

SAFE WELL PROSPEROUS CONNECTED

NORTH LINCOLNSHIRE LOCAL PLAN (2020-2038)

Briefing Paper: Position with Natural England

DECEMBER 2023

1. Introduction

- 1.1 Originally written as a Statement of Common Ground (SoCG) this document has been updated to inform Inspectors examining the North Lincolnshire Local Plan of the latest position on Natural England's objections to the Plan. It identifies any outstanding issues between Natural England (NE) and North Lincolnshire Council (NLC).
- 1.2 As well as the wider Statement of Common Ground (DLP22) for the North Lincolnshire Local Plan, NE agreed that a separate SoCG was needed.

2. Background and Outstanding Issues

- 2.1 NE have been consulted on the Local Plan throughout its preparation and, for the large part, their comments and suggestions have been incorporated in the drafting of policies, site allocations, and through the Sustainability Appraisal (SA) and Habitats Regulations Assessment (HRA), where impacts on the natural environment have been considered.
- 2.2 Development of the Plan has reached examination in public following two consultations at the regulation 19 'Publication' stage- a full Publication Plan in October 2021 and 'Publication Addendum' in May 2022, which focussed on a very limited number of proposed changes.
- 2.3 Natural England responded to both consultations raising issues of soundness framed around the following three issues:
 - Possible loss of functionally linked land - land outside of internationally designated nature conservation sites but used by bird species emanating from designated sites.
 - Possible additional recreational disturbance on internationally designated nature conservation sites generated by an increase in local residents.
 - Need for a traffic and air quality assessment (risk of nutrients, such as nitrates from vehicle exhausts getting to the Estuary).
- 2.4 NLCs Place Planning Team has entered into dialogue with NE to try and resolve these issues which has resulted in a number of exchanges of information. New requirements not raised in any formal consultation have since arisen. Discussions and collaboration are ongoing.
- 2.5 The outstanding three main issues are explored in further detail below, alongside the latest position.

3. Possible loss of functionally linked land

- 3.1 Functionally linked land is land outside of internationally designated nature conservation sites, which is used by bird species emanating from designated sites (e.g., for feeding or roosting). The loss of functionally linked land can be detrimental to the conditions needed for bird species to occupy designated sites.

Natural England position

- 3.2 At the Publication stage of the Local Plan NE were unclear from the information presented how allocations and policies have been screened in relation to the loss of functionally linked land and what evidence has been utilised in the assessment. A data search from the local Ecological Data Centre, consultation with Council Ecologist, and a desk based assessment should be carried out for allocations within screening distances of habitat sites. Further surveying and specific criteria regarding avoidance and mitigation measures in the allocation policies may be necessary.
- 3.3 At the Publication Addendum stage of the Local Plan, NE noted the updated assessment regarding the potential for a loss of functionally linked land for Humber Estuary SPA and Ramsar and Thorne and Hatfield Moors SPA birds in para 6.2 of the updated assessment. It welcomed the additional detail provided but consider there is insufficient evidence for how this approach has been utilised in

the screening and Appropriate Assessment stages of the assessment. It advised that the assessment should include a table of allocations and policies relevant to this matter with details about how each one has been assessed, in line with the criteria. It strongly advised that local records centre data and evidence held by local groups such as the Wildlife Trust, RSPB and Local Nature Partnerships, etc., are taken into consideration and, where uncertainties remain regarding whether a site is functionally linked or not, that bird surveys are undertaken.

3.4 A table of allocations and policies with details about how each one has been assessed in line with the criteria was subsequently provided, and NE gave this further consideration.

3.5 This gave rise to the following outstanding concerns regarding the approach and evidence provided:

- The additional details on tab one of the spreadsheet and in the email below do not address the specific points raised in section 2.2 of our letter dated 10 July 2022 (Our ref 394747) and we advise that these are considered. In particular we are concerned that the assessment appears to rule out the presence of birds on the basis of a single characteristic such as proximity to trees or urban area or enclosure. We advise that the assessment should consider whether the site is within an urban area rather than within 200m.
- NE is concerned that there are inconsistencies in the screening criteria used in the attached spreadsheet. We note for instance that while allocations such as SS7-3, SS9 and H11-38 utilise the SSSI Impact Risk Zones in order to determine at what distance from the designated sites impacts on functionally-linked land may occur, whereas allocations including H1C-7, H1C-8 and H1C-9 refer instead to the recreational disturbance distance from Fearnley et al 2012. Others also refer to recreation and hydrology rather than functionally-linked land for birds such as H1P-1, H1P-2 and H1P-3. While recreation and hydrology are relevant factors for the wider HRA, they are not directly relevant to functionally linked land in this context.
- We advise that our current approach to functionally-linked land for Humber SPA/SSSI/Ramsar birds for planning applications is to recommend passage/wintering bird surveys for sites with potential suitability for SPA/SSSI/Ramsar birds within 4km of the designated site to assess the use of the site as functionally linked land to the estuary. For sites between 4 and 10km away from the Humber Estuary designated sites, we generally recommend an initial data search, unless there are compelling ecological reasons to screen them out. If the data search identifies that the site or adjacent areas are used by bird features of the Humber Estuary designated sites, we recommend that passage/wintering bird surveys may be required. We advise that a similar consistent approach to screening sites is adopted in the assessment.
- NE welcomes the utilisation of data from the Humber Estuary High Tide Roost Review and South Humber Gateway Surveys however we advise that your authority also takes into consideration records from the local ecological data centre and local bird groups or other organisations that may hold relevant information. We would highlight that the Lincolnshire Environmental Record Centre (LERC) data searches are currently only returning records of SPA/SSSI/Ramsar species if they are also protected, priority or non-native. Therefore, care should be taken to ensure that all relevant SPA/SSSI/Ramsar records are included in the assessment, including main component species of the Humber Estuary SPA non-breeding waterbird assemblage feature, such as pink-footed goose and lapwing. Detailed advice on which species to consider when assessing the Humber Estuary SPA non-breeding, waterbird assemblage feature can be provided if required.
- NE notes that the Table 7-4 of the Appropriate Assessment relies on mitigation measures from policies SS2, SS7, H6, EC5, MIN6, DQE8 and WAS2 in order to conclude no adverse effects on integrity as a result of the loss of functionally-linked land. We consider that these policies are insufficiently specific for this purpose. It is not sufficient for the HRA to conclude no adverse effects on integrity based on such general policy requirements.
- NE notes that allocation H1P-13 includes a specific requirement in the plan for bird surveys. While we broadly welcome this we advise that there is a risk that, should significant numbers

of birds be found and mitigation prove impossible, the allocation and consequently the housing target may not be deliverable. In general the suggestion is that NLC's preferred approach is to carry out bird surveys at the project level. Carrying out bird surveys at the site level carries the risk that, should significant numbers of birds be found and mitigation prove impossible, the allocation and consequently the housing target may not be deliverable. If a project-level approach is taken, we advise that further detail is provided around survey requirements. Relevant policy wording in 3.9, should also provide further guidance on the meaning of "...a suitable level of data collection and or/bird surveying", alongside further detail around suitable mitigation measures. We therefore recommend that your authority considers requesting bird surveys at the strategic stage where this is appropriate.

- We advise that the potential for loss of functionally linked land and/or construction/operational impacts on birds on functionally-linked land, should be considered in assessing what, if any, potential impacts the proposal may have on European sites. We recommend that the surveys follow the Vantage Point Survey methodology and include the fields adjacent to the site.
- In order to determine where bird surveys may be necessary we recommend that you adopt a risk assessment based approach in the plan along the lines of the approach taken by North East Lincolnshire Council in Policy 13 of their Local Plan and supporting HRA and the approach East Riding of Yorkshire Council are developing for their Local Plan review.
- Finally we advise that the assessment of impacts on functionally-linked land for Thorne and Hatfield Moors SPA should focus more specifically on nightjar foraging habitat such as hedgerows, scrub, grassland, ditches and ponds. Furthermore, we would like to see a policy approach similar to Doncaster Local Plan Policy 30 for windfall development.

What NLC has done to address the issue

- 3.6 In line with NE's position above, the Council commissioned a review of the Functionally Linked Land assessment. Further comments were also added by NLC's ecologist and this was sent to NE on 9/8/23.
- 3.7 NE responded to this on 2/11/23 outlining some residual concerns in a further column to the assessment. The excel table assessment is included as appendix B. It includes a further column showing the thoughts from ourselves, our ecology consultant and NLC ecologist combined with any actions to address the NE 2/11/23 comments. There remains a number of draft site allocations where NE and NLC disagree on whether they are screened in or out of being Functionally Linked Land. NE consider the following sites should be screened in and NLC comments are included, which disagree with this:
- H1C-34 (PA/202/603) Barrow upon Humber- The site already has planning permission and is under development. Whilst it is connected to the field network between Ferry Rd East and Chestnut Rise, this network is not extensive. The site is adjacent to existing urban development and ribbon development has also been constructed north of Ferry Road East now. This site is significantly hemmed in by tall hedgerows and existing housing. No part of the site is more than 50 metres from hedgerows or housing. The chances of recording significant numbers of SPA birds here are negligible.
 - H1C-47 (PA/2018/1581) Goxhill- This site already has planning permission and is surrounded on three sides by built development and school playing fields. Just a 150 metre wide strip connects the site to the wider countryside. Applicant has discharged pre-commencement conditions and is about to start building. Site had significant areas of tall ruderal vegetation, unsuitable for lapwing, golden plover, curlew etc, as recorded in the ecological survey.
 - H1C-63 (PA/2015/1390) Winterton- Site already has planning, is bounded by the urban area on two sides and by dense publicly accessible woodland on a third. Pedestrian desire lines

show up as worn unmade paths crossing the site. Reserved matters approved PA/2019/1336. Site is being built out.

- H1C-70 (PA/2018/2525) Ulceby- Site already has planning permission, and sits adjacent to the main urban area. Site is outside the SSSI Impact Risk Zone for the Humber Estuary. No part of the site is more than 80 metres from housing and /or hedgerows.
- H1P-13 Barton- The bird records are irrelevant, in our view, as the search area clearly include large parts of the SPA itself. Site is bordered by housing to the west and housing and industrial development and roads to the north. A planning application has been submitted (ref PA/2023/1607) and passage and wintering bird surveys are underway on NE advice, though there appears to be very little likelihood of significant numbers of SPA species being recorded.

3.8 Whilst NE consider the following sites are screened in as FLL, this is considered to present low risk to site delivery for the reasons stated:

- (SS7-1, SS7-2) SSH1p, SSH2p Lincolnshire Lakes, Scunthorpe- Two significant series of applications from Lucant and Maltgrade were approved permitting development on significant parts of the site (application refs: PA/2013/1000, PA/2013/1001, PA/2013/1002, PA/2013/1003, PA/2015/0396, PA/2015/0627, PA/2015/0628). In terms of the Lucant applications, Natural England responded to these stating that development was unlikely to affect the SPA. SPA birds are not found on site in significant numbers and the habitat is not considered to be particularly suitable. The Lucant applications have now lapsed. Natural England reviewed information in the Maltgrade applications, including the wintering bird survey, and was satisfied that the proposal is not likely to have a significant effect on the Humber Estuary designated site. The proposal is not likely to support significant numbers of birds which are interest features of the SPA / Ramsar site. These applications have also since lapsed. Whilst the vast majority of the site has still to gain planning permission. Based on the previous responses from Natural England to the large applications above, it appears that conducting surveys at the project stage would be a low risk to site delivery.
- SS7-3 Lincolnshire Lakes- Existing Area Action Plan bird surveys were completed in 2010, so new ones will be needed. However it appears that conducting surveys at the project stage would be a low risk to site delivery as mitigation has been identified previously.
- SS9 North Killingholme Airfield- surveys required at the project stage as we are not aware of any existing. A local bird photographer, Graham Catley, has not seen any significant flocks of SPA birds there. Therefore it appears that conducting surveys at the project stage would be a low risk to site delivery.
- SS10 South Humber Bank- South Humber Bank Strategic Mitigation Strategy is in place and Halton Marsh has been delivered in advance as mitigation for the South Humber Bank development.
- H1P-6 (PA/2019/1782) Scunthorpe- Site remains screened in with surveys required at the project stage as we are not aware of any existing. Grass on-site is waist high and site is enclosed by woodland, trees and hedgerows on all sides. Therefore, it appears that conducting surveys at the project stage would be a low risk to site delivery. Site already has planning permission- ref PA/2019/1782. Site has very tall, rank vegetation, entirely unsuitable for SPA waterbirds. Site is outside the SSSI Impact Risk Zone for the Humber Estuary. No part of the site is more than 80 metres from housing and /or hedgerows.
- EC1-8 Barnetby Top- Appears to be a lack of information on this site. A survey will be needed at the project stage. Given ecologist comment they have never seen any SPA waterbird species here and wouldn't ask for a survey if a planning application came up. Very unlikely to be FLL; it appears that conducting surveys at the project stage would be a low risk to site delivery.
- EC1-9 M180 Junction 2- Appears to be a lack of information on this site. A survey will be needed at the project stage. Given ecologist comment they have never seen any SPA waterbird species here and wouldn't ask for a survey if a planning application came up. Very

unlikely to be FLL, Quite busy and enclosed by trees; it appears that conducting surveys at the project stage would be a low risk to site delivery.

- MIN6-15 Westwoodside- Site had planning permission in past for which no bird surveys were either requested or completed. A survey may be needed at the project stage.

3.9 NLC considers it has now just about done all it can reasonably do to investigate whether proposed site allocations are functionally linked, then discount or provide mitigation accordingly if relevant allocations were retained. The updated Functionally Linked Land assessment (Appendix B):

- provides more explanatory narrative on the process NLC has gone through, and to make sure any perceived inconsistencies in the assessment approach are explained.
- ensures all the screening criteria are listed and they are consistently being applied - even if a site has already been screened in by another criterion.
- includes assessment of impacts on functionally-linked land for Thorne and Hatfield Moors SPA focused more specifically on nightjar foraging habitat such as hedgerows, scrub, grassland, ditches and ponds.
- accesses reasonably available records from the local ecological data centre and local bird groups or other organisations that may hold relevant information, including Lincolnshire Environmental Record Centre (LERC), ensuring that all relevant SPA/SSSI/Ramsar records are included in the assessment. Bird data has been obtained from the LERC to assess bird usage of the sites, where possible. However, an LERC search will only give records of SPA assemblage species where they are also protected, priority or non-native species. So, for example: Lapwing, curlew- priority species, records will be returned; Avocet- Schedule 1 protected, records will be returned; Pink-footed goose- classed as non-native in LERC database, records will be returned; Golden plover- native, not protected or priority, no records will be returned.
- considers what site specific mitigation measures, or measures within other Local Plan Policies would be necessary to avoid relying on mitigation measures from policies SS2, SS7, H6, EC5, MIN6, DQE8 and WAS2 in order to conclude no adverse effects on integrity as a result of the loss of functionally-linked land.
- the assessment of impacts on functionally-linked land for Thorne and Hatfield Moors SPA has focussed more specifically on nightjar foraging habitat such as hedgerows, scrub, grassland, ditches and ponds.
- Assessment for allocations SS7-1 and SS7-2 have been clarified

3.10 As seen in Appendix B, several allocations could not be screened out as containing possible Functionally Linked Land. The Council recognises that more changes to the Plan are needed as a result of this. This could include the addition of bird surveying work as a requirement of the allocation, or in extreme circumstances, the deletion or modification of the extent of allocations. At this point in time, NLC proposes an additional criteria to the following site allocation policies, which are screened in as potential FLL for the Humber Estuary SPA/Ramsar: SS7-1, SS7-2, SS7-3, SS9, SS10, H1P-6, H1P-13, EC1-2, EC1-5, EC1-6, EC1-8, EC1-9, MIN6-15

3.11 The additional criterion would read:

This site has been identified as having high potential to support Humber Estuary SPA/Ramsar birds and proposals will need to be supported by an assessment for these species. This should incorporate a suitable level of data collection and/or bird surveying to determine the individual and cumulative importance of the site for Humber Estuary SPA/Ramsar species- A summary of Natural England's current advice is included as Appendix X. Where the assessment identifies the potential for adverse effects resulting from the off-site habitat loss and/or disturbance, appropriate and timely measures must be taken to mitigate such impacts. Such mitigation is likely to be in the form of alternative habitat managed specifically for the affected bird species and/or contributions towards the provision of strategic mitigation sites.

All such measures must be in place and operational prior to the relevant impact(s), and must be maintained for the duration of the impact(s).

- 3.12 The policy wording replicates that used by North East Lincolnshire Council as recommended by NE.
- 3.13 Allocation H1P-23 at Crowle could not be screened out as containing possible Functionally Linked Land to the Thorne and Hatfield Moors SPA. An additional criterion is therefore proposed for this allocation policy to read:

In order to ensure development does not negatively impact on nightjar populations, proposals will only be supported where they deliver a net gain in nightjar foraging habitat.

- 3.14 NE's request for extensive site specific bird surveys at the plan-making stage is more difficult. Undertaking bird surveys to support site allocations for all sites within 4km of the Humber, and possibly further than that, would be a massive undertaking. They could be more targeted to just those sites screened in through the functionally linked land assessment, but it would still involve collecting a large amount of field survey data over a relatively long period. Likewise, obtaining all the data from the local records centre and local bird groups would be a large task (and also unlikely to relate specifically to each allocation so would not give the fine level of detail required). It is considered that both the field survey and desk-based assessment would be much better undertaken at the project level. To assist with this, the Policy above has been amended to make reference to an additional Plan appendix, which sets out a summary of Natural England's current approach to advising on developments that may impact on functionally linked land associated with the Humber Estuary SPA / Ramsar. The additional appendix is set out below:

Appendix ?

Natural England's current approach to advising on developments that may impact on functionally linked land associated with the Humber Estuary SPA / Ramsar

For proposed development sites within 4km of the Humber Estuary SPA / Ramsar that have been identified as having potential suitability as functionally linked land, for example, through an assessment of bird records, habitat suitability, site size and/or connectivity to wider field networks, distance to Humber Estuary etc., Natural England generally advises that wintering/passage bird surveys are undertaken, in line with the below guidance.

For proposed development sites between 4km and 10km of the Humber Estuary SPA / Ramsar that have been identified as having potential suitability as functionally linked land, for example, through an assessment of habitat suitability, site size and/or connectivity to wider field networks, distance to Humber Estuary etc., Natural England generally advises that a detailed assessment of these factors, including a detailed review of available bird records, is provided in the first instance. We recommend including a visual representation and / or map showing the actual locations of each of the relevant bird records in relation to the development site and / or adjacent fields, where possible. This should also include the number of birds found in each record, and the corresponding month and year. We also advise that a smaller buffer distance, such as 0.5km, is used where possible to identify bird usage within a smaller radius of a proposed development site. Where this assessment identifies high/frequent use of the area by SPA / Ramsar species, we recommend that passage / wintering bird surveys are carried out, in line with the below guidance.

Passage and wintering bird surveys for wintering waders and wildfowl

We recommend that 'amended' vantage point (VP) surveys (principally following Nature Scot methodologies) are undertaken of the site and surrounding fields to provide an overview of bird usage. It would be useful to record birds in flight especially if the application may have the potential to affect bird flight lines. We would expect to see commentary of birds landing and taking off within and outwith the development site. The surveys should cover open arable

land within the proposed site boundary, as well as land adjacent to the development that could be affected and provides the potential to support designated site species. The survey results should also provide some understanding of how the birds use the site as well as presence/ absence. We recommend two wintering bird surveys per month between October to March inclusive.

As well as wintering waterbirds, the Humber Estuary provides safe feeding and roosting sites for species migrating between breeding sites in the arctic and subarctic, and wintering grounds in southern Europe and Africa. The Humber Estuary is therefore important for waterbirds on passage in spring and autumn as well as those species that stay all winter. Therefore, if there is potential for passage SPA bird species to be using the site, we recommend bird surveys during the autumn passage period (two surveys per month between August to October inclusive) and spring passage period (two surveys per month between March to mid-May) to determine the population status of passage birds.

The surveys should cover different tidal states and for sites which may potentially affect high tide roosts, observations should be conducted from two hours before high tide to two hours after high tide. Consideration should also be given to surveys in poor weather/ visibility conditions as large movements of birds can be observed at this time. If waders or waterfowl have the potential to use the development site, Natural England also recommends nocturnal surveys. Natural England recommends that several visits should be completed to determine if the site and/or surrounding areas play a regular role in supporting SPA species at night. [Guidance on nocturnal surveys can be found at Nocturnal bird surveys | Bird Survey Guidelines](#). The nocturnal survey design should take this guidance into account, and the approach should be justifiable in the assessment.

VP surveys may also need to take account of surveys at dusk and dawn, depending upon the bird species (i.e. geese and swans). If geese and swans have the potential to use the development site or surrounding area, we would expect to see surveys 1 hour before and 1 hour after, dusk and dawn during the respective bird survey season (i.e. winter, spring and autumn passage (as above)).

The Humber Estuary SPA qualifies under article 4.2 of the European Commission Bird Directive (79/409/EEC) in that it supports an internationally important assemblage of waterbirds. Please refer to Annex B for further guidance on the 'main component species' of the assemblage.

Natural England has generally advised that if $\geq 1\%$ of a Humber Estuary bird species population could be affected by a proposal, alone or in combination with other plans or projects, then further consideration is required. However, where species are particularly vulnerable due to declines in the Humber population, then it may not be appropriate to rely on the 1% of the estuary population as the critical threshold. Mitigation measures may be required where lower numbers of vulnerable species are using a site that is proposed for development.

- 3.15 In terms of NE's request for a policy approach similar to Doncaster Local Plan Policy 30 for windfall development, the following is suggested as a main modification to Policy DQE3 (ref MM62), which would insert the following new point:

In order to ensure development does not negatively impact on nightjar populations, proposals located within 3km of Thorne and Hatfield Moors Special Protection Area, that impact habitats that nightjars may use for feeding on, will only be supported where they deliver a net gain in nightjar foraging habitat.

- 3.16 In addition, criterion 2 of policy DQE3 already addresses other relevant windfall proposals in relation to this issue. It reads:

Proposals which may affect an SPA, SAC or Ramsar site or functionally linked land supporting these sites will be assessed according to their implications for the site's conservation objectives. Proposals not directly connected with, or necessary for, the management of the site and which are likely to have a significant effect on the site, either individually or in combination with other plans or projects, shall be subject to an Appropriate Assessment. Where it is not possible to demonstrate that development will not adversely affect the integrity of a European Site, the development will not be permitted unless it can be conclusively demonstrated that:

- a. there is no alternative solution; and,
- b. there are imperative reasons of overriding public interest for the development.

4. Possible additional recreational disturbance on internationally designated nature conservation sites

4.1 Recreational disturbance refers to people taking part in a recreational activity that causes: change in behaviour of wildlife (e.g., taking flight, alarm calls, cessation of feeding, leaving nest, etc.); damage to habitat (e.g., trampling of saltmarsh/sand dunes/seagrass, fly tipping, etc.); and, in serious cases, physical harm or death of wildlife.

Natural England position

4.2 NE does not consider that measures set out in policies DQE10, DQE11 and CSC3 are sufficiently specific in order to mitigate for the recreational pressure predicted. Policy DQE10 should be clear that open space which is important for reducing recreational disturbance on the Humber Estuary designated sites should be protected or compensated for in order to avoid adverse effects on Habitats Sites. Policies DQE11 and CSC3 should specify that development in proximity to the Humber Estuary designated sites will need to provide alternative facilities specifically for the purpose. For specific housing allocations identified as having likely significant effects with regards to recreational pressures in table 6-3 of the HRA, recommend that the policy wording should explicitly state that measures to avoid and mitigate for recreational disturbance must be incorporated.

4.3 There is particular concern regarding allocations H1P-12 and H1P-13 in Barton Upon Humber which lie in close proximity to Waters' Edge Country Park and Far Ings National Nature Reserve which are significant honey-pot sites. Recommend further consultation is undertaken with staff involved with these sites in order to identify existing pressures and that appropriate measures such as alternative green space provision in the area, improved signage and wardening on the designated site should be carefully considered.

4.4 NE notes that the assessment relies on Footprint Ecology studies which were carried out at an estuary scale and in 2012 and 2014 so are now getting quite out of date. It recommends that the Council considers the approach undertaken by East Riding of Yorkshire Council to update these studies with more bespoke evidence for the plan area specifically.

4.5 This will specifically assist in understanding the impacts of recreation (arising from new housing development and tourism) upon European sites within the Humber Estuary and be in line with the work East Riding of Yorkshire Council have used to underpin their evidence base and provide detailed and up to date visitor information (including the activities undertaken on site, reasons for site choice, and routes taken on site) on the parts of the Humber Estuary likely to be used for recreation by residents of North Lincolnshire.

4.6 The visitor data can identify where new housing might result in increased recreational use of the estuary and provide the necessary information to underpin the HRA of the North Lincolnshire Plan. Proposals that have the potential to increase recreational pressures on designated biodiversity assets should provide mitigation in the form of blue/green infrastructure provision. This could

include provision of additional green spaces to provide choice and deter an increased number of visitors from using designated assets for recreational purposes.

- 4.7 The potential impact of recreational pressure on international (habitats) sites should be considered in proximity to sensitive sites. Proposals for residential and/or tourism accommodation in key sensitive locations may consider zoning, recreational pressure zone of influence which could contribute towards strategic programmes aimed at managing the impact of tourism and residents on international (habitats) sites.
- 4.8 We have been unable to find any additional assessment regarding the impact of allocations on Thorne and Hatfield Moors SPA, Thorne Moor SAC and Hatfield Moor SAC and refer you to our response dated 26 November 2021 (our ref 371224) regarding this matter.

Council position

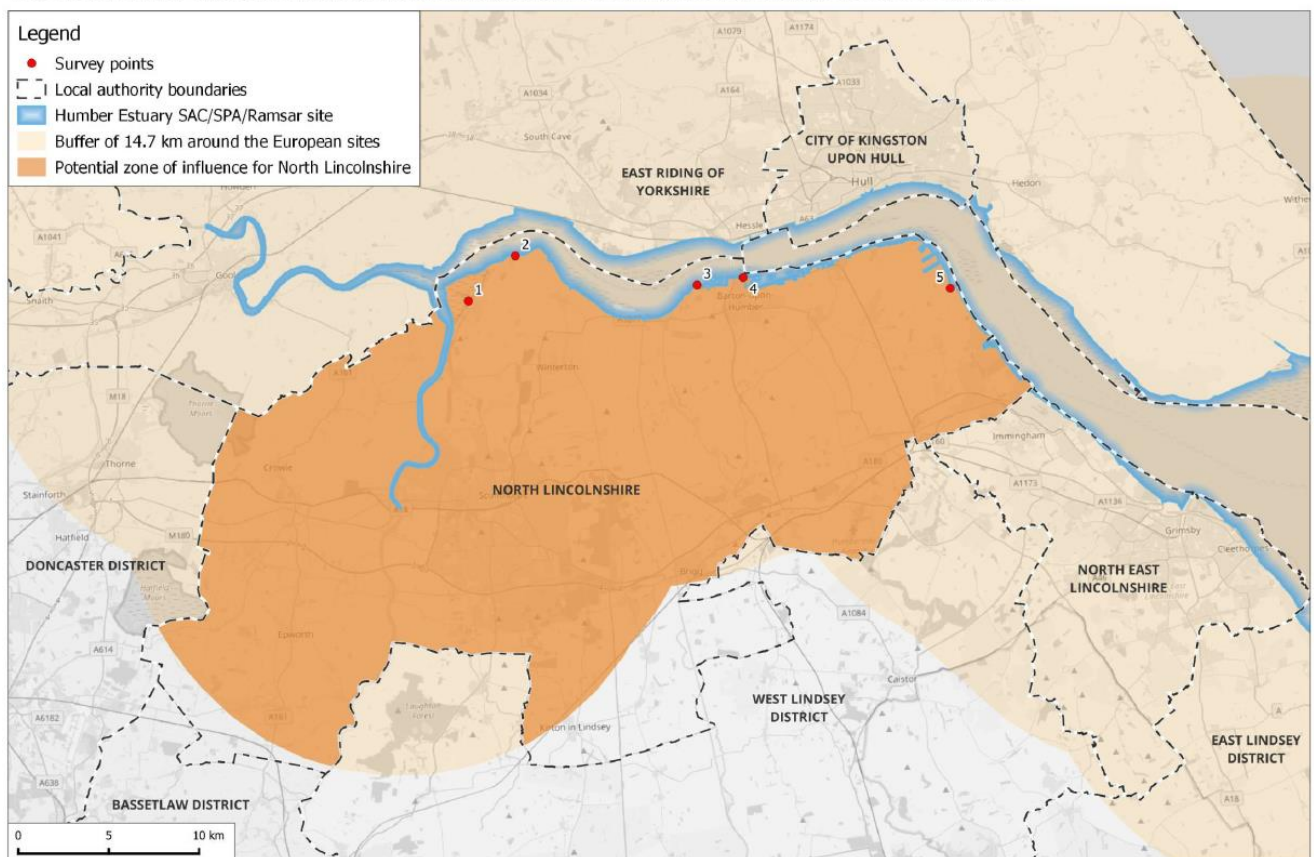
- 4.9 Policy DQE10 is clear in criterion 1f that ‘Important Open Space’ will be safeguarded, unless it is not necessary for reducing recreational disturbance impacts on the Humber Estuary, or any loss of such open space will be compensated for.
- 4.10 Policy DQE11 seeks to maintain and improve green infrastructure and is not necessarily the place for requiring development to address recreational impact, although improvements to green infrastructure can help achieve this. To that end, an amendment to Part 6 of the Policy is proposed to clarify as follows:
6. Contributions will be expected from new development towards the establishment, enhancement and ongoing management of green infrastructure by contributing to the development of the existing green infrastructure network in accordance with the Biodiversity SPD. Any contributions should be proportionate to the scale and nature of the proposal and its potential impacts, including whether there is a need for alternative natural greenspace to address any expected additional recreational access pressure on the Humber Estuary.
- 4.11 Policy CSC3 creates the principle of new housing development providing open space for sport and recreation. Whether this space could be needed as an alternative for estuary based recreational activities is addressed within relevant housing allocation policies as described below. In order to flag this potential requirement up within this policy, however, the following changes are proposed to the last part of the policy that states the need to plan for open space holistically:
13. A holistic approach to the design of new open space should be taken including considering the contribution to place making, the green network and protecting and enhancing nature conservation and the water environment. New provision should also aim to protect, enhance and manage integrated paths for active travel and/or recreation, including new and existing links to the wider countryside. This includes providing alternative natural greenspace to address any expected additional recreational pressure on the Humber Estuary.
- 4.12 The issue of highlighting developments in ‘proximity’ to the Estuary, which will need to provide alternative facilities for recreation as requested by Natural England for both Policies DQE11 and CSC3, is addressed for each relevant allocation and policy below.
- 4.13 Noting the Footprint Ecology recreational pressure studies currently relied upon are now around 10 years old, Footprint Ecology were commissioned to update their studies for North Lincolnshire. This was to create bespoke evidence for the plan area and up to date visitor information (including the activities undertaken on site, reasons for site choice, and routes taken on site). This information is now available in draft, following surveys carried out in February 2023. The surveys and analysis seek to update the distance away from the Estuary, or ‘potential zone of influence’, within which housing allocations would need to provide measures to avoid and mitigate for potential recreational

disturbance to the Humber Estuary. This uses a similar approach to that used in the East Riding of Yorkshire.

4.14 The Footprint Study for North Lincolnshire is attached as Appendix C. The study contains the results of a survey of visitors to five key locations along the Estuary over a period of two days.

4.15 Visitor home postcode data from the survey can be used to identify a ‘potential zone of influence’ within which it is assumed that new housing will have a likely significant effect on the European sites due to the impacts from recreation. It notes best practice for defining this zone begins by calculating the 75th percentile straight-line distance from home postcode to survey location for interviewees who were visiting from home and applying this as a buffer to the European sites (Liley, et al., 2021). This is shown in Map 8 within the Study and below, which shows a buffer of 14.7 km as applied to the SAC/SPA/Ramsar boundary. It does note there are clearly geographic barriers to consider, including the estuary itself.

Map 8: Buffer of 14.7 km around the European sites and a potential zone of influence for the locations that were surveyed.



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4.16 NLC queried with consultants the issue that formal public access doesn’t always exist to the SAC/SPA/Ramsar, and specifically in relation to the locations below. It was queried whether the ‘potential zone of influence’ could be removed or reduced as a result of this:

- between the Authority boundary near Adlingfleet southwards on the west bank of the River Trent to Keadby Bridge (A18). Whilst a public footpath exists on the bridge, this is narrow with little potential for users to interact with the water or habitat here in a raised position. Air quality as a result of vehicles is considered elsewhere and is not a ‘recreational pressure’ considered in this study.
- Between Keadby Bridge (A18) all the way back northwards on the east bank to Burton upon Stather. Whilst there is a public right of way just north of Gunness to the

riverbank, this is a cul-de-sac dirt track leading to a sewage works- so not attractive for recreational activities.

- There is reasonable access to the River Trent at Burton upon Stather and at Alkborough (one of the survey locations), but again, between the two public access is restricted to be away from the bank up on top of the cliff bank. It is only from here that we start to see regular accessibility adjacent to the Estuary designations.

A theoretical reduction in public access away from formal footpaths (theoretical, as access was often not possible due to soft mud and water), was accepted as mitigation for likely additional recreational pressure generated by the England Coastal Path. The same principle should, therefore, stand here in that lack of public access equals the reduction of or no recreational pressure.

4.17 In response, the consultants stated, 'We would recommend that defining a 'zone of influence' uses the 75th percentile distance from the visitor postcodes as a starting point but, as you have outlined above, there are also local factors to consider. Such considerations of greater relevance to the calculation of a potential zone of influence could (e.g.) comprise the absence of a major/any crossing point across the river/estuary or the presence of inaccessible land (e.g. an MOD training area, or something similar). The examples provided above may influence local access, but it is considered unlikely that the information provided can be interpreted as ruling out any scope for recreation access or impacts at those locales. Furthermore, the zone of influence presented in the report is based upon detailed data from the five survey points identified by the client, which themselves comprise a sampling approach that incorporates a range of access types/levels. The survey points are therefore considered representative of the site as a whole and, in the absence of data for other localities along the south Humber shore (including those identified above), the zone of influence presented is considered robust and in line with application of the precautionary principle.'

4.18 So whilst the consultants consider the zone of influence to be 'robust', we believe the points we raised mean the zone is really a 'worst case scenario', or the largest zone within which it is assumed that new housing will have a likely significant effect on the European sites due to the impacts from recreation. It has, therefore, been assumed that Local Plan housing allocations within the zone will need to consider mitigation to reduce potential recreational pressure on the Estuary that may result.

4.19 An additional criterion is proposed for each of the following housing allocations that fall within the 'potential zone of influence':

- Scunthorpe: H1P-1, H1P-2, H1P-3, H1P-4, H1P-5, H1P-6, H1P-7, H1P-8, H1P-9, H1P-10, H1P-11
- Barton: H1P-12, H1P-13
- Brigg: H1P-14, H1P-15, H1P-16, H1P-17, H1P-18
- Barnetby le Wold: H1P-19
- Barrow upon Humber: H1P-20
- Broughton: H1P-21
- Crowle: H1P-22, H1P-23, H1P-24
- Epworth: H1P-25
- Haxey: H1P-26
- Ealand: H1P-28
- East Halton: H1P-29
- Scawby: H1P-30
- South Killingholme: H1P-31
- Westwoodside: H1P-32
- Wroot: H1P-33

The additional criterion would read:

Demonstrate through the submission of appropriate levels of evidence that development will result in no adverse effects (alone or in combination) on the integrity of Habitats sites. Measures to avoid and mitigate for recreational disturbance must be incorporated as necessary, and/or contribute towards strategic programmes aimed at managing the impact of residents and tourists on the Humber international habitats sites

This criterion mirrors that inserted into relevant policies within the East Riding Local Plan Update. It should be noted that all of the 'committed' housing sites as listed in Policy H1 with 'H1C' references already have planning permission and, therefore, do not have site specific policies. All major issues associated with International Habitat Sites should have been addressed as part of the development management process.

- 4.20 In addition, as a catch-all for other relevant non-allocated development to consider recreational pressure impacts, the following modification to Policy DQE3 is proposed. A new criterion is to be added in between current criteria 2 and 3 to state the following:

The potential impact of recreational pressure on Humber international habitats sites should be considered by proposals for residential and/or tourism accommodation within the Humber recreational pressure potential zone of influence as shown on figure x. Where necessary, measures to avoid and mitigate for recreational disturbance must be incorporated as necessary, and/or contribution provided towards strategic programmes aimed at managing the impact of residents and tourists on the Humber international habitats sites.

- 4.21 The following supporting text is proposed in between paragraphs 9.35 and 9.36 to explain the proposed new Policy DQE3 criterion:

The Humber Estuary, particularly its mudflats, shingle, saltmarshes and surrounding functional agricultural land provide essential winter feeding and roosting grounds for birds that spend the winter here. The wide range of recreational activities that take place on the Estuary's shoreline can result in disturbance to the birds, albeit often unintentional. Human disturbance of the birds can have several impacts on their populations and habitats.

Prior to mitigation, the Habitats Regulations Assessment cannot rule out the recreational impacts of new residential and visitor accommodation along the Humber Estuary having a likely significant 'in combination' effect on the Humber Estuary SPA and Ramsar sites. Visitor surveys undertaken on the Humber Estuary identified that residential and tourism accommodation development within 14.7 kilometres of the Humber Estuary SPA and Ramsar sites could contribute to further recreational impact. Consequently, avoidance and mitigation measures are required for all proposals for these types of development to rule out adverse recreational impacts on the Humber Estuary international habitats sites.

A Strategic Access Management and Mitigation Strategy (SAMM) will be included as part of the Biodiversity Supplementary Planning Document and provide a mechanism to avoid and mitigate the lifetime recreational impacts of certain development on the Humber Estuary international habitats sites. Therefore, to ensure proposals comply with the Habitats Regulations, developers within 14.7km of the Humber Estuary can make a financial contribution to the SAMM. These contributions will be used to implement a range of measures which will mitigate the recreational impacts of new development on the designated sites and help protect and maintain their integrity. Contribution to the SAMM will enable applicants to secure the appropriate avoidance or mitigation measures and enable the Council to conclude, through appropriate assessment, that development results in no adverse effect on the integrity of the Humber Estuary SPA from recreational pressure.

Applicants are not precluded from assessing the potential impact of their proposals on the designated sites and devising their own appropriate mitigation measures. When considering these measures, the evidence presented will need to allow the Authority to rule out adverse

effects from the proposed development throughout its lifetime on the designated sites. Applicants will need to provide sufficiently detailed information about the potential impacts of proposed development on the designated features, species, and habitats of all the internationally protected sites and the effect of their proposed mitigation measures to demonstrate conclusively to the Authority that it will comply with the Habitats Regulations. This will need to take into consideration the conclusions of the HRA for the Local Plan and the proposal's potential impacts in combination with all other planned development within the North Lincolnshire and its surrounding areas. Under a precautionary principle, if the applicant does not demonstrate with certainty that the development, including any proposed mitigation, will not impact the integrity of the site, permission will be refused.

- 4.22 It is anticipated the Strategic Access Management and Mitigation Strategy (SAMMS) will largely replicate that produced for the East Riding Local Plan Update given this is addressing a similar issues and therefore contains mitigation measures and costings that are also relevant to North Lincolnshire.
- 4.23 Whilst NLC understands the need for recreation evidence for context, it considers there has been a complete lack of pragmatism on the part of the NE in light of its own work in developing the England Coast Path along the Humber. For example, there is a failure to acknowledge the obvious contradiction between the creation of the Coast Path, which encourages recreational use of the Estuary bank, then requiring 'mitigation' measures to reduce recreational pressures on the same areas through Local Plans. This does not treat Local Authorities in the same way NE treats itself in this respect. This is also true of the Habitats Regulations Assessment for the scheme, which only seeks to mitigate possible adverse recreational impacts through the fairly minimal measures of: 'appropriate signs and interpretation' and limiting the public's Countryside Rights of Way Act rights over coastal access margins. In the case of the Humber, the coastal access margins are very often inaccessible in any event due to their intertidal, boggy nature. These measures are far less significant physically and financially than the potential need to provide bespoke open space provision on development sites that are likely to have far less impact in terms of recreational disturbance than the coastal path, which aims to encourage greater use of the coast by the population as a whole.
- 4.24 It is acknowledged there is likely to be 'some' impact from new homes, but based on the survey results this is likely to be very small. Over the two day survey, the report finds that 786 people entered/left/passed by the five representative survey sites. Some of this will be double counted, for example the same people both entering and leaving the same or one of the other four sites. As a rough calculation, scaling this figure up to 365 days for the year results in a notional figure of 143,443 people or visits per year, which is almost certainly an overestimate. Dividing this between the current (2021 Census) population of North Lincolnshire of around 169,700 would indicate that for every single resident of North Lincolnshire, there are just 0.84 visits to the Estuary in North Lincolnshire per year. Even this is a vast overestimate as a considerable number of visitors will not come from North Lincolnshire. Taking the North Lincs average household size of 2.31 (2021 Census) would mean that each new house could result in 1.95 additional visits to the Estuary per year as an overestimate, or the 7,128 homes planned for to 2038 resulting in an additional 13,880 annual visits.
- 4.25 In addition, there are 2,189 homes planned that are classed as commitments as they already have planning permission. Any mitigation required should already have been considered through the development management process, which would leave 4,939 planned homes, theoretically resulting in a lower 9,631 additional annual visits across the whole of North Lincs.
- 4.26 This is a very small impact and in terms of securing mitigation for this, the legal requirements for imposing charges and prescribing the use of land (e.g., for suitable replacement open space) in terms of Section 106 and Planning Conditions (CIL is not viable in North Lincolnshire) need to be considered. In particular, whether securing mitigation would meet the necessity, direct relevance, and being fair and reasonable. We would query whether it is reasonable, proportionate and fair to require

mitigation from new development to address such a small scale of likely additional recreational pressure, and whether it would be legal to do so.

- 4.27 The potential impact of Local Plan Allocations on Thorne and Hatfield Moors SPA, Thorne Moor SAC and Hatfield Moor SAC was discussed at a meeting between NLC and NE on 28 July 2022. NLC explained that the public car park on Dole Road, at the Peatlands Way right of way near Crowle had deliberately been designed to guide recreational users down a pathway that is away from the most sensitive parts of the designated Thorne and Crowle Moors. In any event, it is very difficult to stray away from designated pathways due to the waterlogged nature of the land. This provision helps protect the designated sites here from additional recreational pressure.

5. Need for a traffic and air quality assessment

- 5.1 Fossil fuel powered road vehicles emit gases and particulate matter that can act as nutrients if deposited in the natural environment. Such emissions include oxides of nitrogen, ammonia, and oxides of sulphur. Additional nutrients can cause imbalances which can damage habitats.

Natural England position

- 5.2 NE requires a traffic and air quality assessment so that the impact of emissions generated by projected additional traffic as a result of the Local Plan can be assessed. It is not appropriate to screen the assessment of traffic and air quality to the project stage. It is not possible to rule out adverse effects on the integrity of designated sites without traffic modelling and, as appropriate, air quality assessment which demonstrates whether the growth proposed in the plan will lead to unacceptable air quality impacts on sensitive habitats. Where traffic data is available for neighbouring plans and programmes this should be considered in the in-combination assessment. Necessary mitigation and avoidance measures should be specified in the Plan where needed.
- 5.3 Development proposed is likely to generate additional nitrogen emissions as a result of increased traffic generation which can be damaging to the natural environment. The effects on local roads in the vicinity of proposed development on nearby designated nature conservation sites (including increased traffic, construction of new roads, and upgrading of existing roads), and the impacts on vulnerable sites from air quality effects on the wider road network in the area (a greater distance away from the development) can be assessed using traffic projections and the 200m distance criterion followed by local Air Quality modelling where required. NE consider that the designated sites at risk from local impacts are those within 200m of a road with increased traffic¹, which feature habitats that are vulnerable to nitrogen deposition/acidification.
- 5.4 Regarding effects on general air quality (regional or national), NE advise that in addition to assessing local air quality effects, consideration should also be given to national air quality impacts resulting from diffuse pollution over a greater area. The UK Government has international commitments to reduce national emissions of pollutants and consideration should be given to impacts that occur on a regional, national and international scale and which also contribute to background concentrations.
- 5.5 The Dutch Nitrogen cases² concluded that in circumstances where the conservation status is unfavourable "...the possibility of authorising activities which may subsequently affect the ecological situation of the sites concerned seems necessarily limited". In these cases, the argument may be raised that the total amount of acceptable nitrogen deposition has already been exceeded so no further loading should be permitted even where nitrogen deposition may be slowly declining. There may be some room for ecological judgement on what constitutes a significant effect in relation to a

¹ The ecological effects of diffuse air pollution (2004) English Nature Research Report 580 Design Manual for Roads and Bridges Volume 11, Section 3 Part 1 (2007), Highways Agency

² Dutch Nitrogen Judgement (Cooperatie Mobilisatie/ Dutch Nitrogen Case Joined Cases C-293/17 and C-294/17)

particular site or habitat as the critical loads/levels may be used as a guide, and professional judgement can be applied. However, this would only apply where sufficient data is available. NE considers that an exceedance of the relevant benchmark may be an indicator of potential, long term risk to the qualifying habitats from air pollution. An exceedance alone does not necessarily undermine the site's conservation objectives or mean that a site is deemed to be unfavourable. The Dutch Nitrogen cases also concluded that an appropriate assessment may not consider the existence of conservation measures, preventive measures, measures specifically adopted for a programme or autonomous' measures (i.e., measures not part of that programme), if the expected benefits of those measures are not certain at the time of that assessment.

- 5.6 Furthermore, ammonia can be emitted from vehicle exhaust emissions as a by-product of the catalytic conversion process designed to reduce emissions of nitrogen oxide. As traffic composition transitions toward more petrol and electric cars (i.e., fewer diesel cars on the road), catalytic converters may aid in reducing NOx emissions but result in increased ammonia emissions. Ammonia emissions from road traffic therefore could make a significant difference to nitrogen deposition close to roads. NE therefore advise that ammonia sourced from traffic emissions should be included for assessment within the local plan HRA, as the impact from this source on designated sites is currently unclear. For further information please see this report from Air Quality Consultants (AQC)³ that looks at ammonia emissions from roads for assessing impacts on nitrogen-sensitive habitats. Whilst we are aware that the current CREAM model created by AQC used to assess ammonia emissions from road traffic has not been peer reviewed, at this time it has been recognised as a Best Available Tool and we deem it appropriate to be used where any caveats associated with this model are also considered within the assessment. An assessment based on the best available approach is necessary. The next stage of assessment can then consider uncertainties in the model and site specifics to decide if mitigation needs to be considered.

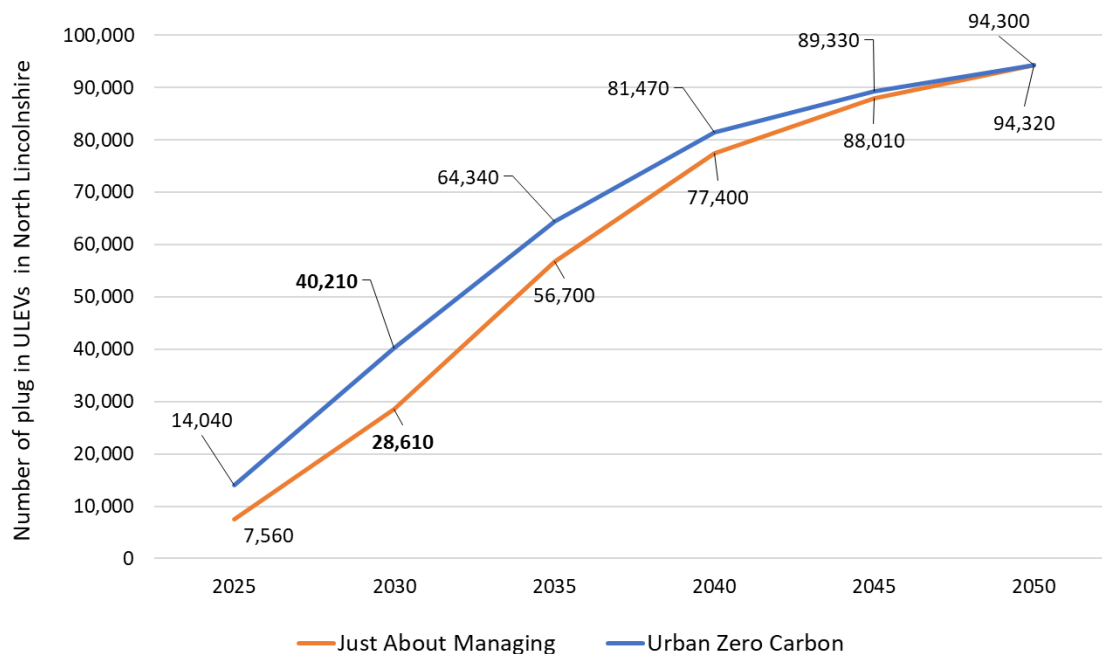
Council position

- 5.7 NLC acknowledges it has not completed comprehensive bespoke transport modelling in North Lincolnshire purely for the purpose of assessing traffic air pollution impacts on the designated sites. The threshold of significance for full assessment to be required is 1,000 AADT (annual average daily traffic) or 200 for HGV additional flows in combination with Neighbouring Authorities. Modelling would be needed to see whether these thresholds are likely to be breached on stretches of road within 200 metres of the SPA/SAC/Ramsar sites. The relevant stretches of highway in North Lincolnshire are: A15 Humber Bridge, A1077 South Ferriby, and A18 Keadby Bridge, as other roads within 200 metres of the estuary are very likely to experience such a significant growth in traffic.
- 5.8 It is very unclear as to why traffic and air quality assessment is necessary due to the characteristics of the Estuary being full of nutrients already from drained farmland and the relatively tiny contribution vehicle emissions could add to this. That is, emissions that would end up over the designated sites in the first instance due to the wind blowing in that direction, then some emissions depositing into the ground or water. Only a very tiny element of deposition is likely to occur in this way.
- 5.9 Irrespective of issues associated with the Local Plan, pollutants from traffic are reducing as sales of electric vehicles are increasing rapidly. This is illustrated in the figures below.
- Of the total number of registered cars in England, battery electric cars increased from 0.3% at the end of 2019 to 1.8% by quarter 3 of 2022. Over the same period there was an increase from 2.4% to 6.8% of all forms of electric vehicles (battery electric, hybrid, plug in hybrid). There was a corresponding reduction of registered pure petrol and diesel vehicles from 97.4% to 93.1%⁴

³ <https://www.aqconsultants.co.uk/news/february-2020/ammonia-emissions-from-roads-for-assessing-impacts>

⁴ [Vehicle licensing statistics data tables - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/vehicle-licensing-statistics-data-tables)

- Of the total number of new car registrations in England, battery electric cars increased from 1.7% in 2019, 6.8% in 2020, 12% in 2021 to 17.2% in 2022. From 2021 to 2022 there was an increase from 35% to 44% of all forms of electric cars (battery electric, hybrid, plug in hybrid). There was a corresponding reduction of pure petrol and diesel registrations from 65% to 56%⁵. Any form of petrol powered car registrations (pure petrol, hybrid, plug-in hybrid) which, due to the use of catalytic converters, have a significant role in methane emissions, reduced from 74% to 73% between 2021 and 2022 - the first year of reduction following a sustained increase.
- New internal combustion engine cars will be banned from sale in the UK from 2030 and hybrids from 2035. The Government has confirmed that new diesel lorries will also be banned in the UK by 2040 at the latest. Looking further afield to our neighbours in the EU, from 2035 all new cars that come on the market should be zero-emission and cannot emit any CO2 to ensure that by 2050, the transport sector can become carbon-neutral. As the largest single market in the world, the EU ban will also help speed up the transition to zero emission vehicles in the UK.
- The Government forecasts that by 2038 (the end of the Local Plan Period) 59% of car vehicle kilometres will be travelled using electricity⁶
- A forecast for the increase in Ultra Low Emission Vehicles in North Lincolnshire is shown in the graph below. Data provided by the Transport for the North Electric Vehicle Charging Infrastructure Framework. Led by Element Energy (2022)



5.10 There is a whole raft of National to Local strategies aiming to make sure that the switch to electric vehicles continues. This includes:

- Taking charge: the electric vehicle infrastructure strategy (2022)⁷, which aims for there to be 300,000 public charge points in the UK by 2030.
- The Ten-Point Plan for a Green Industrial Revolution⁸, Aim 4 of which is about accelerating the shift to zero emission vehicles.

⁵ [Vehicle licensing statistics data tables - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/vehicle-licensing-statistics-data-tables)

⁶ [TAG data book - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/tag-data-book)

⁷ [Taking charge: the electric vehicle infrastructure strategy \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/106422/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf)

⁸ [The Ten Point Plan for a Green Industrial Revolution \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/106422/the-ten-point-plan-for-a-green-industrial-revolution.pdf)

- Transitioning to zero emission cars and vans: 2035 delivery plan⁹ that aims to accelerate the roll out of charging infrastructure.
- Greater Lincolnshire ultra-low emission vehicle Strategy to deliver the right electric vehicle charging point solutions for the right location.
- Local Green Future strategy¹⁰ which aims for North Lincolnshire Council to be carbon net zero by 2030.

5.11 The raft of measures and strategies cited above are backed up by the trends identified in paragraph 5.9, which all add up to show that the expected benefits of these measures are indeed as certain as they ever can be at the time of assessment. Not only that, but most of the western world is pulling in the same direction in terms of reducing harmful emissions as a result of transport.

5.12 The East Riding of Yorkshire Local Plan Proposed Submission (2022)¹¹ (ERLP), carried out a traffic and air quality assessment informing the Plan's Habitats Regulations Assessment¹². This is summarised in Appendix A. It took the locations where traffic thresholds advised within NE Guidance¹³ were exceeded in the traffic modelling. An Air Quality Assessment then modelled transects for a distance of 200m from the point where the boundary of the Habitat site was first encountered. In all, these extend in specific locations, over approximately 42km of the Habitat site.

5.13 In terms of the overall summary of this. Central to the assessment of air pollution on the Humber Estuary is that contributions from road traffic generated by the ERLP are restricted to a handful of discrete locations throughout the upper and middle estuary. Therefore, any direct impacts will be geographically limited and given that all habitats potentially at risk are intertidal or subtidal, any inputs would be rapidly diluted, and dispersed up and downstream by fluvial flows and tides.

5.14 The locations at risk were narrowed down to just the A161 near Goole, the southern end of the A15 Humber Bridge and the A63 to the south of Hessle on the basis of the absence of vulnerable communities elsewhere.

5.15 Taking these vulnerable locations in turn, a substantial block of saltmarsh is present on the southern banks of the Ouse near the A161, a thin strip of saltmarsh extends to the west and east of the Humber Bridge and a thin strip of reedbed runs alongside the A63 on the northern bank. Although described variously as fen/marsh/swamp or littoral habitat on NE's designated site website, all have been assessed as saltmarsh which represents a more accurate description.

5.16 Research carried out for Countryside Council for Wales (CCW)74F75 sought to determine how critical loads for nitrogen deposition and critical levels for ammonia should be applied to intertidal habitats. It noted that saltmarsh habitats are typically nitrogen rich with considerable reserves held in the substrate and characterised by a high degree of nutrient cycling; in comparison, it suggested that the amount added by air would be limited in comparison.

5.17 Overall, it found that for measurable changes to occur, inputs greater than the higher value of the critical load range (20-30 kgNha-1yr-1) would be necessary; there was limited evidence to show that inputs within the critical load range would result in any major detrimental effect. However, it did suggest that the lower value of the range (i.e., 20 kgNha-1yr-1) should be applied to the upper marsh and the higher value in the range to all other components. Whilst this, in part, reflects that the higher marshes will be subjected to the least amount of tidal influence, all the saltmarsh communities potentially at risk on the Humber are inundated regularly, even those in the upper reaches of the estuary.

⁹ [Transitioning to zero emission cars and vans: 2035 delivery plan \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

¹⁰ [Our strategy - North Lincolnshire Council \(northlincs.gov.uk\)](https://northlincs.gov.uk)

¹¹ [Proposed Submission Local Plan Update \(eastriding.gov.uk\)](https://eastriding.gov.uk)

¹² <https://www.eastriding.gov.uk/EasySiteWeb/GatewayLink.aspx?allid=831844>

¹³ [Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations - NEA001](#)

- 5.18 Furthermore, given the exceedances of overall nitrogen deposition in the baseline year, it is appropriate to shift the conservation objective from 'maintain' to 'restore'.
- 5.19 Importantly, however, it is considered that the contributions from traffic will be dwarfed by nutrient enrichment of the river by agricultural run-off and drainage from its extensive, predominantly agricultural catchment and subsequent inundation of the saltmarshes; the SAC occupies over 36,000ha in area, extends around 70km in length and sits within a catchment of almost 25,000km² so draining around a fifth of England. Consequently, it carries a high sediment (and nutrient) load.
- 5.20 Whilst drawing attention to the CCW research (above) APIS states:
- 'Overall N deposition is likely to be of low importance for these systems as the inputs [from air] are probably significantly below the large nutrient loadings from river and tidal inputs.'*
- 5.21 Therefore, it is considered that river flows and regular inundation is likely to introduce more nitrogen into the system than air pollution ever could despite the presence of roads in proximity to the Habitat site. In comparison, therefore, the contribution by air pollution from traffic can be expected to be insignificant.
- 5.22 Reference to Natural England's condition assessments shows that many of the areas potentially at risk fail to meet their conservation objectives because of 'coastal squeeze' (where rising sea levels erode the seaward edge of intertidal communities and the presence of hard flood defences to the rear, prevent migration of the habitat landwards; in effect, the habitats are 'squeezed' and the net result is a steepening of the beach profile and a loss of lower saltmarsh (and other intertidal) communities. A typical outcome is for only the higher marsh communities to persist. It is this trend which has prompted the Environment Agency to create several managed realignment projects around the estuary in response to the need to maintain and enhance flood defences.
- 5.23 Coastal squeeze therefore represents the primary factor affecting the condition of the qualifying features at all the modelled locations; the impact of air pollution is, therefore, secondary, and unlikely to result in a measurable change beyond that driven by rising sea levels.
- 5.24 Fundamentally, however, it can be seen that the overall rate of nitrogen deposition declines over the ERLP period. Consequently, the ERLP will not prevent achievement of the objectives to maintain (or restore) air pollutant levels to below the relevant critical levels/loads although it will delay progress towards this target if by an unspecified degree.
- 5.25 Therefore, it is considered that adverse effects on the integrity of the Humber Estuary from air pollution can be avoided in-combination beyond reasonable scientific doubt.
- 5.26 In terms of an in-combination test, the ERLP as a whole should be considered with other plans or projects. This is necessarily informed by the appropriate assessment of individual policies/allocations regarding each of the potential impacts.
- 5.27 The assessment identified that likely significant effects could not be ruled out in combination with other plans or projects in terms of air pollution on the Humber Estuary. The way the evidence was collected took full account of development within the ERLP and elsewhere. Overall, it was clear from the assessment that adverse effects on the integrity of all the Habitat sites at risk have been avoided either with or without the need for mitigation beyond that already embedded in the ERLP. It could be concluded, beyond reasonable scientific doubt, that adverse effects on the integrity of any Habitat sites from any individual component of, or the overall Plan itself can be ruled out.
- 5.28 Therefore, it was considered that adverse effects on the integrity of Humber Estuary from the ERLP as a whole could be ruled out in combination with other plans or projects beyond reasonable scientific doubt.
- 5.29 In terms of the traffic and air quality assessment of the North Lincolnshire Local Plan, the East Riding assessment effectively carries this out for the A15 Humber Bridge, even so far as carrying out

assessment at the southern end of the Bridge and factoring in planned growth of neighbouring Authorities, including North Lincolnshire- [S-HR01-05 Habitats Regulations Assessment - Appendix D.pdf \(eastriding.org.uk\)](#). The assessment modelled transects for a distance of 200m from the point where the boundary of the habitat site was first encountered, including the southern end of the A15 Humber Bridge. The assessment makes reference to Natural England's condition assessments, which show that many of the areas potentially at risk fail to meet their conservation objectives because of 'coastal squeeze'. A typical outcome of this is for only the higher marsh communities to persist. Coastal squeeze therefore represents the primary factor affecting the condition of the qualifying features. The impact of air pollution is, therefore, secondary, and unlikely to result in a measurable change beyond that driven by rising sea levels. Fundamentally, however, it can be seen that the overall rate of nitrogen deposition declines over the East Riding Plan period to 2039. Consequently, the Plan will not prevent achievement of the objectives to maintain (or restore) air pollutant levels to below the relevant critical levels/loads although it will delay progress towards this target if by an unspecified degree. It is considered that adverse effects on the integrity of the Humber Estuary from air pollution can be avoided in-combination beyond reasonable scientific doubt. The way the evidence was collected for assessment took full account of development within the Plan and elsewhere. Overall, It was considered that adverse effects on the integrity of Humber Estuary from the Plan as a whole could be ruled out in combination with other plans or projects beyond reasonable scientific doubt.

5.30 Further validation of the use of East Riding's assessment can be gained by examining the future North Lincolnshire development assumed within the traffic and air quality modelling. The following tables show the differences between the housing and employment growth assumed in the assessment compared to what is proposed now through the New North Lincolnshire Local Plan:

Housing

Settlement	Provided July 2021 factored in ERYC Assessment	Submitted Local Plan		Difference (dwellings)
	Total dwellings	Committed - Proposed dwellings	Total dwellings	
Scunthorpe	3649	736 - 3031	3767	+118
Barton	358	39 - 544	583	+225
Brigg	1025	205 - 840	1045	+20
Barnetby le Wold	32	32 - 43	75	+43
Barrow upon Humber	124	124 - 54	178	+54
Broughton	16	16 - 84	100	+84
Belton	49	49 - 0	49	0
Crowle	17	17 - 152	169	+152
Epworth	12	12 - 45	57	+45
Goxhill	115	115 - 0	115	0
Hibaldstow	77	77 - 0	77	0
Haxey		0 - 75	75	+75

Kirton in Lindsey	525	223 - 302	525	0
Messingham	32	32 - 00	32	0
Winterton	290	290 - 0	290	0
Ulceby	131	131 - 0	131	0
Ealand	25	26 - 21	47	+22
East Holton		0 - 26	26	+26
Keadby	23	23 - 0	23	0
Scawby	6	6 - 24	30	+24
South Killingholme		0 - 21	21	+21
Westwoodside		0 - 26	26	+26
Wroot		0 - 13	13	+13
Wrawby	36	36 - 0	36	0
	6542	2189 5301	7490	+948

Employment Land

2016 Housing and Employment Land Allocations DPD		Submitted Local Plan	
Settlement/area	Land in ha	Land in ha	Difference (ha)
South Humber Bank	900	900	0
North Killingholme Airfield	138.21	138.21	0
Scunthorpe	50.58	103.83	+53.25
Kirmington	29.2	19.8	-9.4
Brigg	20.5	0	-20.5
Sandtoft	55.3	55.3	0
Barton	7.15	15	+7.85
New Holland	21.47	0	-21.47
Ealand	9.2	5	-4.2
Barnetby Top	0	10	+10
	1231.61	1,247.14	+15.53

5.31 The tables show that whilst there are 948 more homes proposed in the new Local Plan, 333 of these are proposed west of the river Trent well over 10 miles away from the Humber Bridge via road and more likely to travel to the north Humber bank via the A161 or M18 rather than via the bridge. Another 192 dwellings are located 10 miles away from the Bridge east of the River Trent in places such as Broughton and South Killingholme. This only leaves 423 additional dwellings located within 10 miles of the Bridge over the plan period to 2038- a relatively insignificant number when the barrier to using the Humber Bridge of £3 of bridge tolls per return journey is taken into consideration. In terms of employment land, the tables show that there is only 15.53ha more proposed employment land to 2038.

5.32 In terms of the A1077 South Ferriby and A18 Keadby Bridge, the other two stretches of road with potential air quality implications in North Lincolnshire. It is clear based on the East Riding assessment, that it is considered beyond reasonable scientific doubt that adverse effects on the integrity of Humber Estuary from the ERLP as a whole could be ruled out in combination with other plans or projects, including the North Lincolnshire Local Plan. The main elements that lead us to this conclusion are:

- As with the East Riding, of the two supporting habitats of concern of saltmarsh and sand dune communities, only the saltmarsh communities are relevant to the stretches of highway of interest in North Lincolnshire
- The East Riding Assessment already assesses the impact from A15 Humber Bridge as the busiest stretch of highway of concern in North Lincolnshire (around 50,000 annual average vehicles per day (AADT)). With an annual average daily flow of around 7,000 AADT, both the A1077 South Ferriby and A18 Keadby have less than 20% of the A15 Humber Bridge flows.
- As with the East Riding, contributions from road traffic generated by the Local Plan in North Lincolnshire are restricted to a handful of discrete locations throughout the upper and middle estuary. Therefore, any direct impacts will be geographically limited and given that all habitats potentially at risk are intertidal or subtidal, any inputs would be rapidly diluted, and dispersed up and downstream by fluvial flows and tides.
- It is considered that the contributions from traffic will be dwarfed by nutrient enrichment of the river by agricultural run-off and drainage from its extensive, predominantly agricultural catchment and subsequent inundation of the saltmarshes. The Humber already carries a high sediment (and nutrient) load. River flows and regular inundation is likely to introduce more nitrogen into the system than air pollution ever could despite the presence of roads in proximity to the Habitat site. In comparison, the contribution by air pollution from traffic can be expected to be insignificant.
- Many of the areas potentially at risk fail to meet their conservation objectives because of ‘coastal squeeze’. Coastal squeeze therefore represents the primary factor affecting the condition of the qualifying features of saltmarsh here. The impact of air pollution is, therefore, secondary, and unlikely to result in a measurable change beyond that driven by rising sea levels.
- Fundamentally, it can be seen that the overall rate of nitrogen deposition in the estuary declines over the period to 2039. Consequently, the Local Plan will not prevent achievement of the objectives to maintain (or restore) air pollutant levels to below the relevant critical levels/loads although it will delay progress towards this target if by an unspecified degree.

5.33 NLC has gathered some further information on the **A1077 at South Ferriby**. Annual average daily traffic flows for the A1077 at Sluice Road just west of its junction with Ermine Street (manual count point ref: 92231), have been obtained from DfT traffic statistics available here: [Map Road traffic statistics - Road traffic statistics \(dft.gov.uk\)](https://www.dft.gov.uk/road-traffic-statistics)

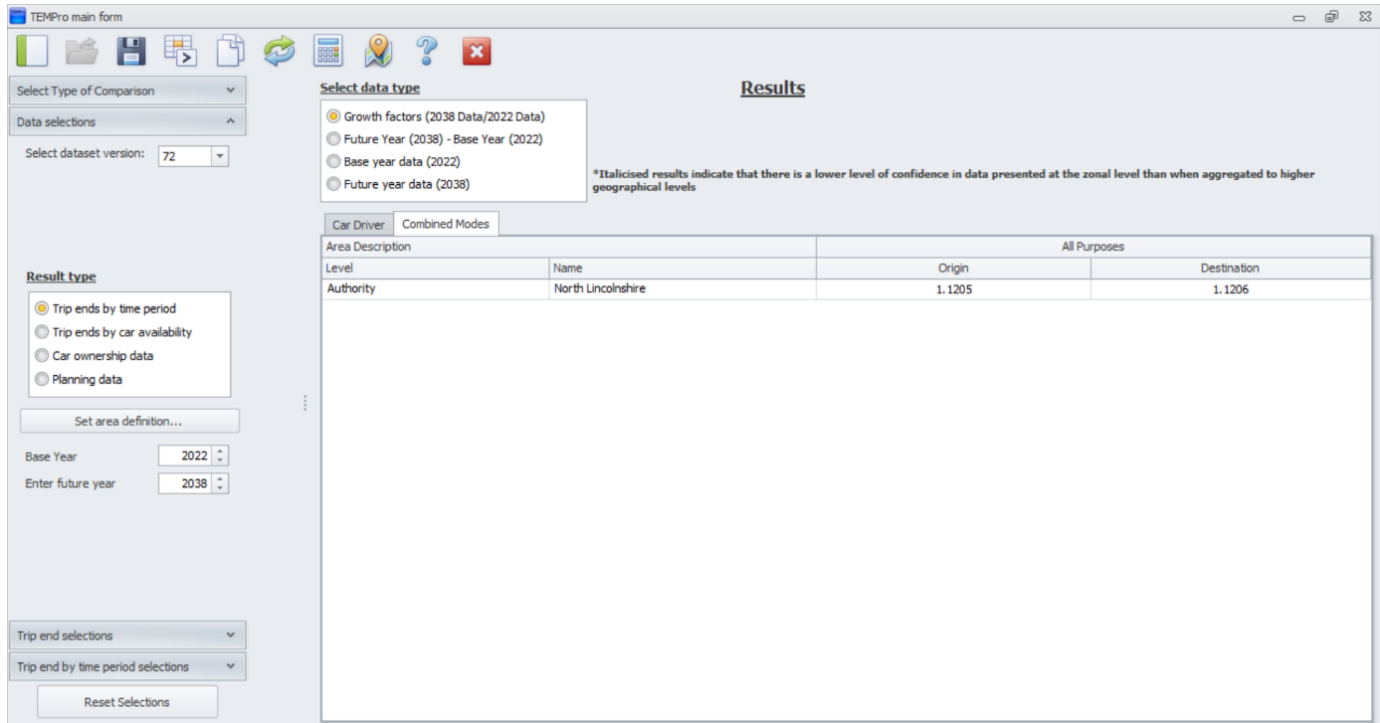
5.34 Manual count statistics show an annual average daily traffic (AADT) flow of 7,007 vehicles in 2022. This is backed up by 18 hour count figures adding up to 6,078 vehicles for the same year.

5.35 TEMPro is a program developed by the DfT providing traffic growth projections used in transport models and is intended to act as a nationwide standardised distribution of growth in trip ends. This allows consistency between different areas of the country when justifying transport proposals (DfT, 2009). TEMPro relies on datasets, the most recent being 6.2. This dataset and the latest version of TEMPro (8.1) (downloaded from Trip End Model Presentation Program (TEMPro) download - GOV.UK (www.gov.uk)) were used to generate a ‘growth factor’ to be utilised in projecting the change in AADT above between 2022 (year of the count) and 2038 (end year of Local plan). The following selections were made in TEMPro:

- Area Definition – North Lincolnshire area
- Transport Mode – Car Driver

- Time Period – Average Day
- Trip end type – Origin/Destination
- Select data type – Growth factors (2038 Data/2022 Data)

5.36 The resulting growth factors can be seen in the TEMPro screenshot below:



5.37 The 7,007 vehicle AADT in 2022 for the A1077 has therefore been growthed by multiplying it by 1.1206. This results in a projected 7,852 AADT by 2038- a rise of 845. This rise is significantly less than the AADT screening threshold as advocated by Highways England (now National Highways) in their Design Manual for Roads and Bridges (DMRB) and promoted by NE as a means of establishing whether a predicted change is likely to be significant. On this basis, a detailed assessment of the impact of emissions from road traffic should not be required.

5.38 In addition, it should be noted that TEMPro growth factors are known for consistent over-forecasting arising from a model assuming constant growth. Evidence suggests that this is not the trend observed recently in the UK. It is worth noting that between real counts here in 2016 and 2022, the real AADT actually reduced slightly from 7,270 to 7,007 respectively. So, whilst traffic levels have been growthed into the future. The reality of the recent past has been that traffic has actually reduced.

5.39 The **A18 at Keadby Bridge** was visited on the 9th October, 2023 – just after high tide. Some photos, as shown below, in addition to aerial photos available from google etc, show that:

- The mudflats here are narrow and steep- there isn't much mud exposed here, even at low tide. As the mudflats could be classed as saltmarsh- one of two supporting habitats of concern in this context, there really isn't a great deal of supporting habitat of concern in this location.
- The narrow strip of mud present is washed completely over by the tides regularly. I was stood under the bridge where rainwater cannot get to, and it was very wet and slimy due to estuary sediment deposits building up. The mudflats are therefore washed over with nutrients already present in the river daily.



- 5.40 Based on the above and our understanding from a previous meeting with NE (it was acknowledged that issues along the lines of the above were very valid points to make), we still do not consider that any traffic and air quality assessment is necessary at the A18 Keadby Bridge.
- 5.41 In addition to this, and similar to the A1077 at South Ferriby. An estimated traffic figure for the AADT on the A18 between Ealand and Althorpe has been obtained from the DfT traffic counts website. Using the same growth factor as utilised for the A1077, it can be estimated that there is projected to be a growth of 878 AADT between 2022 and 2039- so less than the 1,000 AADT threshold ($(7,284 * 1.1206) - 7284$). Whilst it is an estimated, rather than a real count that has been growthed, it is worth noting that between real counts here in 2008 and 2018, the real AADT actually reduced slightly from 8,280 to 8,122 respectively.
- 5.42 NLC's view is that the information highlighted above constitutes a vast body of evidence which strongly suggests that adverse effects on the integrity of Humber Estuary on account of air quality from the North Lincolnshire Local Plan can be ruled out in combination with other plans or projects beyond reasonable scientific doubt. There is therefore no need for the Council to commission a further traffic and air quality assessment to verify this conclusion.
- 5.43 Such an assessment would cost in the order of £60k alone for the traffic assessment without the air quality assessment. Paragraphs 31 and 35, alongside the 'Justified' soundness test within the NPPF are clear that relevant and up-to-date evidence underpinning the Local Plan should be adequate and proportionate. The Council's view is the scale and cost of an assessment envisaged by NE is completely disproportionate in light of the above.
- 5.44 In terms of the Coöperatie Mobilisation (Joined Cases C-293/17 and C-294/17), which are now being generally referred to as "the Dutch Case" for nitrogen deposition, which is referred to as the Dutch Nitrogen cases above. It is understood the cases focus on agricultural derived nitrogen deposition, and essentially questions whether it is appropriate to rely on strategic measures to alleviate air pollution that may create capacity for individual projects to be approved despite their individual contribution of additional pollutants.
- 5.45 The European Court Judgment focusses on the fact that where a European site is already deteriorating, projects that then worsen the situation should not be approved, unless there are clear and definitive measures underway to restore the situation and maintain favourable conservation status. The European Court was clear that measures should not be relied upon if they are uncertain, have not yet been carried out, are not certain to take place, or have poor scientific basis. The case therefore highlights the need to have certainty in any measures being relied upon to allow a conclusion of no adverse effects where they are expected but not yet completed. They need to be scientifically certain and secured (in terms of responsibility, finances, practical delivery etc.), rather than just forecasts.

- 5.46 With that said, the East Riding assessment referred to above, and to which we are not aware of any outstanding objections from Natural England, considered that adverse effects on the integrity of Humber Estuary, from the Local Plan as a whole could be ruled out in combination with other plans or projects beyond reasonable scientific doubt. In terms of air quality this was partially based on bespoke forecasting/long term trends showing that the overall rate of nitrogen deposition in the estuary declines over the period to 2039. Consequently, the Local Plan will not prevent achievement of the objectives to maintain (or restore) air pollutant levels to below the relevant critical levels/loads although it will delay progress towards this target if by an unspecified degree.
- 5.47 Overall, whilst undue reliance on long term trends can be unwise, these remain important and the delay in the improvement of NO_x concentrations of no more than one year remains compelling evidence; in addition, the reduction in NO_x over the Local Plan period is substantial. In this context, it is considered the impact of NO_x is not likely to compromise achievement of the objectives and adverse effects, alone or in-combination with other plans or projects can be ruled out. The fact that intertidal deposition processes and coastal squeeze have more of an impact on qualifying features that air quality issues could ever have provides further validation to how insignificant air quality is as an agent of harm to the habitat.
- 5.48 There is concern that a temporary increase in ammonia would result from a rise in hybrid vehicles and hence the use of catalytic converters. However, for the A15 Humber Bridge as well as other areas, the East Riding assessment showed an overall decrease in ammonia levels over time. Between 2021 and 2022 was the first year of reduction of all forms of petrol powered car registrations (pure petrol, hybrid, plug-in hybrid) in England from 74 to 73% following a sustained increase.
- 5.49 NE have commented they have no detail of any other designated sites, including Sites of Special Scientific Interest (SSSIs), that may be impacted by development coming forward from the North Lincolnshire Local Plan. These would be a Sustainability Appraisal, rather than a Habitats Regulation Assessment issue.
- 5.50 The only SSSIs in North Lincolnshire within 200 metres of roads likely to experience a 1,000 vehicle increase in traffic over the plan period are Hatfield Chase Ditches and Castlethorpe Tufas. Both run underneath the M180 motorway.
- 5.51 Hatfield Chase Ditches is designated as these ditches hold water throughout the year and have a range of water depths. The ditches contain a rich assemblage of aquatic and emergent plants, typical of nutrient rich systems. Air pollution may have some impact on the ditches. Realistically though, this is going to have a tiny contribution in comparison to the water quality issues created by agricultural run-off and management of adjacent farmland which causes nutrient enrichment. Looking at the most recent condition assessments, agricultural run-off is identified as the key pressure impact upon the sites condition
- 5.52 Castlethorpe is important for Quaternary studies and forms part of a geographical network of sites for reconstructing environmental history through mollusc biostratigraphy. The deposit of tufa is not susceptible to air pollution.

Appendix A: Summary of East Riding Local Plan HRA: Air Quality Assessment

- A.1 The East Riding of Yorkshire Local Plan Proposed Submission (2022)¹⁴, carried out a traffic and air quality assessment informing the Plans Habitats Regulations Assessment¹⁵. This took the locations where traffic thresholds advised within Natural England Guidance¹⁶ were exceeded in the traffic modelling. An Air Quality Assessment then modelled transects for a distance of 200m from the point where the boundary of the Habitat site was first encountered. In all, these extend in discrete locations, over approximately 42km of the Habitat site.
- A.2 The assessment outlines the Habitat site is classified for a range of breeding and non-breeding bird populations and a suite of intertidal and sub-tidal habitats. Given that the individual birds can be considered immune to air pollution, there is a focus on the intertidal supporting habitats. However, Natural England's supplementary advice identifies that only two saltmarsh communities ('Salicornia and other annuals ...', and 'Atlantic salt meadows ...') and four dune communities ('embryonic shifting dunes', 'white dunes', 'grey dunes' and 'dunes with Hippophae rhamnoides') are considered sufficiently vulnerable to air pollution to merit specific conservation objectives. It is stated:
- For saltmarsh communities:
'Maintain concentrations and deposition of air-pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on [APIS]'.
 - For sand dune communities:
'Restore concentrations and deposition of air-pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on [APIS]'.
- A.3 The relevant critical levels/loads for the saltmarsh communities taken from APIS are: 30 ug_m-3 for NO_x, and 20-30 kgN_{ha}-1yr-1 for saltmarsh. In terms of ammonia, a value is left to site-specific circumstances. Given the lack of bryophytes and lichens in these communities, the higher value of 3 ug_m-3 was selected. As no dune habitats are found in the locations potentially at risk from air pollution, the latter objective was disregarded. This is also the case for North Lincolnshire also where the three locations of interest are A15 Humber Bridge, A1077 South Ferriby and A18 Keadby Bridge.
- A.4 This is not the case with regards to a location modelled at the southern end of the Humber Bridge, however. This was judged to have the potential to affect intertidal saltmarsh communities which are considered vulnerable. The same can be said at A1077 South Ferriby and A18 Keadby Bridge.
- A.5 The assessment shows that existing background concentrations of **nitrogen oxides (NO_x)** along several transects within the Humber Estuary already exceeded the critical level of 30ug_m-3. The highest concentrations (and greatest exceedances of the critical level) were found adjacent to the A63 (south of Hessle) with some transects displaying 76.7 and 102 ug_m-3, for distances of up to 60m within the SAC. Similarly high exceedances of up to 60ug_m-3 were found in the baseline year at the southern end of the Humber Bridge; NO_x values remain above the threshold for up to 20m from the roadside.
- A.6 It was noted that whilst the East Riding Local Plan alone will add to these loads, national trends ensure there is an overall reduction in NO_x between 2019 and 2039 of approximately 50ug_m-3 adjacent to the A63 (south of Hessle) (the worst-case locations), with the effect that levels would fall below the threshold after a distance of 10m. All other transects currently showing exceedances in the baseline year including at the Humber Bridge, would fall below the threshold by 2029 with or without the **East Riding Local Plan (ERLP)**.
- A.7 Whilst the impact of the LPU would slow this rate of decline, the report calculates that this would be no more than one year over the East Riding Local Plan period. It is clear that despite modest

¹⁴ [Proposed Submission Local Plan Update \(eastriding.gov.uk\)](https://www.eastriding.gov.uk/Proposed-Submission-Local-Plan-Update)

¹⁵ <https://www.eastriding.gov.uk/EasySiteWeb/GatewayLink.aspx?allId=831844>

¹⁶ [Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations - NEA001](#)

contributions from the East Riding Local Plan alone it does not materially increase concentrations of NOx which gradually fall across the LP period with or without the Plan, alone or in-combination.

- A.8 In terms of **ammonia** levels the Assessment shows that in the baseline year, exceedances of the threshold are restricted to the kerbside of near the A161 (Goole), the Humber Bridge and south of Hessle.
- A.9 With the ERLP alone, the same overall pattern is repeated although small increases are apparent resulting in further encroachment, to 20m within the SAC on the A161 near Goole, the Humber Bridge and south of Hessle.
- A.10 When considered in combination, the same pattern is retained although again increases are apparent which exceed 1% of the critical level. However, at no point does exceedance extend beyond 30m into the SAC. The maximum values predicted are 4.29 and 4.74 $\mu\text{g}\cdot\text{m}^{-3}$ at the kerbside south of Hessle.
- A.11 Despite exceedances being limited in magnitude and geographical spread, it is clear that these exceed 1% of the threshold and potentially conflict with the conservation objective to reduce the level of air pollutants and adverse effects on the integrity of the SAC cannot be ruled out.
- A.12 The assessment shows that In contrast to the findings for NOx and ammonia, the total **nitrogen deposition** exceeds the 20 $\text{kgNha}^{-1}\cdot\text{yr}^{-1}$ threshold for saltmarsh at all points on all transects along the A161 near Goole, A15 Humber Bridge and A63. This applies to the baseline year and both with the ERLP alone and in-combination. This reflects the high background concentrations of ammonia which although mostly below the 3 $\mu\text{g}\cdot\text{m}^{-3}$ still make a significant contribution to the overall load. When considering all outcomes it should be noted that the Air Quality Assessment incorrectly utilises a critical load of 8 $\text{kgNha}^{-1}\cdot\text{yr}^{-1}$ rather than 20 $\text{kgNha}^{-1}\cdot\text{yr}^{-1}$ and subsequently identifies exceedances of this lower threshold. This is regarded as an error. Therefore, the outcomes have been revised to be driven by the higher critical level.
- A.13 It is clear that all points in all transects are lower in 2039 with the ERLP, alone or in-combination, than in the baseline year of 2019. Maximum values at the A15 Humber Bridge in 2019 are indicative of this trend as follows 30.29 / 27.10 / 27.36 $\text{kgNha}^{-1}\cdot\text{yr}^{-1}$.
- A.14 This positive change is largely driven by the predicted fall in NOx which it is considered compensates for the increase in ammonia over the same period. Whilst the majority of locations will still display rates of deposition above the critical load, all points on all transects show a marked decline from the baseline year approaching if not exceeding 1% of the critical load.
- A.15 It has been calculated that the impact of the ERLP alone will delay this improvement by 14 years in the area of the Humber Bridge and A63. However, is regarded as an error. Given that this will be heavily influenced by the use of the lower critical load for sand dunes, it is considered any delays will be much less than this.
- A.16 Therefore, it can be concluded that this outcome meets the conservation objective and accordingly, adverse effects from nitrogen deposition on the Humber Estuary can be ruled out.
- A.17 Confidence in the report findings can be derived from the **source attribution** model provided by APIS. This shows that the greatest contribution to air pollution (c46% combined) is delivered by agricultural activities and only 5% is attributed to road transport; an order of magnitude less. In turn, this suggests that any increase in road traffic emissions would make little difference to either the air pollution affecting the site or the conservation status of the qualifying features.
- A.18 In terms of the overall assessment, central to the assessment of air pollution on the Humber Estuary is that contributions from road traffic generated by the ERLP is restricted to a handful of discrete locations throughout the upper and middle estuary. Therefore, any direct impacts will be geographically limited and given that all habitats potentially at risk are intertidal or subtidal, any inputs would be rapidly diluted, and dispersed up and downstream by fluvial flows and tides.
- A.19 The locations at risk were narrowed down to just the A161 near Goole, the southern end of the A15 Humber Bridge and the A63 to the south of Hessle on the basis of the absence of vulnerable communities elsewhere.

- A.20 Taking these vulnerable locations in turn, a substantial block of saltmarsh is present on the southern banks of the Ouse near the A161, a thin strip of saltmarsh extends to the west and east of the Humber Bridge and a thin strip of reedbed runs alongside the A63 on the northern bank. Although described variously as fen/marsh/swamp or littoral habitat on Natural England's designated site website, all have been assessed as saltmarsh which represents a more accurate description.
- A.21 Research carried out for Countryside Council for Wales (CCW)74F75 sought to determine how critical loads for nitrogen deposition and critical levels for ammonia should be applied to intertidal habitats. It noted that saltmarsh habitats are typically nitrogen rich with considerable reserves held in the substrate and characterised by a high degree of nutrient cycling; in comparison, it suggested that the amount added by air would be limited in comparison.
- A.22 Overall, it found that for measurable changes to occur, inputs greater than the higher value of the critical load range (20-30 kgNha-1yr-1) would be necessary; there was limited evidence to show that inputs within the critical load range would result in any major detrimental effect. However, it did suggest that the lower value of the range (i.e. 20 kgNha-1yr-1) should be applied to the upper marsh and the higher revalue in the range to all other components. Whilst this, in part, reflects that the higher marshes will be subjected to the least amount of tidal influence, all the saltmarsh communities potentially at risk on the Humber are inundated regularly, even those in the upper reaches of the estuary.
- A.23 Furthermore, given the exceedances of overall nitrogen deposition in the baseline year, it is appropriate to shift the conservation objective from 'maintain' to 'restore'.
- A.24 Importantly, however, it is considered that the contributions from traffic will be dwarfed by nutrient enrichment of the river by agricultural run-off and drainage from its extensive, predominantly agricultural catchment and subsequent inundation of the saltmarshes; the SAC occupies over 36,000ha in area, extends around 70km in length and sits within a catchment of almost 25,000km² so draining around a fifth of England. Consequently, it carries a high sediment (and nutrient) load.
- A.25 Whilst drawing attention to the CCW research (above) APIS states:
'Overall N deposition is likely to be of low importance for these systems as the inputs [from air] are probably significantly below the large nutrient loadings from river and tidal inputs.'
- A.26 Therefore, it is considered that river flows and regular inundation is likely to introduce more nitrogen into the system than air pollution ever could despite the presence of roads in proximity to the Habitat site. In comparison, therefore, the contribution by air pollution from traffic can be expected to be insignificant.
- A.27 Reference to Natural England's condition assessments shows that many of the areas potentially at risk fail to meet their conservation objectives because of 'coastal squeeze' (where rising sea levels erode the seaward edge of intertidal communities and the presence of hard flood defences to the rear, prevent migration of the habitat landwards; in effect, the habitats are 'squeezed' and the net result is a steepening of the beach profile and a loss of lower saltmarsh (and other intertidal) communities. A typical outcome is for only the higher marsh communities to persist. It is this trend which has prompted the Environment Agency to create several managed realignment projects around the estuary in response to the need to maintain and enhance flood defences.
- A.28 Coastal squeeze therefore represents the primary factor affecting the condition of the qualifying features at all the modelled locations; the impact of air pollution is, therefore, secondary, and unlikely to result in a measurable change beyond that driven by rising sea levels.
- A.29 Fundamentally, however, it can be seen that the overall rate of nitrogen deposition declines over the ERLP period. Consequently, the ERLP will not prevent achievement of the objectives to maintain (or restore) air pollutant levels to below the relevant critical levels/loads although it will delay progress towards this target if by an unspecified degree.
- A.30 Therefore, it is considered that adverse effects on the integrity of the Humber Estuary from air pollution can be avoided in-combination beyond reasonable scientific doubt.

- A.31 In terms of an in-combination test, the ERLP as a whole that should be considered with other plans or projects. This is necessarily informed by the appropriate assessment of individual policies/allocations regarding each of the potential impacts.
- A.32 The assessment identified that likely significant effects could not be ruled out in combination with other plans or projects in terms of air pollution on the Humber Estuary. The way the evidence was collected took full account of development within the LPU and elsewhere. Overall, it was clear from the assessment that adverse effects on the integrity of all the Habitat sites at risk have been avoided either with or without the need for mitigation beyond that already embedded in the ERLP. It could be concluded, beyond reasonable scientific doubt, that adverse effects on the integrity of any Habitat sites from any individual component of, or the overall Plan itself can be ruled out.
- A.33 Therefore, it was considered that adverse effects on the integrity of Humber Estuary from the ERLP as a whole could be ruled out in combination with other plans or projects beyond reasonable scientific doubt.

Appendix B: Functionally Linked Land Assessment

See separate Excel table.

Appendix C: North Lincolnshire Humber Estuary Visitor Survey

See separate pdf document.