogen Deposition from the DS2 'in combination' growth (without mitigation) for all locations A – P inclusive. We note the following conclusions about the impacts on air quality caused by this scenario DS2:

Expressed as a number of years delay in the European site falling below the critical load, these doses typically represent:

1) a 3-7 year delay (most commonly 5-6 years) in reduction of nitrogen deposition at the roadside for transects A1, B1, C1, C2, D1, D2, H, I, K, L and P, falling to a 1-3 year delay 20-40m from the roadside

2) an 8-10 year delay within 10m of the roadside for receptor N, with a 4-7 year delay up to 50m from the roadside; and

3) a negligible 1-2 year delay at the roadside for all other transects, compared to a situation with no growth. Remember that to be cautious the modelling has taken the Defra projections for shifts in the vehicle fleet to 2023 and applied them to 2033, essentially holding back the changes 10 years behind Defra forecasts.

For 1-3 inclusive, the relevant Critical Load for Total Nitrogen is currently being exceeded (e.g., woodland/heathland >10kgN/Ha/year) and will continue to be exceeded for a prolonged period of time due to predicted DS2 growth. When considering these matters in SAC terms, the HRA should be mindful of the SAC features, their distribution and vulnerabilities.

At a habitat level, the Critical Load is 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.*' Epping Forest SAC habitats include woodland and heathlands (wet and dry) and support notable sensitive habitats (bogs, acid grassland) and species (lichens, bryophytes, veteran trees) within the habitat transitions and mosaics, characteristic of an ancient Forest. Thus, when considering the vulnerabilities and impacts of air pollutants on these SAC features it is important to adequately account for the most vulnerable habitats/species within the broad SAC habitats. For example, the wet heaths M16 incorporate bog habitats including *Sphagnum* mosses and vulnerable species such as sundew and lichens; the woodlands W14-16/W10 supports veteran / ancient trees and vulnerable bryophytes and lichens; and the dry heaths H1 incorporate acid grassland and vulnerable lichens and vascular plants (see Epping Forest SAC CO Supplementary Advice 2019).

Natural England advised AECOM to consider the magnitude of impact relevant to the Critical Load (CL), with similar thresholds for magnitude of change to the DMRB guidance (<1% of CL = negligible, >1% CL = small, >5% = medium and >10% CL = large). This helps initial screening at a general level

with reference to the woodland and heathland habitat critical loads of 10kgN/Ha/year, however these should be looked at in more detail to see whether there are key species/habitat features that are more vulnerable than this threshold.

Extent of Impact

The air quality monitoring and modelling was based on specific transects and so can only be regarded as representative of the situation at the specific locations. It should not be overlooked that the distances into the SAC may be representative of the whole corridor of SAC land for differing distances according to various factors including traffic and environmental conditions. Thus, when we are considering a predicted large increase in Total Nitrogen deposition for a distance of 5-10metres, for each of the key roads sampled this would equate to considerably more Ha of SAC habitat and for multiples of this, for other distances affected such as 20m, 40m etc.

Scale of impact

When considering the effect of the increase in Total Nitrogen deposition that is attributable to DS2, it is important to acknowledge that (a) without additional intervention this is a continuing annual increase, and (b) the effect of prolonging the exceedance needs to be viewed within the context of what impacts any exceedances are likely to have on the SAC features and site integrity.

Beech Woodland

There are a number of community species of the SAC feature woodland that are adversely affected by nitrogen deposition and there are also less-desirable species that may benefit from nutrient enrichment at the expense of typical SAC feature species. The reduced extent or loss of desirable species and/or the increase in less-desirable/undesirable species is likely to be regarded as an undesirable change in the composition of the SAC habitat feature.

Heathland

There are a number of community species of the SAC feature heathlands that are adversely affected by nitrogen deposition and there are also less-desirable species that may benefit from nutrient enrichment at the expense of typical SAC feature species. The reduced extent or loss of desirable species and/or the increase in less-desirable/undesirable species is likely to be regarded as an undesirable change in the composition of the SAC habitat feature.

Please See Annex 2 for a more detailed analysis of the likely impacts on specific features of the SAC.

2.6 We are also concerned that the impacts of Ammonia have not been properly considered. Analysis of the HRA indicates that EFDC local plan alone and in combination, will significantly contribute (i.e., >1% of Critical Load) Ammonia for scenarios with or without mitigation to locations within the SAC. As is the case for Nitrogen deposition this will prolong the exceedances of the Ammonia Critical Level at least in some parts of the forest. Para 6.22 of the HRA implies that because there are already Ammonia exceedances there does not need to be a consideration of the effects of Ammonia exceedance. The statement that the predicted reductions in Total Nitrogen should at least balance the increased Ammonia is a suggestion that has not been worked through and is not relevant to all locations. For example, at Location N the predicted contributions for DS5 (with mitigation) include increases for NH3, NOx and Total Nitrogen compared with the baseline. (It is worth noting for DS5 there are even increases for NH3 & NOx at Location N compared with current (i.e., 2014 / 2017) levels indicating that growth impacts will completely outweigh autonomous improvements. The predicted increases in NOx and Total N are larger for growth in combination (DS2).

3.0 Natural England's advice on the updated Traffic and Air Pollution Modelling

3.1 The most recent HRA takes account of our advice in relation to the growth scenarios used for the air quality and traffic modelling as outlined in our letter dated 29th March 2018. However, we note that the HRA may have underestimated Nitrogen deposition to the forest features. Appendix D para 6.4 states that a single deposition velocity of 0.001 m/s for NO2 has been used for modelling purposes. This is the velocity which should be used for short vegetation. This is consistent with the velocities recommended in the Environment Agency guidance AQTAG06 (March 2014) update. However, this guidance also recommends deposition velocities for forest vegetation which are higher than for those of grassland. A similar approach has also been taken for modelling the Ammonia deposition in that the deposition velocity has been used for short vegetation rather than forest. We would like confirmation as to why the forest deposition velocities were not used and whether the modelling used was a worst case deposition velocity for all the modelled transects to ensure a "worst case scenario" was in fact modelled. Epping Forest comprises forest and short vegetation and we would therefore expect the most appropriate velocity to be used to match the predominant habitat in each transect, which in most cases would be forest.

3.2 The HRA rightly identifies that the overall trend for background NOx concentrations and oxidised nitrogen deposition to be declining between 2005 and 2014 as taken from APIS (see Figure 5 pg. 20). Whilst the HRA also mentions in footnote 30 (pg. 20) that the overall total Nitrogen deposition between 2005-2015 actually increased, it doesn't include a graph to show this overall trend for total Nitrogen deposition. Whilst it is acknowledged that a significant proportion of the background sources of pollutants are generated from sources other than traffic (e.g. agricultural sources) it is important for the HRA to consider the in combination effects of all sources of Nitrogen deposition. This is because all forms of Nitrogen (whether in an oxidised or reduced form) will affect the vegetation once it is deposited on the ground.

3.3 Natural England agrees that the policies screened as having a likely significant effect on Epping Forest SAC from air pollution are policies SP2, SP4, SP5, E1 and all residential and employment allocations in combination.

3.4 **In Combination Effects and *Conclusions relating to the Contributions of development in HMA Authorities and London Borough's***

The HRA concludes in para 4.14 that " *growth in Epping Forest District between 2014 and 2033 is the primary source of additional ammonia and NOx emissions on the modelled road sections and all other plans and projects make a negligible contribution to the in-combination effect*" Natural England can confirm the following from the information provided in the HRA:

- We agree that there is no Adverse Effect on Integrity alone for the HMA Authorities or the London Authorities alone because their effects are small or negligible,
- We also agree that there is no Adverse Effect on Integrity for the HMA and London Authorities in combination with each other for similar reasons.
- We are not currently able to rule out no Adverse Effect on Integrity from EFDC plan alone
- We would agree that the in combination effect of the HMA authorities and the London Authorities with EFDC local plan shows that it is the EFDC local plan which is the dominating contributor of pollutant emissions.
- It should be noted that when the HMA and London Authorities are undertaking their own Local Plan HRAs there may be other roads within the respective authorities that have the capacity to impact on Epping Forest SAC. The assessment within the EFDC Local Plan HRA is restricted to key roads of relevance to EFDC.

Please see Annex 3 for further details on this issue.

3.5 **Responsibility for Mitigation to Air Pollution Impacts**. The responsibility for mitigating any air pollution impacts should be the responsibility of Epping Forest District Council as NE broadly

agrees with the conclusions of the HRA that Epping Forest District's Local Plan is the significant contributor to air pollution impacts. Please see Annex 4 for further details on this issue.

3.6 ***Other Air quality Issues***

- Whilst the updated HRA is no longer relying on road transport improvements to roundabouts as part of the mitigation package. As detailed in our previous advice on this Matter we are concerned that improvements to the Wake Arms roundabout is highlighted in the Infrastructure Development Plan as being regarded as "*essentia*l" to support the growth and development in the Local Plan (See Table 8 ref DW6 of the Infrastructure Delivery Plan Part B Report (Infrastructure Delivery Schedule)) but the impacts have not been assessed as part of the updated HRA. If this proposal is still deemed as necessary and essential to support the growth and development in the local plan then any direct or indirect impacts will need to be assessed This would apply to any other road or transport schemes, which has the potential to impact upon Epping Forest SAC.

3.7 **The AQ Monitoring section of the HRA - Appendix D Air Quality Modelling Technical Note (17 January 2019)**

- Natural England advised the applicants that Traffic modelling should be undertaken for the key roads (relevant to the SAC) to establish whether AADT threshold levels were exceeded. In addition to this, we advised that NOx, NH3 and Total Nitrogen deposition should be calculated for the key roads to enable assessment of the pollutant effect on the SAC features. Sections 2.1, 2.2 and 3 explain how this has been calculated for NOx and NH3.

- The conservative assumption referenced in section 4.1 that conditions (NOx & NH3 emissions factors, vehicle fleet, background pollutant concentrations) in 2023 are representative of conditions in 2033 (assessment year) was acknowledged as appropriate by NE

- We have concerns relating to the appropriate use of the DEFRA Emissions Factor Toolkit for assessing the effectiveness of the mitigation measures contained in the local plan, as detailed in our response above. We advise that DEFRA's advice is sought on the use of the EFT in this way

- Natural England welcomes the diffusion tube monitoring programme (including use of triplicate tubes and reference to a continuous monitoring station) described in section 5 and acknowledges the importance of this to verify the modelling outputs. It is noteworthy that the model systematically under-predicts the monitored concentrations, generally to a level above 25% (see Figure 3), which is why the conversion factor of 1.46 needs to be applied to the model-predicted road contribution NH3 and NOx to address the dispersion model bias. Natural England welcomes this verification and resultant use of the conversion factor, but acknowledges this is based on only six-months monitoring between May – November 2018) rather than a more preferable twelve month duration to cover the seasons.

- Section 6 describes how 2013 – 2015 data from www.apis.ac.uk has been used to calculate total nitrogen deposition. This has involved assumptions about the data and applying a 2% decrease in nitrogen deposition per year between the years 2014 – 2023. Natural England has not checked the figures involved here so cannot confirm that the reduction has been accurately applied, but has previously accepted a 2% annual reduction between the years 2014 – 2023, as part of the 'conservative assumption' referenced in section 4.1.

4.0 Recreational Impacts on Epping Forest SAC

4.1 Natural England agrees with the conclusions for the housing allocations identified as having a likely significant effect for recreational pressure as detailed in Table 1 below. We note that policies SP2, SP4 and SP5 were taken through to the Appropriate Assessment stage, however, Policies DM5 and DM6 were not.

Table 1: Housing Allocations Identified as having a Likely Significant Effect for recreational pressure on Epping Forest SAC

Policies	Housing Allocations within the 6.2KM ZoI
SP2 Spatial development Strategy	P1 Epping
SP4 Development and Delivery of Garden Communities in Harlow and Gilston Garden Town	P2 Loughton
SP5 Garden Towns Strategic Allocations	P3 Waltham Abbey
DM5 Green and Blue Infrastructure	P5 Buckhurst Hill
DM6 Designated and Undesignated Open Spaces	P6 North Weald Basset
	P7 Chigwell
	P11 Thornwood
	P12 Coopersale, Fyfield, High Ongar, Lower Sheering, Moreton, Sheering and Stapleford Abbotts
	P13 Rural Sites – East of District
	P14 Rural Sites – West of District

4.2 Recreational impacts on Epping Forest SAC – The updated HRA doesn't make any additional recommendations for changes to the local plan policies. Paragraph 5.29 of the updated HRA concludes that "*Epping Forest SAC is protected from the adverse effects of new development and thus ensure no likely significant effect on the SAC would materialise in practice, either alone or in combination with other plans and projects*". We welcome the work undertaken to date in terms of agreeing an interim Mitigation Strategy to address Site Access Management Mitigation Measures (SAMMs) and the commitment to update this. We also welcome the commitment to undertake a further summer visitor survey to confirm the Zone of Influence. However we do have a number of outstanding concerns, outlined below, which means that we cannot currently discount an Adverse Effect on Site integrity.

- Policy DM2 requires specific strategic allocations to make a financial contribution towards access management measures. It also requires development, and particularly strategic developments to "*make provision of a meaningful proportion of Natural Green Space or access to Natural Green Space*". The provision of alternative recreational land is needed to attract new residents away from the protected site and can therefore be considered as a mechanism for avoiding harm. We have concerns that some of the strategic allocations will not have the capacity to accommodate the required level of natural green space within the boundaries of the proposed developments. Where this is the case alternative provisions for strategic SANGS need to be identified to ensure there is sufficient recreational land provision close by to the new development to draw visitors away from the SAC. In Natural England's view a combination of Strategic Access Management Measures and SANGS are required to address the recreational impacts of residential growth and development. Both of these measures should be included in the final Mitigation Strategy, with a commitment to having these in place by the time of local plan adoption. We will continue to work with Epping Forest District Council, the City of London Conservators, and other LPA's within the 6.2Km ZoI to develop the Mitigation Strategy in this regard. In our view a Green Infrastructure / SANG Strategy will be needed to identify the location and amount of high quality green infrastructure/SANG provision needed to mitigate recreational impacts on the SAC from residential allocations and the Garden Communities. We therefore welcome the commitment made by Epping Forest District Council to develop a Green Infrastructure Strategy at the examination hearing on 26th March 2019 in relation to Matter 16, DM5 Green and Blue Infrastructure.

- Paragraph 5.26 recommends that on site green space should be provided for development of 400 dwellings or more. Natural England's view is that this will be required for allocations with significantly less houses. We have advised in a letter (dated 6th March 2019) sent to all LPA's within the 6.2Km ZoI that SANGS should be provided for developments of 100 houses or more (copy attached for information as Annex 5).

- Policy DM2 still doesn't require a Mitigation Strategy to be in place by the time the plan is adopted – which we have advised in previous consultation responses to ensure the local plan is compliant with the Habitats Regulations.

- Paragraph 5.30 of the HRA identifies that allocations SR-0361 (LOU.R5) and SR-0478B (CHIG.R6) will lead to a loss of green space which "*could result in an increase in recreational pressure upon the SAC, which is then compounded by the provision of an increase in net new dwellings*". The HRA doesn't then offer any suggestions for mitigating these impacts.

- The MOU referred to in the HRA shows the commitment of EFDC to the Mitigation Strategy, however, in NE's view the MoU should be updated to reflect the new evidence base which shows that the recreational impacts will extend beyond the current HMA authorities of Harlow, Uttlesford and East Hertfordshire to a number of London Boroughs. We also recommend that the final mitigation strategies are adopted as Supplementary Planning Documents to give them the required weight for decision making and to ensure there is an increased level of certainty that the required approach will be delivered to ensure compliance with the Habitats Regulations. This approach has been taken for other Strategic Solutions in Essex e.g. Chelmsford Local Plan examination.

5.0 Other HRA Matters

5.1 Water Quality Impacts on the Lee Valley SPA - Natural England notes from the HRA that Thames Water has confirmed that Rye Meads Waste Water Treatment Works is expected to have headroom until 2036 based on a recent position statement. We have not had sight of that mission statement, it would be helpful if this could be provided as an Annex to the updated HRA so there is certainty that there is sufficient capacity at Rye Meads Waste Water Treatment Works. If there is uncertainty about the capacity of the WWTW then we recommend the following policy wording:

'The Authority will co-operate with utilities and service providers to ensure that appropriate capacity is available to serve new development and ensure new development does not have an adverse effect on the Lee Valley Special Protection Area. New development post 2026 will only be permitted if the required capacity is available at Rye Meads Sewage Treatment Works, including any associated sewer connections.'

Aidan Lonergan
Area Manager
West Anglia Team

Annex 1 Conservation Objectives for Epping Forest SAC Which Could be Affected by Air Quality Impacts

With reference to Epping Forest SAC CO Supplementary Advice 2019, this is a summary of the Conservation Objective Target attributes and the effect of air pollution.

1) Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the woodland and heathland SAC features of the site on the Air Pollution Information System - The DS2 growth significantly contributes (>1% of Critical Load) to the exceedances of the AQ Critical Load thresholds for Beech Woodlands on acid soils, and wet and dry heaths.
2) No undesirable loss of veteran trees - veteran trees vulnerable to disease etc. linked to air pollution and affected soil
3) Restore at least a third of ancient/veteran trees in open locations or with open halo around them – veteran trees vulnerable to disease etc. after work linked to stress, air pollution & affected soil
4) Restore adequate cohorts of successor trees (<100 years, 100-200 years) with veteran features. For example, the number of 100-200 year old trees should be present over 10% of the site and at least exceed the rate of veteran tree loss – veteranisation by pollarding can increase vulnerability to air pollution, e.g., mildew
5) The number of younger trees (minimum of 3 metres high) should be at least 10% of the number of mature trees present – i.e., character Beech/Oak not necessarily Sycamore
6) Restore at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees – i.e., Recent Site checks indicate that there are areas within the SAC that support a sub-optimal spread of age classes for key tree species (e.g., Beech, Oak).
7) Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate - i.e., Recent Site checks indicate that there are areas within the SAC that support a sub-optimal spread of age classes for key tree species (e.g., Beech, Oak).
8) Maintain a veteran and ancient tree population (e.g., by re-pollarding, canopy reduction etc.) at appropriate levels to maintain the characteristic structure of the site - veteran trees vulnerable to disease etc. after work linked to stress, air pollution & affected soil.
9) Maintain the abundance of the species listed (including the moss *Leucobryum glaucum*) to enable each of them to be a viable component of the Beech Woodland on acid soils SAC feature – may be adversely impacted by air pollution
10) Maintain the abundance of the species listed (including the moss *Zygodon forsterii*) to enable each of them to be a viable component of the Beech Woodland on acid soils SAC feature – may be vulnerable to air pollution
11) Maintain key species of ground flora associated with W14, W10 and W15 vegetation types including: Bluebell, Common cow-wheat, wood anemone – i.e., nitrophilous species such as nettle and bramble are regarded as undesirable if excessive.
12) Maintain assemblage of invertebrates associated with dead wood (saproxylic) species including SAC feature *Lucanus cervus.*- may be vulnerable to rapid dieback of veteran host trees and lack of habitat continuity for complex life cycles, that may be exacerbated by air pollution and sub-optimal soil conditions
13) Maintain the properties of the underlying soil types, including ….. pH, soil nutrient status and fungal:bacterial ratio to within typical value for the SAC habitat – threats include nitrogen deposition
14) Maintain a viable extent of the wet heath feature (as a mosaic of vegetation with broad affinity to M16 with small *Sphagnum* bog pools and transitions to H1 dry heath and *Molinia*) within the overall heathland M16/H1 mosaic – prolonged exceedances of nitrogen loads may increase *Molinia* dominance at expense of heathers and bog species.
15) Restore the wet heath feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site – wet heath including bog pools are sensitive to nitrogen deposition, particularly when coupled with drought
16) Restore the presence and abundance of the following typical species listed to enable each to be a viable component of the Wet Heath feature at this site: Constant and preferential plant species of M16 and H1 wet heath NVC vegetation types which comprise the wet heath feature within this

SAC – recent assessments found that the presence and diversity of the M16 heathland community was sub-optimal, with a number of characteristic and rare species not present or in very small populations. Measures to restore the botanical diversity at a SAC level and site unit level require ongoing restoration via long term grazing management and active conservation measures for some of the rarer species. This should encourage regeneration of notable and characteristic plant species from the seedbank at the expense of dominant species such as *Molinia caerulea* and bracken to help restore the feature over time. Nitrogen deposition may adversely impact on the success of this restoration process.

17) Restore an overall cover of dwarf shrub species which is typically between 25-90%. Dwarf-shrubs include: *Erica tetralix, Calluna vulgaris* and *Erica cinerea* – recent site assessments indicate the dwarf shrubs are currently low in cover (<25%) – This may be due to a number of factors including eutrophication from long term nitrogen depositions in excess of critical loads.
18) Restore a diverse age structure amongst the ericaceous shrubs typically found across the H4010 wet heath feature. No one form should be dominant – links to *Molinia* dominance and reduced seedling establishment influenced by a number of factors including excessive nitrogen deposition
19) Maintain the frequency and cover of undesirable plant species on wet heath at acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread – links to eutrophication and excessive nitrogen deposition
20) Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the wet heath feature - more competitive species such as *Molinia caerulea* and bracken *Pteridium aquilinum* will tend to dominate over time where there is a lack of grazing and excessive nitrogen deposition.
21) Restore the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the wet heath habitat – excessive nitrogen deposition is an adverse background environmental pressure that may adverse impact on the ancient soil resource including fungi and seedbank.
22) Maintain the distribution and configuration of the dry heath feature, including where applicable its transitional vegetation types, across the site - prolonged exceedances of nitrogen critical load may increase grass dominance at expense of *Calluna*.
23) Restore the Dry Heath features ability, and that of its supporting processes, to adapt or evolve to wider environmental change either within or external to the site - dry heath is sensitive to nitrogen deposition
24) Maintain the properties of the underlying soil types, including ….. pH, soil nutrient status and fungal:bacterial ratio to within typical value for the SAC habitat – threats include nitrogen deposition
25) Restore the presence and abundance of the following typical species listed to enable each to be a viable component of the H4030 Dry Heath feature at this site recent assessments found that the presence and diversity of the H1 heathland community was sub-optimal, with a number of characteristic and rare species not present or in very small populations. Measures to restore the botanical diversity at a SAC level and site unit level require ongoing restoration via long term grazing management and active conservation measures for some of the rarer species. This should encourage regeneration of notable and characteristic plant species from the seedbank at the expense of dominant species such as robust tussocky grasses and bracken to help restore the feature over time. Nitrogen deposition may adversely impact on the success of this restoration process.
26) Restore an overall cover of dwarf shrub species which is typically between 25-90%. Dwarf-shrubs include: *Calluna vulgaris* and *Erica cinerea* – recent site assessments indicate the dwarf shrubs are currently low in cover (<25%) – This may be due to a number of factors including eutrophication from long term nitrogen depositions in excess of critical loads.
27) Restore a diverse age structure amongst the ericaceous shrubs typically found across the dry heath feature. No one form should be dominant – links to *Molinia* dominance and reduced seedling establishment influenced by a number of factors including excessive nitrogen deposition
28) Restore the frequency and cover of undesirable plant species on dry heath at acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread – links to eutrophication and excessive nitrogen deposition
29) Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes

associated with the dry heath feature - more competitive species such as robust tussocky grasses and bracken *Pteridium aquilinum* will tend to dominate over time where there is a lack of grazing and excessive nitrogen deposition.

Annex 2: DS2 Growth Scenario - Impacts of Total Nitrogen Deposition on Epping forest SAC

Beech Woodland

There are a number of community species of the SAC feature woodland that are adversely affected by nitrogen deposition and there are also less-desirable species that may benefit from nutrient enrichment at the expense of typical SAC feature species. The reduced extent or loss of desirable species and/or the increase in less-desirable/undesirable species is likely to be regarded as an undesirable change in the composition of the SAC habitat feature.

Beech (*Fagus sylvatica*) – Beech trees on acid soils are characteristic trees of the SAC woodland feature and, significantly Epping Forest supports an estimated 85% of Britain's remaining veteran Beech pollards (https://www.cityoflondon.gov.uk/things-to-do/green-spaces/epping-forest/wildlife-and-nature/Pages/trees-and-pollarding.aspx). There are beech trees of all ages including veterans that occur within 10metres of the key roads. These may be being adversely affected in a number of ways (see http://www.apis.ac.uk/node/965) and concerns about veteran tree health and seedling recruitment have been raised by Natural England in SSSI condition surveys (2010 - date) and Epping Forest SAC Site Improvement Plan 2016 . The soil survey undertaken by Gadsdon 2006 showed over 90% of sampled trees within Epping Forest were sub-optimal for soil quality targets (e.g., pH, mineral ratios). This is likely to be adversely impacting on root vitality and mycorrhizal contribution with implications for Beech tree health and possibly Beech seedling establishment. For the 2033 DS2 (in combination without mitigation) scenario, the HRA indicates the Total N deposition range is 12.74 – 20.31 kgN/Ha/Year for 2033, which is still exceeding the Critical Load of 10 kgN/Ha/Year, and therefore likely to be prolonging and potentially exacerbating sub-optimal soil conditions, with adverse implications for Beech trees. This is particularly relevant when considering the large annual increases in Total Nitrogen deposition attributable to DS2 growth (between 1.04 – 1.41kgN/Ha/year between 0-10metres from the roadside at location N, with medium increases above 0.5kgN/Ha/year up to 50 metres from the roadside) and large increases of 1.26kgN/Ha/Year at roadside location at location C1 (with medium increases above 0.5kgN/Ha/Year between 10-20 metres from the roadside).

Oak (*Quercus robur* & *Q. petraea*) – There are Oak trees of all ages including veterans that occur within 10 metres of the key roads and therefore subject to exceedances above Critical Loads and large annual increases attributable to DS2 growth. Oak trees may also be adversely affected by the effect of nitrogen deposition on soil microbial communities, which when considered alongside other factors (e.g., drought, ammonia exceedances etc.) is likely to be contributing to a decline in Oak tree vitality and vulnerability to disease (Oak decline), mildew and pests (in periodic outbreaks) affecting seedling establishment and veteran/pollard regeneration (see https://www.trees.org.uk/Trees.org.uk/media/Trees-org.uk/Documents/Conference17/WED-03-Geoff-Monck.pdf). These concerns have been raised in SSSI condition assessments (e.g. 2010 to date), Epping Forest SAC Site Improvement Plan 2016 and SSSI Management Plan (see http://www.efdclocalplan.org/wp-content/uploads/2018/05/EB701-Epping-Forest-The-next-10-years-City-of-London-2015.pdf). This is particularly relevant when considering the large annual increases in Total Nitrogen deposition attributable to DS2 growth (between 1.04 – 1.41kgN/Ha/year between 0-10metres from the roadside at location N, with medium increases above 0.5kgN/Ha/year up to 50 metres from the roadside) and large increases of 1.26kgN/Ha/Year at roadside location at location C1 (with medium increases above 0.5kgN/Ha/Year between 10-20 metres from the roadside).

Sycamore (*Acer pseudoplatanus*) – These are an acknowledged species of the SAC woodland feature (and NVC communities) but may be regarded as excessive and an indicator of enrichment if seedling and young tree establishment is dominating core Beech areas at the expense of Beech regeneration. The increased presence of sycamore establishment compared with Beech saplings around the High Beach area, particularly in roadside marginal areas, has been noted in SSSI condition surveys (e.g., 2010 – date). Sycamore are usually less able competitors with Beech on acid soils with pH below 5 but it is notable that sycamore growth is stimulated by increased nitrogen content in soils with similar pH to Epping Forest (see Jensen et al 2008). There are Sycamore trees of mainly younger ages that occur within 10 metres of the key roads and therefore are exposed to, and likely to be benefitting from, increased Nitrogen deposition above Critical Loads and large annual increases attributable to DS2 growth.

Cushion Moss (*Leucobryum glaucum*) – These whitish grey to blue green cushion mosses *Leucobryum glaucum* (and *L. juniperoideum*) are described by Adams, K (1992) as covering many acres of the Epping Forest ground. They are a characteristic moss of the SAC woodland community, typical for Epping Forest and listed as a Habitats Directive Annex V species. The moss *L. glaucum* is primarily found on the valley slopes and *L. juniperoidum* on tree stumps, roots and drier hill tops. With increasing N deposition, there are declines in the cushion-forming bryophyte *Leucobryum glaucum.* This species distribution is inhibited by N deposition at 5-10kgN/Ha/Year and strongly inhibited by N deposition at 15-20kgN/Ha/Year as determined by Stevens *et al* (2011) – see JNCC report 449 (2011). The HRA indicates the Total N deposition range is 12.74 – 20.31 kgN/Ha/Year for 2033, which is still exceeding the Critical Load of 10 kgN/Ha/Year, and therefore likely to be prolonging the impact of inhibiting growth and regeneration of this species.

Knothole moss (*Zygodon forsterii*) – This is a small dark green moss listed as endangered in UK and vulnerable in Europe, protected under Schedule 8 of the Wildlife and Countryside Act and listed as a S41 species. It has an extremely specialised niche, confined in Britain, to rain tracks on trunks and on callous tissue on water-filled hollows on exposed roots of ancient Beech trees, and only where Beech is growing in native ancient woodland acid soils. This effectively limits it to a small number of sites in southern England, known only at three sites Epping Forest, the New Forest and Burnham Beeches, of which Epping Forest supports the largest population. It is specifically mentioned as a characteristic species within the Epping Forest SAC citation and is a SSSI feature, in its own right. Bryophytes are known to be sensitive to nitrogen deposition (http://www.apis.ac.uk/impacts-air-pollution-lichens-and-bryophytes-mosses-and-liverworts) and the specialist niche on ancient Beech trees means the small population of this species is vulnerable to loss of suitable habitat (e.g., mortality rate of ancient trees without adequate replacement) and may be outcompeted by other species. It is unclear how elevated nitrogen deposition levels may impact on this vulnerable and endangered moss but relevant experts consulted as part of the UKBAP Species Action plan for this species (UKBAP are now S41 species) regarded action was required to reduce aerial nitrogen deposition to prevent enrichment and competitive exclusion (see http://jncc.defra.gov.uk/_speciespages/642.pdf). With this in mind, it should be noted that veteran Beech trees with suitable niches occur within 10 metres of the key roads including A104 and these appear to be subject to nitrogen depositions above the Critical Level (i.e., 10 kgN/Ha/year), with exceedances predicted to be prolonged and further increased by medium-scale increases attributable to DS2 (i.e., >10% of Critical Level). Whilst it is recognised that the core of the population of this moss is currently recorded on Beech trees over 50metres from key roads, the need to provide suitable niches now and into the future is necessary to help sustain a viable population, particularly considering its fluctuating, small and vulnerable population. On this basis, Natural England cannot discount an adverse effect on the population of this species, particularly when considering the combined actions of Nitrogen deposition and Ammonia deposition.

Lichen Diversity - In a survey of lichen species distributions in Epping Forest, James & Davies (2006) found roadside trees had a lower lichen species diversity and a higher proportion of species associated with eutrophic conditions compared to trees on internal woodland edges away from the influence of roads. Gadsdon et al (2010) showed that atmospheric NO2 concentrations in Epping Forest are having a significant impact on the lichen communities in Oak canopies, with the proportion of lichen cover made up by nitrophytes positively correlated with canopy NO2 concentrations. Generally, where NO_2 concentrations were low the lichen communities were dominated by *Parmelia sulcata* and *Melanelia subaurifera* and where concentrations were higher *Xanthoria* species tended to dominate. Overall, the concentrations of NO2 were negatively correlated with the total abundance of lichens (Gadsdon PhD). Furthermore, the percentage cover of lichens was negatively related to canopy NO_2 concentrations. There appeared to be a threshold effect around 21-22 µg m^{-3}, above this concentration the percentage cover of lichens was mostly below 5%. This could be because of the phytotoxic effect of NO_2. Research has shown that increasing concentrations of NO_2 caused a significant decline in respiration and photosynthetic rates in a range of foliose and one fruticose species – see Gadsdon PhD.

Heathland

There are a number of community species of the SAC feature heathlands that are adversely affected by nitrogen deposition and there are also less-desirable species that may benefit from nutrient enrichment

at the expense of typical SAC feature species. The reduced extent or loss of desirable species and/or the increase in less-desirable/undesirable species is likely to be regarded as an undesirable change in the composition of the SAC habitat feature.

Sundew (*Drosera* spp) – This small insectivorous plant, commonly known as sundew, is a characteristic species of the SAC wet heath feature and its respective NVC M16 community. Epping Forest has longstanding records for sundew in its acid grasslands, heathlands and bogs. For example, Hanson 1992 refers to old records for the round-leaved sundew *Drosera rotundifolia* from Leyton Flats area (Gibson 1862) and a boggy part of the Forest near Buckhurst Hill High Road. It was also widely reported from the Forest by Edward Forster during the early 19th century. Today Epping Forest is the only known site in Essex. It is occasionally seen in large numbers, 500 plants being noted on recently burnt ground on Sunshine Plain in 1969 and in 1970 about 1,000 plants were noted on the Lodge Road bog, along with abundant seedlings. Since then, these plants have either disappeared or sporadically appeared in smaller numbers. The Long leaved Sundew (*Drosera intermedia*) is also sporadically recorded from the Forest, although in smaller populations than its previously mentioned relative. Clearly, both species have small and vulnerable populations that can apparently disappear for years and re-appear when conditions are suitable.

Studies have shown a trend of increased mortality of *Drosera rotundifolia* with increased nitrogen fertilization, affecting both survival and reproduction. Increased mortality occurs above 10kgN/Ha/Year and reduced frequency of reproducing plants occurs after four years with depositions above 5kgN/Ha/Year. Field studies show that the reproductive output of *D. rotundifolia* is highly dependent on the rate of prey capture and the shift from predominantly prey to root reliance occurred at N deposition less than 4kgN/Ha/Year. The specific leaf adaptations of sundew make them good competitors in low nutrient environments, but nitrogen depositions as low as 4kgN/Ha affect their capacity to invest in flowering, which when considering they are short-lived perennials (e.g., a maximum age of 4 years, Crowder el al. 1990) has implications for sustaining a viable population. This is even more challenging for locations within Epping Forest that are subject to Nitrogen depositions above 10kgN/Ha/Year noting their increased mortality and limited competitive ability with wet heathland/boggy plants such as *Sphagnum* spp, *Molinia caerulea* etc.

Lichen cover - Lichen cover has been shown to be very sensitive to nitrogen additions of just 7.7 kg N ha-1 y-1 (above a background deposition of around 8 kg N ha-1 y-1) at the dry heath Thursley Common and the adverse effect persisted at least 8 years after the nitrogen treatments had ceased (Power *et al*., 2006). Persistent effects of earlier nutrient loading on *Calluna vulgaris* growth and phenology, and on the abundance of lichens, were apparent up to 8 years after nitrogen additions ceased, indicating the potential for long-term effects of modest nutrient loading on heathland ecosystems. The size and activity of the soil microbial community was elevated in former N-treated plots, 6–8 years after additions ceased, suggesting a prolonged effect on the rate of nutrient cycling. Although habitat management in 1998 reduced nitrogen stores in plant biomass, effects on belowground nitrogen stores were small. Vegetation cover and microbial activity respond slowly, indicating that the ecological effects of even small increases in nitrogen deposition will persist for many years after deposition inputs are reduced. Indeed, calculations suggest that the additional soil nitrogen storage associated with 7 years of experimental nitrogen inputs could sustain the observed effects on plant growth and phenology for several decades.

Southon et al 2013 undertook a nationwide field-scale evaluation of fifty two British of British heathlands, across broad geographical and climatic gradients, with an N deposition gradient of 5.9 to 32.4 kgN/Ha/Year. Plant species richness declined with increasing temperature and N deposition, and the abundance of nitrophilous species increased with increasing N. An average of 3 - 5 lichen species per site was recorded in areas receiving less than 10 kg N/Ha/Year. This declined to an average of 1.4 species at input rates of 20 kgN/Ha/Year, indicating that even modest rates of N loading are associated with a considerable loss of lichen species. Significant interactions indicate that the negative effects of N deposition on lichen richness were greater at sites with higher temperatures. At Epping Forest, the 2033 DS2 (in combination without mitigation) scenario within the HRA indicates the Total N deposition range is 12.74 – 20.31 kgN/Ha/Year for 2033, which is still exceeding the Critical Load of 10 kgN/Ha/Year and similar to the range of the experimental site at Thursley (15.7 – 23.4 kgN/Ha/year). This suggests the conditions in 2033 will still be providing unfavourable conditions for many of the characteristic heathland species and additionally will be further contributing to an extended legacy of unfavourable soil conditions.

Purple Moor Grass (*Molinia caerulea*) – This tussocky grass is an acknowledged species of the wet heath SAC and NVC communities but may be regarded as excessive and an indicator of enrichment if it is dominating wet heath areas at the expense of the characteristic heather species *Erica tetralix* and *Calluna vulgaris*. Berendse et al (1987) acknowledged that wet heathlands may be significantly affected by increased nitrogen deposition and suggested that lowland wet heath will tend to transition towards a grass-dominated sward above a nitrogen loading range of 17kgN/Ha/year. The model by Berendse (1990) was based on a management regime of turf- cutting, in combination with grazing. Allchin *et al.* (2001) applied a similar model to UK dry heaths, and found that their typical management regimes gave a threshold for changes in species composition which was lower than for turf cutting, and a similar effect of management regimes is to be expected for wet heaths. Thus, the lower end of the critical load range for lowland wet heaths was reduced to 10 kg N ha-1 yr-1 to account for the effects of Nitrogen deposition under less intensive management regimes. At Epping Forest, the 2033 DS2 (in combination without mitigation) scenario within the HRA indicates the Total N deposition range is 12.74 – 20.31 kgN/Ha/Year for 2033, which is still exceeding the Critical Load of 10 kgN/Ha/Year and therefore arguably continuing to afford *Molinia* a competitive advantage at the expense of the desirable heather species

Annex 3 –Supporting Information to Natural England's Advice on In Combination Impacts for Air Pollution.

In summary there are slight differences between the predicted effects attributable to EFDC growth alone and EFDC in combination, but there is significant overlap between them, and importantly when the contributions for EFDC alone and in combination are compared with the contributions from the HMA authorities and the London Authorities, it is clear that EFDC is the dominating contributor of pollutant emissions.

Natural England can advise the following in relation to this conclusion:

- HMA growth combined without EFDC (i.e., Harlow, East Herts & Uttlesford) - The Ammonia contributions are mostly negligible (i.e., <1% of Critical Level which is indicative that the effects are small) with small contributions at locations B1, D1 and P. The Total Nitrogen deposition contributions are also negligible.
- Non HMA London Borough's combined - The Ammonia contributions are small at locations A1, A2, B1, C1, C2, I, J, K & L. The Total Nitrogen deposition contributions are mostly negligible, apart from a medium scale improvement predicted at Location O.
- EFDC alone - There are large contributions of Ammonia from growth identified in the EFDC local plan from 2017 – 2033 that will significantly increase and prolong the exceedances of Critical Levels at considerable distances from the roadside into the SAC. Additionally, there are very large contributions of NOx at roadside areas at numerous locations (A1, B1, C1, D1, D2, N & O) that will significantly increase and prolong the exceedance of NOx critical levels. Furthermore, there are large contributions of NOx at numerous locations affecting distances into the SAC (e.g., those listed above and C2, I, K and P.) that will significantly increase and prolong the exceedances of NOx critical levels into the SAC and there are other notably significant contributions at various locations. Finally, the EFDC 2014 – 17 growth is likely to contribute most at locations I, K and O. Overall, EFDC alone does contribute significantly to NH3 and NOx exceedances, at various locations.

In addition to this, there are large contributions of Total Nitrogen deposition at locations N and C1 that will significantly increase and prolong the exceedances of the respective Critical Loads. There are also notable significant contributions of Total Nitrogen deposition predicted at additional locations such as A1, B1, C1, C2, D1, D2, H, K, L, O & P. The EFDC 2014-17 growth is also predicted to contribute notable significant Total Nitrogen deposition at the roadside locations I and K, that will increase and prolong exceedances of Total N deposition.

- EFDC in combination - DS2 is directly comparable with the 3 bullet points above, because it is without mitigation. There are large contributions of Ammonia by DS2 growth that will significantly increase and prolong the exceedances of Ammonia Critical Levels at considerable distances from the roadside into the SAC. Additionally, there are very large contributions of NOx at roadside areas at numerous locations (A1, B1, C1, D1, D2, I, K & N) that will significantly increase and prolong the exceedance of NOx critical levels. Furthermore, there are large contributions of NOx at numerous locations affecting distances into the SAC (e.g., those listed above and C2, H, O and P) that will significantly increase and prolong the exceedances of NOx critical levels into the SAC. There are also other notably significant contributions at various locations.

Annex 4: Responsibility for Mitigation to Air Pollution Impacts

- The other HMA authorities (i.e. Harlow, Uttlesford and East Hertfordshire) do not need to undertake mitigation for the effect of their Local Plans on emissions from key roads identified and assessed within EFDC Local Plan. The combined contributions of emissions from HMA authorities only just meet the 1% threshold for Ammonia at locations B1, D1 and P, which when compared with the significantly higher contributions from EFDC alone (location B1 = 11%; D1 = 12%, P and 14% of Critical Level) only proportionately contribute a small effect restricted to roadside locations. Additionally, the Total Nitrogen deposition contributions from the HMA authorities are also negligible at all locations including B1, D1 and P. On this basis, NE would agree that any impacts from air pollution should be addressed as part of the larger scale EFDC Local Plan mitigation.

- The London Boroughs / non HMA authorities are not likely to be required to undertake mitigation for the effect of their Local Plan on emissions from key roads identified and assessed within EFDC Local Plan, so long as they can demonstrate that the growth figures used by EFDC consultants (AECOM) in their modelling are accurate. The combined contributions of emissions from the non-HMA authorities also only just meet the 1% threshold for Ammonia at locations A1, A2, B1, C1, C2, I, J, K & L. When compared with the contributions from EFDC alone (location A1 = 11%, A2 = 4%, B1 = 11%, C1 = 20%, C2 = 10%, I = 6%, J = 1%, K = 7% and L = 9%), it can be seen that EFDC Local Plan contributions are mostly significantly higher except for locations J (and to a lesser extent A2) where the non-HMA contributions may be regarded as proportionately high, albeit of a small magnitude of change. In addition to this, Total Nitrogen deposition contributions are mostly negligible, apart from a small improvement at Location O. Further consideration suggests the small increase in Ammonia emissions at location J is an isolated reading at 100m and may be a 'rounded-up' figure that is actually below a 1% increase from baseline, and this may also be the case for location A2. On this basis, the small contribution of Ammonia emissions should be addressed as part of the larger scale of the EFDC Local Plan mitigation. Further clarification is required from AECOM regarding locations J (and to a lesser extent A2) as to whether figures have been 'rounded-up' to ensure the contributions from non HMA authorities can be appropriately discounted rather than overlooked.

Annex 5: NE ADVICE LETTER TO ALL THE ZOI AUTHORITIES

Date: 06 March 2019
Our ref: 259129

[redacted]

Epping Forest District Council
Harlow District Council
East Hertfordshire District Council
Uttlesford District Council
Broxbourne Borough Council
Brentwood Borough Council
London Borough of Waltham Forest l
London Borough of Redbridge
London Borough of Enfield
London Borough of Newham
London Borough of Haringey
London Borough of Hackney
London Borough of Tower Hamlets
London Borough of Barking and Dagenham
London Legacy Development Corporation
Lee Valley Regional Park
Essex County Council
City of London Conservators of Epping Forest
MOU Oversight Group -BY EMAIL ONLY

Dear All

Emerging strategic approach relating to the Epping Forest Special Area of Conservation (SAC) Mitigation Strategy. Interim advice following feedback from London Borough's and Greater London Authority

Natural England last wrote to this group on the 20th September 2018, in relation to the establishment of the Epping Forest Special Area of Conservation (SAC) Strategic Mitigation Strategy. In that letter we brought together the best evidence we had before us. We used that note to advise the various Local Planning Authorities on a potential way forward to clarify the Zones of Influence for recreational impacts on Epping Forest SAC and the resultant implications when determining planning applications for residential development within this zone.

Following the issuing of our advice, a meeting was held on the 12th November 2018. The meeting was with the London Boroughs of Waltham Forest and Redbridge, as well as the Greater London Authority (GLA). These bodies were keen to share with us their opinions on the proposed approach, and investigate the application of suitable avoidance and mitigation measures within the urban setting of London. Questions were also raised about the mechanisms for collecting financial contributions amongst other matters.

Natural England have listened to this feedback and have amended our advice accordingly. This letter provides Natural England's updated advice relating to residential planning applications which have the potential to impact on Epping Forest SAC to ensure compliance with the Habitats Regulations. **This advice therefore applies to**

those LPA's identified in Table 1 which are partly or wholly within the defined recreational Zone of Influence (ZOI).

It still does not address the potential air pollution impacts as Natural England is still considering the recently updated Habitats Regulations Assessment for the Epping Forest District local plan. We will be providing our formal written advice on the updated HRA to the Inspector by 25th April 2019 .

For further information on Epping Forest SAC, please see the Conservation Objectives which explains how each site should be restored and/or maintained.

Recreational 'Zone of Influence' (ZoI)

As part of the work required to produce the Mitigation Strategy, Footprint Ecology undertook a visitor survey to identify a recreational zone of influence and to identify the distance the majority of visitors will travel to visit Epping Forest SAC. This report identified that 75% of visitors travelled up to 6.2Km to the SAC.

Natural England therefore advises that in this interim period (that is until further evidence collected during Summer 2019 can be examined and taken into account. Aiming for January 2020), a zone of influence of 6.2Km is used to determine whether residential applications will have a recreational impact on Epping Forest SAC. We are aware that this is an interim solution and that we expect all parties will work together over the course of 2019, with regard evidence collection, to inform a full solution at a later date.

The Table below identifies the Local Planning Authorities which fall either partly or completely within the 6.2 Km Zone of Influence for recreational pressure impacts:

LPA	Within 0-3Km ZOI	Within 3-6.2 Km ZOI
Epping Forest District Council	✓	✓
London Borough of Redbridge	✓	✓
London Borough of Waltham Forest	✓	✓
London Borough of Enfield	✓	✓
London Borough of Newham	✓	✓
London Borough of Tower Hamlets	X	✓ (just clipped by zone)
London Borough of Hackney	X	✓
London Borough of Haringey	X	✓ (just clipped by zone)
London Borough of Barking and Dagenham	X	✓ (just clipped by zone)
Harlow	X	✓
Broxbourne	X	✓
Uttlesford	X	X
East Hertfordshire	X	X
Brentwood	X	✓ (just clipped by zone)

In the context of your duty as competent authority under the provisions of the Habitats Regulations[9], it is anticipated that new residential development within this ZOI constitutes a likely significant effect (LSE) on the

[9] Conservation of Habitats and Species Regulations 2017, as amended (commonly known as the 'Habitats Regulations'). Requirements are set out within Regulations 63 and 64 of the Habitats Regulations, where a series of steps and tests are

sensitive interest features of the SAC through increased recreational pressure, either when considered 'alone' or 'in combination'. Our proposition is that from April 1st 2019 (or earlier if able), those relevant Local Planning Authorities listed above will begin assessing applications against our advice, and securing avoidance and mitigation measures accordingly.

As you will be aware, the Epping Forest Mitigation Strategy is a large-scale strategic project which involves a number of authorities working together to mitigate these effects. Once finalised, the Mitigation Strategy will comprise a package of strategic mitigation measures to address such effects, which will be costed and funded through developer contributions. The final Mitigation Strategy will address:

- Recreational pressure impacts
- Air quality impacts (Mitigation measures still to be identified)

There is now an initial draft of costed Strategic Access Management Measures which has been prepared by the City of London Conservators of Epping Forest and endorsed by Epping Forest District Council in consultation with the wider HMA MoU Oversight Group[10] including Natural England. This package of measures can therefore be used in this interim period until the full Mitigation Strategy has been completed. It should therefore be noted that the tariffs may be subject to change once the final Mitigation Strategy has been completed and costed to address outstanding matters such as air pollution impacts.

Interim consultation arrangements

The following types of development which fall within the ZOIs should be considered as appropriate:

- New dwellings of 1+ units (excludes replacement dwellings and extensions)
- Houses in Multiple Occupancy (HMOs)
- Student Accommodation
- Residential care homes and residential institutions (excludes nursing homes)
- Residential caravan sites (excludes holiday caravans and campsites)
- Gypsies, travellers and travelling show people plots

We advise that this should include new applications as well as those with outline planning permission where this issue has not previously been assessed through the HRA process.

Interim approach to avoidance and mitigation measures

For larger scale residential developments (0 – 6.2km - 100 units plus)

It is up to each developer or Local Planning Authority to propose suitable strategic or bespoke mitigation packages. Natural England will work with each Local Planning Authority and developer thereafter on a case by case basis, to deliver a package of avoidance and mitigation measures. We expect that developers will deliver some or all of the potential methods below. The requirement will vary depending on a number of factors including; size of development; scale of development; proximity to the SAC; ease of access to the SAC; availability of other green space etc.

A financial contribution to strategic measures as set out in the costed Strategic Access Management Measures provided by the City of London Conservators of Epping Forest will be required for development in the 0-3Km

followed for plans or projects that could potentially affect a European site. The steps and tests set out within Regulations 63 and 64 are commonly referred to as the 'Habitats Regulations Assessment' process. The Government has produced core guidance for competent authorities and developers to assist with the Habitats Regulations Assessment process. This can be found on the Defra website. http://www.defra.gov.uk/habitats-review/implementation/process-guidance/guidance/sites/

[10] 'Memorandum of Understanding – Managing the impacts of growth within the West Essex/East Hertfordshire Housing Market Area on Epping Forest SAC February 2017'

ZoI. In addition SANGs are still the preferred mechanism for avoiding impacts and suitably designed sites will be looked upon favourably, however this is not the only mechanism we would consider. This acknowledges the spatial uniqueness of each of the affected Local Planning Authorities.

The list below is not an exhaustive or definitive list of measures but when providing SANGs we would like to see developers deliver;

- Well-designed open space/green infrastructure within the development. This can help minimise any predicted increase in recreational pressure to the European sites by containing the majority of recreation within and around the development site boundary. These sites will have to be of a certain size and quality to actively encourage visits away from the SAC. Natural England would be happy to advise developers and/or their consultants on the detail of this at the pre-application stage through our charged Discretionary Advice Service, further information on which is available here.

- There are a number of green spaces already in the vicinity of the Epping Forest SAC that could be improved to deliver an even better visitor experience. Working with those landowners it could be possible to deliver a SANG style experience on these areas, by upgrading them. Increasing their capacity to absorb more visitors. Where appropriate, larger developments could contribute to these green spaces in lieu of providing additional onsite green infrastructure.

- There is an opportunity for contributions to be taken to allow the purchase of green space to be owned and managed by the Corporation of London. To be de facto used as SAC Buffer land. If this land could then be enhanced as a honey pot site with café and toilet facilities, it could work as a positive to direct visitors away from the sensitive locations of the SAC.

- SAMM contributions will be sought within 0-3KM. However, SAMM contributions may also be sought for development within the 3-6.2km Zone of Influence as part of a bespoke solution, particularly in situations where housing densities will make the delivery of on-site SANGs difficult .

- Improvements to footpath network to improve accessibility and permeability to recreational walkers. Hopefully to encourage them to use local spaces that are walkable from home, instead of jumping in their cars and driving to the SAC. Again to be assessed on a case by case basis.

- Contributions to other green projects being delivered by other parties such as the Greater London Authority. Agreed on a case by case basis with Natural England.

In addition to this, opportunities exist when delivering SANGs to provide traditional green infrastructure projects, which are deliverable in an Urban Setting such as; Living Walls; Green Roof; Brown Roof; Street Trees. These are environment gains that are good for air quality, and are also regularly delivered within urban development in London

For small scale residential development (0 - 3km zone only – 99 dwellings or less)

- A financial contribution to strategic 'off site' measures as set out in the costed Strategic Access Management Measures provided by the City of London Conservators of Epping Forest

For small scale development over 3km away (less than 99 dwellings) – no mitigation is required

If your Local Planning Authority is over 6.2km away from Epping Forest SAC then no avoidance and mitigation is required. If you are "just clipped" as per Table 1 above, then please liaise with your local Natural England adviser.

Interim Funding Mechanism

Natural England are keen to see the delivery of the Strategic Access Management Measures. We are open for the individual Local Planning Authorities to use whatever funding mechanism they are comfortable with. As long as on a periodic basis, contributions are submitted in line with the quanta of development delivered. If Waltham Forest for example have delivered 100 dwellings within 3km, we would expect 100 times the SAMM contributions. We are not concerned how Waltham Forest or any Local Planning Authority secure that funding, as long as it is delivered ahead of occupation and in a secure manner.

For any queries relating to the specific advice in this letter only relating to Essex, please contact Jamie Melvin on [redacted] or at [redacted]

For any queries relating to the specific advice in this letter only relating to London, please contact Marc Turner on [redacted] or at [redacted]

Yours sincerely

[redacted]

Andrew Smith

Area Manager – Thames Team